

# Telefon Fabrik

# Automatic

## Copenhagen



TELEGRAM-ADR.:  
"AUTOMATIC"  
A B C Code 5. Edition

Represented by

Telefon No.:  
5188 – 5189

# JANUARY 1914

Copenhagen, Decbr. 1913.



P. P.

In issuing the present illustrated catalogue of Telephones and Parts, we particularly beg to point out that the greater part of the appliances etc. are standard models, which, besides with other institutions are widely in use with the Telephone Company of Copenhagen - a large proportion of the parts of the different types being constructed by the most skilful of the engineers of that company, and therefore we owe to make our acknowledgements for their kindness in granting us permission to manufacture and sell these patterns also outside Denmark.

As is certainly a well-known fact, Denmark is that country in Europe, where the extension of the telephone in proportion to the number of inhabitants is the largest, it is therefore only natural that the conditions governing the materials applied here in Copenhagen, are somewhat stringent, which circumstance caused us to arrange for a perfectly rational manufacture.

All parts of instruments as well as all materials are made exclusively of the very best raw-materials and exactly calibrated - all articles are very carefully controlled and closely tested for possible mechanical or electrical defects - in short, our entire staff work with the single aim to produce a make of a high standard of efficiency.

## TERMS OF SALE

*DELIVERY*:- No other special arrangement being made all goods are delivered at our factory, Copenhagen.

*PACKING*:- is invoiced at cost-price, but will be credited for  $\frac{2}{3}$  of invoiced value at franco return in same good condition within reasonable time. Bandboxes, however, are not credited for. All empties must be advised.

*TRANSPORT*:- is always made at customers account and risk and no compensation will be afforded in case of breakage during same. Way of shipment no special instruction being given, is selected by us.

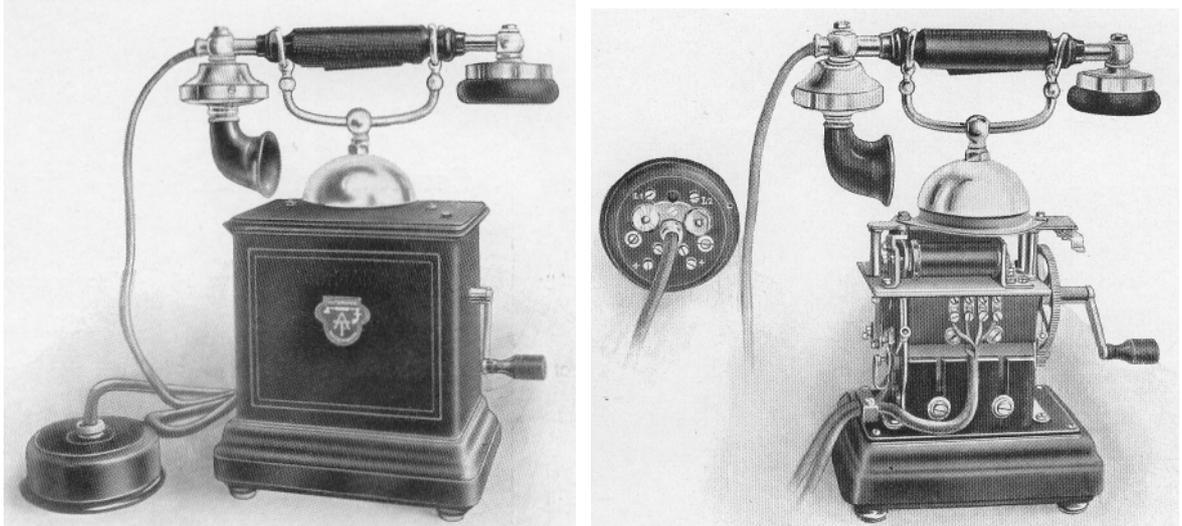
*PAYMENT*:- Nothing else being agreed upon all our prices are strictly net in 30 days and all shipments to customers unknown in the absence of satisfactory references will be charged forward.

*QUOTATIONS*:- are binding 14 days only, statement to the contrary not given.

*TIME OF DELIVERY*:- We always take care to maintain times stated under all reserve, however, to strike, lock-out and other force majeure.

*ILLUSTRATIONS*:- and text are without engagement. We reserve to ourselves the right of making small alterations or improvements in the constructions.

*PLEASE ALWAYS STATE IN ORDERS*:- Catalogue-number besides description of goods desired.



Nr. 5000

## 'Telephone Apparatus'

for local battery (magneto).

Our new pattern of telephone apparatus for magneto-system is constructed in conformity to those described on the following pages for C. B. system and they may be applied for local as well as for interurbane traffic.

Telephone desk-sets, with microtelephone:

The top and cover being displaced by loosening 2 screws only all operating parts are laid open.

The bell being easily accessible above is of the same quality as named at telephones for common battery and is at calling from the apparatus out of action, but may be brought to sound by pressing on the button placed on top of cover.

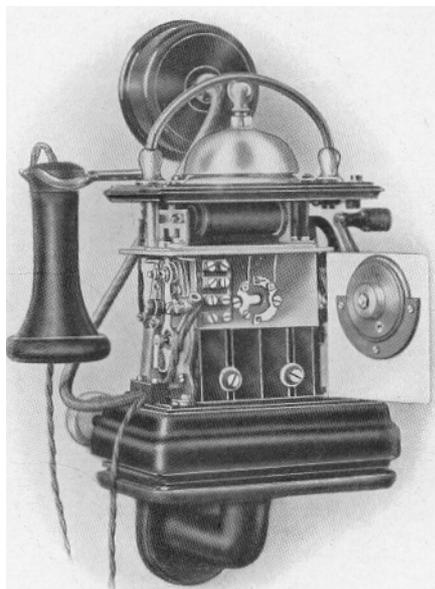
The generator is furnished with 4 strong magnets and will ring through 25,000 ohm resistance. Microtelephone is supplied with exactly adjusted microphone-capsule easily changeable without interfering with cord connections. All connections for apparatus, microphone and wall-distributing box are placed inside.

Lever-switches are furnished with pure platinum and all metalparts are very heavily nickelplated or lackered. Bottom-frame is made of blackened wood and mounted on black japanned iron feet with indiarubber rings. All cords are waterproof, and all parts leading the circuit being insulated from the bulk.

Wall-distributing-box (nr. 5802) is of iron and fitted with metal lightning arrestors and connections for extensionbell. If desired we also supply the apparatus' with such for extra watchreceiver without any extras.

