

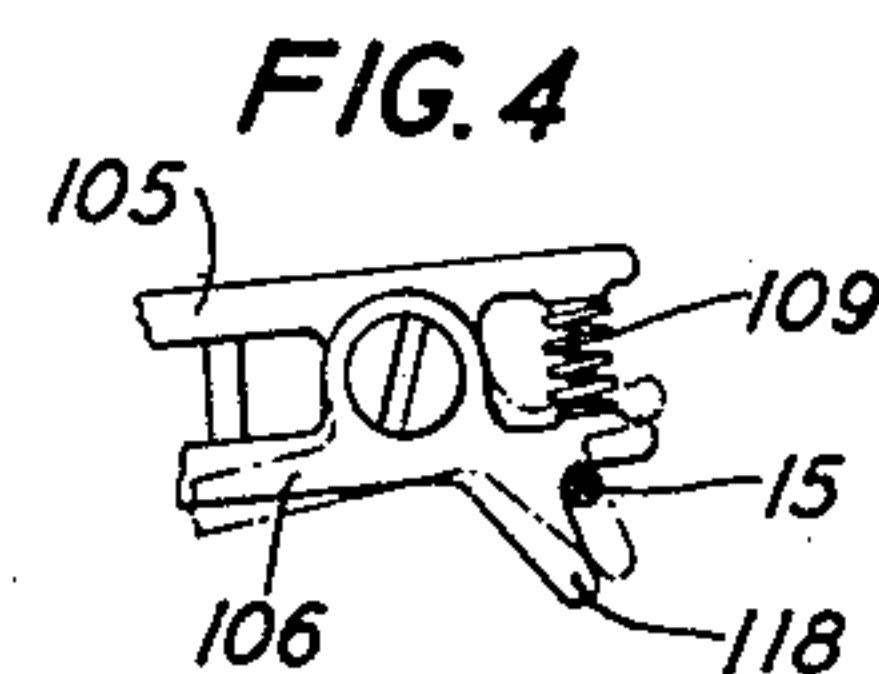
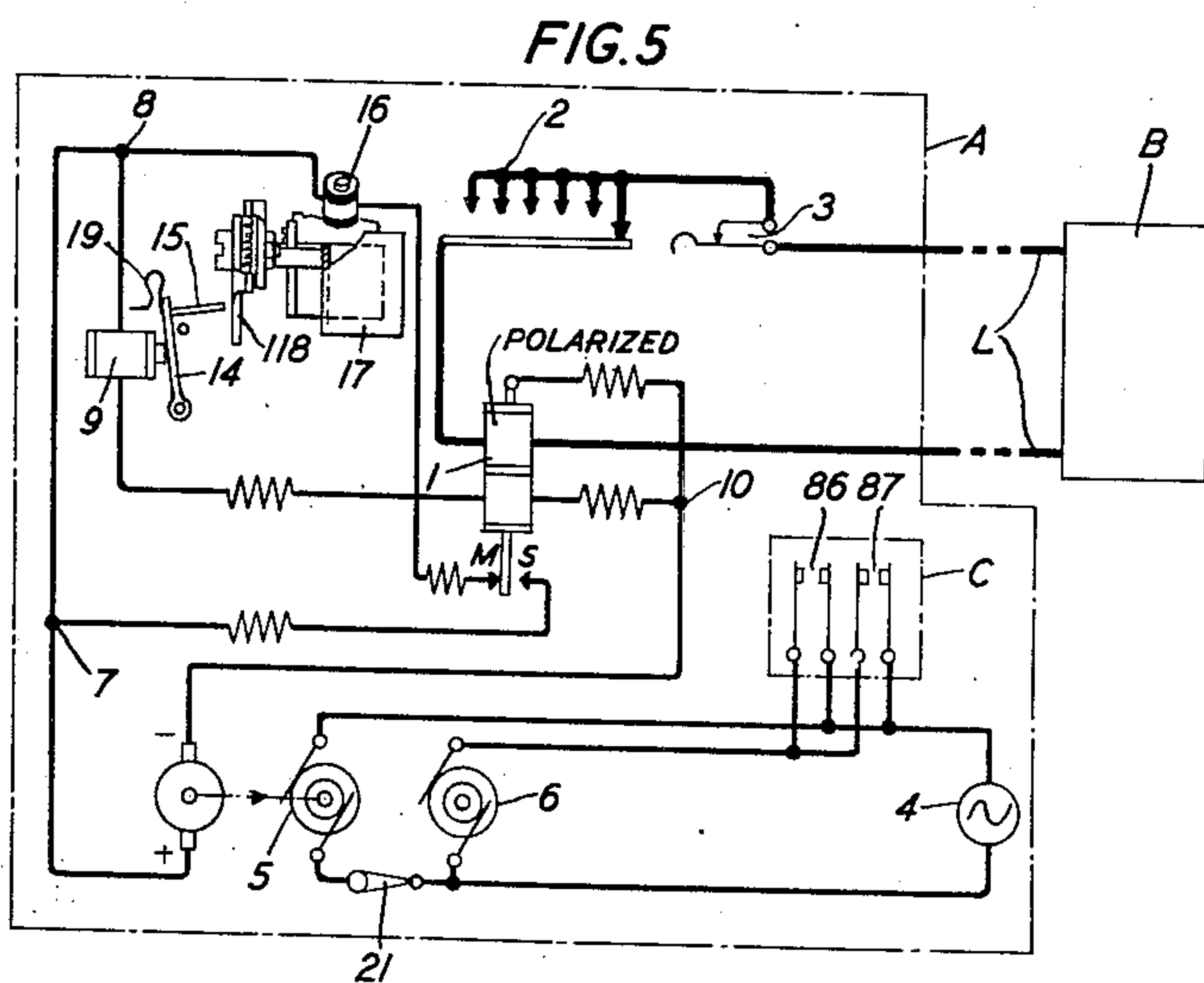
