

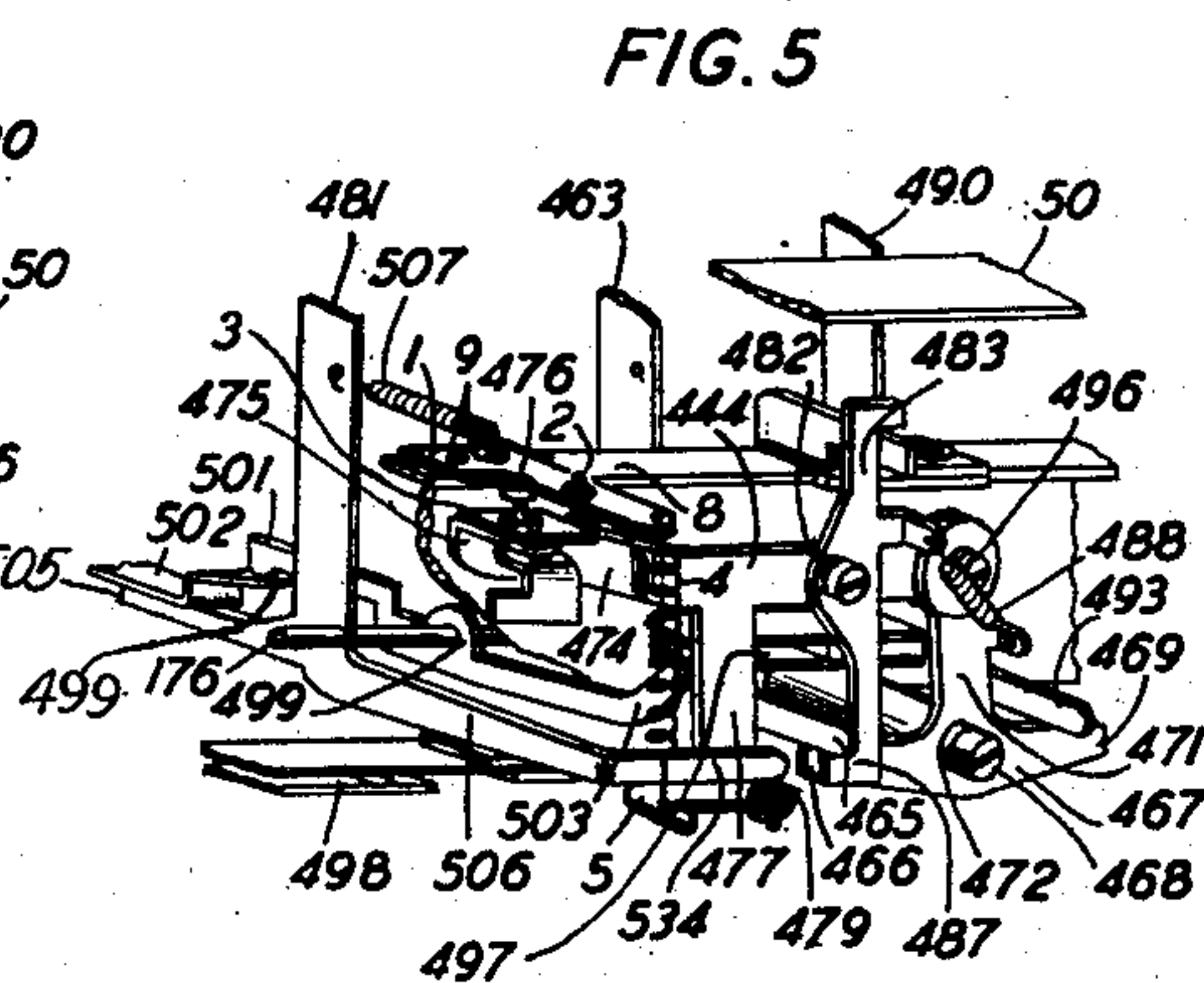