Dimensions of apparatus: 180 x 120 x 325 mm.

*Weight: 6,5 kg.*

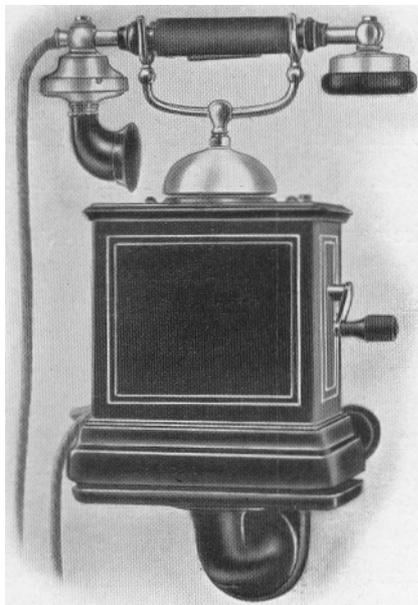


Nr. 5005.

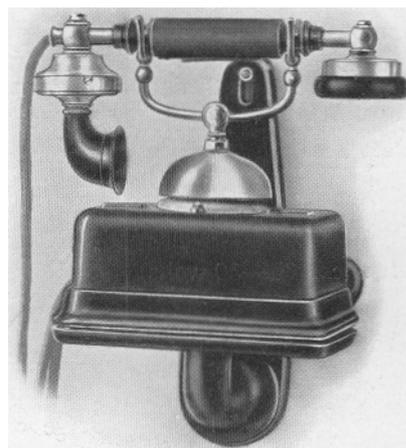
## Telephone Instruments

For local battery (magneto).

Wall-bracket telephone set for magneto system of construction as nr. 5000, but arranged with solid interchangeable microphone capsule, handtelephone, 2000 ohms bell, 4 magnets generator, waterproof cords and wall terminals (distributing box). Total height: 270 mm, width: 280 mm, depth: 140 mm. *Weight: 6,300 kg* without bracket.



Nr. 5010.



Nr. 5011.

## Wall brackets

for telephone instruments:

Nr. 5010. Wall bracket of black japanned iron for magneto telephone instruments nr. 5000 and 5005.  
*Weight: 1,500 kg.*

Nr. 5011. Wall bracket of black japanned iron for common battery desk-sets nrs. 5025 - 5035,  
*Weight: 1,500 kg.*

*May be supplied if desired in other colours.*



## Telephone Apparatus' for Common-Battery.

These apparatus' are as distinct from the former described constructed for common or central battery, where the microphone batteries at the subscribers are substituted by a common accumulator-battery (ca. 20-30 volts) on the central.

Central is called by lifting telephone or microtelephone from hook or fork, and closing signal is given by replacing same.

When the apparatus is in normal position no connection exists between the microtelephone belonging to the apparatus and the lines leading to the central. Otherwise, the bell-circuit of the apparatus is connected with the outer lines. In the bell-circuit a condenser (2 mf) interrupting the current of the common battery is inserted; the condenser allows an alternating current (ca. 80 volts) to pass to the bell thus giving the alarm signal.

The subscriber calls as already named the central by lifting the telephone or microtelephone from hook or fork thereby connecting the outer lines.

The bell on table set is with one gong only, but contrary to other alternating current bells with only one gong it sounds absolutely regular and steady. This is due to the tapper of the bell in its return touching against a small fibre-piece instead of striking into the air.

Apparatus' with microtelephones are provided with selfinductioncoil (1000ohms) inserted parallel with the microphone; all apparatus' are further supplied with exactly adjusted capsule-microphones, which by means of bajonet-lock arrangement on the cover of the microphone box may be easily exchanged.

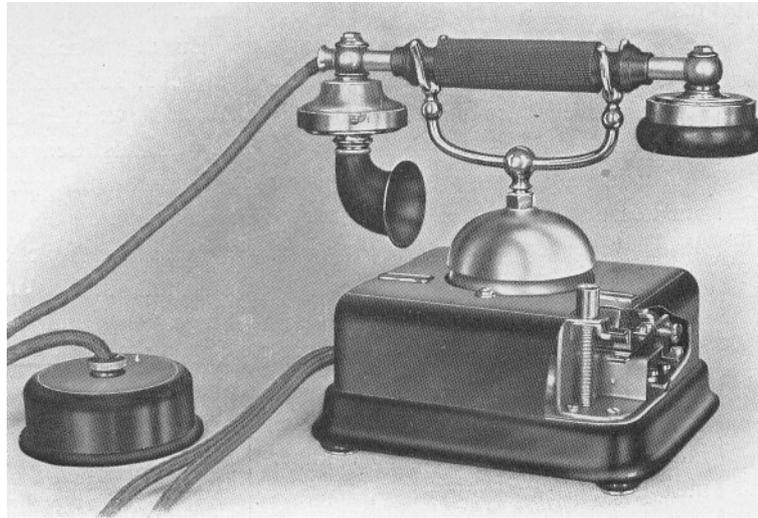
To the desk sets belong a distributing box of wrought iron, black japanned into which the central lines with screwed connections easily are connected to the lines of the apparatus.

The connections are concealed.

All parts of the apparatus are made of metal insulated with hard rubber, and all parts leading the current are insulated; the cords of the microphone and distributing-box are waterproof.

All contacts are tipped with pureplatinum. The single parts of the apparatus are very heavily nickel-plated or burned in oil and lackered, so as to avoid every possibility -of oxydation or rusting.

The box of apparatus consists of an iron cover stamped in one piece, c. i. frame and wrought iron bottom plate properly black japanned. The bottom plate dim, the other parts bright.



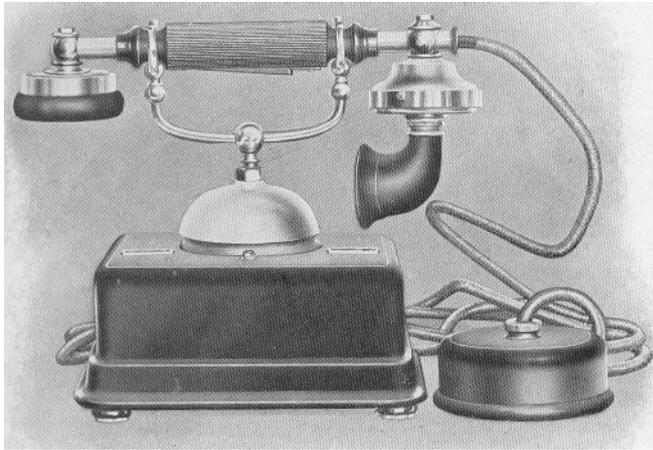
Nr. 5030.