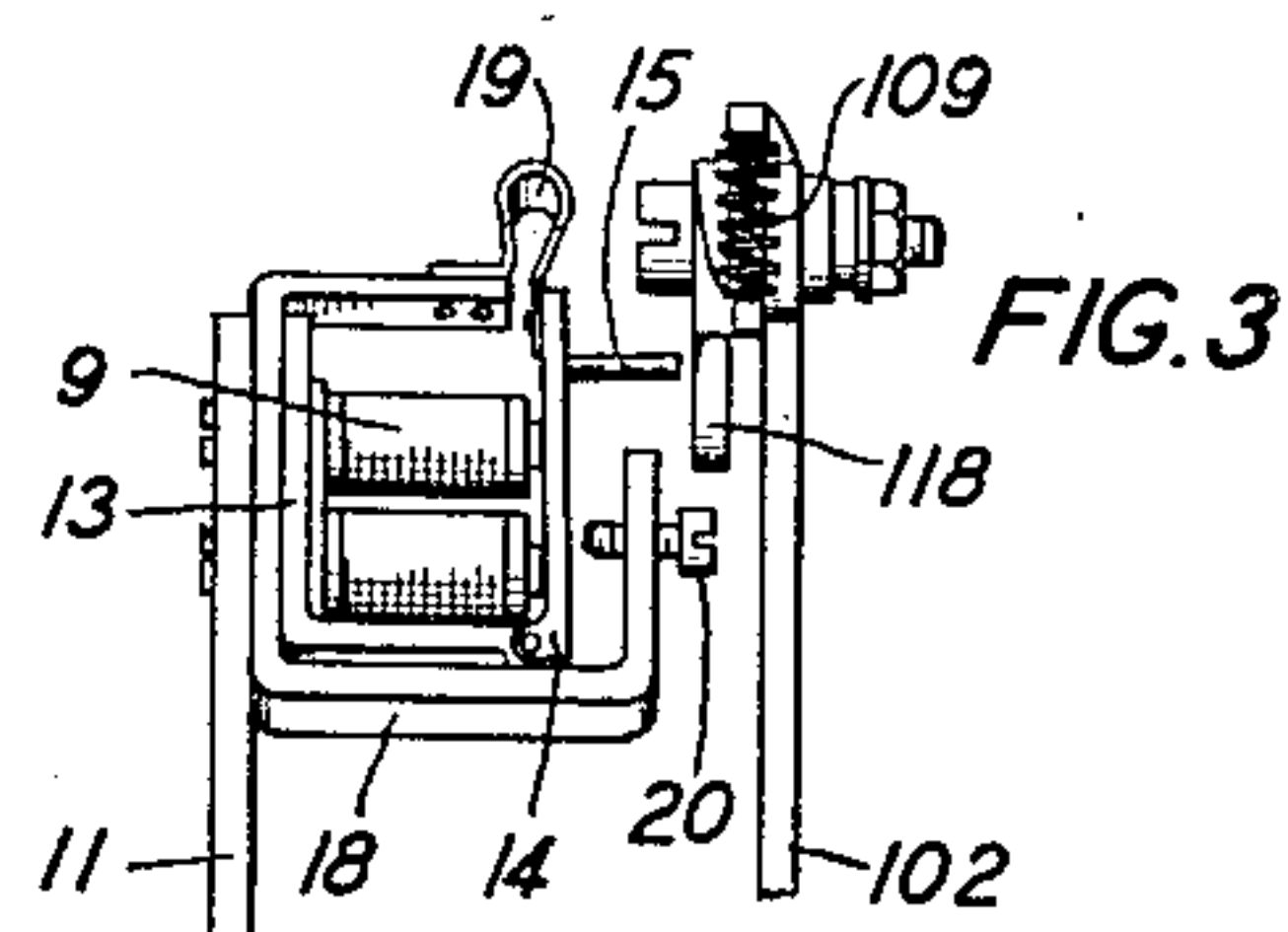