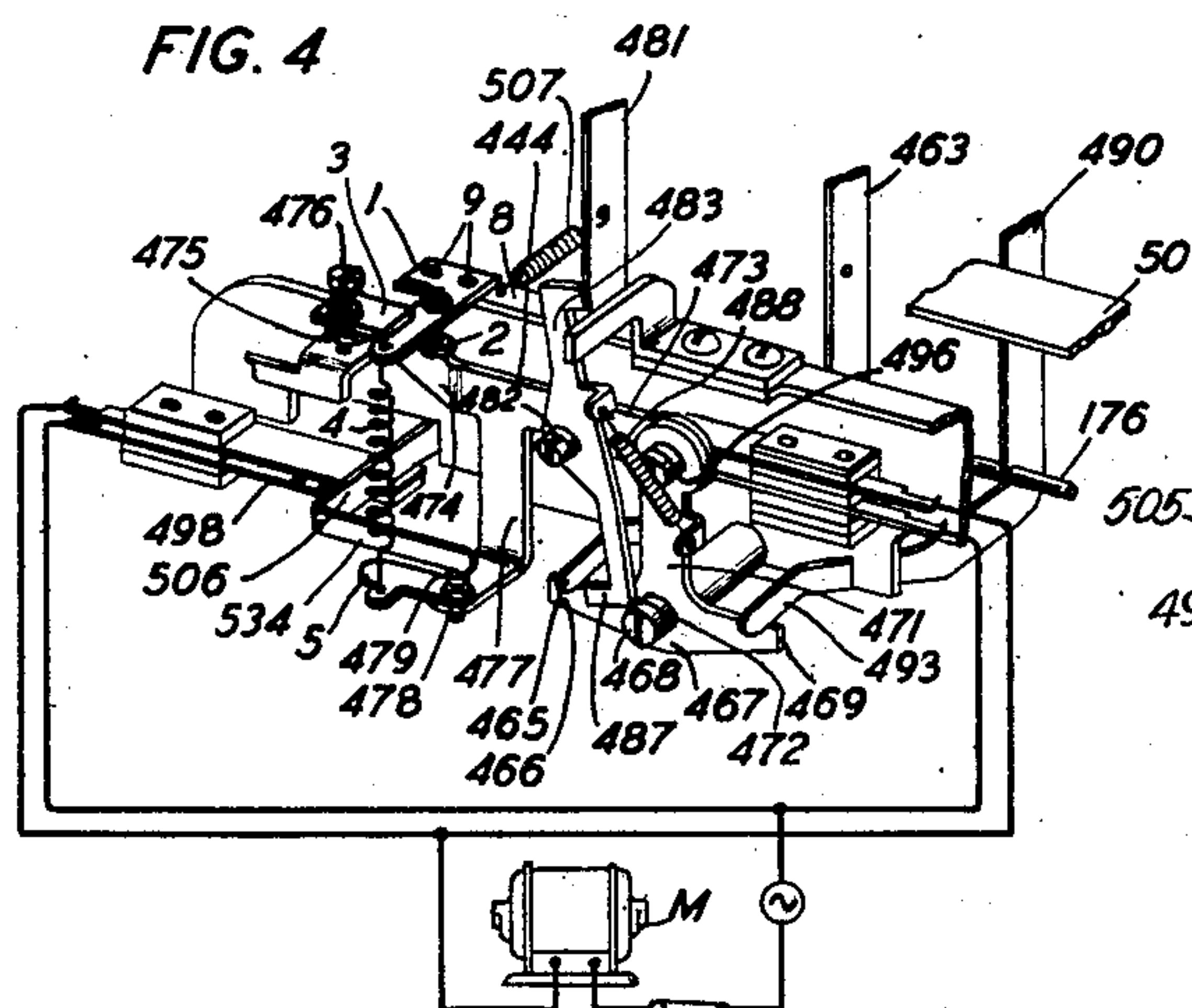
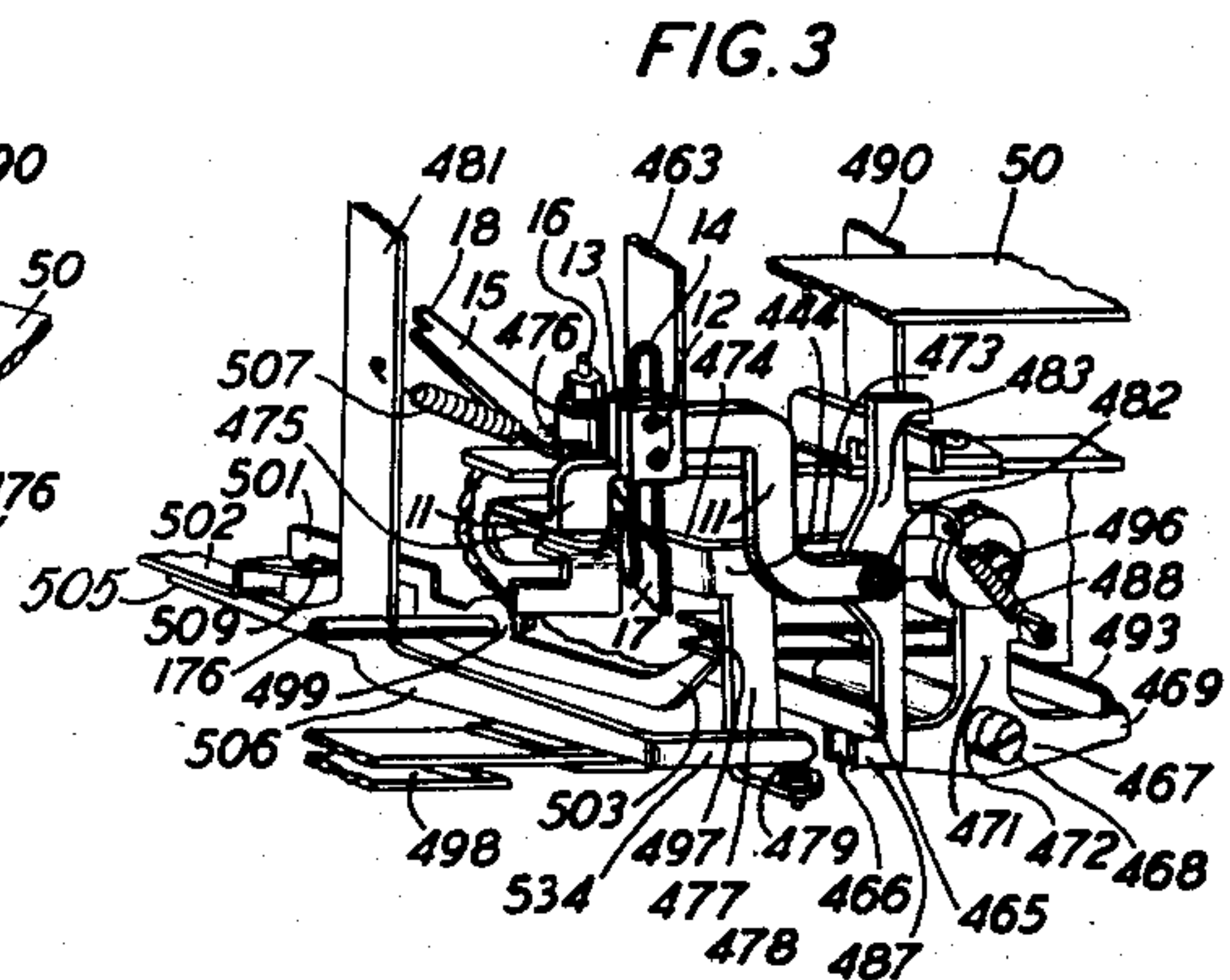