### C. B. Party-Line System.

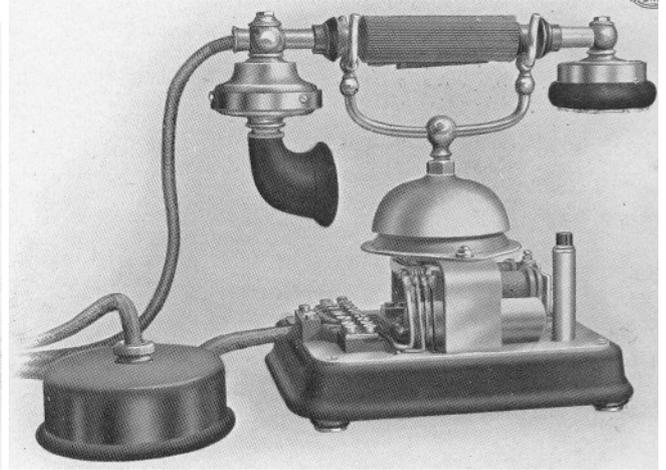
Fig. 5030 on this page shows a table-set as used for subscription by up to 4 subscribers on common centralline. In Copenhagen each apparatus also is fitted with counter for subscribers callings.

To the system is required that on page 44 nr. 5725 illustrated relay adjusted for each part in the system (called f. i. X, Y U & V.) as well as junctionboxes nr. 5815.

Central calls subscriber by means of current + or - sent on  $L_1$  and earth or  $L_2$  and earth, thereby giving 4 different signals corresponding to the 4 relais. This operation is made through the master-key on telephone-exchange. Subscriber calls central when pressing on button on top of cover. Cable-connection to subscribers lines takes place in box nr. 5815.



Nr. 5025.



Nr. 5035.

## Table Telephones

for C. B.

**Nr. 5025.** Desk- set with microtelephone with switch (nr. 5150), bell (1000 ohm), condenser 2 mf, induction-coil 2 X 31 ohm, impedance-coil 1000 ohm, wallrosette (nr. 5800), rosettecord (nr. 6202) and microtelephonicord (nr. 6200).  
*Weight: 4,080 kg.*

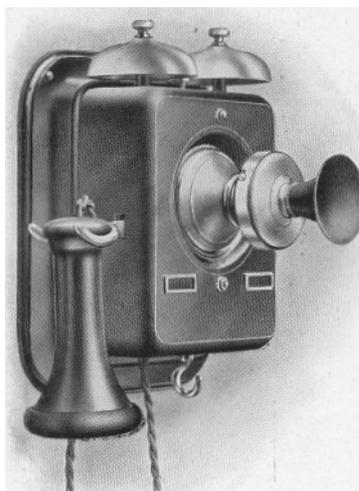
**Nr. 5030.** Desk-set for party-lines with counter and press-key, microtelephone without switch (nr. 5155), wall-rosette (nr. 5801), rosette-cord (nr.6203) as well as microtelephonicord (nr. 6201). *Weight: 4,285 kg.*

**Nr. 5031.** Desk-set for party-lines and small-centrals, without counter for the rest as nr. 5030.

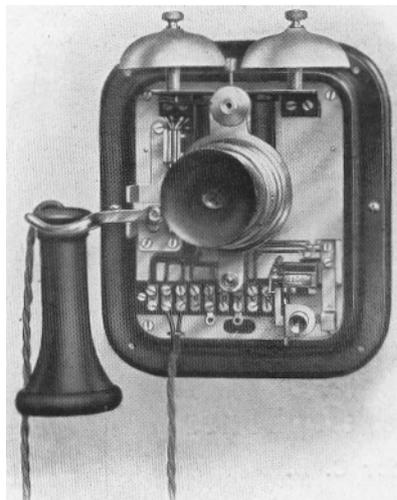
**Nr. 5035.** Desk-set, extra-apparatus for double-switch nr.5325 or other local calling, fitted with key nr. 6020, microtelephone with switch (nr. 5150), wall-rosette (nr. 5801), cord for wall-fittings (nr. 6203) and cord for micro-telephone (nr. 6200). *Weight: 4,130 kg.*

Overall dimensions : 160 X 190 X 215 mm

*The apparatus' are all provided with terminals for extension-bell and watchreceiver.*



Nr. 5040



Nr. 5045

## Wall Telephones

for C. B.

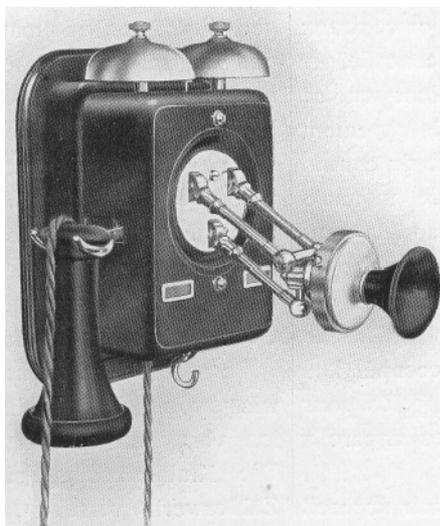
**Nr. 5040.** Wall-set with microphone and hand-telephone, waterproof cord nr. 6205. *Weight: 3,820 kg.*

**Nr. 5045.** Wall-set, as above, for party-line system, fitted with counter and press-button. *Weight: 4,025 kg.*

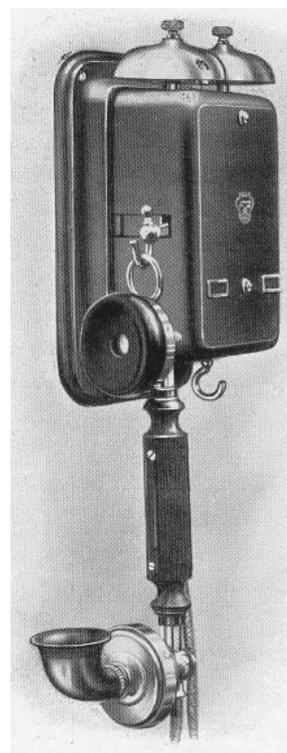
**Nr. 5046.** Wall-set, exactly as nr. 5045 without counter, to be used in addition to party-line system and for small-centrals.

