SECTION D.

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Telegraphic Addresses

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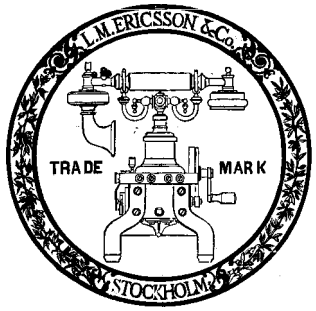

L.M.ERICSSON & Co.
TRADE
MARK
STOCKHOLM

Inter-Communication Telephone Instruments

In order to make it possible to communicate between different parts of big establishments, such as warehouses, factories, or offices, without the aid of a Telephone Exchange, inter-communication instruments have for a long time been in use. These instruments have been of various patterns, but it is common to all of them that one instrument can, by means of a simple manipulation, he brought into communication with any other instrument on the same system.

We have for some time been making instruments of this description, but, as the demand lately has largely increased, we have found it necessary to construct a new system, which we claim is a decided improvement on the old ones, and which we are sure will give every satisfaction.

The instruments are manufactured for systems with 10, 15, 20, 30, 40, 50, or 60 lines, and they can be properly divided into two groups, viz., instruments for 10, 15 and 20 lines, and instruments for 30 lines and upwards.

The first-mentioned pattern instrument is partly made with the switch and the telephone instrument combined, and partly with the switch fitted separately. In either case the switching is done by turning the hand of the switch to the required number. When the instrument is not in use, the switch should be left in its resting position, which is marked **A**.

The latter pattern is made with the switch separate from the telephone instrument. The switch is fitted with one spring jack for each line, and also with one jack, **A** (resting position), and a plug and cord for switching. A connection is effected by placing the plug in the jack of the wanted line. When not in use the plug should be inserted in the jack marked **A**.

A most important improvement is that the numbers on the switch are placed consecutively, so that all instruments are exactly alike. There are several other improvements in the construction ; in particular, if the switch or plug, as the case may be, be not replaced to the resting position, **A**, the bell of the instrument will still ring when a signal is given by any of the other instruments. It is, however, not possible to answer a call until the hand of the switch or the plug i s in the position **A**.

Another point is, that if either of the two persons conversing omits to replace his switch or plug to **A** and a third person calls, only the bell of the called instrument will ring, the other one being cut out.

With regard to the lines, the inter-communication instruments can be divided into two distinct groups, viz., instruments working on single lines and a common return, and instruments working on metallic circuits. In installations with 20 or more stations, or when the lines are of a considerable length, we strongly recommend the use of metallic circuits. When several conversations are going on simultaneously on a single-line system, the overhearing, by reason of induction between the lines, is rather bad. This drawback is perfectly overcome by the use of metallic circuits. The price of the metallic-circuit instruments is only slightly higher than for the single-line ones. The cable used for metallic-line instruments consists of twice as many wires as are required for single-line instruments. The increase in price, however, is not great.

On page 28 we give for comparison of cost the prices of two installations, one for to single and the other for 10 metallic lines. Instruments for more than 20 lines are only made for metallic circuits, but they can, of course, also be used on single lines. If required, single-line instruments are made to special order.

Inter-communication instruments are made both for battery and magneto ringing.

The chief advantage of the battery-ringing instruments is the convenience of only having to press the button when giving a signal. On the other hand, there are several disadvantages, one of which is that the ringing battery must now and then be renewed, and that the signal is uncertain if the insulation of the installation of the cable has been damaged through damp or any other cause. For these reasons the magneto-ringing instruments have lately been more and more used, and we particularly call attention to the advantage, not to say necessity, of using this system for large installations with long lines.

Should an installation be required for less than 10 lines, or for a number not found in our Catalogue, the instrument for the nearest higher number of lines should be used, and the excess numbers left blank. In most cases it is advisable to have a few spare numbers, as the original cost is only slightly increased. The change of the whole system would, however, involve a heavy expense, if all instruments have to be taken down and replaced with others for a greater number of lines.

These instruments are divided into the following groups, viz.:

(1) Battery-ringing inter-communication telephone instruments for to, 15, or 20 *single lines.*

(2) Battery-ringing inter-communication telephone instruments for to, *15, or* 20 *metallic lines.*

(3) Inter-communication switches for to, 15, and 20 metallic lines, to be used in connection with magneto ringing telephone instruments.

(4) Inter-communication plug switches for 30, 40, 50, or 6o metallic lines, lo be used in connection with magneto or battery riming telephone instruments.

DIRECTIONS FOR USE.

The Originating Subscriber.

(1) Place the hand of the switch on the required number.

(2) Press the ringing key, **S**.

(3) Remove the hand micro-telephone from the hook, put the receiver to the ear, and wait for a reply.

(4) Restore the switch to its normal position, with the hand pointing on **A**.

The Called Subscriber.

(1) When the bell rings replace the switch to **A**, if this is not already done.

(2) Take the hand micro-telephone from the hook and reply.

During conversation the key in the hand micro-telephone should always be pressed down.

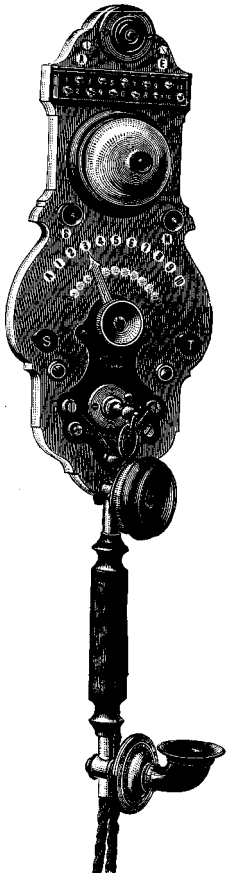
If the persons conversing should find that the induction from other lines is troublesome. they can, to a. considerable extent, remedy this by the called subscriber placing the hand of his switch on the number of the originating subscriber, and by both keeping the keys, **T**, pressed down as long as the conversation lasts.

GROUP I.

Battery=Ringing Inter= Communication Telephone Instruments, for Installations with 10, 15, or 20 Single Lines . . . . .

These instruments include both the switching arrangements and the telephone instrument. The switch is provided with a handle, to be placed on the required number, a galvanic bell, a press button, **S** (on the left-hand side of the instrument), for the ringing, and a press button, **T** (on the right-hand side of the instrument), by means of which two instruments engaged in a conversation can be connected with each other by two separate wires, instead of using the common return wire. There is also fitted a hand micro-telephone, with a key in the handle, and one induction coil.

Fig. 1.



WALL TELEPHONE, No. 760.

Battery-Ringing Inter-Communication Wall Telephones for Single Lines. (Fig. 1.)

Catalogue Number ...	760	761	762
Code Word	Morchioso	Morcillas	Mordicus
Number of Lines	10	15	20
Height in Inches	15	15	15
Width in Inches	6.5	6.5	6.5
Weight in Lbs	4	4	4.2
Price ...	£2 13 0	£2 15 0	£2 18 6

CABLES, Nos. 4001, 4002, 4003, and 4004, page 22. BATTERY BOXES and CELLS, pages 23 and 24.
JUNCTION BOXES, Nos. 790, 791, and 792, page 2I. SPARE PARTS, pages 25, 26, and 27.

Fig. 2.

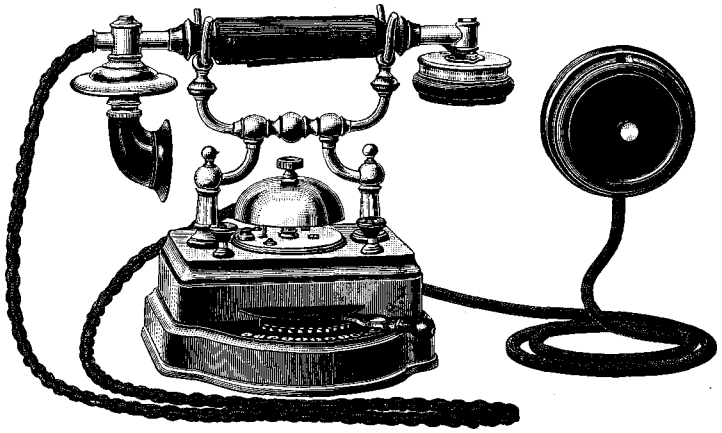


TABLE TELEPHONE, No. 765.

Battery-Ringing Inter-Communication Table Telephones for Single Lines. (Fig. 2.)

Catalogue No ...	765	766	767
Code Word	Mordebain	Mordiscare	Morditrice
Number of Lines	10	15	20
Height in Inches	9	9	9
Width in Inches	11	11	11
Weight in Lbs	4.9	5.1	5.1
Price ...	£2 18 6	£3 2 0	£3 7 6

CABLES, Nos. 4001, 4002, 4003, and 4004, page 22. BATTERY BOXES and CELLS, pages 23 and 24. JUNCTION BOXES, Nos. 790, 791, and 792, page 21. SPARE PARTS, pages 25, 26, and 27.

The fitting up of these instruments can be done in two different ways, viz.:

Diagram No. I (page 30) shows the fitting with a microphone battery of two Leclanche cells for each instrument. The carbon pole is connected to the terminal marked **M**, and the zinc pole to terminal **Z**. These cells serve also as ringing batteries, but may be strengthened by a third cell, the carbon pole of which is to be brought to terminal **S**, and the zinc pole to the carbon pole of the microphone battery.