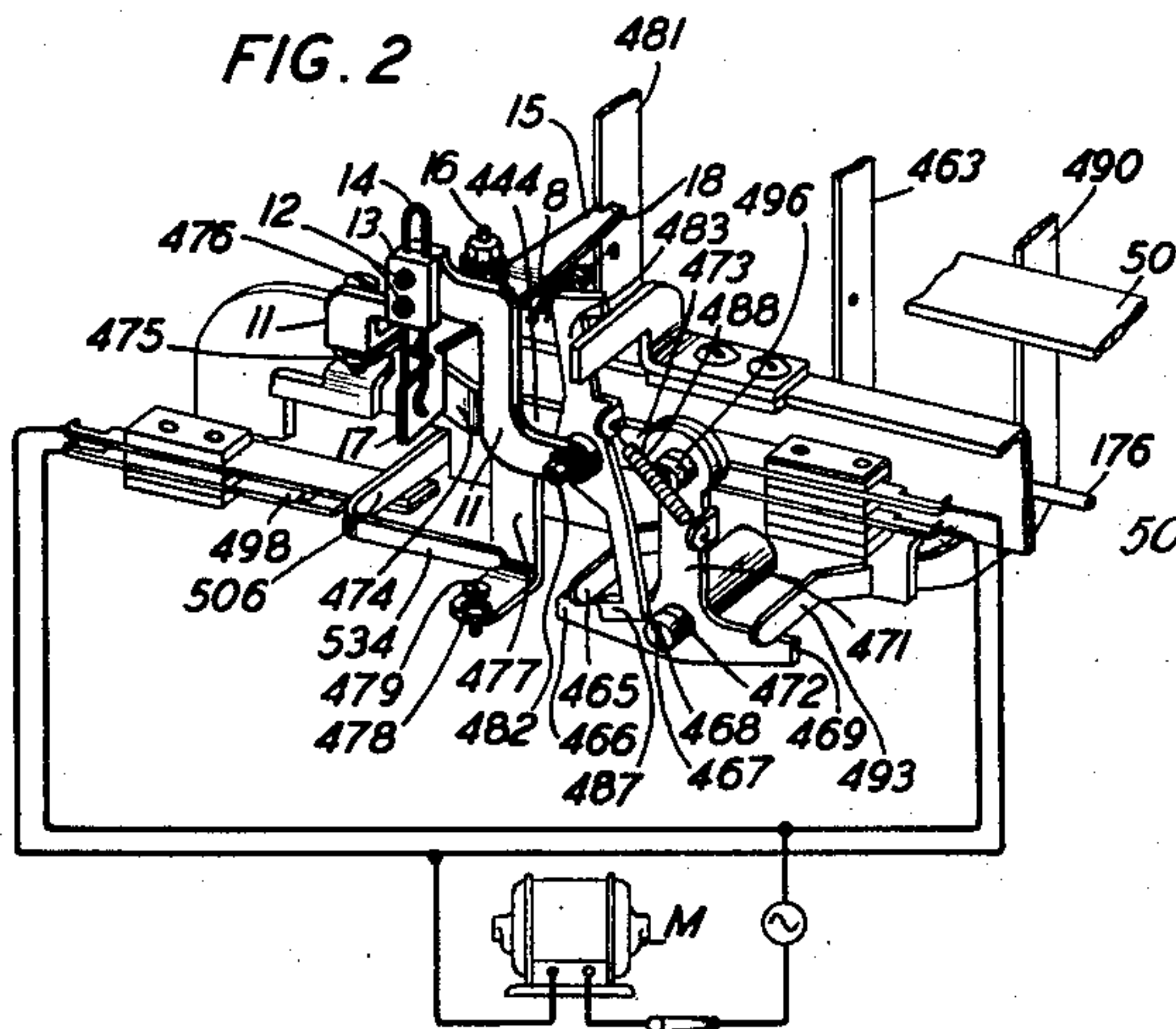
