Christoph T. M. Krause

The Ericofon -
How a Cobra Conquered the World

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This book is dedicated to Markus Brandenstein

01. Introduction.

a. When the world still needed cables.

We, as people of the 21st century, are used to constantly carrying a small, pocket-sized all-round device with us that enables us to do more than just simple communication.

Since we use it to look at the clock, predict the weather and maintain contacts all over the world, it has become our constant companion, just like the wristwatch used to be.

That's why it's always close by, even at night, when it’s on many people's bedside tables.

And all of this is only possible because there are no cables tying us to certain places, like the analogue telephone used to do.

It was usually located at a place that was as central as possible in our dwellings and was the center of our small, from today's point of view, very much "Stone Age" world of communication.

In the beginning, a phone call cost around 10 Eurocents (20 Pfennigs), later we paid attention to timing with an hourglass right next to us, so that the costs weren't too onerous.

b. Plans for the future.

Even before the Second World War, some telephone developers were trying to create a telephone that was smaller than the usual devices so that, despite the cable tying you to a wall, you could make calls in a more flexible and comfortable manner.

Telephones should be smaller and more compact and, in line with the zeitgeist, also look impressive.

Hence, even before the Second World War, resourceful designers were on the lookout for examples and from these first impressions they developed a design classic that still catches our eyes and ears today.

The miniaturisation of the device or its aggregates is not even the main reason for this, even though this was sensational in itself, but rather the futuristic appearance, which suited the post-war period perfectly.

The “spacy"[1] design "reminiscent" of outer space and other fictional worlds was extremely popular.

At that time, there were books with many colourful illustrations that predicted the probable, expected

[1] Something that seems futuristic in relation to space. Think, for example, of the "Galyxo Dance" in the underwater casino in the German space series "Space Patrol - The Fantastic Adventures of the Orion Spaceship" from 1966 onwards, or of various Star Trek gadgets such as communicators, phaser pistols, beamers or appropriate spaceship clothing.

future (at that time one looked into the 1980s, at which point there would already have been Mars missions).

The housing of the Ericofon and its futuristic shape were one thing, but how did they manage to put everything that was technically necessary into such a snake-like structure?

All the necessary components needed to fit into a single housing:

- A "receiver", which had already become a second unit in all conventional telephones at the time, was to be integrated.

- A bell wouldn’t fit in it, which is why an external sounder was initially planned. This deficiency was later identified and an electrical, drum-like device was developed that supplemented the bell function.

- The housing was to be reduced to an absolute minimum, but where to put the number switch? The size was pretty much fixed, it was supposed to be round like its counterparts and needed 10 digits, so as to dial a telephone number. That is how the ingenious idea of accommodating it in the stand of the new telephone came about. Invisible from the outside, the number switch only appeared when the user picked up the device and then dialed their participant number.

- The problem with the fork function took care of itself. It was no longer necessary. A large round button in the middle of the number switch took over this function, almost automatically. If you lifted the device from the tabletop, a world of communication opened up, “the receiver” was, so to speak, picked up. You made a call and simply put the device back on the tabletop. No receiver had to be hung up, which, due to its generally horizontal position, would have unfavorably widened the telephone, no matter how slim it otherwise tried to be.

An ingenious concept for a telephone redesign came together, leading to a futuristic future through various considerations and plans.

Based on the content and concepts of these plans for a new type of modern and handy telephone, a link to today is formed almost automatically and logically.

- We no longer need a handset when we use our smartphones, the handset is the device itself or the device is the handset.

- We no longer need a fork, we touch, however, we operate without the previously necessary physical buttons, simply by touching a corresponding spot on our display.

- We don't need a bell or an “alarm clock”. Our sound comes from a chip and is generated electronically.

- Our speaker is so tiny it's hard to see, yet it delivers a massive sound that is sensational compared to its physical size.

- Mouthpieces, which still required limited space in the Ericofon, and earpieces, which had to be built into the tip of the Cobra (with no possibility of changing them), are still used today, but implemented in an electronic manner and therefore much smaller.

c. The end of the flagpole.

It really couldn't get any smaller than the Ericofon, the physical limit had been completely exhausted. The universe of analogue technology had already reached its upper limit in terms of size.

Our current development path towards reduction and miniaturisation of smartphones will also end at some point, in the very near future, when the limit of electronics will be reached.

The path to something "different" will be unusual as well as the goal. The aim this necessarily leads to would be:

d. A deviceless future.

At some point we will be without any device at all, a chip in our heads or, as with many other things today, "something" in cyberspace.

A virtual world that has everything ready for us, outsourced in virtual space, projected into the "air" and without a device as an intermediary?

Maybe it will just be a receiver underneath the skin that simply connects everything and enables online possibilities?

We are so close, we can almost smell it. It will only take a few more years. We all have an inkling and kind of already know where this is going.

How quickly were flat screens introduced after almost a century with cathode tubes?

How quickly were simple mobile phones developed for the purpose telephony, swiftly moving on to having your own smartphone, or should I say computer, in your own trouser pocket?

How long will this quantum leap last? 5, 10, 15 years? Science fiction movies show us how things could be.

As early as the 1960s, the series "Star Trek" had envisaged many things. There were floppy disks, which are now considered Stone Age gadgets [2].

So-called "communicators" were used. These were simple flip phones that, today, seem old-fashioned already.

Computer announcements are a great example: "*Computer, put together some documents on the subject of xy*." In these Sfi-Fi scenarios, this is simply spoken where one is standing, without using a device.

Although still using a device, this future technology exists already:

Women with "crass" first names are already talking to various modern persons in their home and putting on music or turning off lights.

Touch screens were already “normal” when operating control devices in SciFi feature film spaceships in the 1980s. At the time, this seemed unbelievable and strange.

Only a few years later, we were doing this ourselves almost every minute of our day by using our smartphones.

[2] A gadget describes a technological device.

We know all of this has its downsides, there are data protection requirements and many other issues and problems, but there is no stopping progress.

Turning back to our design classic, the Ericofon.

Even when taking modern progress into account, what is ultimately missing today is the first part of the word: "The design..."

e. Design, an oddity of the past?

Within the area of communication, design does not seem to feature anymore.

The “containers” in the smartphone world look almost all the same. They no longer represent anything of a distinctive character.

Smartphone fans may beg to differ, of course.

For them, a foldable smartphone is the ultimate kick and it's not about the design, it's about the functionality of the technology.

The urge for "design" in the sense of technology merges into a new type of overall structure of functionalities and possibilities.

The term "design" changes its inherent meaning, becoming obsolete in itself, as if it were an anticipation of its own superfluity.

Devices should no longer be necessary, which is why they are no longer the focus. This is due to the network, the functionality, and the possibilities themselves.

The device as such will “die”, long live what it is not, a digital or digitised world and everything that is not analogue or tangible.

f. Back to the future.

So it is the look, the design that makes the Ericofon visible and unique.

From today's perspective, the technology may be yesterday's, but this "outrageous" new fashion, this daring, forward-looking (analogue) miniaturisation is courageous and logical at the same time.

After all, miniaturisation is the order of the future, then as now.

Through the Ericofon we recognise that our world has changed in a fundamental and sometimes invisible way (as it always has, of course).

In many cases, without any form of empathy or gain in pleasure, our life has ultimately been simplified to the max, things that might weigh you down have been eliminated, and we have set off into a visibly cold, unapproachable, robotised Huxleyian "Brave New World".

It's alright for now, but we are missing something:

"True" beauty, real design and tangible haptics[3] are starting to disappear completely and losing their importance for human well-being.

Let us therefore enjoy the opportunity to empathise with the old, forgotten and no longer valued gadgets of this post-war epoch of awakening and reorientation by considering the Ericofon as one of the most outstanding examples and by perhaps using it again in the future.

[3] Something that we can touch.

02. Insights.

a. What is it all about?

The **Ericofon**, or as it is often unofficially and affectionately called, the **Cobra telephone**, comes in a variety of shapes, colours and formats.

A complete historical overview has already been sufficiently provided elsewhere. For this reason, the details of its history and complexity are not unnecessarily repeated in this book, to avoid reinventing the wheel over and over again.

We are focusing on a completely different aspect:

It is the author's opinion, that the extremely varied and sometimes confusing versatility of our telephone icon, the Ericofon, requires a **classification** of its history in relation to its design, its **technical structure** and background information on its societal development.

b. Questions.

We are therefore looking at questions, such as:

What did the phone offer its users, what **effect** did it have on them and why did it win them over as fans?

What made this snake-like design so **fascinating** and what was society like when it was used?

What **strengths** and **weaknesses** did it have?

c. Confusion of variety

Although there are countless design variants, both in terms of shapes, colours and technical and design compositions, which can differ slightly or even more significantly over time and depending on the place of use, the description of the same in this work does not aim to fulfill the requirement of completeness.

The many versions available might confuse the reader, potentially standing in the way of the purpose of this book, as it is "only" about an exemplary presentation of the device in its actual, proverbial core or in its origin.

The multiplicity and diversity of the Ericofon is something that arises or follows from the basic features of the design.

Example: I must describe a car in order to help the reader familiarise themselves with the concept.

The description of its technology, its structure and its possibilities would be sufficient to help interested parties understand.

Listing all variants on the market is not necessary to understand the technology. This should be done separately with different premises that may follow from it.

For this reason, some important **colour and design variants** of the Ericofon, namely from the "New Case" (NC) series, are presented (more on this later) to give those interested an idea of the various resulting possibilities.

Most likely, after this introduction, if the reader is interested in this book and would like to delve deeper, they would want to access further sources anyway.

For this reason, this information will be provided in a list of sources at the end.

In addition, looking into telephones of this time is a niche phenomenon anyway, as today's modern people prefer to deal with the technology of today and tomorrow and less or hardly at all with the technology of the past.

Readers of this book are so-called "cracks", "nerds", collectors, or retro enthusiasts. The others do not look back, but demand the future, forgetting that their technological present and expected future would not exist without this past world.

Therefore, this book is aimed at providing a rarely possible insight into the interior of the Cobra telephone, both literally and figuratively.

d. The design.

On the other hand, the reader will also be able or come to recognise that haptic design is a feature that we are increasingly missing today or, in extreme cases, cannot appreciate at all, since, compared to the reporting period, it appears to not feature in our modern sense of taste at all, or is not available as a design feature.

Today, design is understood to mean something significantly different:

Design projects, such as the Elfi in Hamburg (the new opera house on the Alster), or the new Munch Museum in Oslo, are examples of design architecture that goes far beyond the design capacities of the post-war years and is therefore much more different and diverse.

It is my understanding that within the area of telephones, such design luminaries no longer exist, so they cannot outgrow their predecessors.

Sure, there may be some great examples in this area that cause the few interested parties to respond with great enthusiasm, but there are few so-called technological "superfans", who act or, better, react within their own bubble.

