June 15, 1937. W. F. MULLER 2,084,044

ENDORSING MACHINE

Original Filed May 20, 1933 4 Sheets-Sheet 1

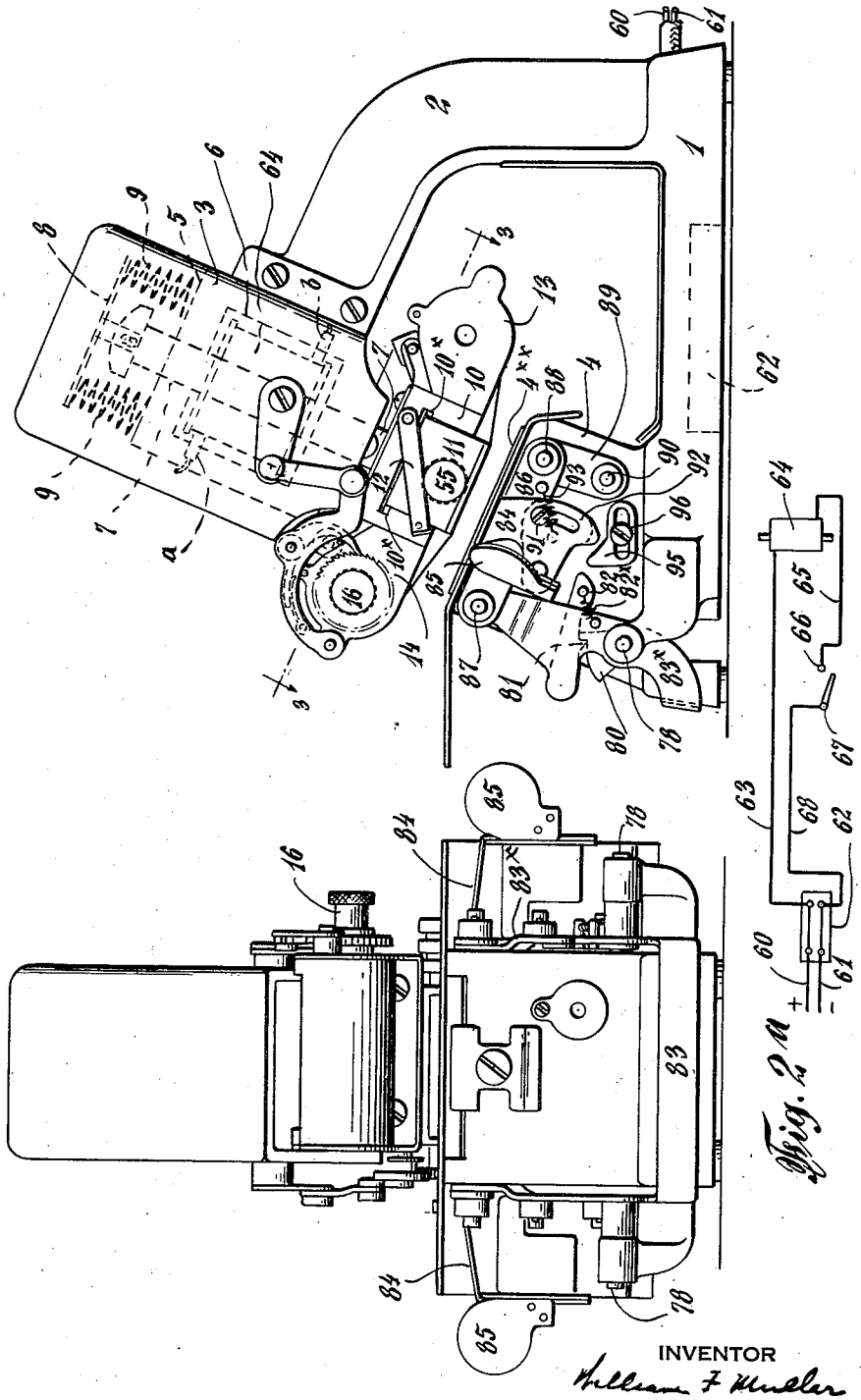

Fig. 2.

Fig. 1.

Fig. 2A

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Fig. 7.

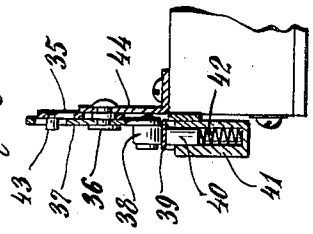

Fig. 6.