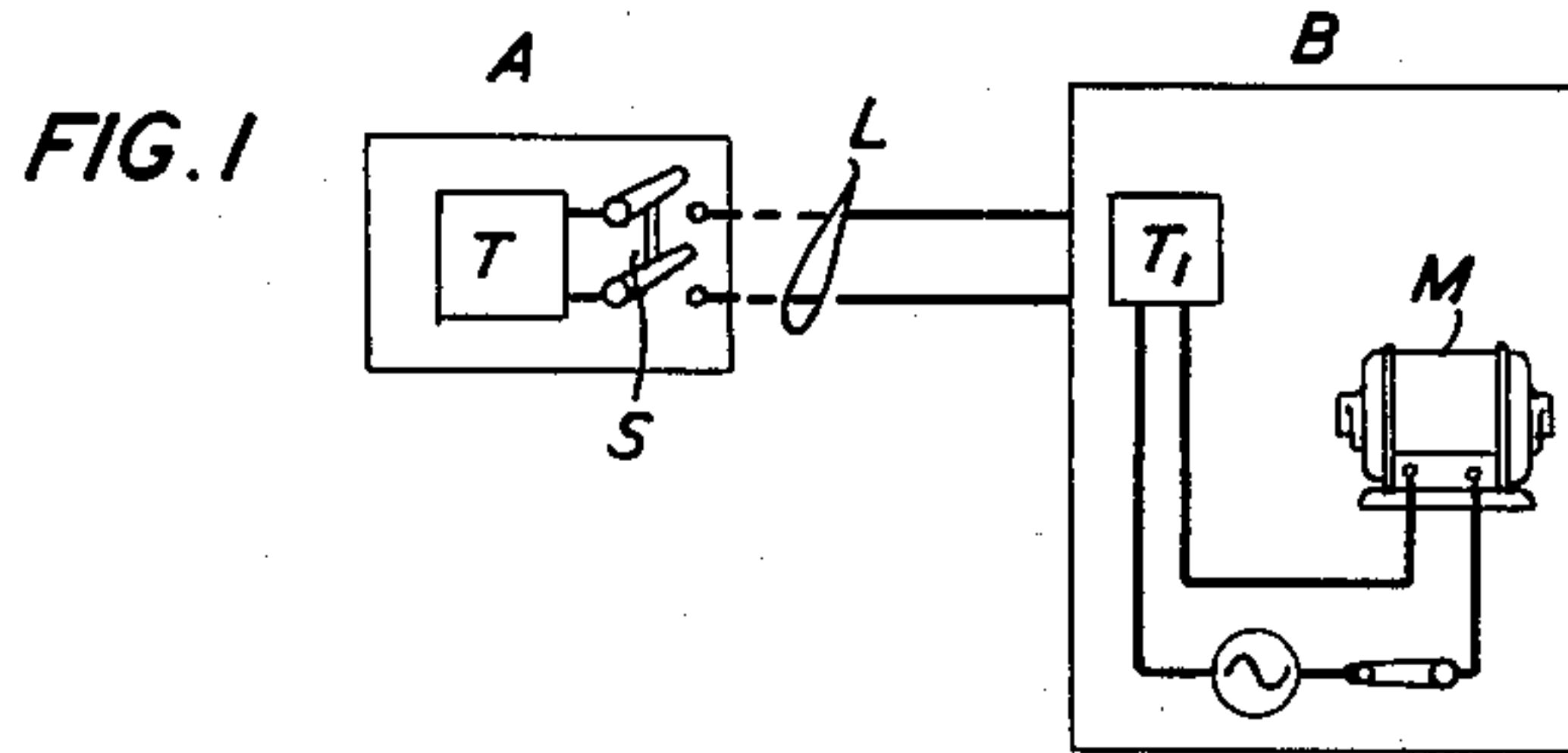
Oct. 19, 1937.