**Nr. 5048.** Wall-set, with key nr.6020, apparatus to be used in connection with double-switch nr. 5325 or for other local calling. *Weight 3,870 kg.*

Overall -dimensions: 190 X 220 X 165 mm.



Nr. 5060



Nr. 5050

## Wall Telephones

for C. B.

**Nr. 5050.** Wall-set with microtelephone with switch nr. 5160 and waterproof cord nr. 6200. *Weight 3,930 kg.*

**Nr. 5055.** Wall-set with microtelephone without switch (nr. 5165), for party line system, with counter and press-key as well as waterproof cord nr. 6201. *Weight: 4,135 kg.*

**Nr. 5056.** Wall-set, as the foregoing, with press-key, but without counter for subscribers calling; for party-line system and small centrals.

**Nr. 5058.** Wall-set, extra-apparatus for double-switch nr. 5325, with press-key nr. 6020, otherwise as nr. 5050. *Weight: 3,980 kg.*

Dimensions: frame 190 X 220; 85 mm. depth.

**Nr. 5060.** Wall-instruments with movable microphone. *Weight: 3,900 kg.*

*All above named instruments are provided with terminals for extension-belt and watch-receiver.*



## Automatic Call-Boxes

The illustrations opposite show callboxes for magneto and common-battery exchanges. They are all prepayment call-boxes and so arranged that the deposited coin may be collected from the telephone service, when the desired connection is announced clear and that the speaker may take back the money, when the number is announced engaged.

The call-boxes may be called from central office in the same manner as ordinary subscribers telephone-stations.

Club-call-boxes are supplied with a counter, showing number of coins deposited (in Denmark 5 Øre - 27 mm diameter, otherwise adjusted to specification). As the deposited coin at these instruments immediately may be withdrawn a possibility exists that the counter may indicate a higher number than corresponds to number of calls.

Magneto call-boxes, which cannot call central office until the money has been deposited (in Denmark 10 Øre, otherwise to specification), may ring off after closing of conversation until operator at central office disconnect the circuit.

If a call is to be paid for at a multiple of the money deposited or indicated on the instrument two or three such coins may be laid down simultaneously the one after the other. Operator at the central may speak to the subscriber during collecting the money. If more coins are deposited one is to be collected at a time. Locking is made to order. Prices are quoted only through specification resp. to size of coin, as the instruments are to be made in conformity to such statement.



Nr. 5065



Nr. 5066



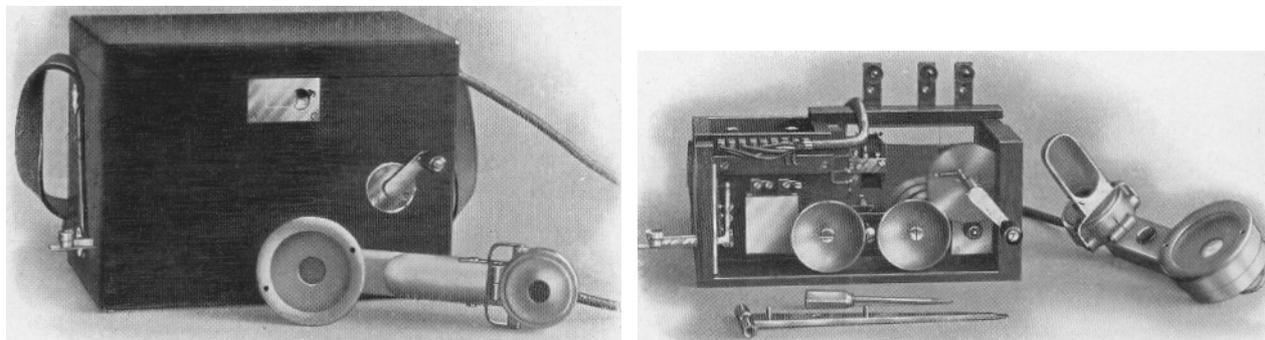
Nr. 5067

## Automatic Call-Boxes.

**Nr. 5065.** Call-Box for Magneto exchanges, mounted in black japanned iron box and arranged for 10 Ore pieces. Relay: 100 ohm resistance. *Weight. 2,500kg.*

**Nr. 5066.** The same, but for Common Battery exchanges. Relay: 500 Ohm *Weight: 2,500 kg.*

**Nr. 5067.** Club Call-Box for Common Battery exchanges and for 5 Ore pieces. Relay: 500 ohms. *Weight: 2,500 kg*



Nr. 5070.

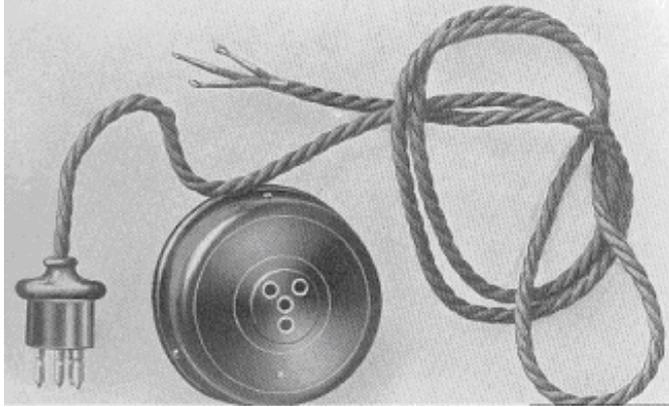
## Portable Telephones.

**Nr. 5070.** Field-telephone instruments (system captain Faber) for military purposes with special microtelephone made of aluminium, with waterproof cord, 3 magnet generator nr. 5785, 3 volts dry cell, condenser 2 mf. nr. 6560, buzzer nr. 5620, ringer (250 ohm) for alternating current, telegraph key, extra transmitter capsule as well as necessary tools for disassembling and adjusting the instrument etc. The instrument is mounted in solid oak-box with leather strap.