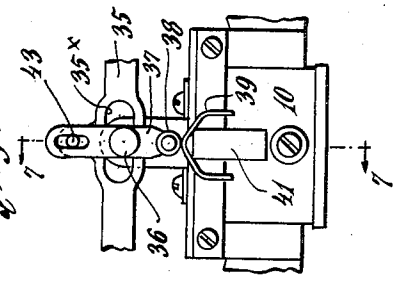

Fig. 3.

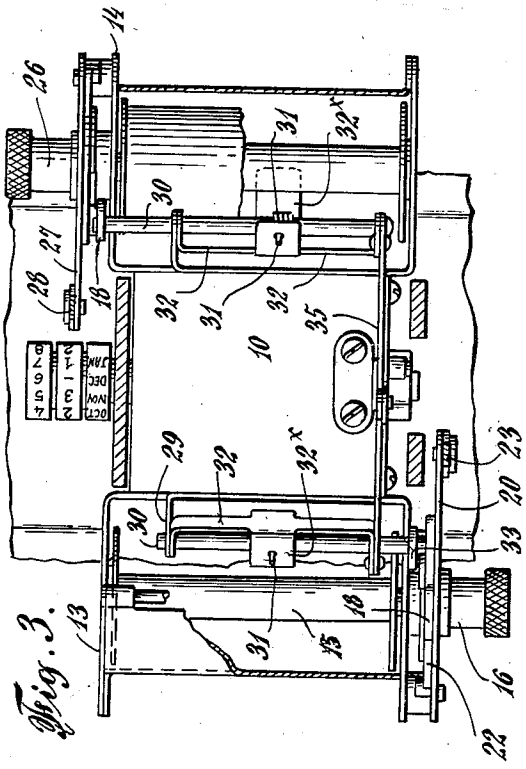

Fig. 5.

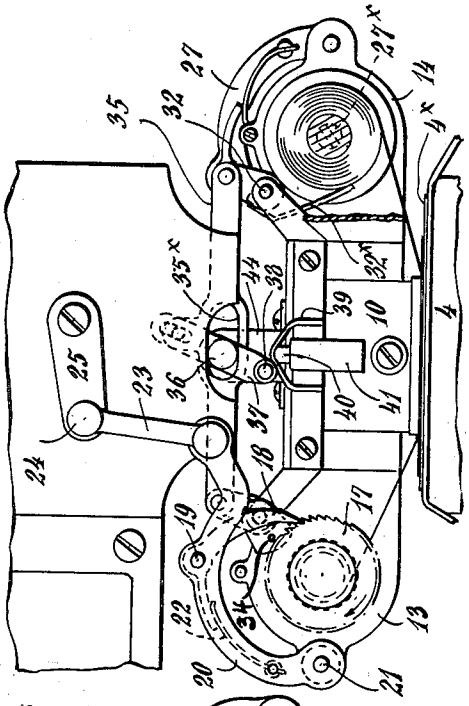

Fig. 4.

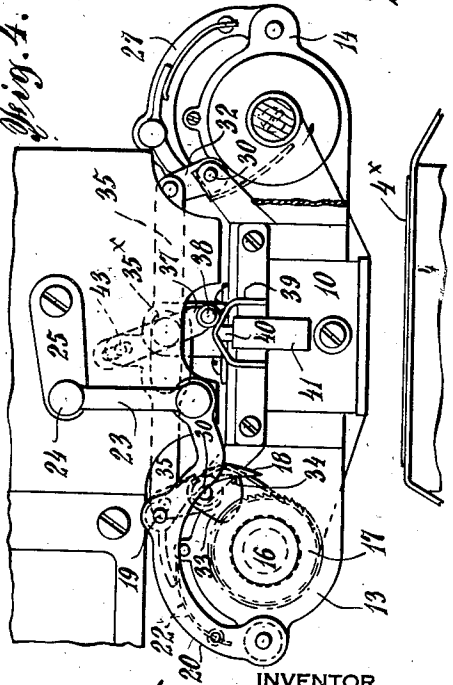

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Fig. 8.