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2,096,145

TELETYPEWRITER

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2,096,145

TELETYPEWRITER

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11 Claims. (Cl. 178—4.1)

This invention relates to a motor control device for teletypewriters and, more particularly, to a device for stopping the motor of an unattended teletypewriter which may, if desired, be located at a remote station.

Heretofore, an operator at a control station has stopped the motor of an unattended teletypewriter, such as a teletypewriter located at a remote station, by transmitting to the unattended teletypewriter a motor stop signal composed of a preassigned combination of significant current variations, such as those corresponding to an upper case "H" signal. A system of this type is shown in Patent 1,566,295 granted December 22, 1925 to E. F. Watson. The disclosure of this Watson patent is incorporated herein by reference as a part of this specification. However, it has been found that, under certain conditions, motors of unattended teletypewriters have been unintentionally stopped by various causes, such as the operator at the control station accidentally striking the stop key or because of disturbances in the line simulating an upper case "H" signal.

Accordingly, this invention has for its object the reduction of such unintentional stopping of remote motors. This is accomplished by installing a mechanical latch and associated parts in the teletypewriter to be controlled. This latch prevents the motor stop lever from operating in response to the usual motor stop signals. The latch is designed to be released, or unlatched, by a lever which is operated in response to the reception of a preassigned teletypewriter signal, such as a "blank" signal. The release of the latch allows the operation of the motor stop function lever to be effective to stop the teletypewriter motor. Thus, the motor of the controlled unattended teletypewriter will be stopped in response to the reception by that teletypewriter of a "blank" signal immediately followed by an upper case "H" signal. The latch is restored to its normal, or operated, position by the operation of the universal function lever which operates, after the teletypewriter has been started by a motor start signal, in response to the reception by that teletypewriter of any teletypewriter signal for causing typing or spacing.

The invention will now be explained in detail with reference to the drawing in which:

Figure 1 indicates schematically a simple teletypewriter system to which the invention may be applied;

Fig. 2 illustrates the preferred embodiment of the invention in its normal, or unoperated, condition;

Fig. 3 shows this embodiment in its operated position;

Fig. 4 represents a modified form of the invention in its normal, or unoperated, condition; and

Fig. 5 shows this modification in its operated condition.