Diagram No. 2 (page 31) shows the second manner of fitting the instruments. The microphone batteries consist, as before, of two Leclanche cells for each instrument, and they are connected to terminals **M** and **Z**, as already described. For the signals a common ringing battery of three or four cells is used, which ought to be fitted in a central position. The zinc pole is connected with the common return wire marked E, and the carbon pole to a special wire marked **S**. From this wire connections are brought down to the terminals **S** on the different instruments.

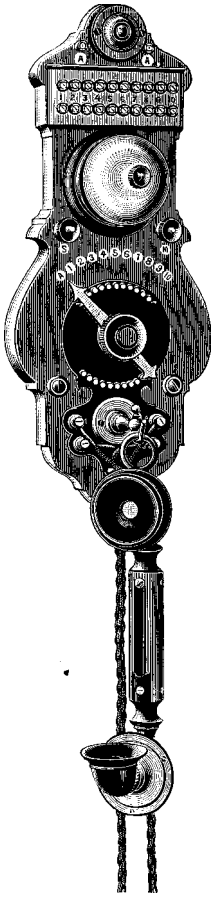
In both cases the lines are connected to the terminals bearing their respective numbers, but it must be borne in mind that the terminal with the same number as a certain instrument is on that set left vacant, and the wire instead brought to terminal **A**. Instrument No. 7 will thus, for example, have its on line wire connected to **A**, so that No. 7 terminal is left blank. The terminals **E** on all the instruments should be connected to the common return wire.

GROUP 2.

Battery=Ringing Inter= Communication Telephone Instruments, for 10, 15, and 20 Metallic Lines. .

These instruments are very similar to those for single lines, just described, and thus include both the switch and the telephone instrument. The press button **T** is, however, excluded, because the instruments are constructed for metallic lines.

Fig. 3.



WALL TELEPHONE, No. 768.

Battery-Ringing Inter-Communication Wall Telephones for Metallic Lines. (Fig. 3.)

Catalogue Number ...	768	769	770
Code Word	Morenula	Moretum	Morfondre
Number of Lines	10	15	20
Height in Inches	16	16	16
Width in Inches	6.5	6.5	6.5
Weight in Lbs	4	4.2	4.6
Price ...	£2 16 0	£3 0 0	£3 3 0

CABLES, Nos. "4051, 4052, 4053, and 4054, page 22.
JUNCTION BoxEs, Nos. 793, 794, and 795, page 21.
BATTERY BOXES and CELLS, pages 23 and 24.
SPARE PARTS, pages 25, 26, and 27.

Fig. 4.

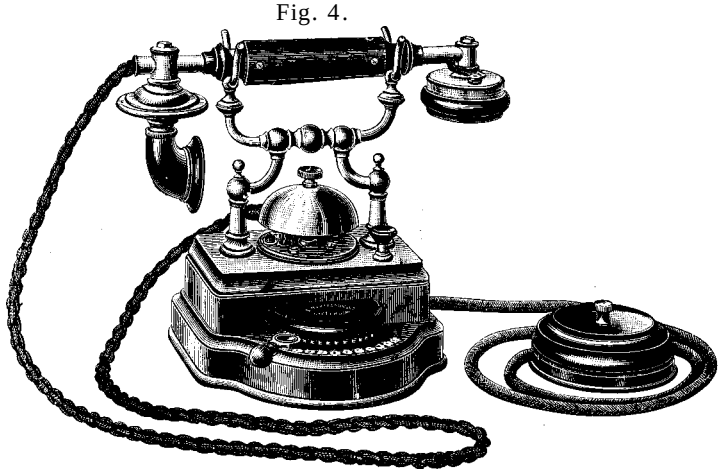


TABLE TELEPHONE, No. 771.

Battery-Ringing Inter-Communication Table Telephones for Metallic Lines. (Fig. 4.)

Catalogue Number ...	771	772	773
Code Word	Morigerate	Moriuntur	Mornamos
Number of Lines	10	15	20
Height in Inches	9	9	9
Width in Inches	11	11	11
Weight in Lbs	4.9	5.1	5.3
Price ...	£3 3 6	£3 8 0	£3 14 0

CABLES, Nos. 4051, 4052, 4053, and 4054, page 22. BATTERY BOXES and CEILS, pages 23 and 24. JUNCTION BOXES, Nos. 793, 794, and 795, page 21. SPARE PARTS, pages 25, 26, and 27.

The fitting up of these instruments can be done in two different ways, viz. :-

Diagram No. 3 (page 32) shows the fitting with a microphone battery of two cells for each instrument. The carbon pole is connected to terminal **M**, and the zinc pole to terminal **Z**. The same batteries are also used for ringing purposes, but a third cell call be added, if necessary. The carbon pole of the third cell should be brought to terminal **S**, and the zinc pole to the carbon pole of the microphone battery.

Diagram No. 4 (page 33) shows the other way of fitting the instruments. The microphone batteries are arranged exactly as before described, but a common ringing battery is used. This battery consists of three or four cells, which are connected to the wires **S** and **C** in the cable. The terminals **S** and **C** fitted on the instruments are connected to the above-mentioned wires.

The lines are connected in exactly the same way as described under Group 1, only that there are two terminals marked **A**.

These instruments can also, if required, be used for single lines.

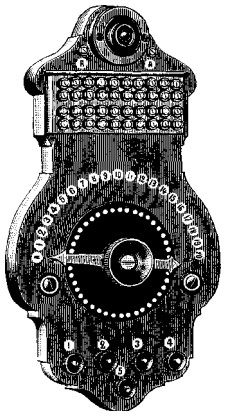
GROUP 3.

Inter= Communication Switches, or 10, 15, and 20 Metallic Lines, to be used in connection with Magneto=Dinging Telephone Instruments. . . .

These instruments include the switching arrangements only, and are to be used in connection with magneto-ringing telephone instruments. They are only made for metallic circuits. The switches are provided with a hand, which, in the resting position, should point to **A**, and the switching is done by turning it on to the required number.

The manipulation of the instruments is exactly the same as already described under Group 2, except that the calling is done from the attached telephone instrument.

Fig. 5.



INTER-COMMUNICATION SWITCH, No. 776.

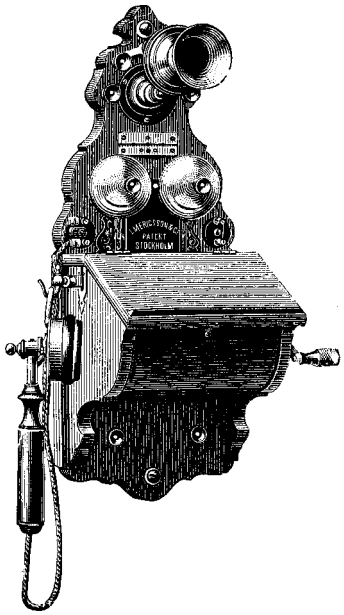
Inter-Communication Switches for 10, 15, and 20 Metallic Lines, to be used in connection with Magneto-Ringing Telephone Instruments. (Fig. 5.)

Catalogue Number ...	774	775	776
Code Word	Morniado	Moroncho	Morositas
Number of Lines	10	15	20
Height in Inches	12	12	12
Width in Inches	6.5	6.5	6.5
Weight in Lbs	2	2.2	2.2
Price ...	£1 8 0	£1 12 0	£1 15 6

CABLES, Nos. 4051, 405², 4053, and 4054, page 22. BATTERY BOXES and CELLS, pages 23 and 24.
JUNCTION BOXES, Nos. 793, 794, and 795, page 21. SPARE PARTS, pages 25, 26, and 27.

The following Magneto-Ringing Telephone Instruments are suitable for use in connection with Switches Nos. 774, 775, and 776.

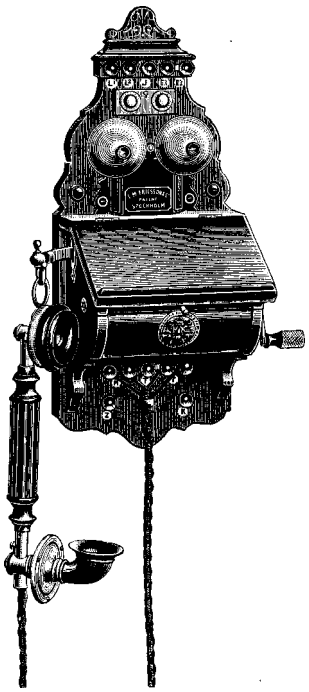
Fig. 6.



WALL TELEPHONE, No. 307.

Magneto-ringing wall telephone, with fixed transmitter, spoon receiver, and two-magnet generator. The instrument is not provided with a battery box. (Fig. 6.)