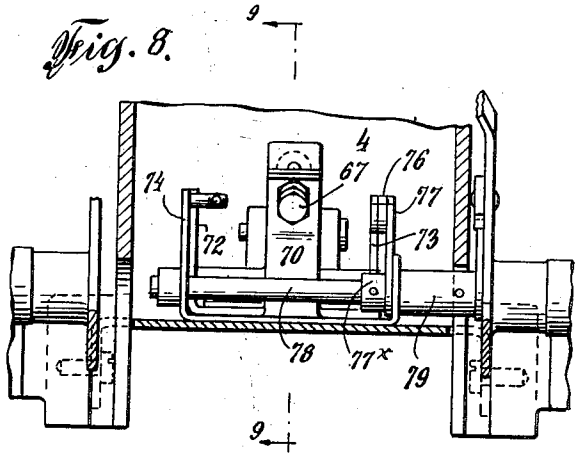


Fig. 9.

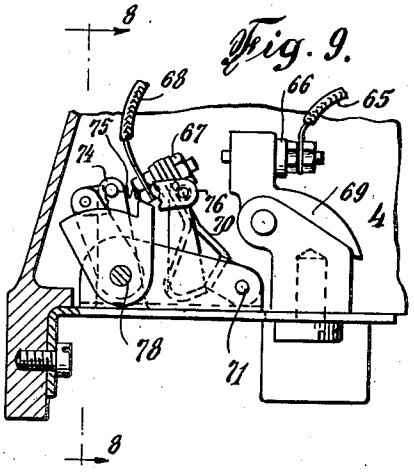


Fig. 10.

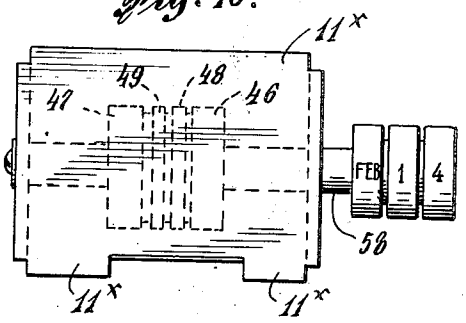


Fig. 11.

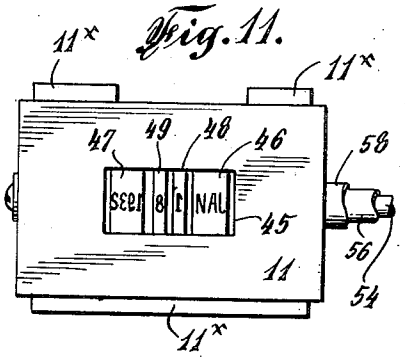


Fig. 12.

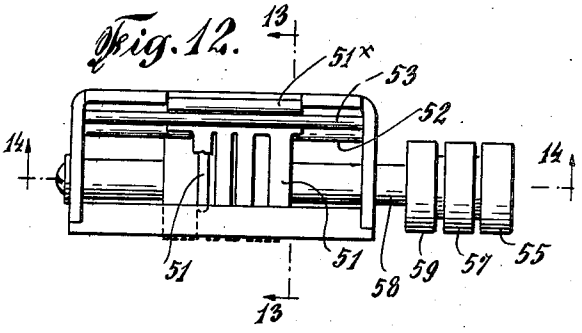


Fig. 13.

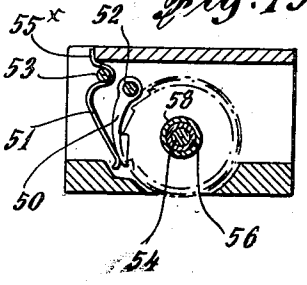
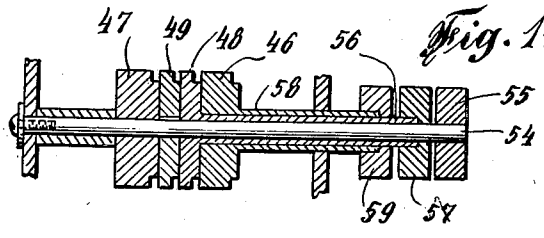


Fig. 14.



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ENDORSING MACHINE

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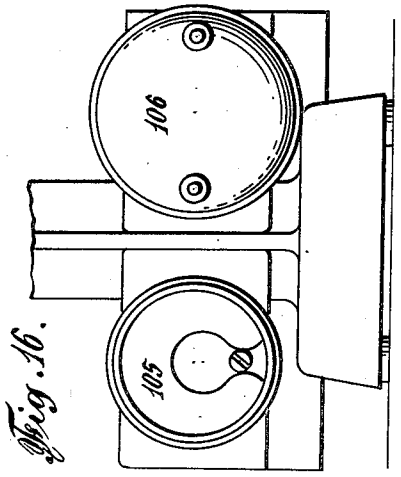

Fig. 16.