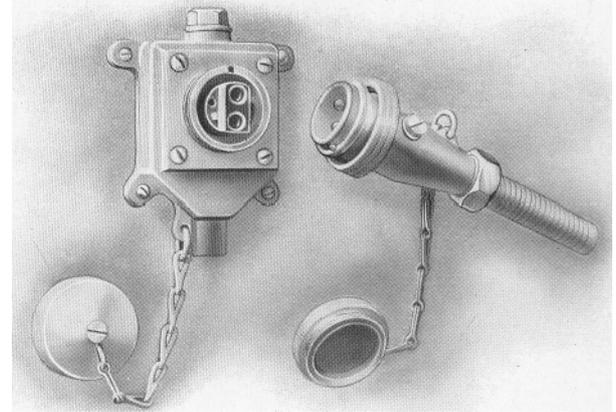
All working parts are mounted on a strong oak-frame, which may easily be raised out of porting-box thus permitting a quick inspection and adjustment of the single parts.

The instrument is in use at the royal danish army.

Overall-dimensions: 170 X 315 X 225 mm height. Weight: 9,000 kg.



Nr. 5075.

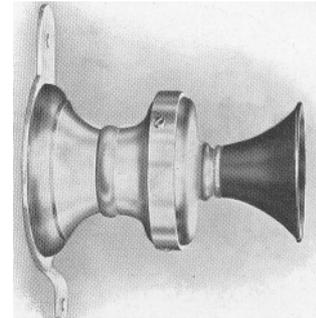
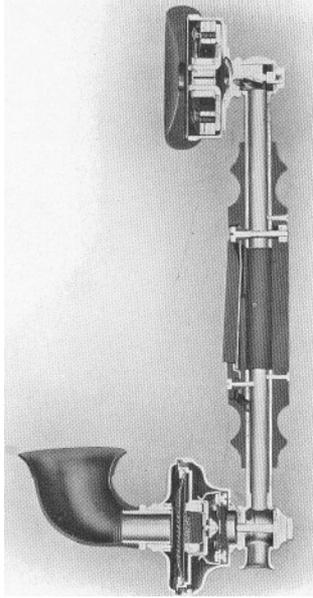


Nr. 5080-81.

Jacks for table  
and  
portable telephones.

**Nr. 5075.** Jack with plug and green, waterproof cord, 1500 mm, long; for table-sets to which more terminals on the same line are wanted. *Weight 0,438 kg.*

**Nr. 5080.** Ship-Jacks with 2-way plug nr. 5081, but without cords: made of tinned gun-metal and closed watertight. To be mounted on pier and connected to underground-urban cable thereby obtaining through connecting up the plug communication to the exchange. *Weight: 1,250 kg. each set.*



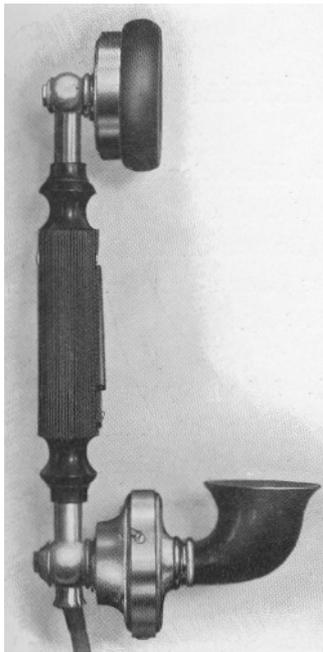
## Microtelephones and receivers.

The microphones supplied with all our instruments are exactly adjusted capsule-coal-grain-microphones, adapted to the required voltage.

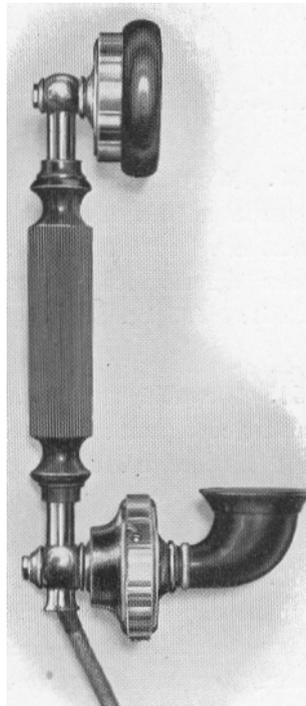
All parts leading the circuit are insulated with vulc. fibre or hard-rubber and can easily be exchanged. Cover is fitted with bajonet-lock arrangement. Cords are waterproof and all terminals inside duly protected. On wall-sets with solid microphone same is tournable to avoid the coals „frying”.

All boxes for telephone and microphone are made in *one* piece without any soldering.

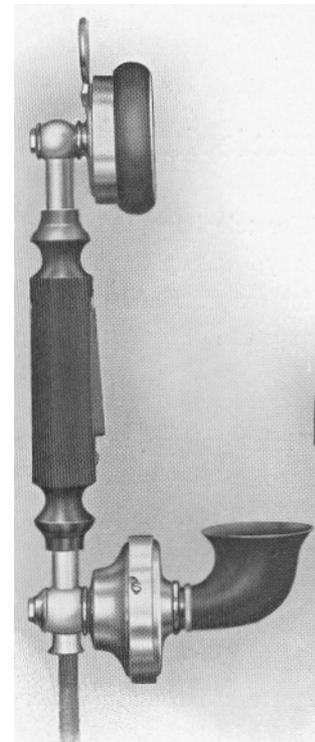
Receivers are of the usual pattern with hard-rubber case.



Nr. 5150.



Nr. 5155.



Nr. 5161.

Kindly, always state in order what capsule resp. coal-filling is desired. See scale below

	Apply:	Filling:
A	3 Volt local battery	25 <i>w</i>
B	20 Volt common battery, headexchange	150 <i>w</i>
C	24 Volt common battery, headexchange	200 <i>w</i>
D	24 Volt common battery, party line and small centrals	93 <i>w</i>

Otherwise we deliver the capsules adjusted for any voltage resp. resistance.