For purposes of explanation, the invention is to be understood as being applied to a teletypewriter of the type disclosed in Patent 1,904,164 granted April 18, 1933 to S. Morton et al., although the invention is not restricted to this kind of teletypewriter. The disclosure of this Morton et al. patent is incorporated herein by reference as a part of this specification. The drawing shows only those parts of the teletypewriter that are necessary to illustrate the manner in which the invention is applied to the teletypewriter shown in the Morton et al. patent. Accordingly, the apparatus shown in the drawing corresponds to that shown in Figs. 27, 28, etc. of the Morton et al. patent.

In the simple teletypewriter system, shown in Fig. 1, if an operator at a control station A, which may be a central office if desired, wishes to transmit a message to the unattended station B, she first connects the telegraph line L to her teletypewriter T by any convenient means, such as switch S. The motor M at the unattended station B may be started by the operator at station A by any of the methods well known in the art, such as the method described in the Morton et al. patent, supra. The operator then transmits the desired message to station B. After the message has been transmitted to station B, the operator at station A may wish to stop motor M at station B in which case she first transmits a preassigned signal over line L to station B. This preassigned signal may be any desired signal, such as a so-called "blank" signal in which all the current impulses composing the code signal are spacing impulses.

Just before this "blank" signal is received, the motor control apparatus at station B is in its normal, or unoperated, condition as is shown in Fig. 2 which is somewhat similar to Fig. 27 of the Morton et al. patent, supra, except for a few added parts. One of the parts added is a bent lever 11 having one end secured to the pivot 482 of lever 483 and the other end attached to the end 475 of arm 474 of T-lever 444 by the adjusting screw 476. Another added part is a hairpin member 14 clamped between the bent lever 11 and a plate 13 by bolts 12—12. Still another added part is a blocking lever 15 pivotally attached to

the anchor plate 8 by a fixedly located pivot 16. This blocking lever 15 has one end 17 positioned between the prongs of member 14 and has its other end 18, which is notched, normally in engagement with the motor stop function lever 481.

Thus, under normal conditions, the motor stop function lever 481 can not be operated because, as can be seen in Fig. 2, its travel forward is blocked by its engagement with the notched end 18 of lever 15. Since lever 15 is held in place by pivot 16, which is fixedly located, lever 15 can not be pushed forward to allow function lever 481 to rotate forward.

When the "blank" signal is received, the selecting mechanism of the teletypewriter T₁ at station B operates to actuate the "blank" function lever 463 which accordingly moves its extension 465 downward. This causes arm 466 of T-lever 467 to also move downward thereby rotating T-lever 467 about its pivot 468 to its operated position where it is held by means of the spring washer 472. The rotation of T-lever 467 causes its vertical arm 471, which is pivotally connected to arm 473 of T-lever 444 by pivot 496, to force T-lever 444 to the left.

When T-lever 444 moves to the left, it carries with it the lever 11, plate 13 and the hairpin member 14. The movement of member 14 to the left, shifts the end 17 of the blocking lever 15 to the left thereby swinging the notched end 18 of lever 15 to the right out of engagement with function lever 481 which is thus conditioned for operation as is shown in Fig. 3.

The operator at station A now transmits a so-called "shift" signal. In response to the reception of this "shift" signal, the sixth vane 50 of the teletypewriter T₁ will move to tilt its front end downward as is described in the Morton et al. patent. The sixth vane 50 is thus placed in the proper position to allow the motor stop function lever 481 to be selected and to move forward to perform its functions.

The operator next transmits the third signal which may be another "shift" signal as described in the Morton et al. patent, or, more preferably, a preassigned signal such as "H" as is described in the Watson patent, supra. The selecting mechanism in the teletypewriter T₁ responds to this code signal and effects the selection of the motor stop function lever 481 which operates and rotates clockwise on its pivot 176 thereby moving its arm 506 downward until the extension 534 contacts with the adjusting screw 479.

As is described in the Morton et al. patent, supra, the rotation of the motor stop function lever 481 moves its other arm 505 upward thereby causing the arm 509 of the motor stop lever 502 to strike against the end 501 of the contact operating lever 499 which, consequently, rotates clockwise on its pivot 176. In rotating, lever 499 moves its other end 503 downward to allow contact 497 to open thereby effecting the opening of the energizing circuit of motor M with the consequent stopping of motor M. It should be noted that contact 498 will be closed for a brief interval by arm 506 to allow the printing cycle to be completed for the purpose described in the Morton et al. patent, supra, or for performing any other function that may be desired.