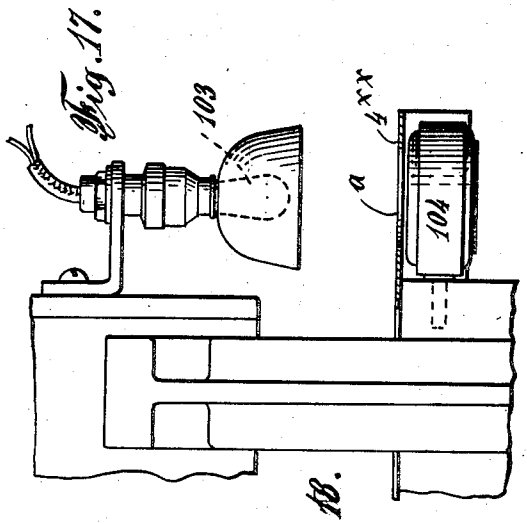

Fig. 17.

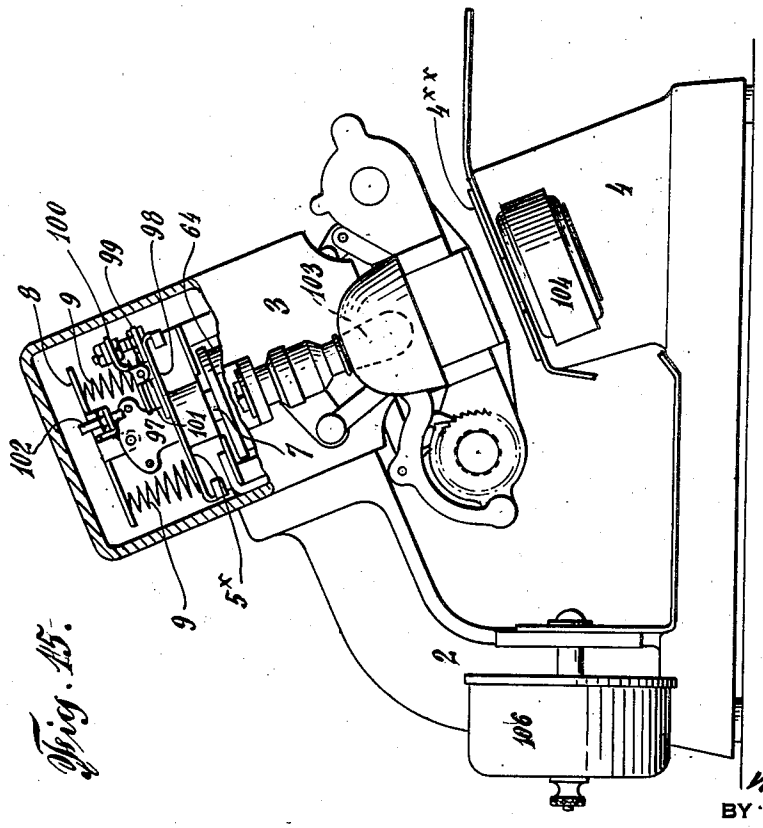

Fig. 15.

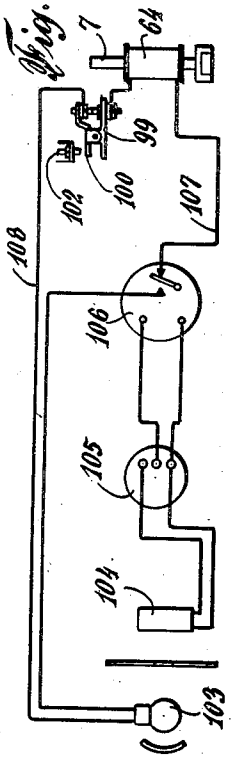

Fig. 18.

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Patented June 15, 1937 2,084,044

UNITED STATES PATENT OFFICE

2,084,044

ENDORSING MACHINE

William F. Muller, Brooklyn, N. Y., assignor to William A. Force, III, New York, N. Y.

Application May 20, 1933, Serial No. 672,058
Renewed November 11, 1936

7 Claims. (Cl. 101—100)

The object of the present invention is to provide an endorsing machine particularly useful for the endorsing of checks and the like.

A specific object of the invention is to provide a machine of simplicity and low cost of manufacture.

A further object of the invention is to provide a machine in which the operator throws electrical energizing means into action simultaneously with positioning the check or other paper for endorsement, and such means may be a manually thrown switch element or a light-sensitive switch element placed in action by the operator through moving the paper into register with said light-sensitive element.