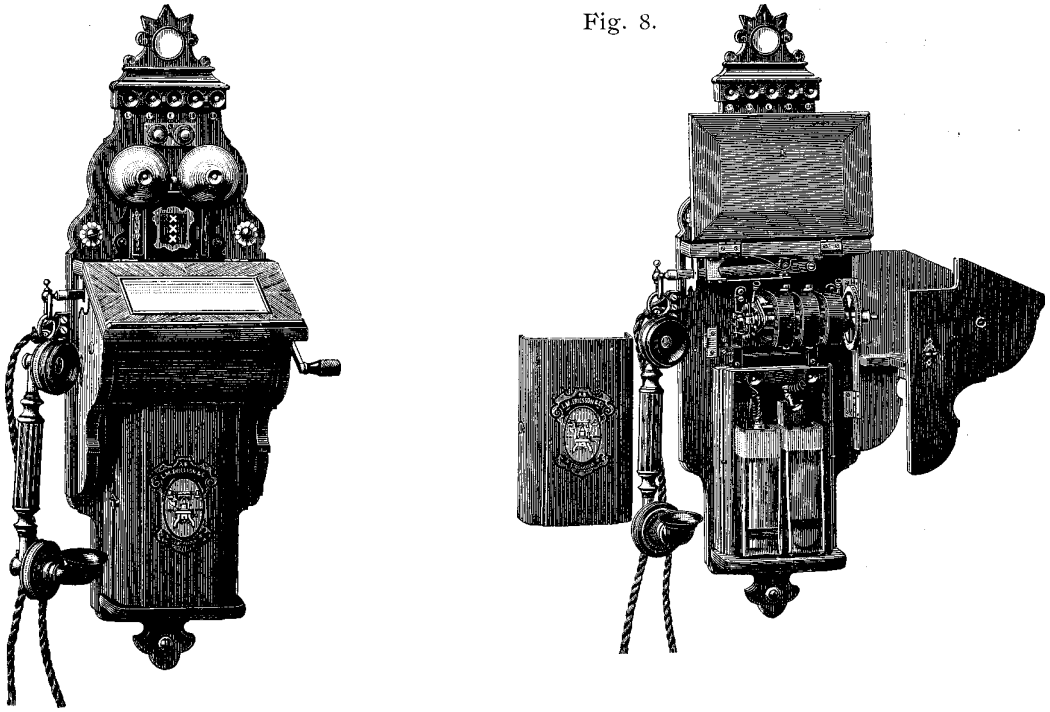
Fig. 7



WALL TELEPHONE, No. 308.

Same instrument as No. 307, but with hand micro telephone. (Fig. 7.)

Fig. 8.



WALL TELEPHONE No. 357.

Magneto-ringing wall telephone, with hand micro-telephone and three-magnet generator. The instrument is fitted with battery box to take two cells, No. 590 or 596, but not with writing desk. (Fig. 8.)

Fig. 9.

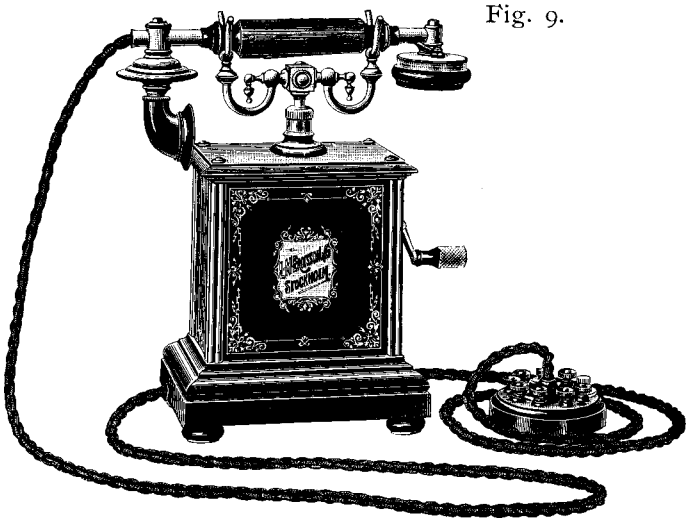


TABLE TELEPHONE, No. 382.

Magneto-ringing table telephone, with hand micro-telephone and three-magnet generator. Wall fitting and 3·5 feet cable included. (Fig. 9.)

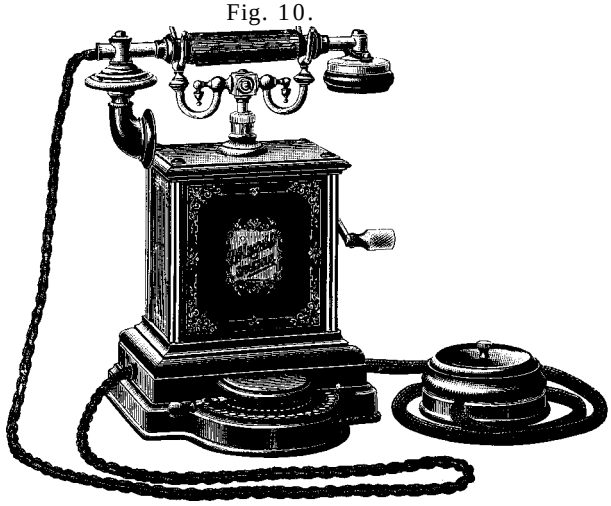
Magneto-Ringing Telephone Instruments, to be used in connection with Switches Nos. 774, 775, 776.

Catalogue Number ...	307	308	357	382
Code Word	Morrocay	Morsellato	Mortadella	Mortario
Height in Inches	17.6	18	30	12.8
Width in Inches	6.8	6.8	8.4	8
Weight in Lbs	8.6	8.8	15.4	11.7
Price ...	£2 10 6	£12 16 0	£3 14 0	£3 7 6

BATTERY BOXES and CELLS, pages 23 and 24. SPARE PARTS, pages 25, 26, and 27.

Instead of using the magneto-ringing table telephone No. 382, in connection with inter-communication switches Nos. 774, 775, and 776, a similar table telephone, combined with inter-communication switch, for 10, 15, and 20 metallic lines, is constructed. The instrument is fitted with hand micro-telephone and three-magnet generator. Wall fitting and five feet cable is included. (Fig. 10.)

Fig. 10.



INTER-COMMUNICATION TABLE TELEPHONE, No. 779.

Magneto-Ringing Inter-Communication Table Telephones, for 10, 15, and 20 Metallic Lines. (Fig. 10.)

Catalogue Number ...	777	778	779
Code Word	Mortecino	Morterada	Morteruelo
Number of Lines	10	15	20
Height in Inches	13.2	13.2	13.2
Width in Inches	11.2	11.2	11.2
Weight in Lbs	12.3	12.3	12.3
Price ...	£4 10 0	£4 14 6	£5 0 0

CABLES, Nos. 4051, 4052, 4053, and 4054, page 22. BATTERY BOXES and CELLS, pages 23 and 24.
JUNCTION BOXES, Nos. 793, 794, and 795, page 21. SPARE PARTS, pages 25, 26, and 27.

The instruments are to be fitted as shown on diagram No. 5 (page 34).
They can also be used for single lines.

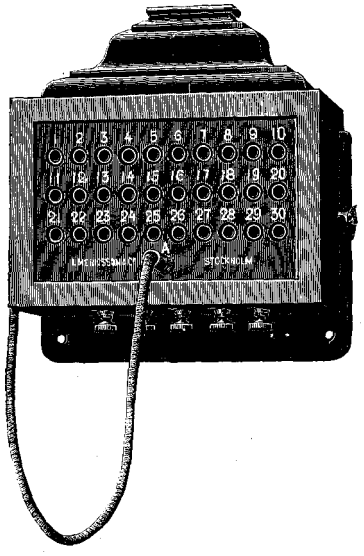
GROUP 4.

Inter-Communication Switches, for 30, 40, 50, and 60 Metallic Lines, to be used in connection with Magneto or Battery Ringing Telephone Instruments

These switches are constructed for metallic circuits, and include one jack for each line, a home jack, **A**, and a cord with plug for switching. When the switches are not used, the plug should be placed in the home jack. The calling of a certain line is effected by inserting the plug in the corresponding jack, but the signal is given from the attached telephone instrument.

The manipulating of these switches is exactly the same as already described under Groups 1 to 3.

Fig. 11.



INTER-COMMUNICATION SWITCH, No. 780.

Inter-Communication Switches, with Jacks, Plug, and Cord, for 30, 40, 50, and 60 Metallic Lines. (Fig. 11.)

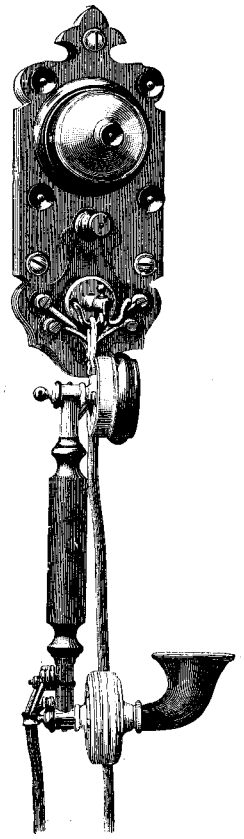
Catalogue Number ...	780	781	782	783
Code Word	Mortualia	Moscadato	Moscardina	Moscauade
Number of Lines	30	40	50	60
Height in Inches	9.2	10	10.8	12
Width in Inches	8	8.4	8.4	8.4
Weight in Lbs	5.3	6.4	7.3	8.4
Price ...	£3 2 0	£3 13 0	£4 4 6	£415 6

CABLES, Nos. 4054 and 4055, page 22.
JUNCTION BOXES, Nos. 796, 797, 798, and 799, page 21.
BATTERY BOXES and CELLS, pages 23 and 24.
SPARE PARTS, pages 25, 26, and 27.

For use in connection with inter-communication switches Nos. 780, 781, 782, and 783, the magneto-ringing telephone instruments N os. 307, 308, 357, and 382 are suitable. For description
and prices, see pages 14, 15, and t6.

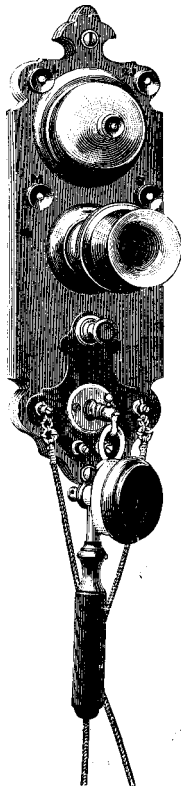
The following battery-ringing telephone instruments can also be used :-

Fig. 12.