Such behaviour only occurs when introducing new smartphones (e.g. from Apple), which are not hyped because of their optical design or appearance, but because of their technology.

The design classics of the post-war years have a cultural value that has an impact far beyond their time, and still affects us today, after more than 70 years. And what's more is they still work, often as well as on the first day of their "existence".

As a result, there is a new, unexpected focus on these classics, mostly, because they come from a distant past, an earlier century. Thanks to their optical peculiarity they once more demand attention and admiration from modern people, simply because they are "different".

e. Summary of the project:

- What does the Ericofon offer its users?
- What effect does it have on its users or interested parties? Why is it so admired?
- What role does the fascination with its snake shape play?
- In what social context can the Ericofon be placed?
- What about the different variations of the device?
- Which colour and shape variants are there, and do I have to know them all in order to understand the Ericofon?

- What is the significance of the design at this point?

03. The Cobra, a snake with character.

a. Mythology.

Since the beginnings of time, the snake has been a symbol for various things.

Ancient Egyptians used it as a symbol for divine or royal power, menacingly, and with a hissing mouth, spewing poison and fire and thus putting its subjects in their place.

One can therefore say that it has two sides, a bipolar identity.

On the one hand, it symbolises poison, which can be equally dangerous to humans and cattle, bringing death. On the other hand, through its extraordinary casting of the skin, it stands for renewal and new creations.

Simplified and reduced to its core symbolism, the snake embodies the good, the divine, but also evil, the devil.

Thus, she acts as a mediator between "above and below", i.e. heaven and earth, and features characteristics of immortality and great power, paving the way for rebirth and reincarnation.

As a well-known example in our time, the symbol of the snake can be found in the sign for pharmacies,

where it wraps around the pole of Aesculapius, the god of medicine, who, in Greek mythology, is a ruler but also a potential threat.

In ancient Greece she was called Ouroboros (tail-eating one), the symbol for the eternal circle of life.

The snake bites its own tail, forming an infinite circle, uniting beginning and end, but at the same time embodying the breach of this perfection in the truest sense of the word.

She forms a link, but also rules over this connection, symbolising both the beginning and the end at the same time.

Because of her supposed power over the interplay of forces, as well as their destruction or termination, she was assumed to be cunning and seductive, so, in the Christian faith, she became the symbol for everything evil, imperfect, seducible in man in the story of creation.

Finally, the snake's body shape also carries phallic symbolism of strength, masculinity, fertility and energy.

b. What does that have to do with our Ericofon?

It is not the first time that the power of symbolism is used in advertising or in the manufacturing industry.

Energy, male dominance, seductiveness, threat, but also divinity are welcome, archaic symbols to impress customers and buyers and to suggest to them that by purchasing such a device they are also acquiring these elements.

It is not known whether more telephones were sold for this reason, but it led to increased symbolic power in any case.

A telephone in the form of a snake was completely new and touched on the age-old, archaic emotions of its customers.

In fact, the form of a one-handed telephone as such is predetermined by its function, if one wants to implement the operational requirements sensibly.

If you want to reduce a classic telephone to its most essential parts, you automatically end up with

1. maintaining or creating a distance between listening and speaking functions. The human ear and mouth have a certain anatomical distance between them.

2. The earpiece and mouthpiece must be at a specific angle of approximately 70 degrees to each other to account for the arch that exists between the ear and mouth. A straight line would be too far away from either part of the body, i.e. either the ear or the mouth. You can already see this on a normal handset of

any "normal" telephone, the handset is always curved.

The shape of the Cobra phone follows logically from the requirements of the human anatomy and, in the first instance, had nothing to do with an advertising ploy.

c. Conclusion:

The Ericofon was therefore a stroke of luck, it considered the anatomy of the user and combined this requirement with advertising aspects.

Whether the mythology of the snake actually played a role cannot be proven, but it is very likely.

In the very least it was an ingenious concept that still has an impact around the world today, as, to this day, the Cobra has cult status.

04. "Swedish design as a life goal."

“Swedish design is first and foremost a commitment to simplicity and style, but also an homage to elegance and cosiness. The Swedes not only appreciate functionally simple furniture, light walls, and tasteful furnishings, they also pay particular attention to furnishing details […]

[The, added by the author] *concept, which can be described as Beauty for All (Skönhet för alla), had a major influence on the later development of Swedish and Scandinavian design.*”

Think of the Swedish furniture stores, where buyers can get everything they need for their house in a very idiosyncratic, design-oriented style.

“The idea is based on the fact that the aesthetics of living have a direct influence on the quality of life of each individual and thus also on society as a whole. If you follow this tradition and surround yourself with beautiful furnishings, [...] *you can bring beauty not only into your home but also into your life.“* [4]

Swedish design style has always centred around people-oriented feel-good aspects and affects all areas of life.

[4] Quoting internet sources. URL: https://design-hof.de/schwedisches-design-als-lebensstil/. Post title: Schwedisches Design als Lebensstil.” Published on 6th June 2021 by Maximilian. Date accessed: 25th October 2021.

The Ericofon is therefore part of a whole range of objects that, like the “Bauhaus” in Germany, focus both on their practical use and on the comfort of their users.

What makes this approach so special is that even a telephone, which has been somewhat neglected as an everyday object to this date, is now seen as part of this design offensive and strategy.

05. The history of the Ericofon

a. Preliminary considerations.

The history of the Ericofon is also a history of design as such and ultimately also a history of the country, where the Cobra originally came from: Sweden.

The Swedish way of life and design philosophy has long exuded a special kind of modernity and innovation. Ultimately, this concept continues to this day, how else would one justify the worldwide success of Swedish furniture stores, for example.

Households that do not include at least one piece of these furniture or other (living) accessories are hard to come by. We all grew up with it and appreciate the practicality and design of these furniture items.

The Ericofon telephone was the first to combine design and the telephone in a congenial way with modernity and innovation in this area.

Before, telephones tended to be black, or on rare occasions, ivory-coloured "blocks" that were stable and durable due to their weight (often they still work flawlessly today), but also symbolised the "heaviness" of the time, namely a visual claim to power and an almost suggested hierarchical dominance.

The Ericofon was completely different, light (only 400 grams), cheer- and playful, with many bright colours. It was also futuristic and modern because of its unusual reference to the animal world, even if it has not been proven that the design was actually based on a cobra.

As already described in Chapter 03: "*The cobra, a snake with character*", the psychological aspect of its effect was also a significant novelty in the field of telephony.

The symbol of a snake, which provokes, which may even seem threatening, but at the same time symbolises change (e.g. through the shedding of its skin), as well as seduction to try something new and, until then, "forbidden", went beyond what was psychologically logical and addressed the political aspects of the "new era".

Fascism and the war had brought dictatorship and total destruction. Now a new era of freedom, democracy and construction had come.

The Cobra anticipated and executed this change and promised, in the truest and at the same time most figurative sense, a colourful, light, playful and carefree future, which the user literally took into their hand every time they wanted to get in touch with others.

If design and advertising had not yet been invented at this point, the Cobra would have been the epitome of these ideas.

The customers were now involved. They could experience haptically what it meant to be tangibly and self-reliantly part of implementing or participating in the new era.

b. The Ericofon - facts.

1930	Basic idea of Siemens & Halske: "The Crouching Dog".
1941	Ericsson's "Erifon" was patented.
	Technicians and designers, including Hugo Blomberg and Ralph Lysell from Ericsson, developed the first prototypes. Further development was later made possible by designer Gösta Thames (who joined Ericsson in 1938) and the development of thermoplastics (easier processing for shape and colour).
1949	4-5 engineers led by Thames developed the "Erifon" further.
1950	"Erifon" became "Ericofon", due to trademark restrictions.
1953	Prototype presentation and handover to the Swedish telephone administration "Televerket". First phone with a name and no number.
1955	Start of serial production by LM

	Ericsson in Sweden.
1956	Introduced by the Swedish Mail in the colours blue and red, as well as mint, grey, ivory and beige. Also marketed in Europe and Australia. 80% went abroad.
1953-1956	23.357 phones sold.
1957	The American market is opened up through Ericsson's 60% stake in North Electric. 18 colours and the addition of letters on the dial.
1958	Tests with one-piece injection-moulded housings. The seam disappears.
1960	Small change to the housing: • Height from 232 mm (OC) to 213.5 mm (NC), • Angle of the snake head from 76 to 65 degrees, • Now 3 not 2 retaining brackets in the chassis, • Thickening of the earpiece cover.
1961	Start of production in the USA by North Electric. Only 8 colours left. Instead of a bell: Ericotone = electronic sound signal.
1964	1 million telephones sold.
1966	Sale of Ericsson shares to North Electric and withdrawal from the USA.

1972	MoMA inclusion[5] based on modern industrial designs in the 20th century
1974	Production stopped by North Electric, equipment and remaining inventory sold to CEAC, 2 new colours and metallic finishes.
1976	End of CEAC.
1978-1985	Introduction and distribution in the Netherlands.
1980	Introduction and distribution in the UK.
bis 1982	2.5-2.6 million pieces by Ericsson in Sweden, plus quantities held by other manufacturers.
1984	End of production.

[5] MoMA, New York, Department: Architecture and Design, item no. 2265.2001.1-2, quoted according to the MoMA website (Museum of Modern Art). USA, New York City.

06. The exterior of the Ericofon.

a. OC = Old case. 1956-1961.

The so-called "old case" (OC) has a height of 232 cm and a specific angle, viewed from an imaginary straight line, of 76 degrees.

Image 01

b. NC = New case. 1961-1984.

The so-called "new case" (NC) is 213.5 cm high and has a specific angle, viewed from an imaginary straight line, of 65 degrees or 70 degrees, with a different thickness (see below).

c. Earpiece cover (snake head).

The top end of the earphones are shaped roughly like a cobra's head.

The upper edge is slightly curved, while the lid continues in an oval manner downwards to a curved tip.

Circle diameter 18 mm	Circle diameter 13 mm	Circle diameter 13 mm and second outer ring 25 mm

Image. 02

In the middle, there are 5 listening holes in a circular arrangement, which are available in three variants.

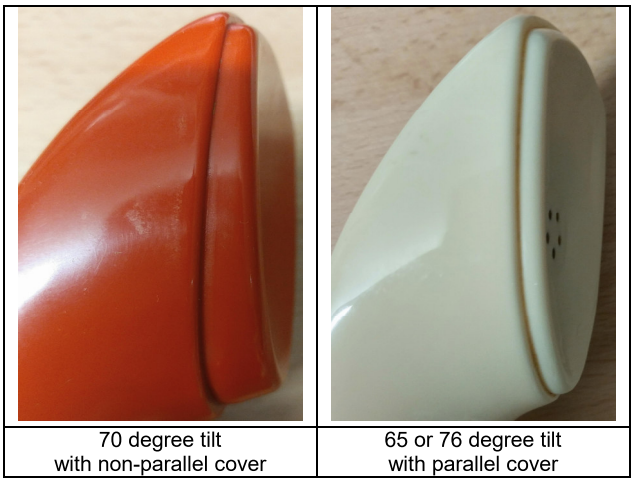
It is not known which variant was used when, where and why. The boreholes were probably varied on an experimental basis without there having been any particular concept.