A further object of the invention is to provide a novel type of switch mechanism as applied to machines of the said character.

A further object of the invention is to provide a ribbon type of ink carrier which is given intermittent movements across the face of the type carrier or printing die and which is provided with improved ribbon reversing means.

Further objects will hereinafter appear.

The invention will be described with reference to the accompanying drawings, in which

Fig. 1 is a front elevation of an embodiment of the invention.

Fig. 2 is a side elevation of the same.

Fig. 2ª is a wiring diagram relating to the structure shown in Figs. 1 to 14 inclusive.

Fig. 3 is a fragmentary transverse section on the line 3—3, Fig. 2.

Fig. 4 is an enlarged view, partly broken away, of the machine in side elevation, showing the ribbon-actuating and reversing means in one position.

Fig. 5 is a view similar to Fig. 4 showing the ribbon-reversing means in position reverse to Fig. 4.

Fig. 6 is a detailed view in elevation, showing certain elements of the ribbon-reversing means.

Fig. 7 is a vertical section on the line 7—7, Fig. 6.

Fig. 8 is an enlarged fragmentary elevation of certain elements of the switch mechanism taken on the line 8—8, Fig. 9.

Fig. 9 is a vertical section on the line 9—9, Fig. 8.

Fig. 10 is a top plan view of the adjustable type carrier.

Fig. 11 is a bottom plan view of the adjustable type carrier.

Fig. 12 is a view in front elevation of the type carrier.

Fig. 13 is a transverse section on the line 13—13, Fig. 12.

Fig. 14 is a longitudinal section on the line 14—14, Fig. 12.

Fig. 15 is a view in elevation, partly broken away, showing the machine provided with light-sensitive switch energizing means.

Fig. 16 is a fragmentary rear elevation showing the lower portion of the machine illustrated in Fig. 15.

Fig. 17 is a fragmentary rear elevation of the middle portion of the machine illustrated in Fig. 15.

Fig. 18 is a wiring diagram of the machine illustrated in Figs. 15 to 18 inclusive.

Referring to Figs. 1 and 2 of the drawings, the machine comprises a base 1 from which rises a standard 2 to which is secured the top casing 3, the base member 1 supporting the bottom casing 4. The top casing supports the printing carriage and contains mechanism for actuating said carriage and the bottom casing supports the platen and the switch mechanism.

Within the casing 3 is a suitable supporting member, the top of which is indicated by the dotted lines 5, in the center of which is placed the field housing 6 of a solenoid having a rod-like core 7, the upper end of which projects through a suitable aperture formed in the said support.

The top of solenoid core rod 7 carried a plate 8 between which and the top of the said support are disposed springs 9 for normally maintaining the core rod in upper position and as illustrated in Fig. 2, the core rod 7 is secured to the printing carriage.

The printing carriage

The printing carriage comprises a block 10 cut away centrally thereof to receive a printing frame 11, the printing frame at its top having laterally projecting ears 11*x* (Fig. 11) which are received in laterally extending channels 10*x* in block 10 at the top thereof, so that the printing frame 11 may be readily removed by swinging away a spring clip 12 pivoted to the frame 10 as indicated in Fig. 2.

Secured to one side face of block 10 is a ribbon carrying frame 13, and to the opposite face of the block is secured a ribbon carrying frame 14. Ribbon carrying frame 13 is adapted to receive a ribbon spool 16 which may be received on a pin (not shown) at one end of the spool carrying

frame and by the key stud of an endwise movable sleeve at the opposite end of the spool carrying frame in such manner that the rotation of the sleeve will rotate the spool.

The spool holding mechanism thus far described is common in the art and is not shown in detail.

The means for rotating sleeve 16 is as follows:

Fixed upon the sleeve is a ratchet wheel 17 adapted to be engaged by a pawl 18 pivoted at 19 upon a pawl carrying lever 20, which, in turn, is pivoted at 21 upon the frame 13. The pawl is normally held in engagement with the teeth of ratchet wheel 17 by a spring 22. One end of pawl lever 20 has connected thereto a link 23 which is pivoted at 24 to a fixed carrying arm 25. When the printing carriage is moved downwardly to the position shown in Fig. 5, the link prevents corresponding downward movement of that end of lever 20 to which it is connected and hence the pawl slips over the teeth of ratchet wheel 17. When the printing stroke is completed and the printing carriage rises under the influence of springs 9, link 23 being fixed at the point 24, will cause pawl 18 to rotate the ratchet wheel and hence the spool a slight distance, as will be understood without further explanation.