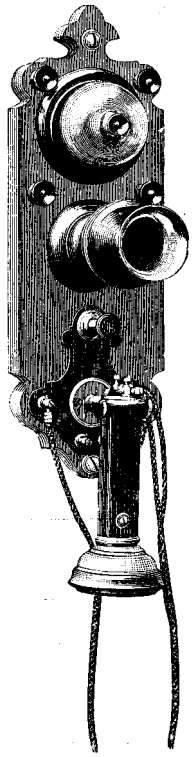
WALL TELPHONE,.
No. 407

Fig. 13.



WALL TELEPHONE,.
No. 411

Fig. 14



WALL TELEPHONE,
No. 416.

No. 407.-Battery-ringing wall telephone, with hand micro-telephone. (Fig. 12.)

No. 411.-Battery-ringing wall telephone, with fixed- transmitter and ordinary receiver. (Fig. 13.)

No. 416.-Battery-ringing wall telephone, with fixed transmitter and spoon receiver. (Fig. 14.)

Fig. 15.

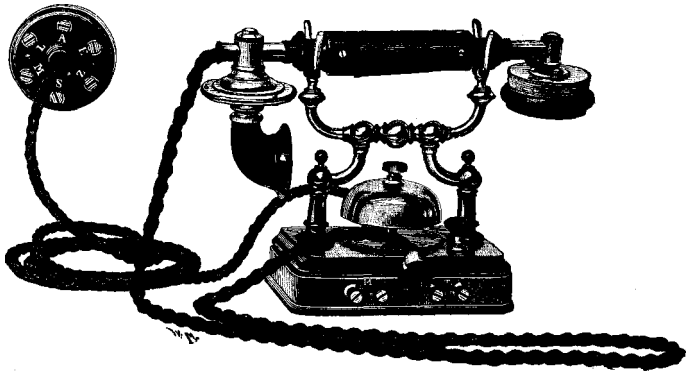


TABLE TELEPHONE, No. 401.

No. 401.-Battery-ringing table telephone, with hand micro-telephone, wall-fitting, and 42 feet cable. (Fig. 15.)

Battery-Ringing Telephone Instruments, for use with Inter-Communication Switches Nos. 780, 781, 782, and 783.

Catalogue Number ...	407	411	416	401
Code Word	Mostaccino	Mostachoso	Mostardal	Mostearon
Height in Inches	11.6	6.4	6.4	6.8
Width in Inches	4	4.8	4.8	4.8
Weight in Lbs	3	3.7	3.3	4
Price ...	£1 19 6	£1 14 0	£1 14 0	£2 10 6

BATTERY BOXES and CALLS, pages 23 and 24.

SPARE PARTS, pages 25, 26, and 27.

Diagram No. 6 (page 35) shows the fitting of these switches with magneto instruments, and diagram No. 7 (page 36) with battery-ringing instruments.

They are intended to be connected by metallic lines, but they can also be used for single lines.

IMPORTANT NOTICE.

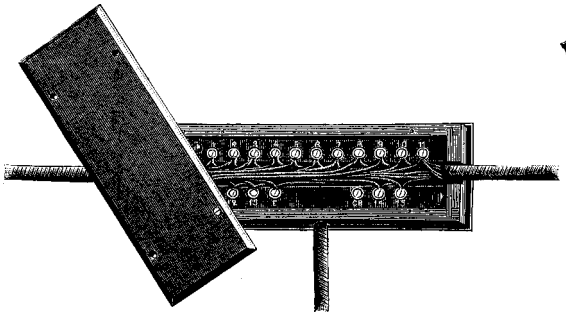
When magneto or battery ringing telephone instruments are ordered, it must always be distinctly mentioned if they are to be used in connection with inter-communication switches or not, as the connections of the instruments are somewhat different.

JUNCTION BOXES.

From the foregoing description it will be seen that inter-communication instruments must always be connected with each other by means of cables, consisting of a number of wires corresponding to the number of instruments in the installation. These cables must be brought down to each instrument, and the joining of the branch cables is a somewhat troublesome undertaking, especially with cables containing a large number of wires. In order to make this easier, special junction boxes have been constructed.

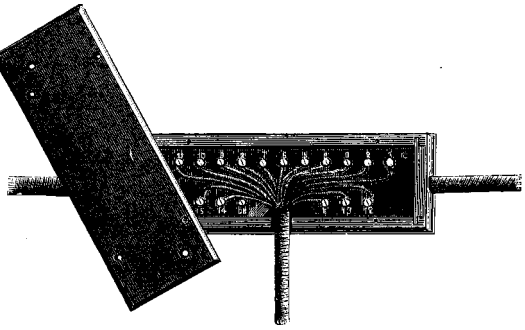
Figures Nos. 16 and 17 represent a junction box for 15 single lines. In fig. 16 the front part of the junction box is shown, with the main cable passing through it. Figure 17 is a back view of the same junction box, showing the branch cable to the instrument.

Fig. 16.



Front View of Junction Box No. 791.

Fig. 17.



Back view of Junction Box No. 791.

Junction Boxes for 10, 15, and 20 Single Lines.

Catalogue Number ...	790	791	792
Code Word	Mostelera	Mostrabila	Mostratore
Number of Lines	10	15	20
Weight in Lbs	.3	.4	.6
Price ...	£0 6 0	£0 7 0	£10 8 6

Junction Boxes for 10, 15, 20, 30, 40, 50, and 60 Metallic Lines.

Catalogue Number	730	794	795	796	797	798	799
Code Word	Mostrengo	Motacenes	Motamus	Moterello	Motilaron	Motivone	Motolita
Number of Lines ...	10	15	20	30	40	50	60
Weight in Lbs	.4	.8	1.1	1.5	2.2	2.8	3.3
Price ...	£0 8 6	£0 10 0	£0 12 6	£0 16 0	£1 0 0	£1 4 0	£1 7 0

CABLES.

For the connection of the different instruments cables are used. They are made of 28 mils. tinned copper wire. The insulation consists of one layer of india-rubber bands and two braidings of paraffined cotton. The external cover of the cable is made of cotton.

Cables for 5, 10, 15, and 20 Single Lines.

Catalogue Number ...	4001	4002	4003	4004
Code Word	Motoneria	Motrego	Motterig	Maucarrice
Number of Lines	5	10	15	20
Number of Wires in the cable...	7	12	17	22
Price per Yard...	£0 0 4	£0 0 6	£0 0 9	£0 1 0

Cables for 5, 10, 15, 20, and 30 Metallic Lines.

Catalogue Number ...	4051	4052	4053	4054	4055
Code Word	Movendum	Movibili	Mouillage	Moulinames	Mouliniren
Number of Lines	5	10	15	20	30
Number of Wires in the cable	12	22	32	42	62
Price per Yard...	£0 0 6	£0 1 0	£0 1 4	£0 1 9	£0 2 3

For the 40-line switches No. 781, two cables for 20 metallic lines, No. 4054, should be used; for 50-line switches No. 782, one 20-line cable, No. 4054, and one 30- line cable, No. 4.055 and for 6o-line switches, No. 783, and two 30-line cables, No. 4055.

BATTERIES.

For the microphone and ringing batteries either Leclanche or dry cells are used.

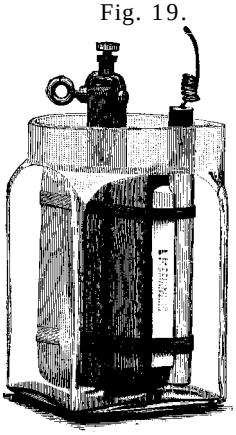
The Leclanche cells are of the ordinary pattern. Best-class manganese peroxide is used for the manganese blocks.

The dry cells are of the well-known Hellesen pattern.

Fig. 18.

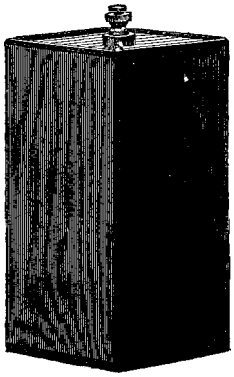
Large Size Leclanche Cell, No. 585.

Fig. 19.



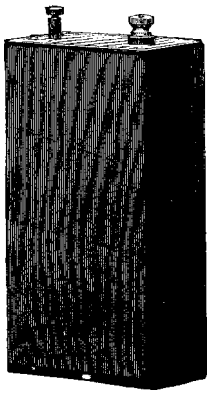
Small Size Leclanche Cell, No. 590.

Fig. 20



Large Size Dry Cell, No. 595.

Fig 21



Small Size Dry Cell, No. 596.

No. 585.-Large size Leclanche cell. Charge, 4 oz. sal ammoniac. Dimensions, $3^5/_8$ X $3^5/_8$ X 7, (Fig. 18.)

No. 590.-Small size Leclanche cell. Charge, 2 oz. sal ammoniac. Dimensions, $3^5/_8$ X 2 X 7. (Fig. 19.)

No. 595.-Large size Hellesen dry cell. Dimensions, $3^1/_8$ X $3^1/_8$ X $6^3/_4$. (Fig. 20.)

No. 596.-Small size Hellesen dry cell. Dimensions, $3^5/_8$ X $1^3/_4$ X 7 (Fig. 21.)

Leclanche and Hellesen Dry Cells.