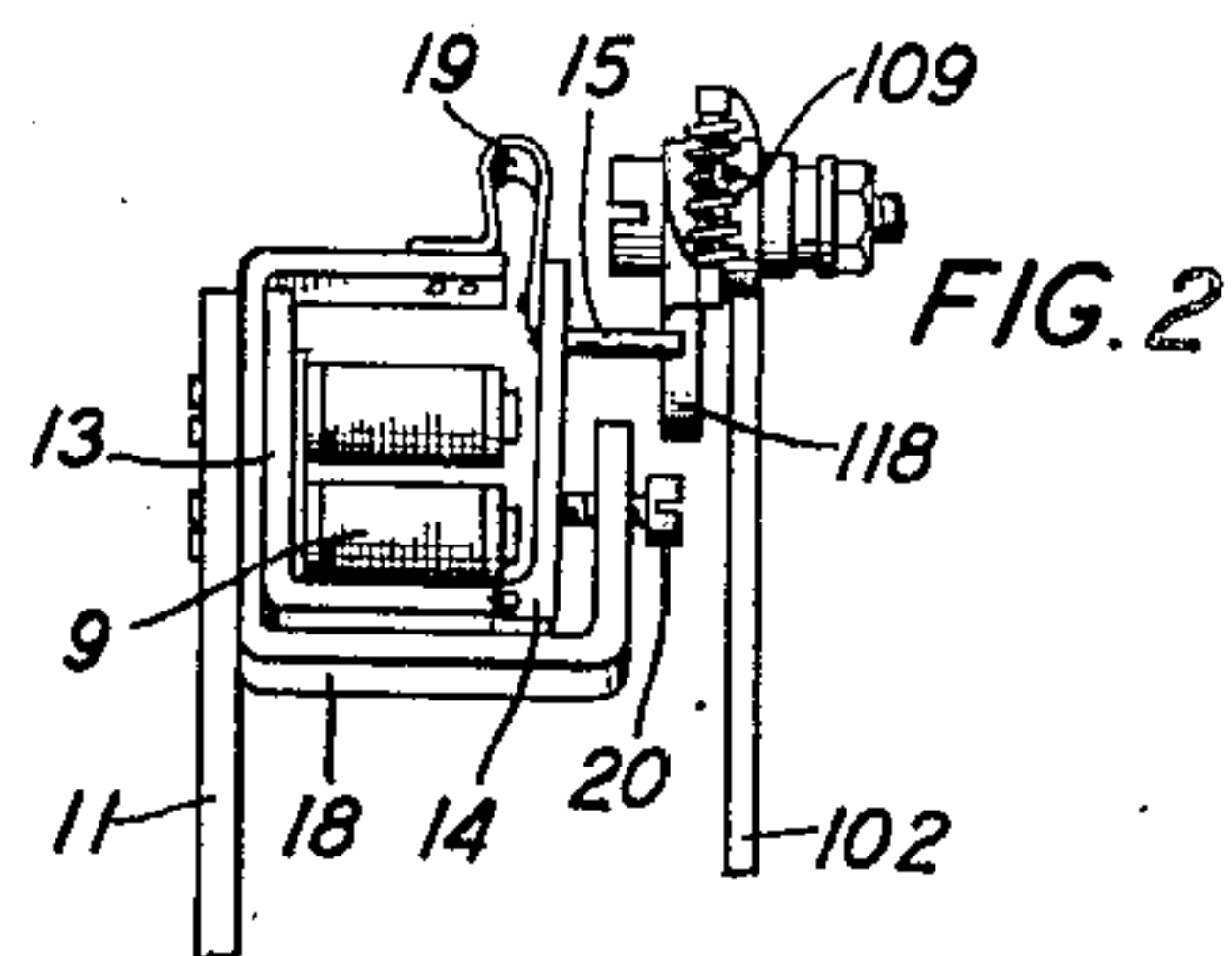
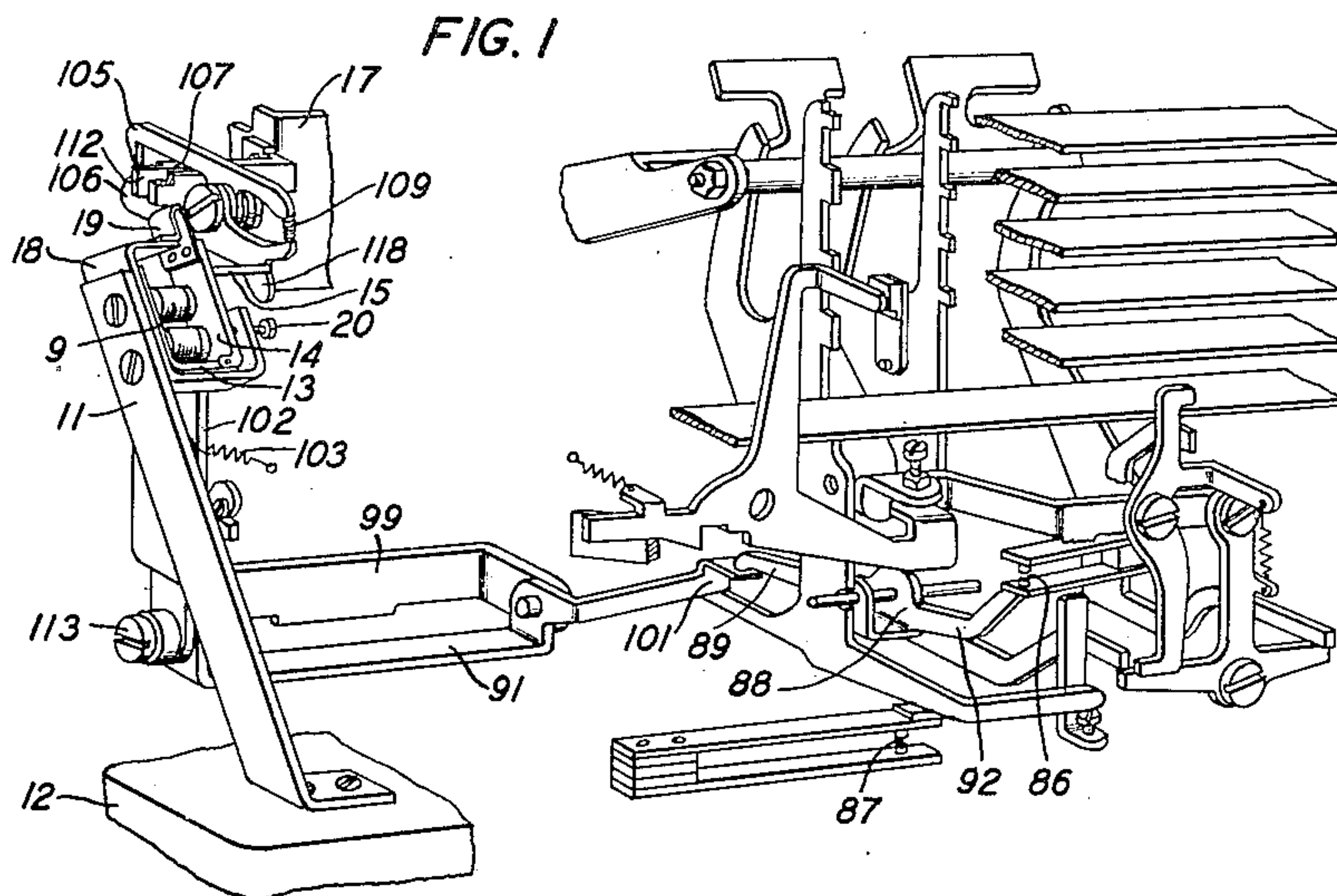
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2,208,168