The spool holding means of spool carrying frame 14 is like that of spool carrying frame 13 and includes an endwise movable sleeve 26 (Fig. 3) having a key-like end (indicated in dotted lines at 27x, Fig. 5) for engaging one end of the spool. The sleeve carries a ratchet wheel like ratchet wheel 17 and a pawl and pawl carrying lever, the lever being indicated at 27, Fig. 3, and having one end thereof connected to a link 28 all of the same construction as the pawl lever and link described with reference to spool carrying frame 13.

The ribbon reverse

Carried by U-shaped bracket 29 secured to block 10 is a shaft 30 on which is fixedly secured a spring 31 (Fig. 3) having its end projected through an aperture formed in an arm 32x projecting downwardly from a bracket 32 mounted on shaft 30. The construction is such that a movement imparted to arm 32x causes rotation of shaft 30 through the intermediary of spring 31. Exactly the same elements are provided for the opposite face of the block 10 so that one of the arms 32x lies opposite each of the ribbon carrying spools.

With reference to Fig. 3, the left-hand shaft 30 carries at one end a pawl release disk 33 which carries a pin 34 in line with pawl 18.

The right-hand shaft 30 carries at one end a similar pawl release disk 18 having a pin in line with the pawl which actuates the ratchet wheel of sleeve 26.

The two shafts 30 are connected in the following manner:

Connected to brackets 32 is a link 35 which, intermediate its length, is formed with a slot at 35x to receive a pivoted stud 36 carried by a bracket 4xx and pivoting a detent arm 37, the latter having at its lower end a roller 38 adapted to engage a reversely inclined detent cam 39 normally held upwardly by a plunger 40 carried within the socket of a fixed cylinder 41, the plunger being connected by a spring 42, Fig. 7. The upper end of the detent arm is slotted to receive a stud 43 carried by link 35.

The parts being in the position of Fig. 4, it will be noted that the left-hand pawl 18 is disengaged from its ratchet wheel and the right-hand arms 32x lies in register with the ribbon being wound upon the right-hand spool. As the right-hand arm 32x is moved away from the axis of its spool by the winding in of ribbon thereon, link 35 will be moved to the right and will slowly retract pin 34 from pawl 18 causing the pawl to slowly move toward the left-hand ratchet wheel. At the same time, pin 43 carried by link 35 will act upon detent 37 to cause the latter to ride toward the periphery of the angular detent member 39, thus depressing post 40 against the pressure of spring 42. This action will continue until the parts reach the position shown in Fig. 6 wherein the roller of detent member 37 is on the dead center of spring detent member 39 and as the action continues roller 38 is moved past the dead center, the spring 42 acts upon plunger 40 to give a quick upward movement to member 39 thus throwing the parts to the position shown in Fig. 5 and causing pawl 18 to engage the ratchet wheel 17, and at the same time, the right-hand shaft 30 will be so turned to cause its pawl release disk 33, with pin 34, to disengage the pawl from the ratchet wheel of the right-hand spool. Also, as the ribbon is wound upon the left-hand spool, a reverse movement of link 35 occurs and when a desired amount of ribbon has been wound upon the said left-hand spool, the pawl for its ratchet wheel will be released and the pawl for the opposite ratchet wheel thrown into active position.

The printing frame and number change mechanism

The printing frame is shown more in detail in Figs. 10 to 13 inclusive. It comprises a U-shaped primary frame member having apertures at its sides to receive a shaft and sleeve construction as shown in cross section in Fig. 14. The base plate of the printing frame as shown in Fig. 11 is apertured at 45 to expose a plurality of wheels, as, for example, a wheel 46 giving the indication of the month, and wheel 47 giving the indication of the year and two wheels 48 and 49 for days of the month. Each wheel may have ratchet teeth as shown in Fig. 13 to be engaged by a pawl 50 pressed by spring 51, the pawls being carried by shaft 52 and the springs being held by shaft 53. The springs may be carried by a single spring plate 51x. All of the date wheels 46 to 49 inclusive are supported upon a shaft 54. The shaft may have keyed to it date wheel 49 and the shaft may be rotated by a thumb wheel 55. Date wheel 48 may be connected by a sleeve 56 with a thumb wheel 57 and upon sleeve 56 may be mounted a sleeve 58 carrying date wheel 46, sleeve 58 having a thumb wheel 59. Inasmuch as year wheel 47 will be rotated annually only, it is frictionally mounted upon shaft 54 and may be rotated by direct movement, for example, by a pen or pencil contacting with the wheel through the opening 45, Fig. 11.