Catalogue Number ...	585	590	595	596
Code Word	Hydrology	Hymeneal	Hypnology	Hypocaust
Weight in Lbs	$2^2/_3$	2	$3^1/_8$	$2^1/_4$
Price...	£0 3 0	£0 2 3	£0 4 6	£0 3 6

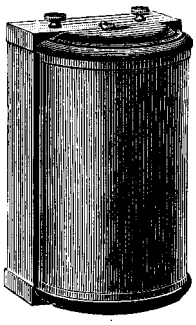
BATTERY BOXES.

With the exception of the magneto-ringing wall telephone, No. 357, none of the instruments mentioned in this Catalogue are provided with fixed battery boxes.

Separate battery boxes must, therefore, with the above exception, be used for the microphone, and always for the common ringing batteries.

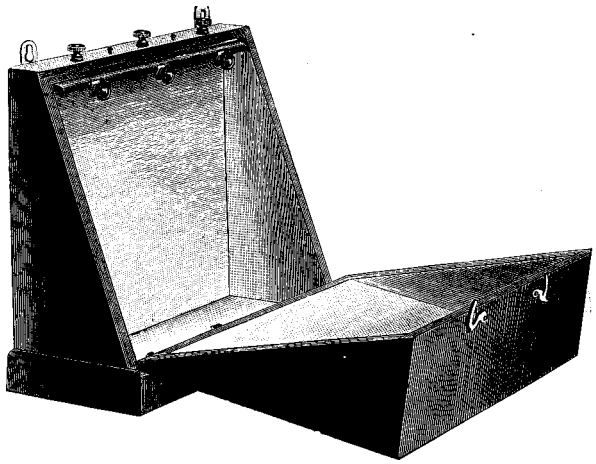
The battery boxes are made of hard wood and nicely polished.

Fig. 22.



BATTERY BOX, No. 420.

Fig. 23.



BATTERY BOX, No. 422.

No. 420-Battery box, to take two cells, Nos. 590 or 596. Dimensions, $5^1/_2$ X $4^3/_4$ X 9. (Fig. 22.)
No. 421.-Battery box, to take two cells, Nos. 585 or 595. Dimensions, $9^1/_2$ X $5^1/_4$ X $9^1/_2$
No. 422.-Battery box, to take three cells, Nos. 585 or 595. Dimensions, $13^1/_2$ X $5^1/_4$ X $9^1/_2$. (Fig. 23)
No. 423.-Battery box, to take four cells, Nos. 585 or 595. Dimensions, $17^1/_4$ X $5^1/_4$ X $9^1/_2$.

Battery Boxes.

Catalogue Number ...	420	421	422	423
Code Word	Curled	Curly	Mousqueton	Moutardier
Weight in Lbs	$2^1/_4$	$2^3/_4$	$4^1/_2$	6
Price...	£0 4 6	£0 5 0	£0 5 6	£0 6 0

SPARE PARTS.

Hand Micro=Telephones, &c.

No. 522.-Hand micro-telephone, with double key and suspending eye ; to be used in connection with instruments Nos. 760, 76r, 762, 768, 769. 770, 308, and 407.
Code word, *Hovering*
Price, £1 3s. .

No. 523.-Hand micro-telephone, with double key and suspending eye; for instrument No. 357.
Code word, *Hovitzer.*
Price, £1 3s. 9d.

No. 525.-Hand micro-telephone, with double key, but without suspending eye ; to be used in connection with instruments Nos. 765, 766, 767, 771, 772, *773*, *777*, 778, 779, 382, and 401.
Code *word, Howling.*
Price, £1 2s. 6d,

No. 546.-Receiver for instrument No. 411.
Code word, *Humidnes.*
Price, 8s.

No. 549.-Receiver for instruments Nos. 307 and 416.
Code word, *Humming.*
Price, 8s.

Cords for Hand Micro-Telephones and Receivers.

No. 2030.-2-way cord for receiver No. 546, when used in connection with instrument No. 411.
Code word, *Tarapaceira.*
Price, 9d.

No. 2036.-3-way cord for receiver No. 549, when used in connection with instruments Nos. 307 and 416.
Code word, *Trapungeoa.*
Price, 9d.

No. 2142.-4-way hand micro-telephone cord, for instruments Nos. 308, 382, 401, 407, 760, 761, 762, 765, 766, 767, 768, 769, 770, 771, 772, 773, 777, 778, and 779.
Code word, *Valentina.*
Price, 2s. 3d.

No. 2182.-4-way hand micro-telephone cord, for instrument No. 357.
Code word, *Valgdai.*
Price, 2s. 3d.

Wall-Fitting Cords.

No. 2150.-6-way wall-fitting cord, 2 yards long, for instrument No. 382.

Code word, *Valerianus*.

Price, 2s. 9d.

No. 2122.-8-way wall-fitting cord, 2 yards long, for instrument No. 401.

Code word, *Vallebana*.

Price, 3s. 3d.

No. 3006.-i5-way wall-fitting cord, for instrument No. 765.

Code word, *Velabrum*.

Price per yard, 1s. 2d.

No. 3007.-2o-way ditto, for No. 766.

Code word, *Velanius*.

Price per yard, 1s. 6d.

No. 3008-25-way ditto, for No. 767.

Code word, *Veleda*.

Price per yard, 1s. 10d.

No. 3009-26-way ditto, for Nos. 771 and 777.

Code word, *Velia*.

Price per yard, 1s. 11d.

No. 3010.-36-way ditto, for Nos. 772 and 778.

Code word, *Velibrio*.

Price per yard, 2s. 6d.

No. 3011.-46-way ditto, for Nos. 773 and 779.

Code word, *Velinum*.

Price per yard, 3s.

Two-way cord, for switches Nos. 780, 781, 782, and 783.

Price, 1s.

Plug, for switches Nos. 780, 781, 782, and 783.

Price, 1s. 3d.

Leclanche Cells.

No. 1240.-Glass jar, for cell No. 585.

Code word, *Vibasma*.

Price, 7d.

Leclanche *Cells--continued.*

No. 1241.-Glass jar, for cell No. 590.
Code word, *Vibidia.*
Price, 7d.

No. 1217.-Manganese block, for cell No. 585.
Code word, *Versett.*
Price, 6d.

No. 1218.-Manganese block, for cell No. 590.
Code word, *Verlagus.*
Price, 6d.

No. 1215.-Carbon block, for cell No. 585.
Code word, *Veronica.*
Price, 3d.

No. 1216 -Carbon block, for cell No. 590.
Code word, *Verrugo.*
Price, 3d.

No. 1225.--Zinc pole, for cells Nos. 585 and 590.
Code word, *Vescianus.*
Price, 3d.

No. 1235.-China insulator, for cells Nos. 585 and 590.
Code word, *Vettios.*
Price, 4d.

Various Parts.

No. 1205.-India-rubber mouthpiece.
Code word, *Veretum.*
Price, 1Od.

No. 1206 -Celluloid mouthpiece.
Code word, *Vergasil.*
Price, 1Od.

No. 1210.-Earpiece, for Nos. 522, 523, 525, and 549.
Code word, *Vergium.*
Price, 10d.

No. 1211.-Earpiece, for No. 546.
Code word, *Vergobref.*
Price, 10d.

EXAMPLES OF ESTIMATES.

In order to facilitate the calculation of the cost of installations with inter-communication instruments, we give a few examples:

I.

Installation with Ten Battery=Ringing Inter=Communication Instruments.

We suppose that eight inter-communication wall telephones No. 76o, and two inter-communication table telephones No. 765, are to be used. They are connected by single lines, according to Diagram No. 2 (common ringing battery). We further suppose that the length of the cable between all the instruments is 60 yards, and that the branch cables require 15 yards, or, altogether, 75 yards of cable. A 12-wire cable is required, with 1o wires for the lines, one for common return, and one for the common ringing battery.

	LIST OF MATERIALS.	£	s.	d.
8	Inter-Communication Wall Telephones No. 760, at 53s.	21	4	0
2	Inter-Communication Table Telephones No. 765, at 58s. 6d.	5	17	0
8	Junction Boxes No. 790, at 6s ...	2	8	0
10	Battery Boxes No. 421, for the Microphone Batteries, at 5s.	2	10	0
20	Leclanche Cells No. 585, at 3s.	3	0	0
1	Battery Box No. 422, for the Common Ringing Battery, at 5s. 6d.	0	5	6
3	Leclanche Cells No. 585, at 3s.	0	9	0
75	Yards 12-Wire Cable No. 4002, at per yd. 6d	1	17	6
		£37	11	0

II.

Same Installation as under I., but with Metallic=Line Instruments, connected as per Diagram No. 4.