In the first red variant shown here, the diameter of the circle, in which the 5 holes are located, is 18mm, in the second, green one, 13mm and in the third, grey one, 13mm, plus an outer suggested ring of 25mm. The ring is barely visible, but it is there.

There is also another variation on the new case:

In this example, the tilt of the upper snake head is 70 degrees and the thickness of the lid changes from the top area downwards. It becomes thicker towards the bottom and does not run parallel as is the case with all other lids.

The thickening in Image 1 was most likely introduced in order to facilitate a more ergonomic approach in terms of bringing the device to the ear and, as a result, using it on the ear. However, there is no evidence for this.



70 degree tilt with non-parallel cover	65 or 76 degree tilt with parallel cover

Image 03

The hole arrangement of the mouthpiece cover in the housing is the same for all models.

d. The recessed handle.

The recessed handle in the lower area of the phone has an area below the recess that tapers towards the base.

This area has two different widths, one is 29mm, the other 34mm, but there is no indication of what specific reason this was for.

Both variants can be found in combination with both housing types, OC and NC.

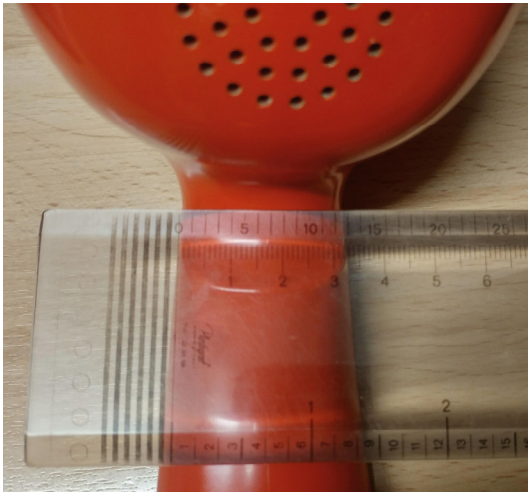


Image 04

e. 01. The colours of the Ericofon (NC).

Image 05

Since we are focusing on the newer housing (NC), the colours of this variant are presented here.

Therefore, we have the following colours:

Aqua Mist, Candle Glow, Crystal Mint, Mandarin Red, Petal Pink, Sahara, Sandalwood, Taj Mahal

e. 02. Examples, author's inventory (NC).

All photo examples shown here are Ericofons from the NC series with equally thick finger recesses and identical earpiece covers (non-parallel sides).

Each colour is depicted from four angles:

From the front,
from the side, slightly left,

from behind,
the chassis/ the base,

The following colours are being shown:

01. Mandarin red (red)
02. Wedgwood (blue)
03. Persian grey (grey)
04. Crystal mint (light green)
05. Taj Mahal (white)
06. PTT brown (dark brown)
07. Golden glow (yellow)
08. Ivory (ivory)

The images can be found under 11e.

f. For information, all other colours.

f. 01. Six colours OC.

Wedgwood (**blue**), mandarin red (**red**), crystal mint (**green**), Persian grey (**light grey**), ivory (**ivory**) and charcoal (**dark grey**, only for Volvo)

f. 02. Eighteen colours OC (North Electric, USA).

Taj Mahal (**white**), sandalwood (**light brown**), Sahara (**sand**), Royal Dubonnet (**burgundy**), Riviera (**light pink**), Princess pink (**light pink**), Nordic blue (**light blue**), Golden glow (**yellow**), dusty rose (**dark pink**), chartreuse (**green/ yellow**), aqua mist (**blue/green**), accent green (**dark green**), charcoal (**dark grey**), wedgwood (**blue**), mandarin red (**red**),

Persian grey (**light grey**), cristal mint (**green**), candle glow (darker beige).

Special colours: **chrome**, **gold** and **Aztec** (similar to antique gold).

f. 03. Twelve colours worldwide (LM Ericsson).

f. 03. a. of which five colours NC, generally and everywhere (without 03.b.-d.)

Ivory (**ivory**), blue (**previously wedgwood = blue**), white, green, petal pink (previously princess pink = light pink).

f. 03. b. of which for example colours NC, PTT, Netherlands.

PTT red (**dark red**), PTT brown (**dark brown**).

f. 03. c. of which for example colours NC, Australia.

Mandarin red, here: carnival red (**red**) und sandalwood, here: mushroom (**light brown**)

f. 03. d. of which for example colours, UK.

GB Post Office, orange, (**orange)**.

f. 04. Other colours worldwide (North Electric / CEAC).

Brown (**dark brown**), harvest gold (**mustard**)

07. The Inside of the Ericofon.

a. The chassis.

In the case of the Ericofon, the chassis is more than just a substructure.

It is the "central unit" or the "brain" of the entire device and, together with the dial set at the bottom, forms the base of the Cobra telephone. Due to the special one-hand device conception, all technological components are fitted in the smallest of spaces.

In conventional analogue telephones, there is a "board" with the corresponding units, the dial set with finger-hole dials and number disk are mounted separately, above the board, using a frame.

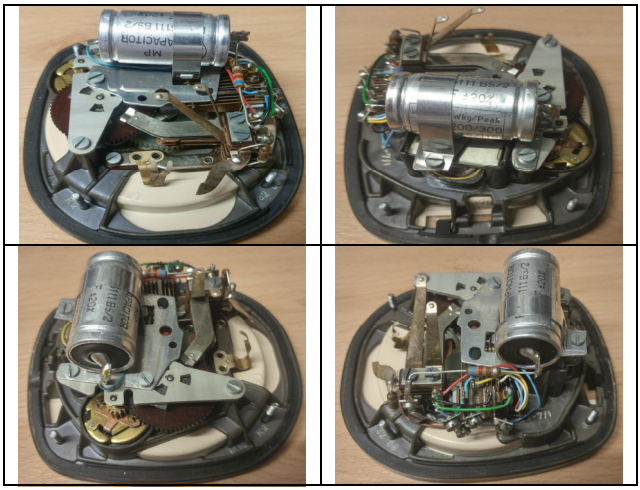


Image 06

With the Cobra, everything sits on a basic chassis above the dial set, which in our case points the other way around, downwards, and the on/ off button or a special form of the usual "fork" (here in the form of a button) is placed in the centre.

The condenser sits on the top part of the Cobra chassis.

A rubber seal (initially made of neoprene) surrounds the chassis to bond the body and chassis whilst protecting the dial set's plexiglass cover from breaking off, particularly at the edge.

This disc is very delicate and tends to tear near the four screws that are driven through it into the chassis housing.

Image 07

These screws are attached to clamps, which are, in turn, attached to housing lugs inside the housing of the device.

b. The terminals in the housing.

The terminals look different for OC and NC or are at least designed in a different way.

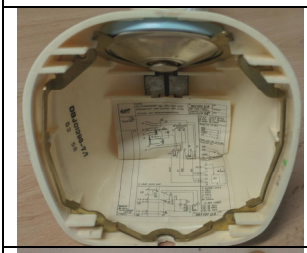
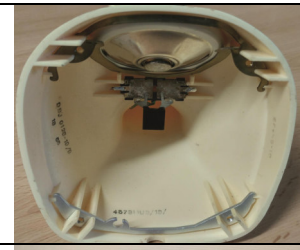
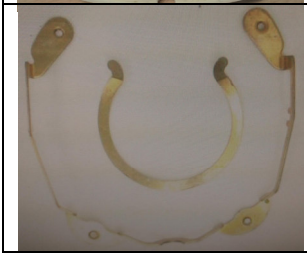
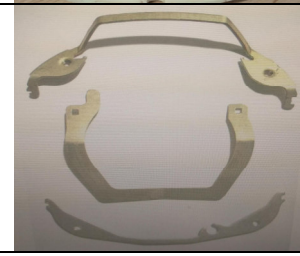
OC	NC
	
	

Image 08

If you want to detach the chassis from the case, you must unscrew the 4 screws and then screw them back in.

Careful when doing it! Tighten the screws very carefully, leaving a little "air" towards the end when screwing them in, because if you screw them in too tightly, the plexiglass pane will burst and take irreparable damage.

c. Replacement of defective dials.

However, if such damage has occurred, you must replace the entire dial disc (image 14) on your defective device from any replacements you may have purchased.

With a little skill you can slide the somewhat hidden latch in the base to release the red button (the "fork") (image 09).

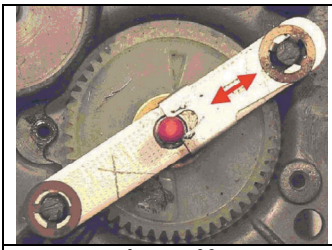


Image 09

Image 10

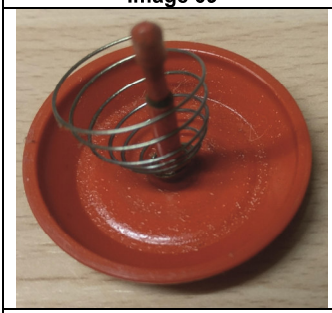


Image 11

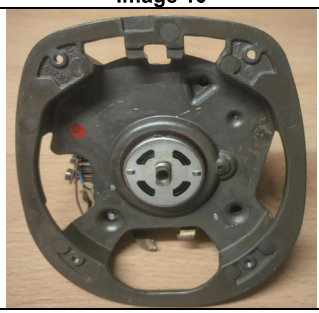


Image 12

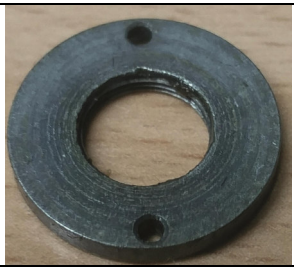


Image 13

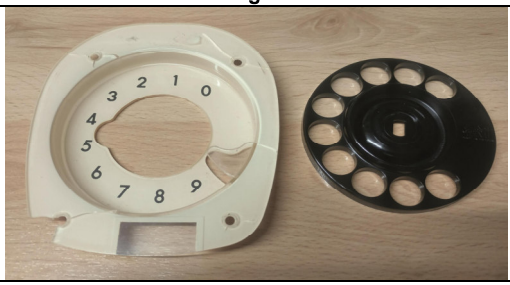


Image 14

The red button (image 10 and 11) then falls out. As you can see, a spring causes it to snap back after being pressed.

A nut can now be seen in the middle of the finger hole disc (image 12 or 13).