## Microtelephones.

**Nr. 5150.** Microtelephone *with* switch and 4-way, waterproof cord nr. 6200 for magneto and common battery system.  
*Weight: 0,593 kg.*

**Nr. 5151.** Microtelephone, as above, and further with 4-way plug nr. 6152. *Weight: 0,640 kg.*

**Nr. 5155.** Microtelephone, *without* switch, with 4-way cord nr. 6201 for magneto and common-battery system.  
*Weight: 0,580 kg.*

**Nr. 5156.** Microtelephone, as above, and further with 4-way plug nr. 6152. *Weight: 0,627 kg.*

**Nr. 5160.** Microtelephone with suspension-ring, otherwise as nr. 5150. *Weight: 0,608 kg.*

**Nr. 5161.** Microtelephone with suspension-ring, otherwise as nr. 5151. *Weight: 0,655 kg.*

**Nr. 5165.** Microtelephone with suspension-ring, otherwise as nr. 5155. *Weight: 0,595 kg.*

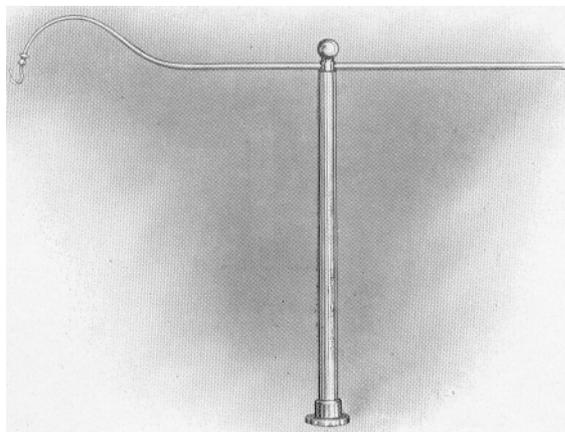
**Nr. 5166.** Microtelephone with suspension-ring, otherwise as nr. 5156. *Weight: 0,642 kg.*

**Nr. 5170.** Microtelephone as above nr. 5160, but with capsules made of aluminium; operators outfit for switchboards.

**Nr. 5171.** Microtelephone as above and further with 4-way plug.

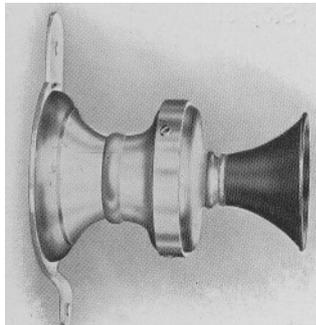
**Nr. 5175.** Microtelephone with switch for short-circuiting the inductioncoil, 5-way cord and 5-way plug.

**Nr. 5180.** Microtelephone with switch for "test", for Multiple-Boards otherwise as nr. 5175.



Nr. 5190.

**Nr. 5190.** Suspension-Stand for microtelephones, nickelplated brass. Adjustable in longitudinal direction and turnable.  
*Weight: 0,820 kg.*



Nr. 5200



Nr. 5210



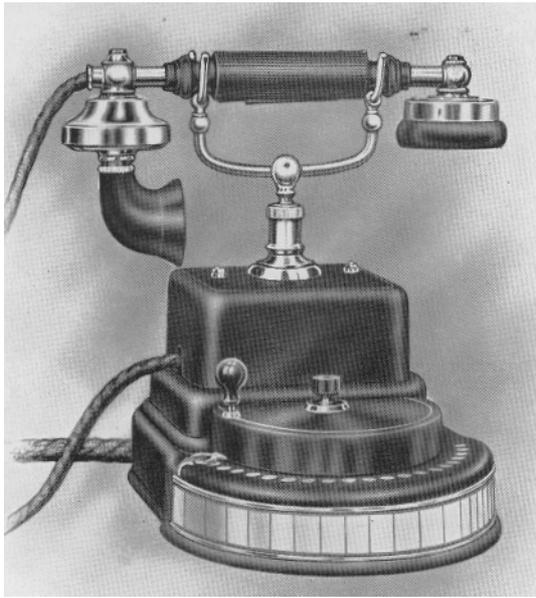
Nr. 5215

## Microphones and Telephones etc.

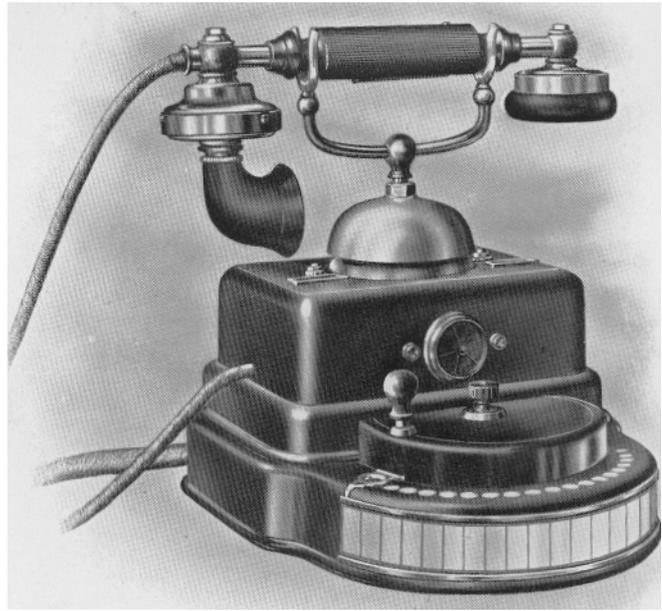
**Nr. 5200.** Microphone for Wall-sets with mouthpiece of hard-rubber, for magneto-system or common battery. The box may be rotated to escape "frying". *Weight 0,300 kg.*

**Nr. 5210.** Hand-Telephone for Wallsets, Bell pattern, with hard-rubber case. Waterproof 2-way cord nr. 6205. For magneto or common-battery system. *Weight: 0,305 kg.*

**Nr. 5215.** Watch-receiver with 2-way cord; heavy nickelplated brass, fitted as receivers on microtelephones, with suspension-ring and waterproof cord. *Weight: 0,250 kg.*



Nr. 5400-5401.



Nr. 5410-5412.

### Table Telephones for Intercommunicating systems.

The illustration 5400 shows table telephone instrument for intercommunicating system on metallic circuits and for local calls only, whereas 5410 is intended for both local and central callings (C. B.).

As compared with plants with switchboards these instruments give the benefit of enabling oneself to make the desired connection. This arrangement is done by means of a turn-lever (pointer) located on front of foundation with normal position N. Whenever a connection is wanted lever is turned to number in question and call-signal (locally) is given by means of press-button in centre of cover.

Call- & clearing signal to central is done in usual way by lifting or replacing microtelephone. For local speech no clearing signal is necessary. During connection with exchange lever may be turned to another number in order to procure an information wanted without breaking off connection.

Is called number free sounds buzzer at own instrument and battery bell at the called one. Whenever required number is engaged buzzer does not sound. Central line not being vacant is signified by means of visual indicator on front of cover. Such calling therefore is resultless.

The instruments intended for call from central are in addition to relays also supplied with dropping indicators and extension bells. The latter working through local contacts in time to impact of alternating current as long as signal from central is given.