	LIST OF MATERIALS.	£	S.	d.
8	Inter-Communication Wall Telephones No. 768, at 56s. ...	22	8	0
2	Inter-Communication Table Telephones No. 771, at 63s. 6d.	6	7	0
8	Junction Boxes No. 793, at 8s. 6d	3	10	0
10	Battery Boxes No. 421, for the Microphone Batteries, at 5s.	2	10	0
20	Leclanche Cells No. 585, at 3s.	3	0	0
1	Battery Box No. 422, for the Common Ringing Battery, at 5s. 6d.	0	5	6
3	Leclanche Cells No. 585, at 3s.	0	9	0
75	Yards 22-Wire Cable No. 4052, at per yd. is.	3	15	0
		£42	4	6

III.
Installation with Twenty Magneto=Ringing Inter-Communication Instruments.

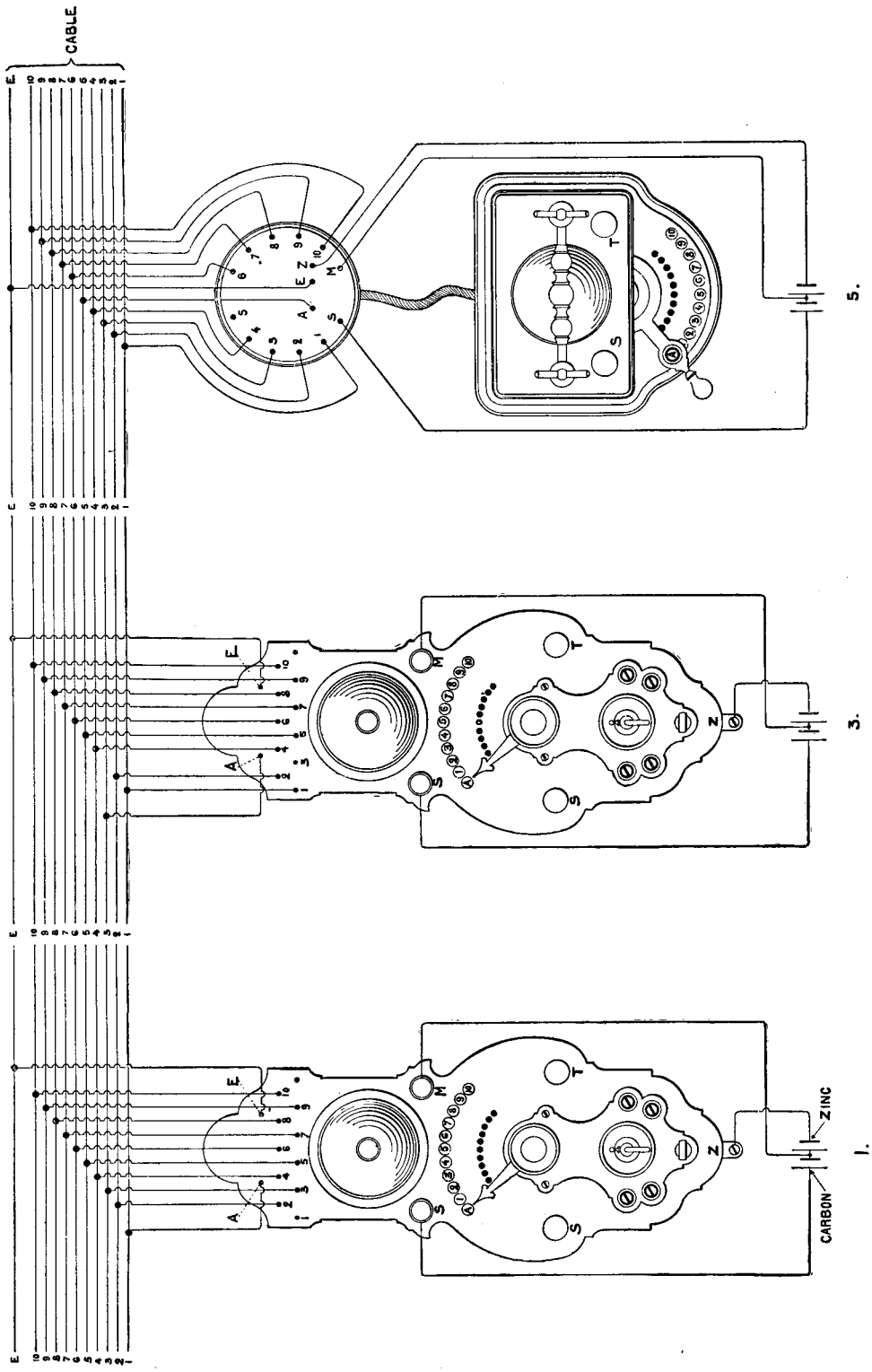
We suppose that fifteen wall and five table telephones, connected by metallic lines, are to be used. Inter-communication switches No. 776, in connection with wall telephones No. 307 and inter-communication table telephones No. 779, are proposed.

The length of the cable is supposed to be i 50 yards (42-wire).

The instruments are connected as per Diagram No. 5.

	LIST OF MATERIALS.	£	s.	d.
15	Inter-Communication Switches No. 776, at 35S. 6d.	26	12	6
15	Magneto Wall Telephones No. 307, at 50S. 6d.	37	17	6
5	Inter-Communication Table Telephones No. 779, at loos.	25	0	0
18	Junction Boxes No. 795, at 12S. 6d.	11	5	0
20	Battery Boxes No. 421, for the Microphone Batteries, at 5s.	5	0	0
40	Leclanche Cells No. 585, at 3s.	6	0	0
150	Yards 42-Wire Cable No. 4054, at per yd. is. 9d.	13	2	6
		£124	17	6

Battery-Ringing Inter-Communication Instruments for Single Lines, with one Ringing Battery for each Instrument.



Diargam No1

Battery-Ringing Inter-Communication Instruments for Single Lines, with a Common Ringing Battery

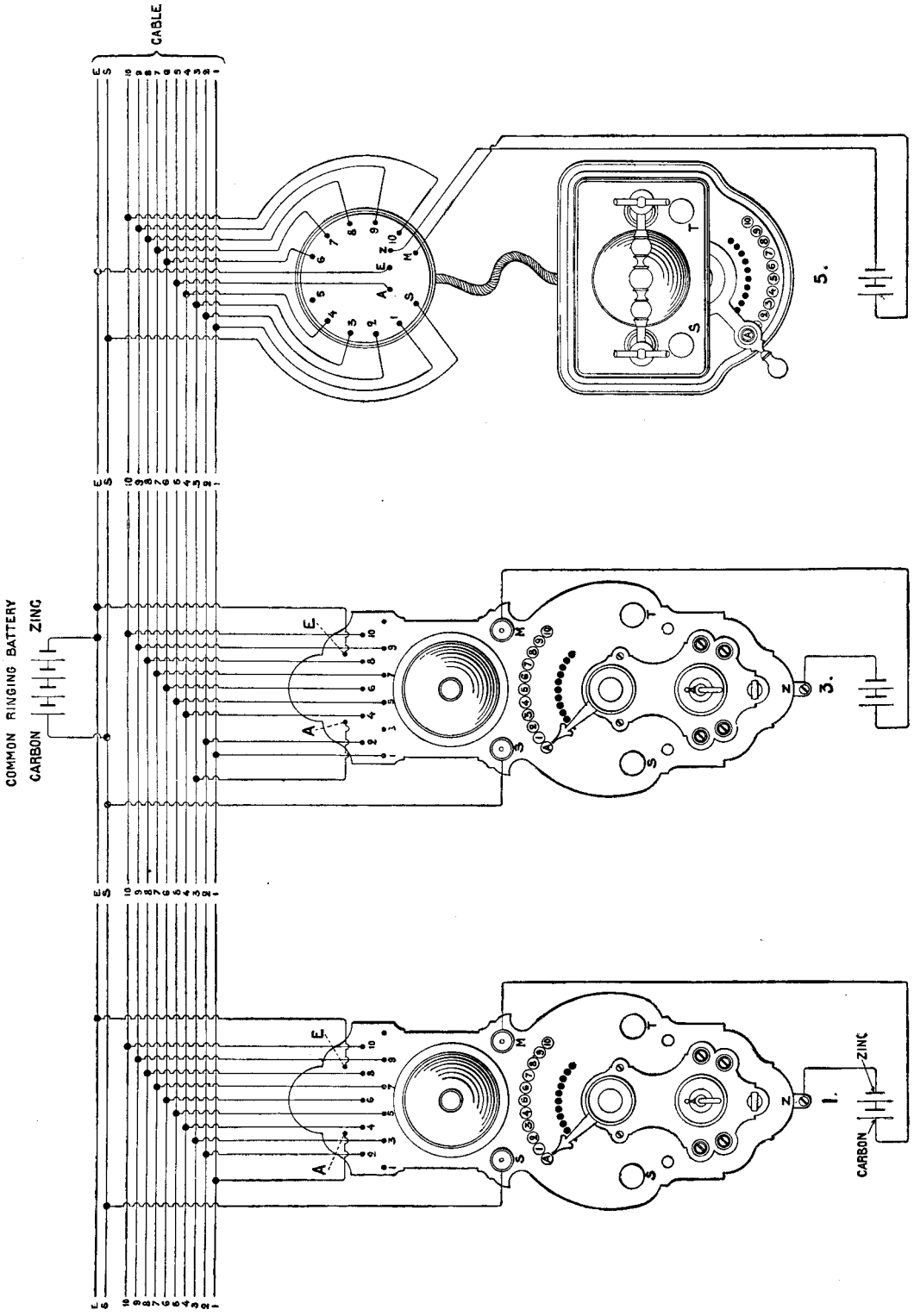


DIAGRAM №2.

Battery-Ringing Inter-Communication Instruments for Metallic Lines, with one Ringing Battery for each Instrument.