TELETYPEWRITER APPARATUS

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TELETYPEWRITER APPARATUS

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3 Claims. (Cl. 178—23)

This invention relates to printing telegraph systems and, more particularly, to printing telegraph exchange systems having subscribers' teletypewriter stations which are occasionally left unattended and which are provided with motor control devices.

In a system of this type, the subscribers' teletypewriters are each usually continuously connected to an individual local source of alternating current for energizing their motor-generators to supply direct current for operating the teletypewriters. This connection is usually maintained during the time that a station is left unattended so that the subscribers' teletypewriters can be operated by remote control. Sometimes interruptions or large fluctuations in the local alternating current supply will effect unintended operation of a subscriber's teletypewriter motor control device with the result that the subscriber's motor will be started thereby causing wasteful power consumption and needless wear of the subscriber's teletypewriter apparatus.

Accordingly, it is an object of this invention to provide means for preventing irregularities in the flow of current from the local alternating current power supply from unintentionally starting the motor of a subscriber's teletypewriter.

It is also an object of the invention to provide an unattended subscriber's teletypewriter with a relay having a blocking pin affixed to its armature for blocking unintended operation of the motor control lever in the teletypewriter and thereby preventing the teletypewriter motor from starting accidentally.

These objects are attained by connecting a relay, having a blocking pin affixed to its armature, into the subscriber's power supply circuit. As long as current continues to flow in this circuit, the relay will remain energized and will maintain its armature operated. However, if an interruption or large fluctuation in the local alternating current power supply should occur, then the relay would release its armature and the blocking pin would fall, under the influence of a push-type spring, behind a latch in the teletypewriter thereby blocking movement of the arm of the motor control lever and thus preventing the starting of the teletypewriter motor.

The invention will be described in more detail in connection with the following detailed description of the drawing in which:

Fig. 1 is a three-dimensional perspective view of the added relay with its armature and blocking pin and showing the location of this relay and its blocking pin in respect to the latch of the

motor control lever and other portions of the motor control apparatus;

Fig. 2 shows the added relay in its unenergized condition with its armature released and the blocking pin in engagement with the latch of the motor control device;

Fig. 3 shows the added relay in its normally energized condition with its armature operated and the blocking pin withdrawn from engagement with the latch of the motor control device;

Fig. 4 illustrates the degree of movement of the latch of the motor control device; and

Fig. 5 represents the subscriber's station circuit connections, line circuit, and power circuit.

The invention will now be described with reference to its preferred embodiment as shown in the drawing in which a subscriber is shown to be provided with a teletypewriter, such as that disclosed in Patent 1,904,164 granted April 18, 1933 to S. Morton et al., having a motor control device, such as that disclosed in Patent 1,931,672 granted October 24, 1933 to S. Morton et al. The disclosure of these two Morton et al. patents is incorporated herein by reference as a part of this specification. It is to be understood that the invention is not to be limited to the specific teletypewriter and motor control device disclosed in these Morton et al. patents as the invention can be applied to other forms of apparatus.

The subscriber's station A, as shown in Fig. 5, includes a line relay 1, sending contacts 2, and break contacts 3 connected directly to a communication channel L extending to a station B which may be either another subscriber's station similar to station A or a teletypewriter central office. The station A is further provided with a local source of alternating current 4 connected through switch 21 to the motor-generator 5, and connectable through the motor control unit C to the motor 6. One terminal of the motor-generator 5 is connected to a junction 7 from which two paths extend; one directly to the spacing contact of the line relay 1 and the other to a junction 8. Two paths extend from junction 8; one through the winding of the selector magnet 16 to the marking contact of line relay 1, and the other through the winding of control relay 9, winding of line relay 1, and then to junction 10. From junction 10, one path leads to the other terminal of motor-generator 5 and the other path leads to the armature of line relay 1.