This may be twisted to the left using two nails, which you can insert into both holes with the help of pliers.

Then the dial disk and the black finger hole disk may be removed (image 14).

Now the new number disc can be replaced, and everything is reinstalled in reverse.

d. Inside the snake head.

In the snake head, i.e. at the top of the housing, is the earpiece or the speech capsule, which is attached to the head cover with a clamp.

Since the cover is firmly glued to the housing, it is not possible to change the capsule.

If you try to remove the cover, you will almost certainly damage either the cover or the housing, so better leave it!

It is better to wait for a cheap offer on the Internet to get a replacement case in your colour. It is fairly cheap and avoids potential problems.

08. Weaknesses and Strengths.
a. The weaknesses of the Ericofon.

Of course, a device like the Ericofon also has its weak points:

I. On the outside:

01. The dialing process. The zero.

The dialing process for Swedish devices is in fact difficult for the "rest of the world", as Sweden has a slightly alternating way of dialing.

The row of digits on the Swedish dial does not begin with the usual "1" at the top right of the dial, but with the "0", which is usually located at the bottom right next to the "9" at 5 o'clock.

Image 15

Here it is located above the "1" at 2 o'clock.

So, if you want to use a Swedish phone to make a call in Germany, you always have to subtract one digit from the desired number.

Image 16

Example:

The number you want to dial:	457832
is now:	346721

Although this seems strange at first, the process delivers a certain kick, and makes telephoning with the Ericofon a truly special experience.

The special, unique arrangement of the "0" could be seen as a strength, but also as a weakness.

It is definitely a **weakness**, as users from other countries, when using Swedish telephones in their areas, have to get used to the process and always have to subtract one digit when dialing their usual telephone numbers.

This means that Swedish phones were only suitable for the Scandinavian market and could not be profitably sold abroad due to this special feature.

02. The button.

The aluminum injection-moulded switch button on the base, which has the function of starting and ending calls, harbours the risk of wrong dialing if the device is placed incorrectly.

Another source of error occurs when moving the phone from one place to another. If one, accidentally and unintentionally, picks it up, an unintentional connection may be established, which may even go unnoticed.

03. The „rubber“.

The dial set at the bottom of the Ericofon is cushioned from the main body using a 'rubber ring', but the real function is to protect the number dial's acrylic cover.

The material of the "rubber" was originally made of neoprene, which becomes brittle over time and eventually peels out of the joint.

Today, these acrylic sealing rings are being replaced by rubber rings and are usually black.

II. On the inside:

01. The earpiece.

One disadvantage concerning the inside is the fact that the **earpiece** in the upper part of the snake body is not replaceable, as it is firmly welded to the body of the device (on the Cobra's head).

This means that in the event of a malfunction or defect in this capsule, the entire phone housing must be replaced.

Of course, there are "cracks" which separate the welded cap within the earpiece area, but then product originality can no longer be guaranteed and the risk of damage is high.

02. The external bell.

In addition, the space inside the housing is so small that there is no room for a bell (also called an alarm).

This means that the bell has to be outsourced, i.e. to be able to hear an incoming call, you need an **external bell**.

Image 17

08. Weaknesses and strengths.
b. The strength of the Ericofon.

I. On the outside:

01. The form. The Cobra.

At first glance, the unusual shape of the Ericofon is reminiscent of a cobra snake stretching upwards, which soon gave it the nickname Cobra.

Even today, the phone is more likely to be searched for and found under this name than under its official name, which came from the working title Erifon.

This new-fashioned form of a one-handed device was revolutionary at the time and broke with all previously known standards.

Terms, such as "spacey", futuristic, innovative and science fiction-like are just a few of the internationally used attributes.

02. The colours.

As with all telephones of the time, colours only became possible after the brittle Bakelite, which mainly enabled black and ivory versions, was replaced by forms of thermoplastic (in this case acrylonitrile-styrene).

This possibility caused record sales, as you could now match your telephone to your domestic furnishings in terms of colour and design, and companies could set appropriate accents in their corporate identity (CI = uniform company image).

03. The dial.

The idiosyncratic dialing scheme with the "0" in a different place than usual existed for a specific reason.

The assumption that the "0" was used less because the Scandinavians did not have area codes, but rather individual numbers, may be a reason for the shift of the "0". Experts within this field believe that technical constraints may also have played a role.

The actual reasons are ultimately irrelevant for the implementation and application of the operation of the dial.

The dial was soon replaced by keypads, which were initially designed using the pulse dialing method and only later switched to multi-frequency methods.

Today, the arrangement of the keypad on push-button telephones that are still in use, both in analogue and digital IP telephones, has been standardised throughout Europe and beyond, causing this unique dial set feature to disappear in the 1980s.

Again, the special, individual arrangement of the "0" could be seen as a strength, but also as a weakness.

It would have been a strength if it turned out that the "0" was used more often than other digits, making the dialing path shorter and more user-friendly, but as stated before, the issue resolved itself automatically at a later point.

Internationally, the button arrangements on push-button telephones have been standardised, from which the following standard keypad (without letters) has prevailed:

1	2	3
4	5	6
7	8	9
*	0	#

The “0” remained at the bottom, as is usual with dial sets in non-Scandinavian countries.

04. The weight.

The Ericofon weighs a total of only 400 g, which is of course a great advantage for the user. This was

achieved through using acrylonitrile styrene as material.

05. The real age.

What year would you think the Ericofon is from? Right, you're thinking maybe it's from the 1960's or even the 1970's.

However, it looks younger than it is. But is that not the ultimate goal? To look younger than one's actual age?!

And what does that mean for us, as well as for the Cobra? It is probably best to stick to the phone!

It is sure to catch on quicker.

It was initially smiled at when it was presented in Chicago in 1956.

Was it sturdy enough for everyday use? Could it survive on the market? [6]

> *„It is the first designer telephone that achieved avant-garde design and at the same time the highest level of acceptance in everyday use.“* [7]

[6] See also: Pearce, Chris. Designklassiker des 20. Jahrhunderts. Vaduz 1991, p. 42.

[7] Museumsstiftung Post und Telekommunikation (publisher): Telefone 1863-2000. Aus den Sammlungen der Museen für Kommunikation, Kataloge der Museumsstiftung Post und Telekommunikation, Volume 9. 2001, p. 175. Braus edition.

09. The patents.
a. Preliminary remarks.

Technical patents consist of drawings/ sketches and the associated descriptions in text form.

The textual descriptions are often extensive and end in page-long detailed explanations, which is why they are difficult to read for technical lay-persons, sometimes seeming incomprehensible.

The author has therefore decided to only present the illustrations or sketches of some patents that are useful here. The sketches of the selected patents are not complete. Drawings with small technical details have been left out.

The reader should get an insight into the time before the launch, so as to be able to gauge the effort invested, so as to bring the gem that was the "Ericofon" to completion.

Since the patents must be stated with their respective patent numbers as the source for copyright reasons, interested parties may independently visit the website of the United States Patent Office (US Patent Office) and view or download the patent texts that are of interest to them.

The sketches are extremely helpful to gain an insight into the history of the respective patenting and provide sufficient information about the development of the Ericofon.

It is particularly noticeable how much effort was put into completing such an innovative device in terms of design and making it ready for the market.

Nr.	Pat.-No.	Date	Inventor	Description	Dare	P.
If.		Veröffentlicht		Englisch	Antrag	X/Y
1	2,405,543	06.08.1946	K. H. Blomberg	Telephone Set	30.12.1942	1/1
2a	2,419,388	22.04.1947	K. H. Blomberg	Telephone Handset	15.10.1941	1/2
2b	2,419,388	22.04.1947	K. H. Blomberg	Telephone Handset	15.10.1941	2/2
3a	2,822,432	04.02.1958	K. H. Blomberg et al.	Casing for telephone instruments	29.12.1951	1/4
3b	2,822,432	04.02.1958	K. H. Blomberg et al.	Casing for telephone instruments	29.12.1951	2/4
3c	2,822,432	04.02.1958	K. H. Blomberg et al.	Casing for telephone instruments	29.12.1951	3/4
3e	2,822,432	04.02.1958	K. H. Blomberg et al.	Casing for telephone instruments	29.12.1951	4/4
4a	2,918,539	22.12.1959	H.G. Thames et al.	Telephone instruments of the standing handset type	19.02.1957	1/7
4b	2,918,539	22.12.1959	H.G. Thames et al.	Telephone instruments of the standing handset type	19.02.1957	3/7
4c	2,918,539	22.12.1959	H.G. Thames et al.	Telephone instruments of the standing handset type	19.02.1957	4/7
4d	2,918,539	22.12.1959	H.G. Thames et al.	Telephone instruments of the standing handset type	19.02.1957	6/7
4e	2,918,539	22.12.1959	H.G. Thames et al.	Telephone instruments of the standing handset type	19.02.1957	7/7
5	2,951,910	06.09.1960	E. E. Bamann	Substation signalling device	22.01.1958	1/3
6	3,075,048	02.01.1963	A. G. T. Boeryd	Signalling arrangement for telephone istruments	28.10.1959	1/1
7	3,562,447	09.02.1971	Martinus C.W. nicht lesbar, Leif Branden, Erling Troslien	Ohne Angabe	Ohne Angabe	1/2
8	4,068,102	10.01.1978	Ohne Angabe	Ohne Angabe	Ohne Angabe	1/1
	Quelle:	The United States Patent and Trademark Office (USA Patent- und Markenamt)				
	Webseite:	www.uspto.gov				
	Suche über:	https://	patft.uspto.gov/netahtml/PTO/srchnum.htm			

Aug. 6, 1946. K. H. BLOMBERG 2,405,543

TELEPHONE SET

Filed Dec. 30, 1942

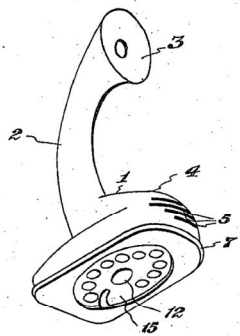


Fig. 1.

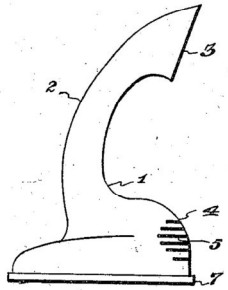


Fig. 2.

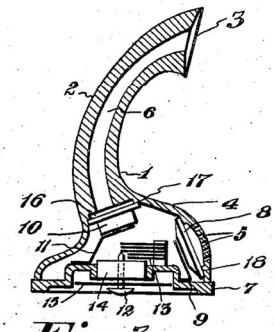


Fig. 3.

Inventor,

K. H. Blomberg

By:

Glascock Downing & Seibold

Attorneys.