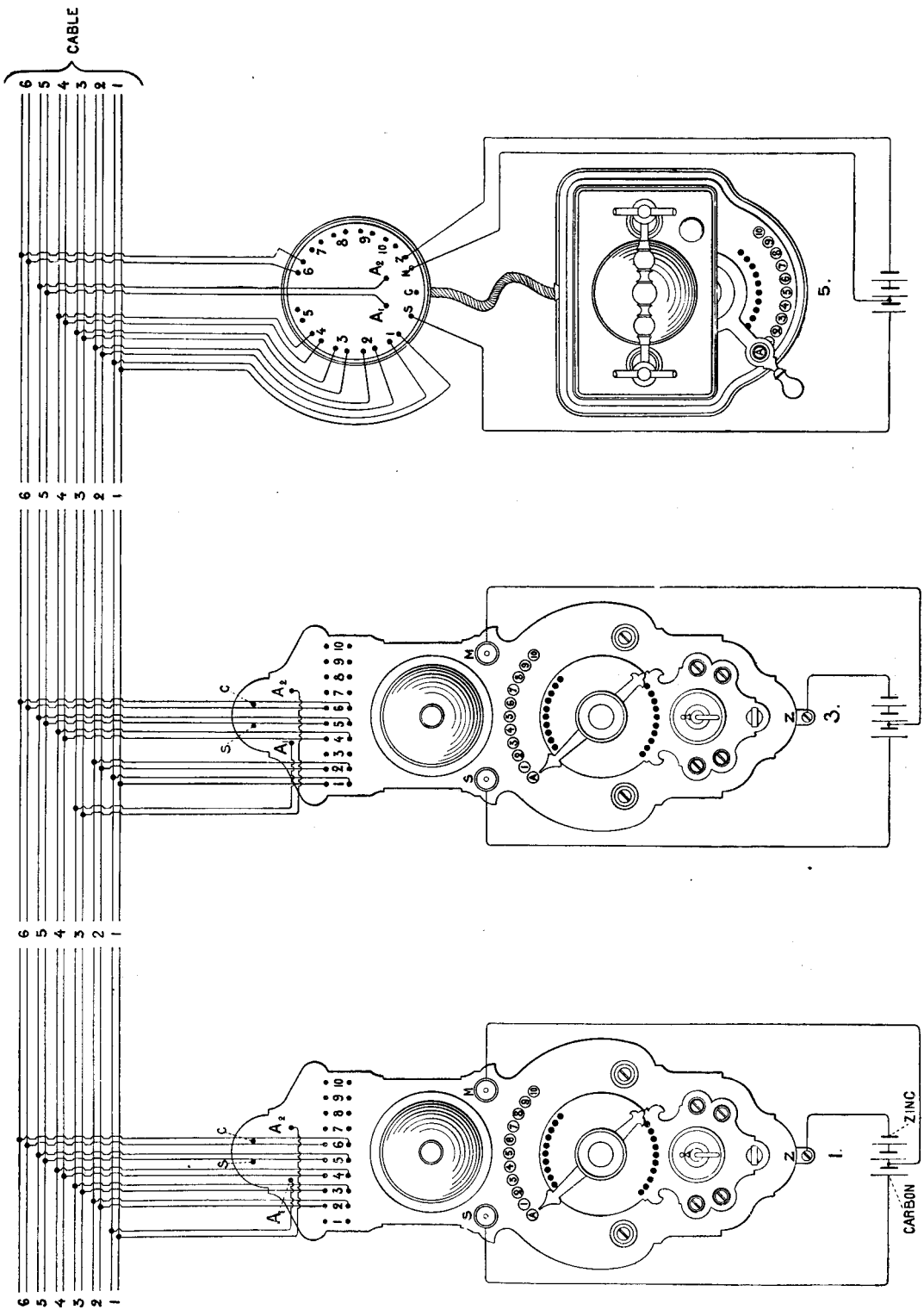
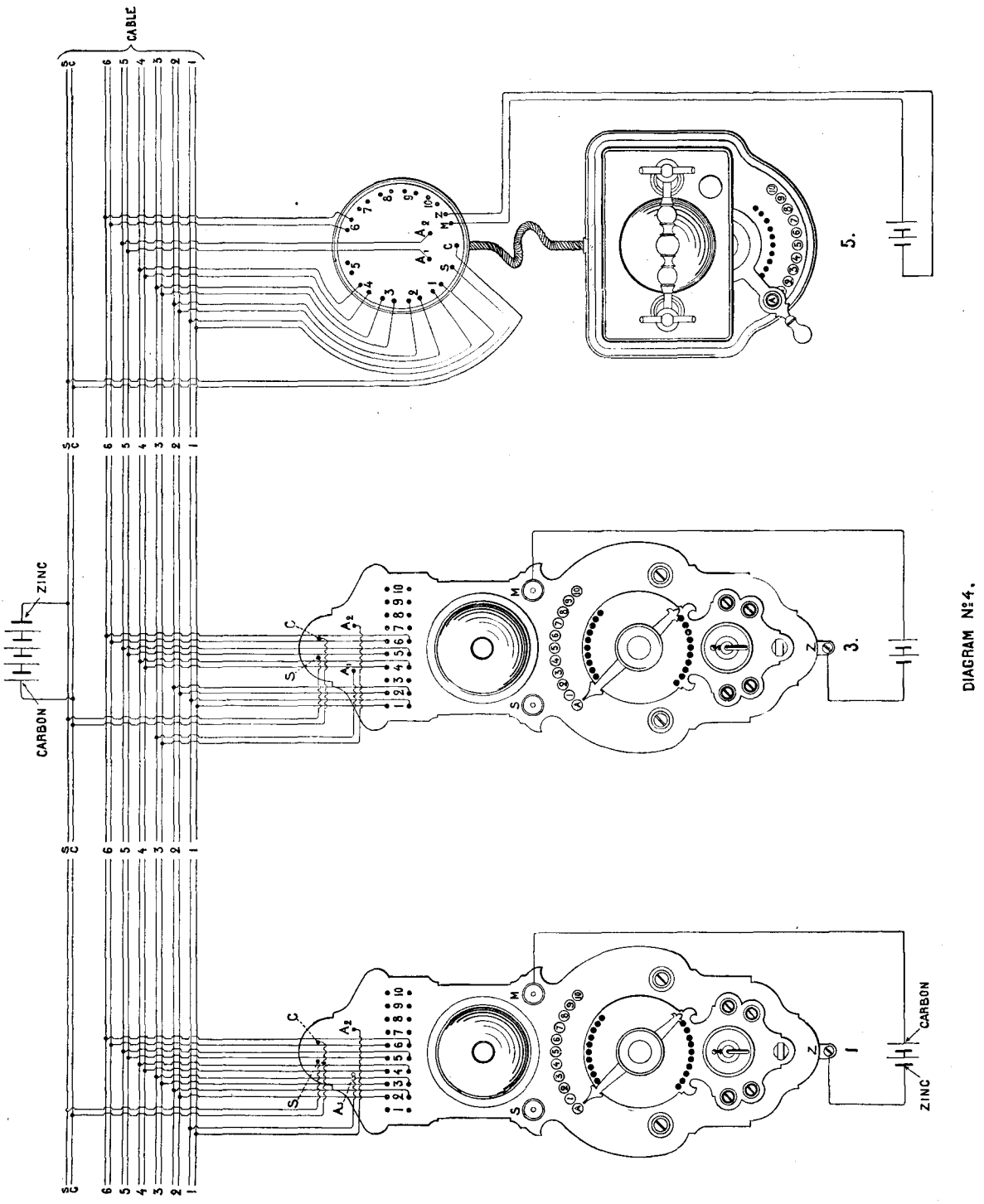
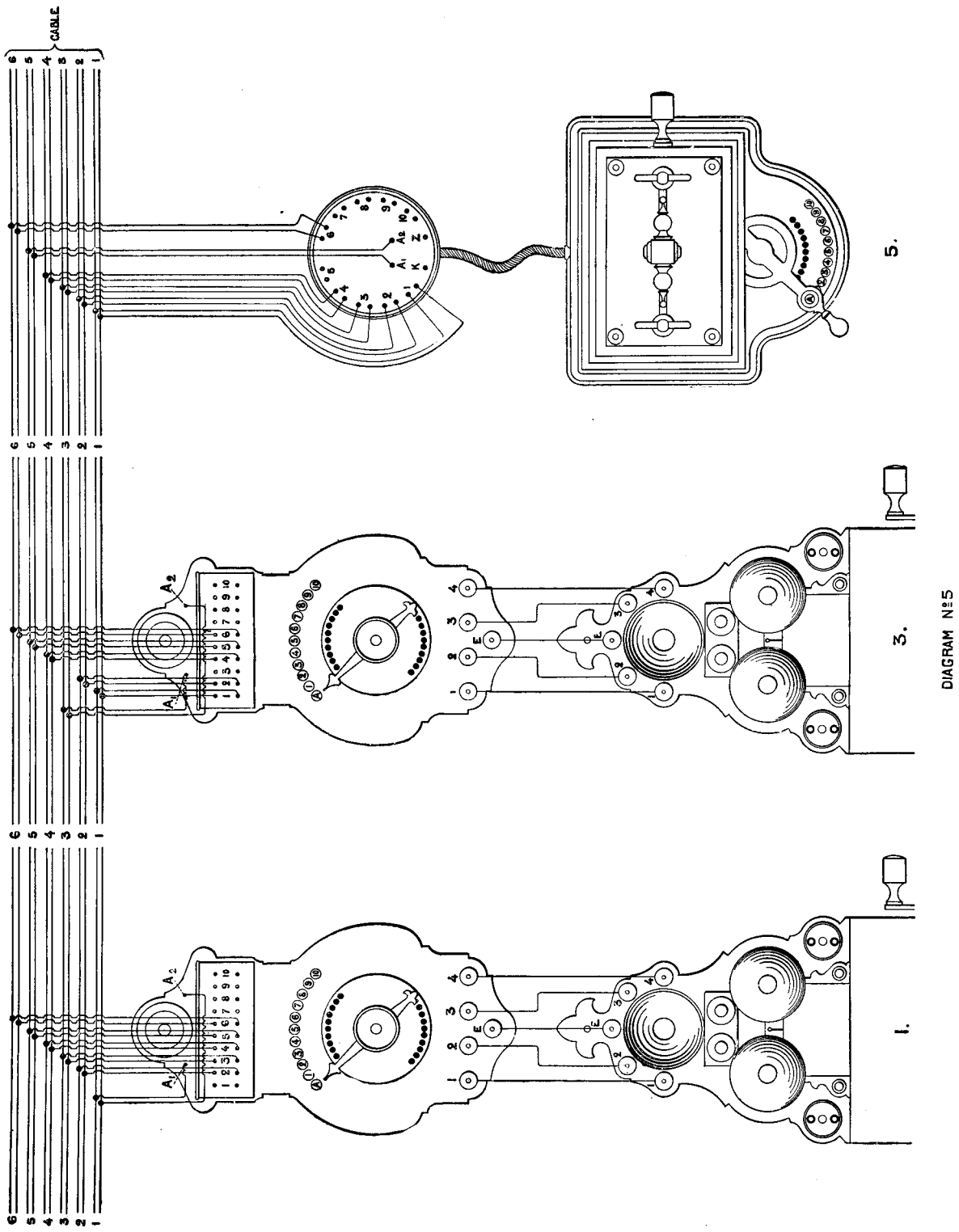