Since the line L normally has current flowing over it, the line relay 1 will normally hold its armature on its marking contact thereby closing

a path from motor-generator 5 to junction 10, over the armature and marking contact of line relay 1, through the winding of selector magnet 16, over junctions 8 and 7, and then back to the other terminal of motor-generator 5. Consequently, selector magnet 16 is normally energized and its armature 17 is normally operated.

When an operator at station B wishes to start the motor 6 at station A, she momentarily opens line L which causes the line relay 1 to move its armature to its spacing contact thereby deenergizing selector magnet 16 and causing the release of armature 17. As is explained in Morton et al. Patent 1,931,672, armature 17, when released, rotates slightly to effect the disengagement of latch 105 from the inside face of extension 107 and also to effect the engagement of latch 106 with the step 112 with which extension 107 is provided.

The operator at station B then closes the line L to effect the reenergization of selector magnet 16 which again operates its armature 17. The operation of armature 17 actuates its extension 107 vertically thereby lifting step 112 out of engagement with latch 106. Latch 105 will now be rocked by the distending action of spring 109 and will slip off the upper surface of extension 107. Until this time, motor control lever 91 had its arm 102, biased to the right by spring 103, held back due to the engagement of latches 105 and 106 with extension 107. The release of latches 105 and 106, which are pivotally connected to arm 102 of motor control, or motor stop, lever 91, allows spring 103 to pull arm 102 forward around its pivot 113. The forward movement of arm 102 of motor stop lever 91, rotatably mounted on U-shaped bracket 39, causes arm 101 of lever 91 to be tilted downward to allow arm 89 of lever 88 to move downward thereby moving arm 92 of lever 88 up to close contact 86. Contact 86 is located in the motor control unit C, as is shown in Fig. 5, and its closure closes a path from the alternating current source 4 for operating motor 6.

After being started in this manner, motor 6 will continue to run until stopped by the method described in the above-mentioned Morton et al. Patent 1,931,672. When motor 6 is being stopped, contact 87 is closed for a short time, by means described in Morton et al. Patent 1,931,672, to allow the cycle of operations of the teletypewriter apparatus to be completed. During this cycle of operations, contact 86 is opened and, after the cycle is completed, contact 87 is opened. Both contacts 86 and 87 then remain open until motor 6 is again started. Manual switch 21 is provided for enabling the local operator to control the energization of motor-generator 5.

If an interruption or large fluctuation should occur in the alternating current from source 4 and should be followed by a normal flow of current from source 4, this would have the same effect as an opening followed by a closure of the normally closed line L in that selector magnet 16 would first release its armature 17 and then operate it again. The release of armature 17 would disengage latch 105 from extension 107 and the operation of armature 17 would lift step 112 of extension 107 out of engagement with latch 106. As was described above, the release of latches 105 and 106 from engagement with extension 107 of armature 17 allows arm 102 of motor stop lever 91 to be pulled forward by spring 103 to close contact 86 and thereby start motor 6.

To prevent this unintentional starting of motor 6, control relay 9 is positioned in the subscriber's teletypewriter near latches 105 and 106 and is supported by a bracket 11 secured to the base 12 of the teletypewriter. Attached to bracket 11, as is best seen in Figs. 2 and 3, is an angular bracket 13 for supporting the armature 14 having a blocking pin 15 affixed thereto. Also secured to bracket 11 is a bent strip 18 at the top of which is fastened one end of a push-type spring 19, the other end of spring 19 being attached to the top end of armature 14. Mounted in the other end of strip 18 is an adjustable stop 20 for limiting the extent of travel of armature 14 when released by relay 9.