April 22, 1947. K. H. BLOMBERG ET AL 2,419,388

TELEPHONE HANDSET

Filed Oct. 15, 1941 2 Sheets-Sheet 1

Fig. 1

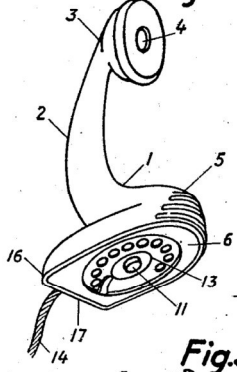


Fig. 2

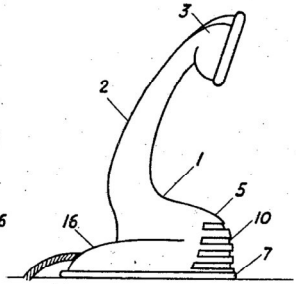


Fig. 3

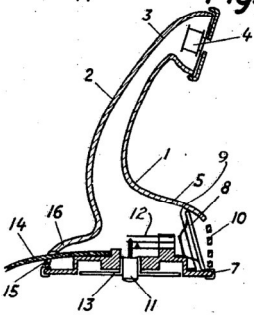
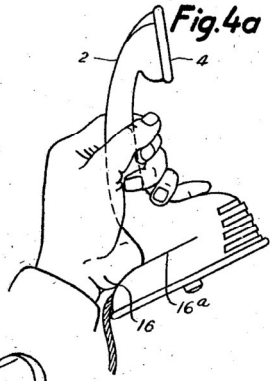


Fig. 4a



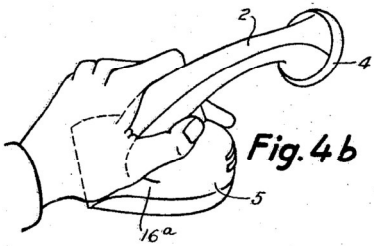


Fig. 4b

Inventors

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Attys.

April 22, 1947. K. H. BLOMBERG ET AL 2,419,388

TELEPHONE HANDSET

Filed Oct. 15, 1941 2 Sheets-Sheet 2

Fig.5

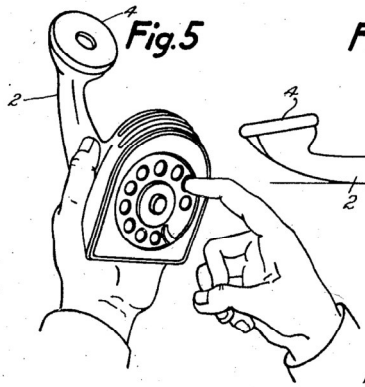


Fig.6

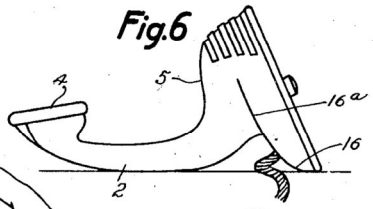


Fig.8

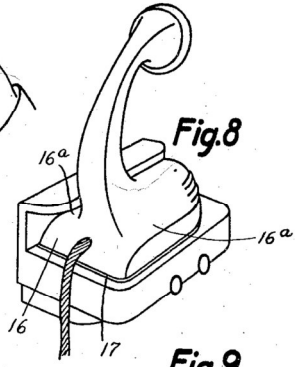


Fig.7

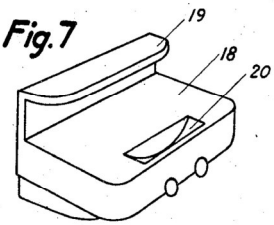


Fig.9

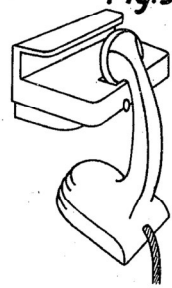


Fig.10

Inventors,
K. H. Blomberg
R. H. G. Lysell
By: Glascock, Downing & Seebold
Attys.

Feb. 4, 1958 K. H. BLOMBERG ET AL 2,822,432

CASING FOR TELEPHONE INSTRUMENTS

Filed Dec. 29, 1951 4 Sheets-Sheet 1

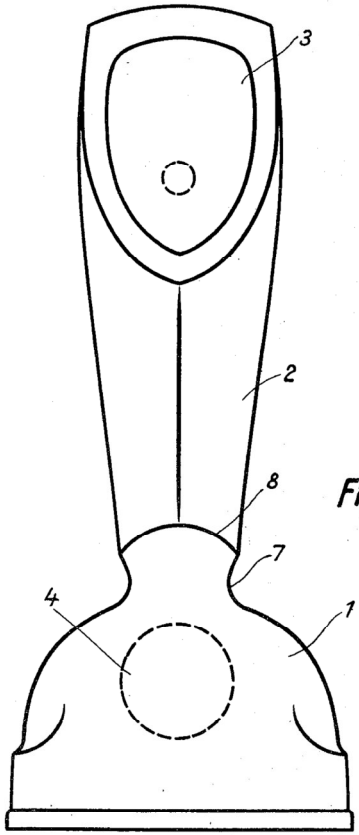


Fig.1

Inventors
K.H. Blomberg
H.E. Lindström
H.G. Thames
By Pierce Downing Peebles
Attys

Feb. 4, 1958 K. H. BLOMBERG ET AL 2,822,432
CASING FOR TELEPHONE INSTRUMENTS
Filed Dec. 29, 1951 4 Sheets-Sheet 2

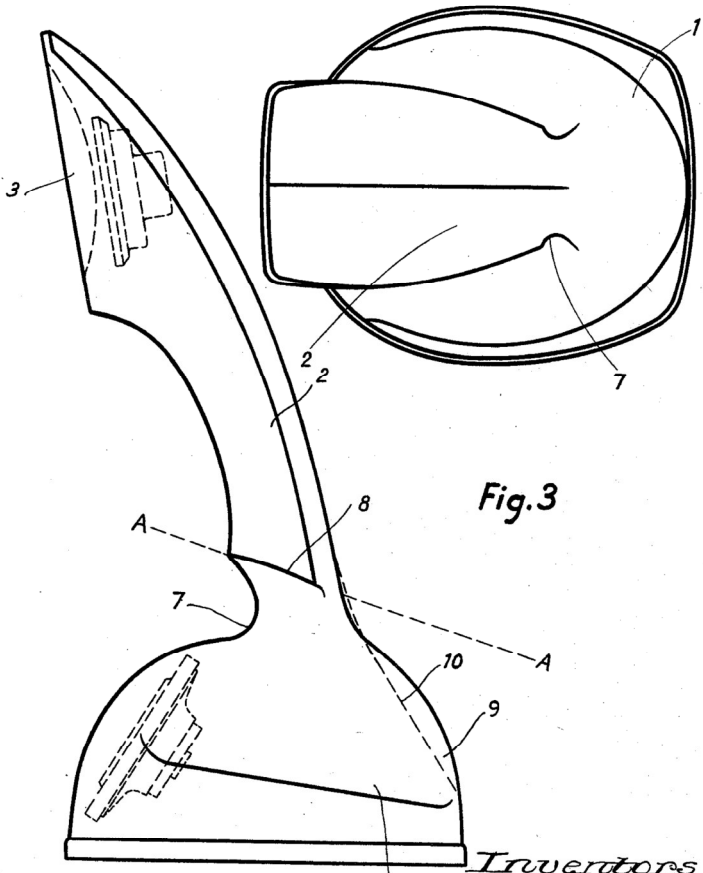


Fig. 3

Fig. 2

Inventors
K. H. Blomberg
H. E. Lindström
H. G. Thames
By Glascock Downing & Seibold
Attys

Feb. 4, 1958 K. H. BLOMBERG ET AL 2,822,432
CASING FOR TELEPHONE INSTRUMENTS
Filed Dec. 29, 1951 4 Sheets-Sheet 3

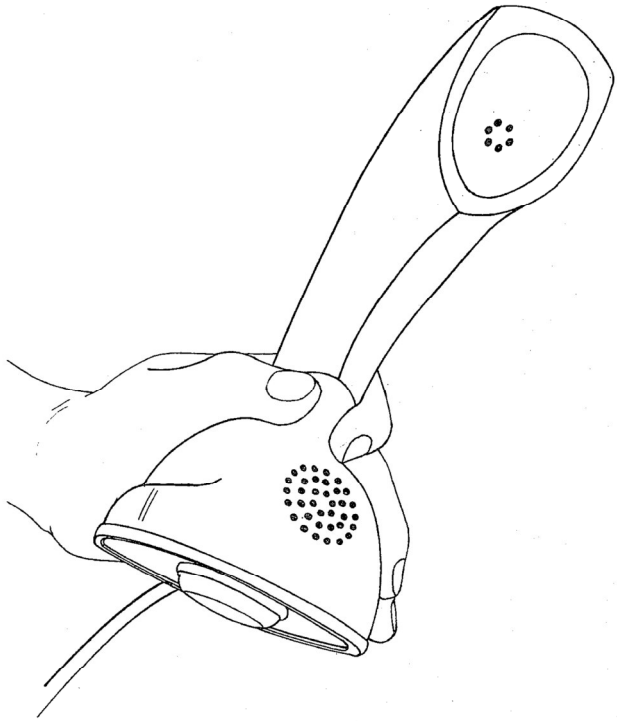


Fig. 4

Inventors
K.H. Blomberg
H.E. Lindström
H.G. Thames
By Glascock Downing Seebold
Attys.

Feb. 4, 1958 K. H. BLOMBERG ET AL 2,822,432

CASING FOR TELEPHONE INSTRUMENTS

Filed Dec. 29, 1951 4 Sheets-Sheet 4

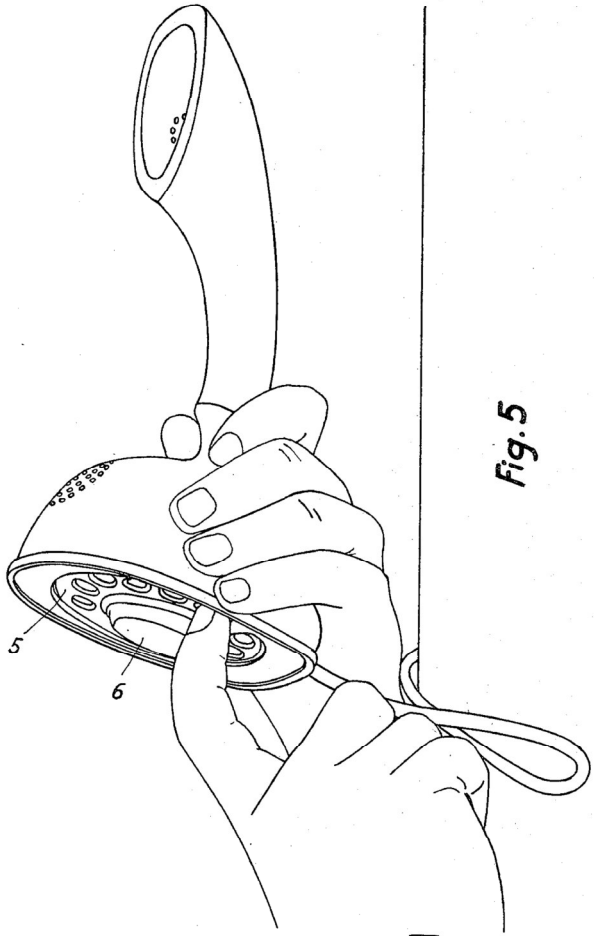


Fig. 5

Inventors
K. H. Blomberg
H. E. Lindström
H. G. Thames
By Glascock Downing & Seibold
Attys.