Central lines can also be switched permanent (f. i. night connection) to other number in the system than appointed.

If a call is made to an instrument on which pointer being not replaced on resting position N. answering is not possible.

At calls from central pointer is turned to number of central in question, the required number learned, whereafter same through local call is invited to switch to calling central line.

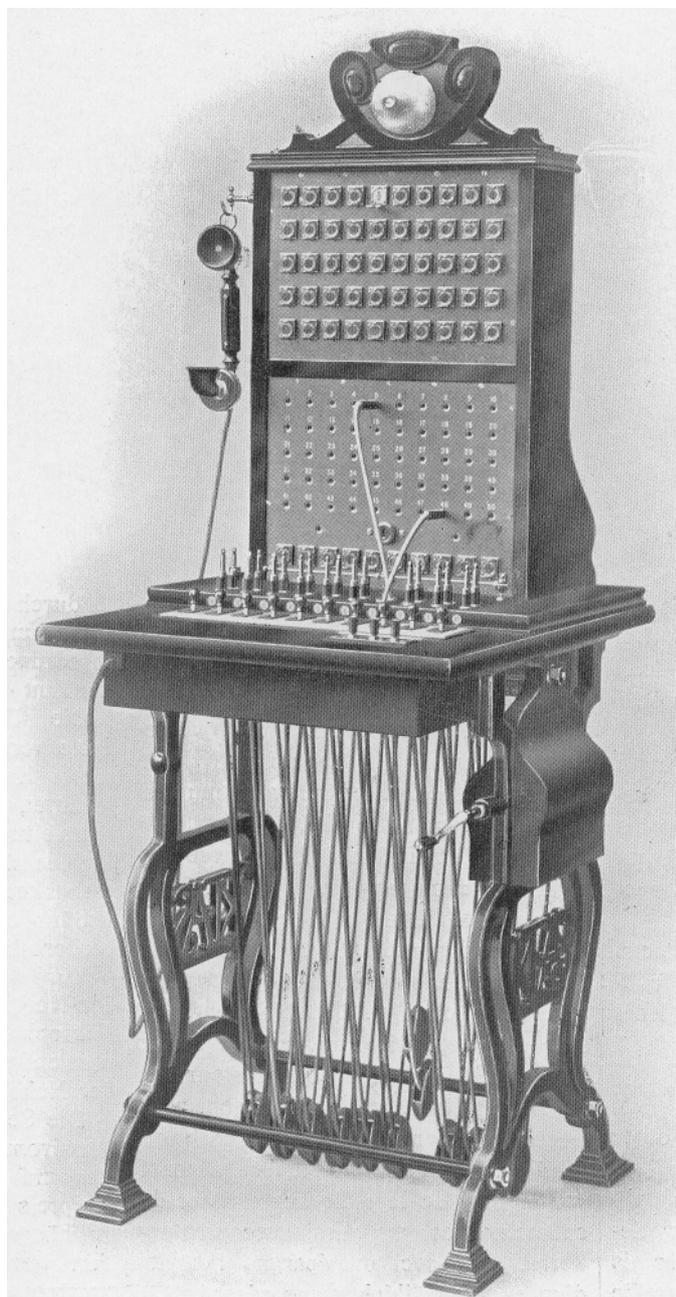
At end of conversation pointer is to be replaced. The omitting do not, however, prevent a new call, but in such case gong at both this and at the instrument normal adjusted to central will sound.

On front of foundation is fitted marking plate for each line.

Local call and speaking batteries (ea. 12 Volts) are common to all apparatus in the system.

We strongly recommend not to make the distance between the farthest instruments longer than corresponding to a resistance of 25 Ohm (for 0,7 mm wire equalling 275 meter -etc.).

Instruments for connecting to central lines may also be switched to boards (1 double-line for each connection) and further erected in such a manner as to conduct the central lines to one single instrument or one line each (to 1, 2 or 3 app. respectively).



Nr. 5475.



## Standard Switchboards

for magneto-system (double lines).

Connections are made by means of plugs and cords and for each pair are provided indicator and a combined speaking and ringing key, having 3 positions.

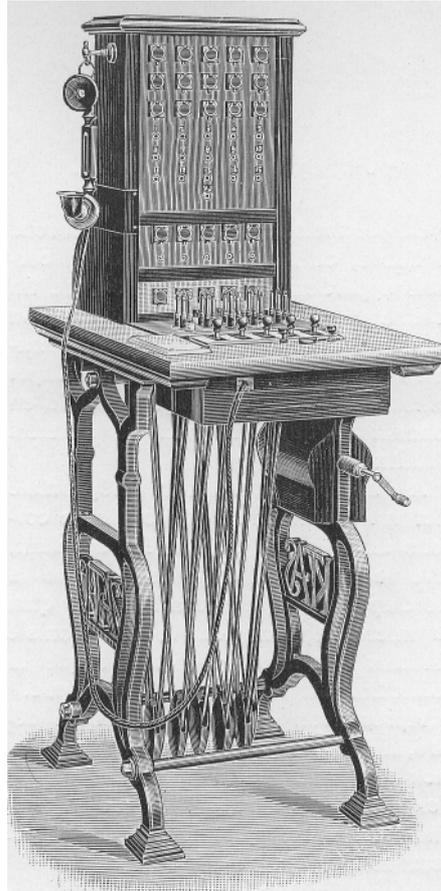
To each number correspond a jack and indicator (fall clap) giving visible signal at calls, also provided with alarm-contacts.

When board is called operator puts the backmost plug of a pair of cords in jack of calling number, pull forward (towards operator) lever of combined key, thereby putting microtelephone and circuit through to each other and disconnecting indicators.

Having learned the desired number from subscriber the foremost plug is put in jack of claimed number and combined key pressed backwards (away from operator) at same time giving calling signal with generator. Where machine generator is used (at tables having frequent calls) button M. I. should always be pressed down.

When combined key is in foremost position it is possible in pressing down button B. to give call-signal to either speaker. Boards are provided with terminals for extensionbell (E. K.), Generator (I.), Speaking battery (M. B.) and call-battery (S. B.) as well as earth (J.). Furthermore 2 test-jacks and key; hand-microtelephone with 4-way plug and waterproof cord.