As is shown in Fig. 5, control relay 9 is continuously connected across the terminals of motor-generator 5 for continuous energization and operation of its armature 14. Armature 14, when operated compresses push-type spring 19 and moves its blocking pin 15 to the left where, as shown in Fig. 3, it does not interfere with the movement of arm 118 of latch 106 attached to arm 102 of motor stop lever 91. Thus, when relay 9 is energized, arm 102 will be free to move forward under the action of its spring 103 for starting motor 6 whenever latches 105 and 106 are released. Under these circumstances, if an interruption or large fluctuation should occur in the alternating current from source 4 and should be followed by a normal flow of current, selector magnet 16 will release its armature 17 which, in turn, will release latches 105 and 106. However, at the same time, control relay 9 will also release its armature 14 which, under the action of push-type spring 19, will move to the right to place its blocking pin 15 in the path of movement of arm 118 of latch 106 as is shown in Fig. 2. Thus, even though latches 105 and 106 are released, spring 103 will be unable to pull arm 102 of motor stop lever 91 forward because blocking pin 15 prevents arm 118 of latch 106 from moving forward and, since latch 106 is attached to arm 102, arm 102 is also held back by pin 15.

As soon as normal current flow is resumed in the power circuit, control relay 9 will again be energized and will operate its armature 14 to withdraw pin 15 from engagement with arm 118. At the same time, selector magnet 16 will be also energized and will operate its armature 17 for causing its extension 107 to resume engagement with latches 105 to 106 to hold arm 102 from being operated by spring 103. Consequently, motor 6 is prevented from being unintentionally operated.

This blocking action of pin 15 is further illustrated in Fig. 4 which also shows by solid and dotted lines the rocking action of latch 106. When selector magnet 16 is energized, latch 106 is held in the position shown in solid lines in Fig. 4 by step 112. Deenergization of magnet 16 causes the release of armature 17 which releases latch 106. Spring 109 then rocks latch 106 to the position shown in dotted lines in Fig. 4. However, blocking pin 15 engages at this time with arm 118 of latch 106 to prevent it from moving to the right.

The invention has been described with reference to its preferred embodiment and its preferred application. It is to be understood that the invention is capable of other applications and may be embodied in other forms of apparatus than that specifically shown in the drawing. Consequently, the invention is not to be limited to the particular form and use shown and described

but is to be limited only by the claims appended hereto.

What is claimed is:

1. In a printing telegraph system, a plurality of
5 intercommunicating stations, one of said stations
being provided with a printing telegraph ma-
chine, a motor for operating said printing tele-
graph machine, a local source of power supply
at that station for operating the motor, a motor
10 controlling circuit also at that station, starting
means in said motor controlling circuit controlla-
ble by an operator at another station for con-
trolling the supply of power to the motor, block-
ing means for preventing the operation of the
15 starting means, and operating means for op-
erating said blocking means in response to an ir-
regularity in the local source of power supply.

2. A communication system having a com-
municating device, a motor for operating said
20 communicating device, a source of power sup-
ply, a normally open energizing circuit for con-
necting the source of power supply to the motor,
a motor-generator, means for connecting the mo-
tor-generator to the power supply for operation
25 thereby, starting means for closing said energiz-
ing circuit for starting the motor into operation
by the source of power supply, said starting
means including a magnet having an armature
and means for energizing the magnet with cur-
30 rent supplied by the motor-generator, remote
control means for opening the circuit from the

motor-generator to the magnet for causing the
magnet to release its armature for operating the
starting means, control means for preventing re-
lease of the armature in response to an irregu- 5
larity in the flow of current from the motor-gen-
erator, said control means including a relay, and
means for connecting the relay across the output
terminals of the motor-generator, said relay hav-
ing an armature, an instrumentality attached to
the armature of the relay, and means for moving 10
the armature of the relay and said instrumentality
in response to the deenergization of the relay
for preventing the magnet's armature from mov-
ing to its released position to operate the start-
ing means. 15

3. A subscriber's teletypewriter station includ-
ing in combination a teletypewriter, a motor for
operating the teletypewriter, a local source of al-
ternating current at the subscriber's station, re-
remote control means for connecting the motor to 20
the local source of alternating current for opera-
tion thereby, an instrumentality at the subscrib-
er's station for controlling the effectiveness of the
remote control means, and operating means also
at the subscriber's station for actuating said in- 25
strumentality in response to an irregularity in the
alternating current from the local source to pre-
vent the remote control means from connecting
the motor to the local source of alternating cur-
rent. 30

WESLEY GEORGE SKIBSTED.