Dec. 22, 1959 H. G. THAMES ET AL 2,918,539

TELEPHONE INSTRUMENTS OF THE STANDING HAND SET TYPE

Filed Feb. 19, 1957 7 Sheets-Sheet 1

Fig. 16A

Fig. 16B

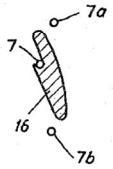
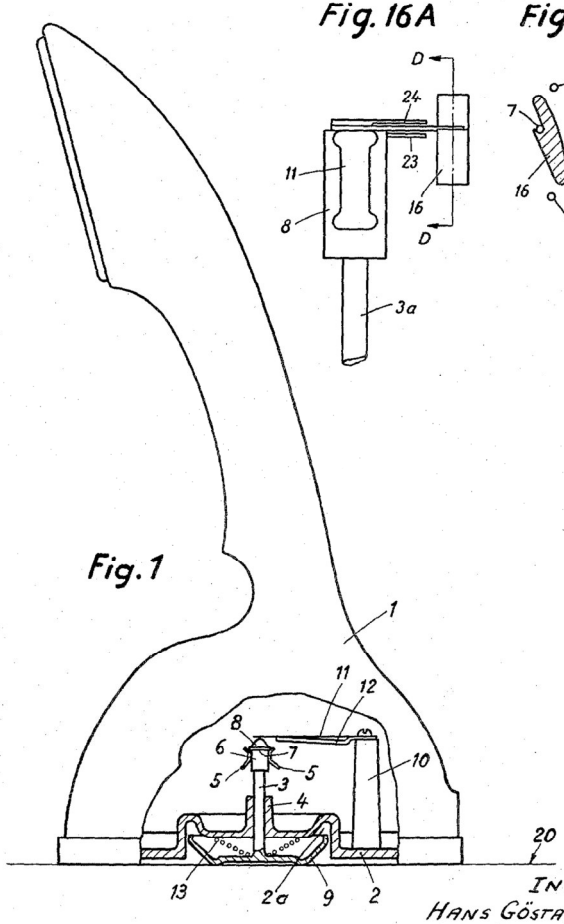


Fig. 1



INVENTORS
HANS GÖSTA THAMES
SVEN TURE ÅBERG
By Fredrik S. Haug
ATTORNEY.

Fig. 3

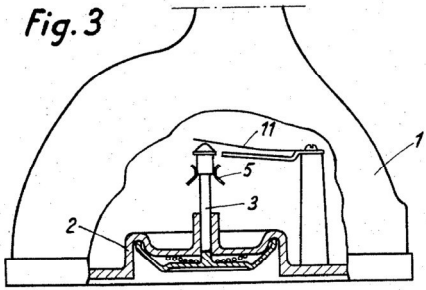
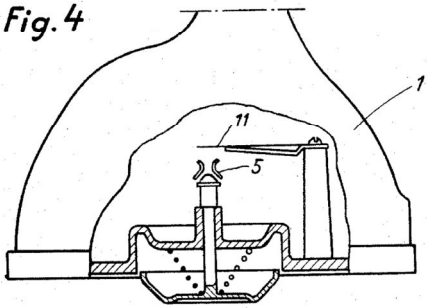


Fig. 4



INVENTORS
HANS GÖSTA THAMES
SVEN TURE ÅBERG
BY Frederick L. Haus
ATTORNEY

Dec. 22, 1959 H. G. THAMES ET AL 2,918,539

TELEPHONE INSTRUMENTS OF THE STANDING HAND SET TYPE

Filed Feb. 19, 1957 7 Sheets-Sheet 4

Fig. 10

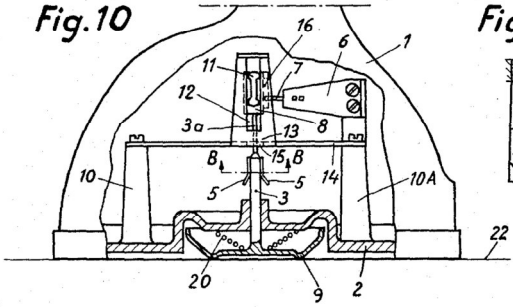


Fig. 10a

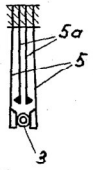


Fig. 11

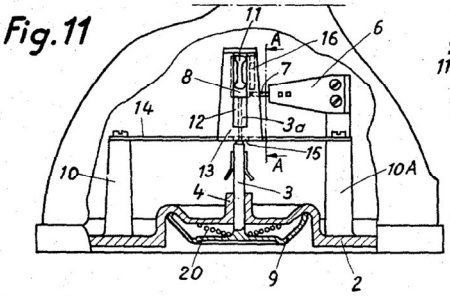


Fig. 11a

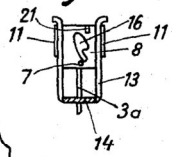


Fig. 12

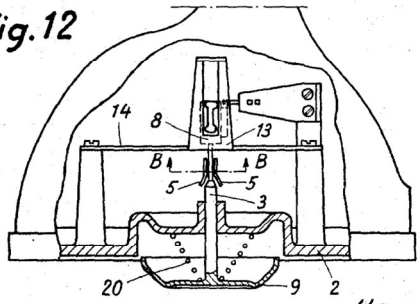
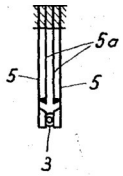


Fig. 12a



INVENTORS
HANS GÖSTA THAMES
SVEN TURE ÅBERG
BY Rudolph E. Hanes
ATTORNEY

Fig. 17

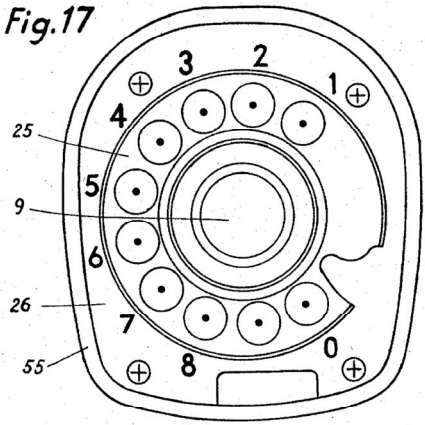


Fig. 18 A

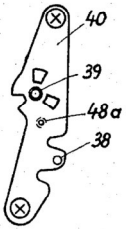


Fig. 21

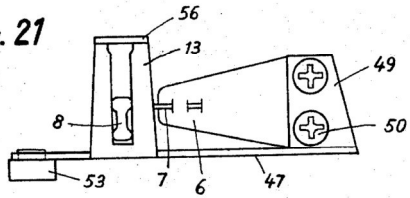
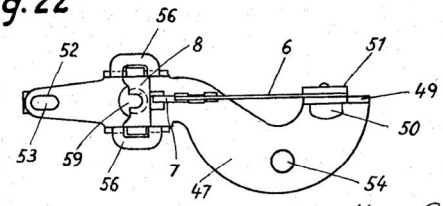


Fig. 22



INVENTORS
HANS GÖSTA THAMES
SVEN TURE ÅBERG
By Fredrik L. Haug
ATTORNEY

Dec. 22, 1959 H. G. THAMES ET AL 2,918,539

TELEPHONE INSTRUMENTS OF THE STANDING HAND SET TYPE.

Filed Feb. 19, 1957 7 Sheets-Sheet 7

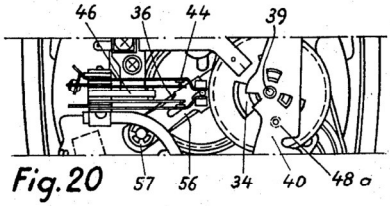


Fig. 20

Fig. 19A

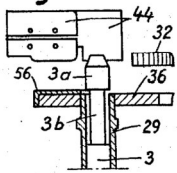


Fig. 19

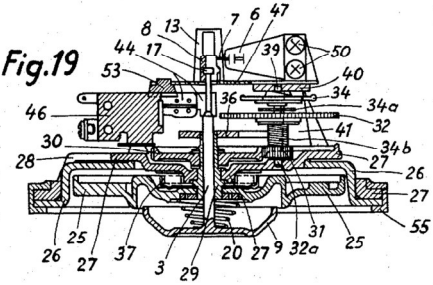


Fig. 19B

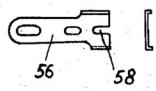
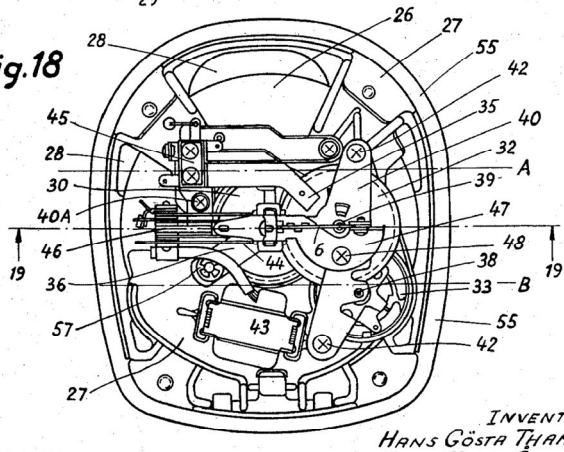