The energizing circuit of the motor M will now remain open until the operator at station A transmits a start signal to close contact 497 and start motor M, such as in the manner described in the Morton et al. patent, supra. Then, upon the receipt of any code signal which causes printing or

spacing, the universal function lever 490 will operate and move its arm 493 downward thereby forcing downward arm 469 of T-lever 467 and shifting the vertical arm 471 to the right. This pulls T-lever 444 and the bent lever 11 to the right. As a result, member 14 is moved to the right thereby shifting end 17 of lever 15 to the right and moving the notched end 18 to left and into engagement with function lever 481 thus restoring the motor stop apparatus to its normal condition as shown in Fig. 2.

Thus, it can be seen, that by means of this motor stop device, the remotely controlled teletypewriter motor can be stopped only in response to combinations of three signals; namely, "blank", "shift", and "H" or "shift", "blank", and "H". If desired, the device could be designed, by modifying the arrangement of the selecting vanes and their associated apparatus, to operate with the motor stop signal described in the Morton et al. patent and would then be "blank", "shift", and "shift" or "shift", "blank", and "shift". It is to be understood that any other suitable character, such as "M", may be used instead of "H", if desired. In this connection it should be noted that, since the universal function lever 490 operates only in response to any signal which causes printing or spacing, function combinations may be interposed in the above sequences and will have no detrimental effect on the operation of the motor stop device.

This device practically eliminates false operation or unintentional stopping of the remotely controlled motor. For example, unless a "blank" signal is transmitted, the apparatus is not in the condition to respond effectively to the upper case "H" signal because, should the motor stop function lever 481 then attempt to enter the selector vanes of the teletypewriter, it would find its forward movement blocked by lever 15. These motor stop contacts may be employed in a variety of circuits, such as in place of the stop bar contacts 13 shown in Fig. 1 in Patent 2,031,934 granted February 25, 1936 to T. L. Corwin. The disclosure of this Corwin patent is incorporated herein by reference as a part of this specification. It is to be understood that these motor stop contacts may be designed to be normally open and to stop the motor on being closed.

A modification of the invention is shown in Figs. 4 and 5. In this modification, a small plate 3 is attached to the end 475 of arm 474 of T-lever 444 by the adjusting screw 476. Normally, this plate 3 immediately overhangs an immovable arm 1 rigidly secured to the spring anchor plate 8 by bolts 9-9. Plate 3 is caused to immediately overhang arm 1 by means of an adjustable stop screw 2 mounted on arm 1 for limiting the extent of the upward travel of arm 474.

The lower end of arm 477 of T-lever 444 is provided with a laterally disposed extension 478 on which is mounted an adjusting screw 479. Fixedly secured to extension 478 by the adjusting screw 479 is an arm 5 which tends to be pulled upward toward arm 1 by a retractive coiled spring 4 thereby biasing T-lever 444 so that the plate 3 will not rub on the arm 1.

Since the adjusting screw 479 is located immediately beneath extension 534 of arm 506 of the function lever 481, lever 481 can not move forward at this time because its extension 534 is held up as long as plate 3 is held up by arm 1. The motor stop function lever 481 is thus restrained from operating at this time.

With this modification of the invention, when a

5 "blank" signal is received, the movement of the vertical arm 471 of T-lever 467 moves T-lever 444 to the left as was described above. When T-lever 444 moves to the left, plate 3, which is secured to the end 475 of arm 474, moves to the left a distance sufficient to allow plate 3 to clear the arm 1. Plate 3 and arm 474 are now free to move downward below arm 1 thereby conditioning the device for downward movement of extension 534 and arm 506 of the function lever 481.

10 The operator at station A now transmits a so-called "shift" signal. In response to the reception of this "shift" signal, the sixth vane 50 of the teletypewriter T₁ will move to tilt its front end downward as is described in the Morton et al. patent. The sixth vane 50 is thus placed in the proper position for allowing the motor stop function lever 481 to move forward to its operated position.

20 The operator next transmits the third code signal which may be another "shift" signal as described in the Morton et al. patent, or, more preferably, a preassigned signal such as "H" as described in the Watson patent supra. The selecting mechanism in the teletypewriter T₁ responds to this code signal and effects the selection of the motor stop function lever 481 which operates and rotates clockwise on its pivot 176 thereby moving arm 506 downward and carrying with it the extension 534 and the adjusting screw 479 on extension 478 of arm 477 as is shown in Fig. 5.