The switch and switch actuating mechanism

From the wiring diagram, Fig. 2a, and the elevation Fig. 2, it will be noted that current is led through wires 60, 61, to a junction block 62 from which the current is led through wires 63 to the solenoid field winding 64, the circuit being completed by wires 65 leading to switch contact 66 adapted to engage with switch contact 67 connected by wire 68 to junction block 62.

Reference to Figs. 8 and 9 will show that switch contact member 66 is carried by bracket 69 secured within casing 4. Switch member 67 is

secured to a bracket 70 pivotally mounted upon shaft 71, the bracket having upwardly extending spaced arms 72, 73. Arm 72 is connected to a fixed arm 74 by a spring 75 and arm 73 is connected by link 76 with an arm 77 having a hub 77*x* fixed upon rock shaft 78.

Mounted on rock shaft 78 is a sleeve 79 which projects through an aperture formed in the casing 4. Exterior casing 4 and fixed to shaft 78 is a shouldered lug 80, the shoulder being adapted to receive the teeth 81 (Fig. 2) of a dog 82 carried by one arm 83*x* of a U-shaped lever 83, the latter having laterally extending arms 84 to which are pivotally and adjustably secured hand contact members 85.

In the present embodiment of the invention, the laterally extending arms 84 are not connected directly to the arms 83*x* of lever 83, but each is connected to a link 86 pivoted at 87 to its appropriate lever arm 83*x* and pivoted at 88 to a supporting arm 89, in turn, pivotally mounted upon casing 4 by a stud 90. Each hand member 85 is provided with a set screw 91 projecting through a slot 92 in a downwardly extending portion of the appropriate arm 84 so that the hand member may be held in each of a plurality of adjusted positions.

U-shaped lever 83 together with dog 82 and the hand members 85 are normaly held in forward position by suitable spring means, such as the spring 93, indicated in Fig. 2. The dog 82 is normally held in operative position with its tooth engaging the shoulder of member 80 by means of a spring 82*x*.

Operation of the switch mechanism

In the operation of the switch mechanism, the operator will grasp a check or other paper with its back uppermost, will insert it between the printing frame 11 and the platen 4*xx*. In moving the check to position, one or both hands of the operator will approach the hand members 85 and, by engagement with one or more of the hand members, will move the members rearwardly, thus swinging U-shaped lever 83 on shaft 78, thereby causing the dog 82 to impart a partial rotation to shaft 78 which will cause arm 77 and link 76 to move bracket 70 and the contact 67 toward contact 66. When the points of the contact members are in actual engagement, the dog will reach and be lifted by dog release cam 95 adjustably mounted upon casing 4 by set screw 96. The time of the release may be varied by moving the dog release toward or from the dog inasmuch as set screw 96 passes through a slot in the dog release enabling such adjustment.

When the switch contacts meet, field 64 of the solenoid will become energized and solenoid core rod 7 will be moved downward against the action of springs 9, and the printing elements will be moved downwardly in contact with the check or other paper, and inasmuch as the contact is instantly broken by the lifting of dog 82, springs 9 will move the printing carriage back to initial position and springs 82*x* and 93 will restore the switch operating parts to the position shown in Fig. 2.

In Figs. 15 to 17 inclusive, I have illustrated a modification of the invention. In the modification, the solenoid casing 3, switch casing 4 and the connecting arm 2 are of the same construction as in the preceding figures as is also the case with respect to the printing carriage including the ribbon release and associated elements.

Fig. 15 shows the field of the solenoid at 64, solenoid core rod 7 and a fixed plate 5*x* corresponding to the member 5, Fig. 2, against which springs 9 act upon arm 8 which is connected to the solenoid core rod. These parts are the same as in the preceding figures and the same numerals have been employed.

Arm 8, Fig. 15, is connected to the solenoid core rod 7 through a bracket 97 formed to reciprocate within an aperture formed in the supporting plate 98. Plate 98 carries fixed switch member 99 and movable switch member 100, the latter being pivoted at 101. The switch members are normally in contact. Plate 8, carries a switch breaking member 102 adapted to engage the rearwardly projecting arm of the movable switch member 100 so that when the solenoid core rod is moved downwardly, the switch members 99, 100, will be separated.