Fig. 18

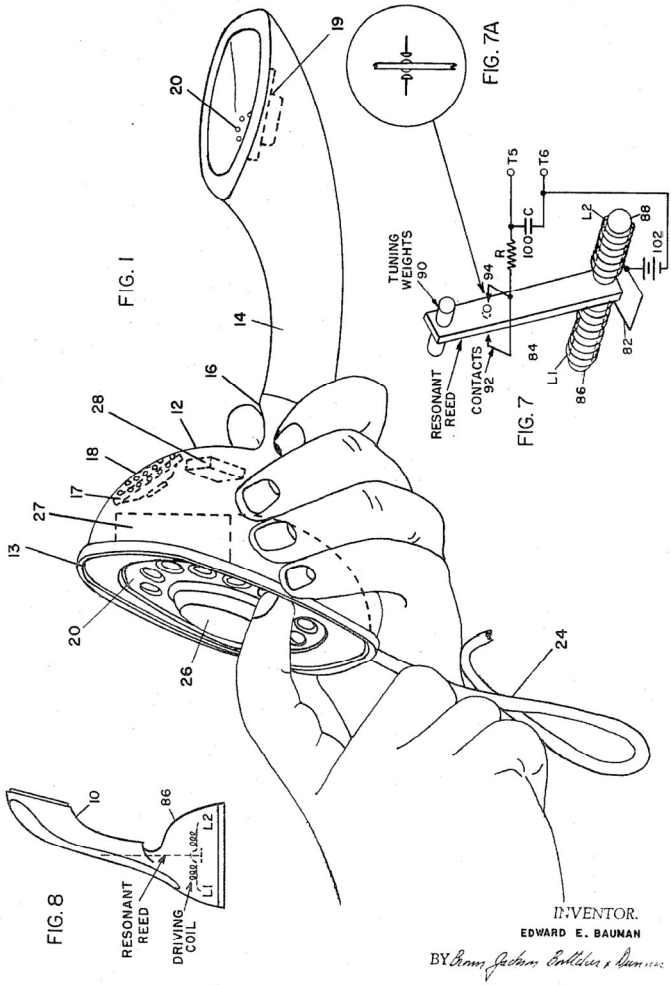


INVENTORS
HANS GÖSTA THAMES
SVEN TURE ÅBERG
By Rudolph L. Hans
ATTORNEY

Sept. 6, 1960 E. E. BAUMAN 2,951,910

SUBSTATION SIGNALLING DEVICE

Filed Jan. 22, 1958 3 Sheets-Sheet 1



Jan. 22, 1963 A. G. T. BOERYD 3,075,048

SIGNALLING ARRANGEMENT FOR TELEPHONE INSTRUMENTS

Filed Oct. 28, 1959

Fig. 1

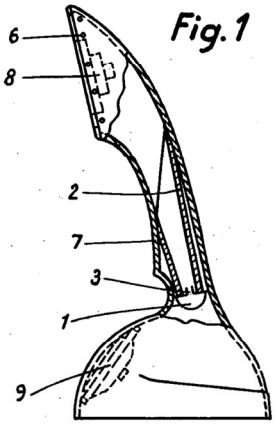


Fig. 2

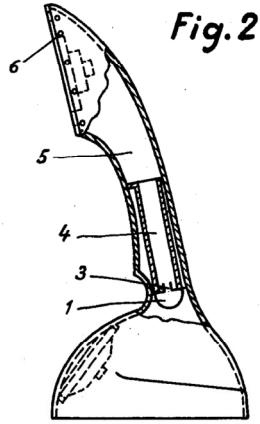
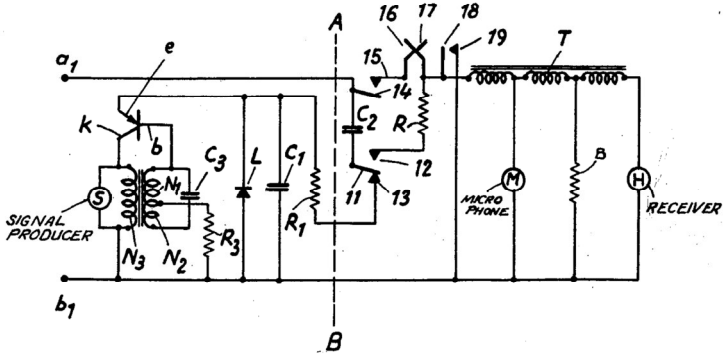


Fig. 3



INVENTOR
ARNE GÖSTA TORILD BOERYD

By Haue and Nydick
ATTORNEYS

Fig. 1

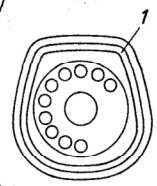


Fig. 2

Fig. 3

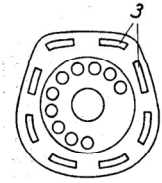


Fig. 4

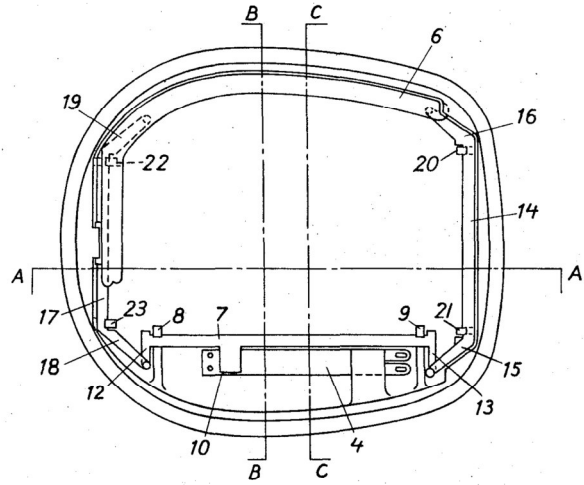


Fig. 5

INVENTORS
Martinus C. W. Bakhuizen
Leif Brandén
Erling Troslien
BY Hane and Baxley
ATTORNEYS

Fig. 1

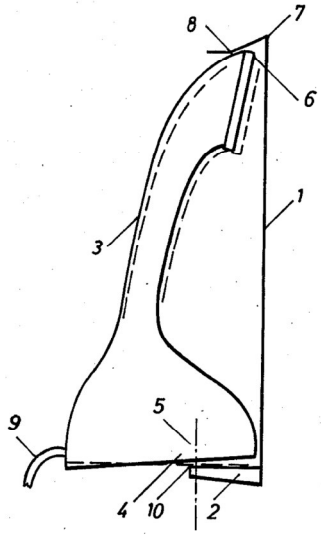
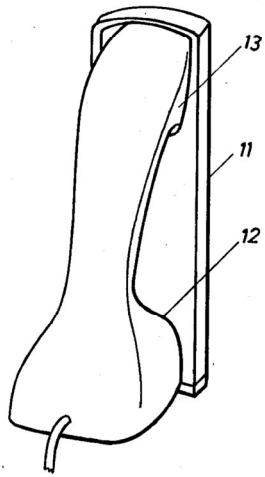


Fig. 2



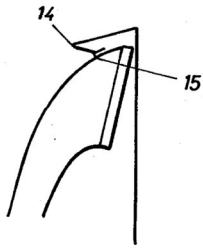


Fig. 3

10. Epilogue

Now that we have learned about the various facets of the Ericofon or Cobra telephone, we are left feeling a little sad and at a loss.

On the one hand, it is a great and impressive device, which attracts attention and at the same time demonstrates what has been lost in today's world in terms of beauty, design, modernity, and smartness.

"What's the difference?", you might say. "Why does that still matter today?" You are almost certainly only using a smartphone with all its temptations and possibilities. Yes, that is certainly true, and it is also completely fine and taken for granted today.

But why not challenge yourself and use the Cobra for your landline to make analogue calls here and there. You'll find it is cool and fun.

Above all, it will grab the attention of your friends (and ultimately yourself), since very few people own such a device today.

Being on the telephone will become an experience and fun again. Use it in parallel, in between, and here and there. You won't regret it, I promise!

The Cobra is and remains unique in every respect. Close to 2.6 million copies have been sold, if not more, but still, today it is history.

By being included in the permanent collection of the MoMA (Museum of Modern Arts) in New York City, the Ericofon has been recognised and honoured for eternity. [8]

The advent of push-button telephones in the 1970s and 1980s also affected the Cobra.

An attempt was made to establish a button version, but it was soon recognised that this variant no longer had the "drive" and "kick" of its predecessor. After dismal sales, this episode ended rather quickly.

The 1980s ended the career of rotary dial sets and all other dial-up telephones. The telephone became increasingly electronic, until many years later this type of push-button telephone would almost exclusively only be available in companies. In the private sphere, buttonless telephones in the form of smartphones are becoming more and more popular.

The near future has almost arrived completely:

Using the phone (and everything else that smart communication means today) will soon only be done via deviceless voice commands and virtual swipe movements.

[8] MoMA, New York, Department: Architecture and Design, item no. 2265.2001.1-2, quoted according to the website of MoMA (Museum of Modern Art), USA, New York City.

We will only speak into space and project our orders onto virtual screens, into empty air, so to speak.

An interesting perspective, but a great loss of everything that ever existed before in terms of beauty, fine mechanics, haptics, design, and uniqueness.

Let's honour the great craftsmanship, the think tanks, the designer luminaries of this time and, for ornamentational purposes at least, decorate our living area with an Ericofon in one of our favourite colours. [9]

You will see that it not only decorates the room, but also says something about yourself. Everyone will immediately recognise you for who you are:

A fan of a great era of new beginnings, an era of innovation and design.

[9] See annex 11d: Get help buying, repairing and refurbishing Ericofon phones here.

Annex

11a. Annex. Thanks.

a. **US Patent and Trademark Office** (uspto),
USA, Virginia Alexandria:
patent documents from the USA.

b. **Brandenstein, Markus**,
EU, Germany, Weilrod.
- Background information on the history of the Ericofon.
- Notes on Schröder, Peter.
- Initiator of the author's rediscovery of the Ericofon.

c. **Schröder, Peter**,
EU, Germany, Hamm.
- Permission to use his unpublished work: „Das Ericofon – LM Ericsson“.
- Technical advice.
- And much more.

11b. Annex.
01. Literary references.

(Alphabetically by author)

Jörges, Christel / Gold, Helmut (Hrsg.): Museumsstiftung Post und Telekommunikation: Telefone 1863-2000. From the collections of the Museums of Communication, catalogues of the Museumsstiftung Post und Telekommunikation, Volume 9., Braus edition.

EU, Germany (FRG), Heidelberg 2001, p. 150, Image 163.

Krause, Christoph T. M. (publisher): Europe's Colourful Telephone Family … and a Glance outside the Box. tredition publishing.

EU, Germany (FRG), Hamburg, 2020.

The same: The Drum Dial – The forgotten Telephone Luminary of the Federal German Foundation Years. tredition publishing.

EU, Germany (FRG), Hamburg, 2020.

The same: The Drum Dial, Vol. 2 – Back to the Future – A Chronology of the Patents.
tredition publishing.

EU, Germany (FRG), Hamburg, 2021.

Schröder, Peter: Das Ericofon – LM Ericsson.
[The Ericofon]
EU, Germany (FRG), Hamm,
unpublished, 2021.

Oestreich, Herbert: Funktionales Industriedesign [Functional Industry Design] 1953-1962-1988, publicshed by the Department of Product Design at the Kassel University of Applied Sciences.

EU, Germany (FRG), Kassel, 1988.

Roth, E.: Fernsprechapparate in der Welt.
[Telephone apparatuses in the World]
In: **Heidecker, Georg (publisher):** Jahrbuch des elektrischen Fernmeldewesens. [Annual of the Electrical Telecommunications]. Publisher: Wissenschaft und Leben.