	<b>5470</b>	<b>5475</b>	<b>5480</b>
Number of metallic circuits	25	50	100
Number of pair of cords	5	10	12
Height in mm .....	1510	1580	1610
Width in mm .....	430	560	930
Depth in mm .....	635	635	680
<i>Weight in kg</i> .....	<i>56</i>	<i>70</i>	<i>104</i>



Nr. 5500

## Standard Switchboards

with cordconnections with plugs and jacks, for double-lines and common battery.

These boards permit connections as named under cordless switchboards.

Connection is made with cords with plugs and jacks. The boards are provided with the same arrangements as named under cordless switchboards and also with one micro-telephone (on 100 and 200 lines boards with two microtelephones). Furthermore is included a visual vibrating indicator, indicating whether call-signal given with handgenerator works.

The hand generator has 5 magnets, 100 and 200 lines boards having two generators. Machine-driven generators may be supplied on special demand.

In the boards are mounted an adequate number of waiting jacks.

The switchboards are provided with cord-sets as under with matching keys; 15-50 lines boards have one and 100 and 200 lines 2 operators' positions The latter boards being provided with a connection key. Local battery is the same and is applied as named under cordless switchboards.

The contact-switches which are specially to be undertaken at adjustment of central-line are not made by means of key but automatically by plug-seat contacts placed in the casing of the central-plugs.

Relays for central-lines are placed out of the board in dustproof box.

The table-top and stand are made entirely of fine polished, solid mahogany - if desired of other wood - and mounted on handsome cast iron feet.

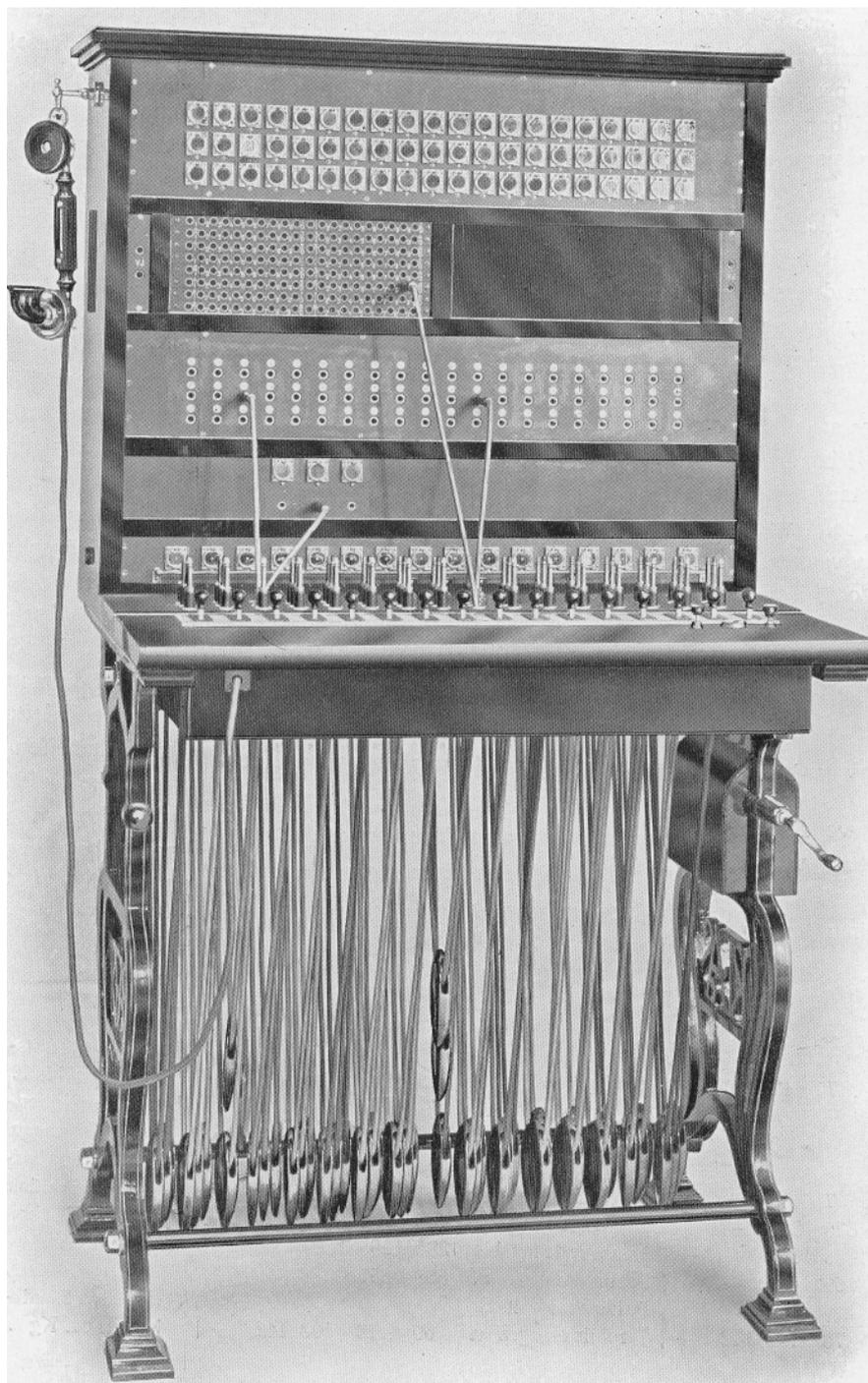
To the boards belong 1 cross connection, mounted in closed cupboard. This is invoiced extra.

To this all conductors are brought and over cross connection within the table.

On special demand we also supply above switchboards fitted with headgear receiver and breastplate microphone instead of ordinary microtelephone.



	<b>5500</b>	<b>5501</b>	<b>5502</b>	<b>5503</b>	<b>5505</b>
Number of central lines up to ....	5	7	12	20	40
Number of local lines	15	25	50	100	200
Pairs of cords with keys	5	7	10	20	-
Width in mm ...	445	525	725	-	-
Height in mm ...	1285	1385	1385	-	-
Depth .....	655	655	655	-	-
Weight incl. relaysbox in kilos.	69	76	100	142	-



Nr. 5550.

## Multiple Switchboards for connecting to exchanges for C. B.

The boards are constructed in the same manner as those described on page 34-35 and may be put together in ranks.

Illustration shows a board for 60 metallic-lines and with 16 pairs of cords and plugs and having field for 320 local-numbers (16 strips nr. 5570) and 16 central-mountings (nr. 5580).

In calling-plug (the foremost) is  $L_2$  put through point of plug rendering possible the "test" on front of jack.