Reference to Fig. 18 will show the wiring arrangement. The platen 4*xx* will be transparent so as to throw the beam from an electric lamp 103 through the platen to a light sensitive cell 104. When the beam is barred from the selenium cell 104, a sensitive relay 105 will operate magnetic switch 106 and will close the circuit through the solenoid field 64 via wires 107, the switch device 99, 100, and wire 108. When the platen 4*xx* is of metal, it may be formed with an opening *a* for the passage of the light beam as indicated in Fig. 17.

When a check or other sheet is moved upon the platen, the said circuit-closing operation is performed, and as the solenoid core rod moves downwardly it will carry a switch breaking member 102 toward an arm on movable switch member 100 and upon the printing operation, the contacts will be thus separated permitting the paper to be moved by the operator and the beam will then be thrown upon the light sensitive cell to maintain the circuit open until a second sheet is moved to position upon the platen by the operator.

Having described my invention, what I claim and desire to secure by Letters Patent, is as follows, it being understood that various modifications may be made in the form and arrangement of the elements illustrated in the drawings, without departing from the spirit of the invention.

1. In endorsing machines for checks and the like, a base member, a platen supported by the base member, manually operable switch mechanism carried by the base member and adapted to close and open a circuit through a uni-directional movement of the operator upon one member of said switch devices, an arm rising from the base member, a casing supported by the arm, an electrical actuating device within the casing, a printing carriage connected to said actuating device and including a ribbon-holding means and means for intermittently advancing the ribbon, said means including a ratchet wheel, a pawl, a pawl lever and a link device carried by the carriage and connected to the pawl lever whereby the ratchet wheel is given a movement upon each operative and return movement of the printing carriage.

2. In machines for endorsing checks and the like a base member, a platen supported by the base member, a casing mounted above the platen, a rod within the casing, an electrical device for imparting endwise movement to said rod, a switch for said electrical device, and a printing carriage connected to said rod and normally disposed above the platen, said carriage comprising centrally located means for holding a printing ele-

ment, a spool carrying element at each end of the carriage whereby a ribbon held on said spools may be led across the face of the printing element, a ratchet wheel carried by each spool holding element, means operable by movements of the carriage to rotate said ratchet wheels, said means including a pawl for each ratchet wheel, a lever carried by the carriage at each end for engagement by a ribbon as it is wound upon a spool, a throw-out device for the pawl, a link for actuating said throw-out device, the link being operatively connected to said levers, and a spring actuated device for imparting a quick movement to the link when one of said levers has reached a predetermined position relatively to a ribbon being wound upon a spool.

3. A device constructed in accordance with claim 2 in which the spring actuated device comprises a lever and a spring actuated cam having a dead center, the lever being moved by the link toward the dead center and the cam being thrown upwardly when the lever passes the dead center so that the lever is given a swinging movement by the cam.

4. A device constructed in accordance with claim 2 in which the action of the link is to move one pawl out of engagement with its ratchet wheel and the second pawl into engagement with its ratchet wheel, the movement of the cam engaged lever toward dead center position causing one pawl throwout device to recede from its pawl and the second pawl throwout device to approach its pawl, the passing of the lever beyond dead center position causing the spring actuated cam device to impart a quick movement to the lever in a direction causing the link to act on said last named pawl throwout device to engage and move its pawl out of register with the teeth of its ratchet wheel.

5. A device constructed in accordance with claim 2 in which each pawl throwout device comprising a pin movable in the arc of a circle and connected to a shaft and arms connecting the shaft, in each case, with said link.

6. A device for endorsing checks and the like comprising a base member, a casing supported by the base member, a platen carried by the casing, switch devices within the casing including a movable member, a shaft pivotally supporting said movable member, a spring holding said shaft in position to maintain the switch open, an arm carried by the shaft and having a shoulder, a lever mounted exterior the casing, a pawl pivotally carried by the lever engaging said shoulder, a hand contact carried by the lever, pawl throwout means in the path of the pawl, an arm rising from the base member, a casing carried by the arm, a printing carriage mounted below the casing and electrical means within the casing, connected with said switch devices, for moving the printing carriage toward the platen.

7. An endorsing machine for checks and the like comprising a platen, a support for the platen, a casing mounted above the platen and spaced therefrom, a printing carriage intermediate the platen and casing, electrical means within the casing for imparting a downward movement to the printing carriage, an electrical circuit, a switch in said circuit including, a light sensitive member below the platen, the platen being formed to permit the passage of light therethrough, and a light beam throwing member supported above the platen and in register therewith.

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