EU, Germany (FRG), Bad Windsheim, 21st edition, 1970, p. 95 ff.

Mills, Bob: Collecting the Ericofon, no further details available.

United Kingdom, no further details available.

Rose, Richard: Collecting the Ericofon, no further details available.

United Kingdom, no further details available.

11b. Annex.
02. Web references[1].

Krause, Christoph T. M.:
http://www.telcolon.de.
Cologne, EU, Germany (FRG).

Rose, Richard: http://www.ericofon.com, (no further details available).
Stillwater, MN, USA, no further details available.

Dutchtelephones:
http://dutchtelephones.com/ericofoon/
No further details available.

Klomp, Alfred:
http://www.alfredklomp.com/technology/telepones/ericofoon/
No further details available.

Tim:
http://geluykenst.wixsite.com/vintagewiki/single-post/2015/03/01/ericofon
No further details available.

[1] All websites checked on: 1st November 2021. Their availability cannot be guaranteed.

Official Ericofon site by Ericsson:
http://www.ericsson.com/en/about-us/history/products/the-telephones/the-ericofon-cobra-1956-1954.
No further details available.

11c. Annex.
Photo credits.

No.	Description	Source
01	Difference OC/NC	Author
02	Difference earpiece cover	Author
03	Difference in cover angle	Author
04	Difference in handle thickness	Author
05	Colours of the NC	Schröder, P.
06	Chassis from four sides	Author
07	Chassis from below (NS)	Author
08	Difference housing clamps	Author
09	Exchanging the dial set	Schröder, P.
10	Exchanging the dial set	Author
11	Exchanging the dial set	Author
12	Exchanging the dial set	Author
13	Exchanging the dial set	Author
14	Exchanging the dial set	Author
15	Dial set Sweden	Author
16	Dial set standard	Author
17	External bell	Author
	Telephone depictions p. 98-129	Author

11d. Annex. Recommendation.

a. What is this about?

If this book has inspired you to buy your own Ericofon telephone or if you have any further questions, please contact the best in this field.

b. What are the terms?

This recommendation is not sponsored and does not generate any remuneration from the party being advertised.

It is merely a friendly recommendation, also as a thank you for the support with this book, which the recommended person provided to the author.

Inquiries will only be answered if the time-related, technical and material requirements and possibilities are met. There is no obligation on the part of the recommended person, neither to answer nor to accept order inquiries.

The implementation of any of the requests is voluntary and at the discretion of the recommended person.

c. Whom do I contact?

Please send an email to:
Peter Schröder at ericofons@web.de

11e. Annex. Pictures.

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040/T90504

11f. Annex. Glossary.

(Formatting has been adapted due to better readability; internal footnotes have been omitted)

Ground Key [1]

Call waiting is a telecommunication service offered by a telephone service provider to a subscriber by which the subscriber may suspend a telephone call already in progress to accept a second call. The subscriber may switch between calls, typically by using the hook flash signal.

Call waiting alleviates the need to have more than one telephone line for voice communications.

_____

Internet quoting. 2020. URL:
https://en.wikipedia.org/wiki/Call_waiting
Status: Sept. 17th, 2020.

Capacitor

A capacitor is a device that stores electrical energy in an electric field. It is a passive electronic component with two terminals.

The effect of a capacitor is known as capacitance. While some capacitance exists between any two electrical conductors in proximity in a circuit, a capacitor is a component designed to add capacitance to a circuit. The capacitor was originally known as a

[1 Aka as Earth button / Ground button / Recall button etc.]

condenser or condensator. This name and its cognates are still widely used in many languages, but rarely in English, one notable exception being condenser microphones, also called capacitor microphones.

The physical form and construction of practical capacitors vary widely and many types of capacitor are in common use. Most capacitors contain at least two electrical conductors often in the form of metallic plates or surfaces separated by a dielectric medium. A conductor may be a foil, thin film, sintered bead of metal, or an electrolyte. The nonconducting [sic!] dielectric acts to increase the capacitor's charge capacity. Materials commonly used as dielectrics include glass, ceramic, plastic film, paper, mica, air, and oxide layers. Capacitors are widely used as parts of electrical circuits in many common electrical devices.

Unlike a resistor, an ideal capacitor does not dissipate energy, although real-life capacitors do dissipate a small amount (see non-ideal behavior).

When an electric potential, a voltage, is applied across the terminals of a capacitor, for example when a capacitor is connected across a battery, an electric field develops across the dielectric, causing a net positive charge to collect on one plate and net negative charge to collect on the other plate. No current actually flows through the dielectric. However, there is a flow of charge through the source circuit. If the condition is maintained sufficiently

long, the current through the source circuit ceases. If a time-varying voltage is applied across the leads of the capacitor, the source experiences an ongoing current due to the charging and discharging cycles of the capacitor.

The earliest forms of capacitors were created in the 1740s, when European experimenters discovered that electric charge could be stored in water-filled glass jars that came to be known as Leyden jars.

In 1748, Benjamin Franklin connected a series of jars together to create what he called an ‘electrical battery’, from their visual similarity to a battery of cannon, which became the standard English term electric battery. Today, capacitors are widely used in electronic circuits for blocking direct current while allowing alternating current to pass. In analogue filter networks, they smooth the output of power supplies. In resonant circuits they tune radios to particular frequencies. In electric power transmission systems, they stabilize voltage and power flow. The property of energy storage in capacitors was exploitted as dynamic memory in early digital computers, and still is in modern DRAM.

Internet quoting. 2020. URL:
https://en.wikipedia.org/wiki/Capacitor
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Rotary Dial

A rotary dial is a component of a telephone or a telephone switchboard that implements a signaling technology in telecommunications known as pulse dialing. It is used when initiating a telephone call to transmit the destination telephone number to a telephone exchange.

On the rotary phone dial, the digits are arranged in a circular layout *[in most cases, but there were exceptional developments, such as the Drum Dial, author's remark]* so that a finger wheel may be rotated against spring tension with one finger.

Starting from the position of each digit and rotating to the fixed finger stop position, the angle through which the dial is rotated corresponds to the desired digit. Compact telephones with the dial in the handset had all holes equally spaced in the dial, and a spring-loaded finger stop with limited travel.

When released at the finger stop, the wheel returns to its home position driven by the spring at a speed regulated by a centrifugal governor device. During this return rotation, the dial interrupts the direct electrical current of the telephone line (local loop) the specific number of times associated with each digit and thereby generates electrical pulses which the telephone exchange decodes into each dialed digit. Each of the ten digits is encoded in sequences to correspond to the number of pulses, so the method is sometimes called decadic dialing.

Dial pulsing contacts are normally closed, in series with the rest of the circuit components. Pulses briefly open the contacts for roughly 50 milliseconds. The earphone is disconnected by the dial mechanism when dialing to prevent very loud clicking from being heard in the earphone. Slow-release relays in the central office keep the phone from being disconnected by dial pulses.

The first patent for a rotary dial was granted to Almon Brown Strowger (November 29, 1892) as U.S. Patent 486,909, but the commonly known form with holes in the finger wheel was not introduced until about 1904 (citation needed) *[internal addition, author's remark]*.

While used in telephone systems of the independent telephone companies, rotary dial service in the Bell System in the United States was not common until the introduction of the Western Electric model 50AL in 1919.

From the 1970s onward, the rotary dial was gradually supplanted by DTMF (dual-tone multi-frequency) push-button dialing, first introduced to the public at the 1962 World's Fair under the trade name ‚Touch-Tone'. Touch-tone technology primarily used a keypad in the form of a rectangular array of push-buttons. Although no longer in common use, the rotary dial's legacy remains in the verb ‚to dial (a telephone number)'.

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Induction Coil

An induction coil or ‚spark coil' (archaically known as an inductorium or Ruhmkorff coil after Heinrich Rühmkorff) is a type of electrical transformer used to produce high-voltage pulses from a low-voltage direct current (DC) supply.

To create the flux changes necessary to induce voltage in the secondary coil, the direct current in the primary coil is repeatedly interrupted by a vibrating mechanical contact called an interrupter.

Invented in 1836 by Nicholas Callan, with additional research by Charles Grafton Page and others, the induction coil was the first type of transformer. It was widely used in x-ray machines, spark-gap radio transmitters, arc lighting and quack medical electrotherapy devices from the 1880s to the 1920s.

Today its only common use is as the ignition coils in internal combustion engines and in physics education to demonstrate induction.

Construction and function

An induction coil consists of two coils of insulated wire wound around a common iron core (M). One

coil, called the primary winding (P), is made from relatively few (tens or hundreds) turns of coarse wire. The other coil, the secondary winding typically consists of up to a million turns of fine wire (up to 40 gauge).

An electric current is passed through the primary, creating a magnetic field. Because of the common core, most of the primary's magnetic field couples with the secondary winding (citation needed) *[internal addition, author's remark]*.

The primary behaves as an inductor, storing energy in the associated magnetic field. When the primary current is suddenly interrupted, the magnetic field rapidly collapses. This causes a high voltage pulse to be developed across the secondary terminals through electromagnetic induction.

Because of the large number of turns in the secondary coil, the secondary voltage pulse is typically many thousands of volts. This voltage is often sufficient to cause an electric spark, to jump across an air gap (G) separating the secondary's output terminals. For this reason, induction coils were called spark coils.

An induction coil is traditionally characterised by the length of spark it can produce; a '4 inch' (10 cm) induction coil could produce a 4 inch spark. Until the development of the cathode ray oscilloscope, this was the most reliable measurement of peak voltage of such asymmetric waveforms. The relationship

between spark length and voltage is linear within a wide range:

4 inches (10 cm) = 110kV; 8 inches (20 cm) = 150kV; 12 inches (30 cm) = 190kV; 16 inches (41 cm) = 230kV.

Curves supplied by a modern reference agree closely with those values.

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Transmitter

The transmitter is essentially a tiny microphone located in the mouthpiece of the telephone's handset. It converts the vibrations of the speaker's voice into variations in the direct current flowing through the set from the power source.

In traditional carbon transmitters, developed in the 1880s, a thin layer of carbon granules separates a fixed electrode from a diaphragm-activated electrode. Electric current flows through the carbon against a certain resistance. The diaphragm, vibrating in response to the speaker's voice, forces the movable electrode to exert a fluctuating pressure on the carbon layer. Fluctuations in the carbon layer create fluctuations in its electrical resistance, which in turn produce fluctuations in the electric current.

In modern electric transmitters, developed in the 19-70s, the carbon layer is replaced by a thin plastic sheet that has been given a conductive metallic coating on one side. The plastic separates that coating from another metal electrode and maintains an electric field between them. Vibrations caused by speech produce fluctuations in the electric field, which in turn produce small variations in voltage. The voltages are amplified for transmission over the telephone line.

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