30 As is described in the Morton et al. patent, the operation of the motor stop function lever 481 moves its other arm 505 upward thereby causing the extension 509 to strike against the end 501 of the contact operating lever 499 which, consequently, rotates clockwise on its pivot 176. In rotating, lever 499 moves its other end 503 downward to allow contact 497 to open thereby effecting the opening of the energizing circuit of motor M with the consequent stopping of motor M. The energizing circuit of the motor M will now remain open until the operator at station A transmits a start signal to close contact 497 and start motor M, such as in the manner described in the Morton et al. patent, supra. Then, when the universal function bar 490 operates as described above, T-lever 444 will be pulled to the right thereby moving plate 3 to the right also. Since spring 4 tends to pull T-lever 444 upward against the stop screw 2, plate 3 will now be restored to its normal position immediately overhanging arm 1 as shown in Fig. 4.

45 As was stated above, the invention is not limited to the use of "blank" and upper case "H" signals, but may be adapted to operate in response to any other combinations of teletypewriter signals. It is also to be understood that the invention is readily applicable to attended teletypewriters. Various other modifications may be made in the invention which is to be limited only by the claims appended hereto.

What is claimed is:

65 1. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, motor stopping means for opening the control contact, said motor stopping means comprising a lever for effecting the opening of the control contact, a

latch for preventing the lever from effecting the opening of the control contact, and an instrumentality responsive to the reception by the teletypewriter at the second station of a preassigned permutation code signal for unlatching the latch for permitting operation of the lever.

2. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, motor stopping means for opening the control contact, and operating means for operating the motor stopping means, said operating means being responsive to the reception by the teletypewriter at the second station of three different successive permutation code signals transmitted over the telegraph line by the teletypewriter at the first station.

3. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, motor stopping means for opening the control contact, said motor stopping means comprising a lever for effecting the opening of the control contact, a latch for preventing the lever from effecting the opening of the control contact, an instrumentality responsive to the reception by the teletypewriter at the second station of a preassigned permutation code signal for unlatching the latch for permitting operation of the lever, and means for restoring the latch to its latched position.

4. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, motor stopping means for opening the control contact, said motor stopping means comprising a lever for effecting the opening of the control contact, a latch for preventing the lever from effecting the opening of the control contact, an instrumentality responsive to the reception by the teletypewriter at the second station of a preassigned permutation code signal for unlatching the latch for permitting operation of the lever, and means responsive to certain preassigned permutation code signals for restoring the latch to its latched position.

5. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, and a blocking lever for

preventing the motor stop function lever from effecting the opening of the control contact.

6. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a pivoted blocking lever for preventing the motor stop function lever from effecting the opening of the control contact, and means for swinging the blocking lever about its pivot to release the motor stop function lever for operation.

7. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a pivoted blocking lever for preventing the motor stop function lever from effecting the opening of the control contact, and means responsive to the reception by the teletypewriter at the second station of a preassigned permutation code signal for swinging the blocking lever around its pivot to release the motor stop function lever for operation.

8. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a two-position lever having an operated position for preventing operation of the motor stop function lever, a catch for holding the lever in its operated position, and means for releasing the catch.

9. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second sta-

tion for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a two-position lever having an operated position for preventing operation of the motor stop function lever, a catch for holding the lever in its operated position, means for releasing the catch, and means responsive to the reception by the teletypewriter at the second station of a preassigned teletypewriter signal for releasing the catch.

10. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a two-position lever having an operated position for preventing operation of the motor stop function lever, a catch for holding the lever in its operated position, means for releasing the catch, and restoring means for restoring the catch for placing the two-position lever in its operated position.

11. A teletypewriter system having in combination a first teletypewriter station, a second teletypewriter station, a telegraph line for connecting the two stations, a motor at the second station for operating the teletypewriter thereat, a circuit for energizing the motor, a control contact connected in series with the energizing circuit for opening and closing said circuit, motor starting means for closing the control contact, a motor stop function lever for effecting the opening of the control contact, a two-position lever having an operated position for preventing operation of the motor stop function lever, a catch for holding the lever in its operated position, means for releasing the catch, means responsive to the reception by the teletypewriter at the second station of a preassigned teletypewriter signal for releasing the catch, and restoring means responsive to the reception by the teletypewriter at the second station of certain teletypewriter signals for restoring the catch for placing the two-position lever in its operated position.

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