DIAGRAM N:3.

Battery-Ringing Inter-Communication Instruments for Single Lines, with a Common Ringing Battery



Inter-Communication Switches for Metallic Lines



Inter-Communication Plug Switches in connection with Magneto-Ringing Instruments

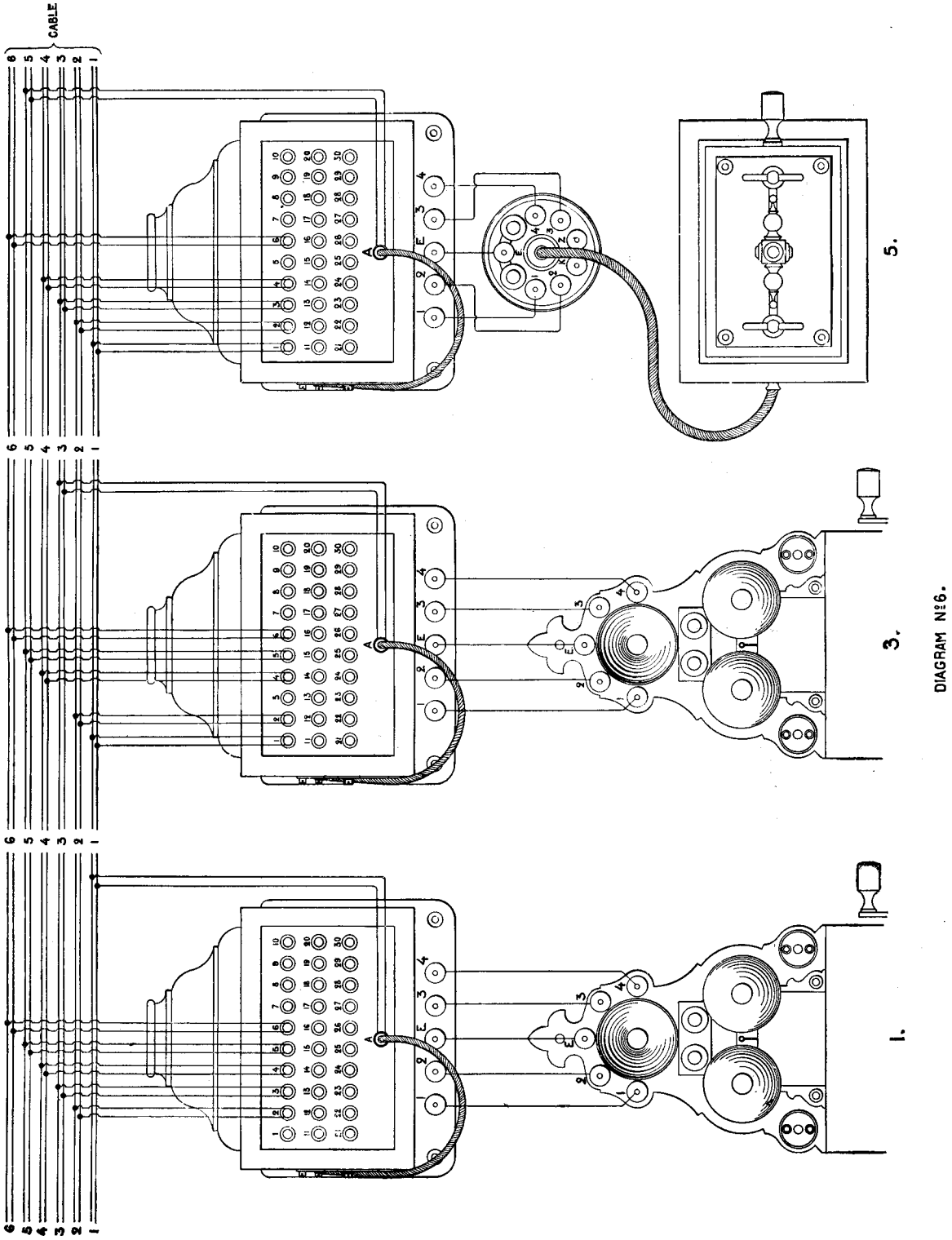
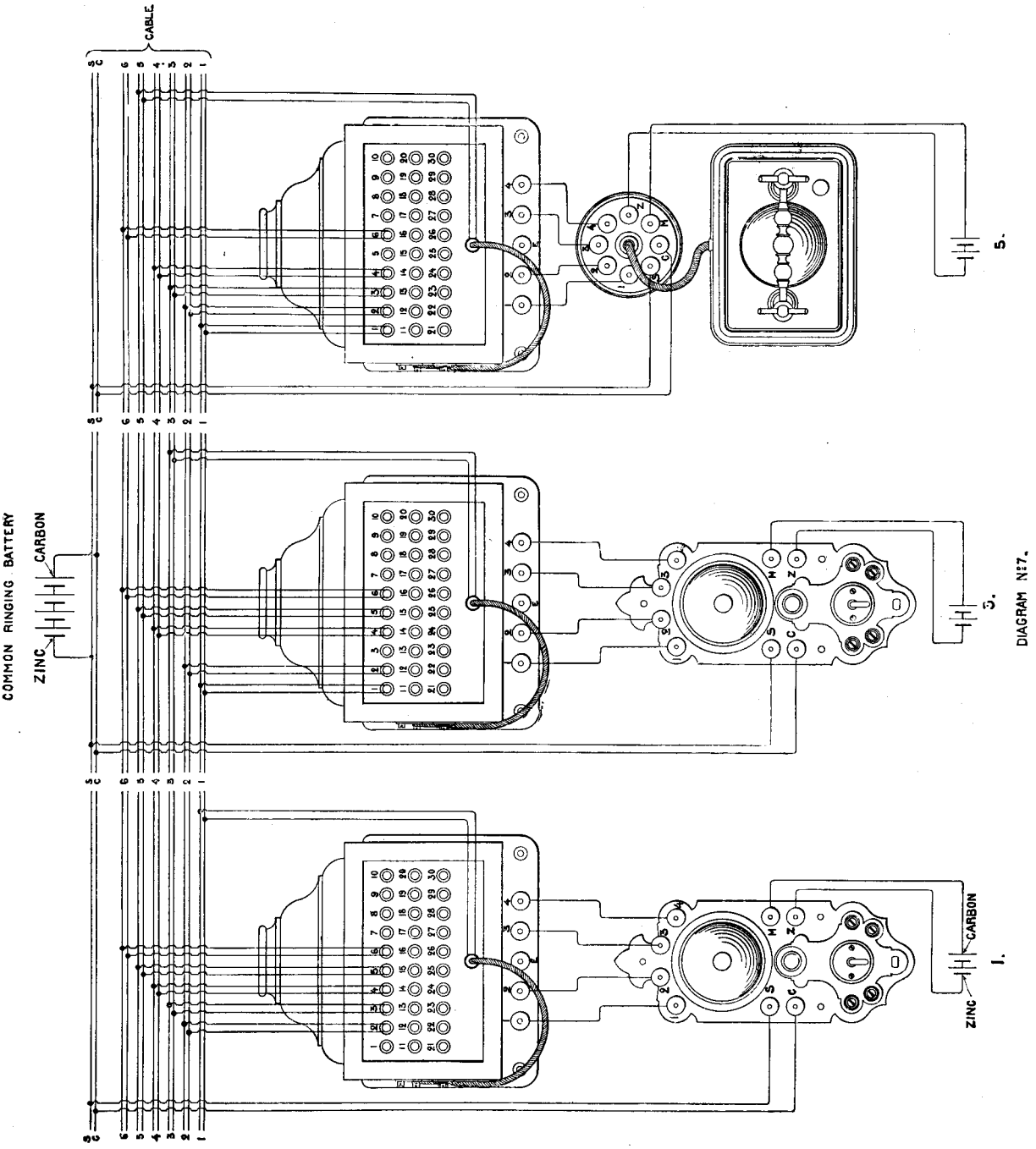


DIAGRAM N:6.

Inter-Communication Plug Switches in connection with Battery-Ringing Instruments



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