

No. 854,666.

PATENTED MAY 21, 1907.

J. F. OHMER & E. H. BRIDENBAUGH.
TICKET ISSUING AND RECORDING MACHINE.

APPLICATION FILED OCT. 7, 1905.

3 SHEETS—SHEET 1.

Fig-1-

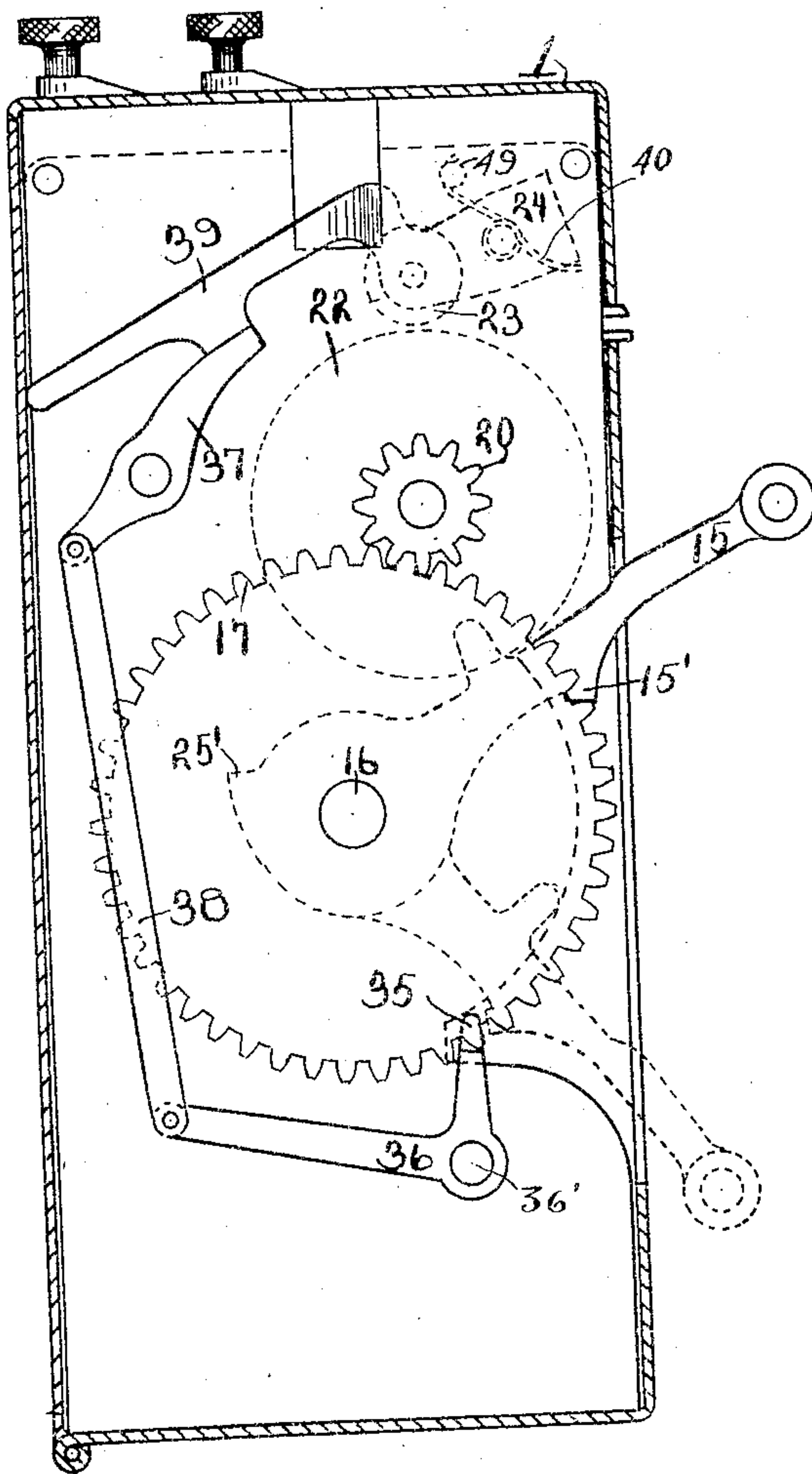
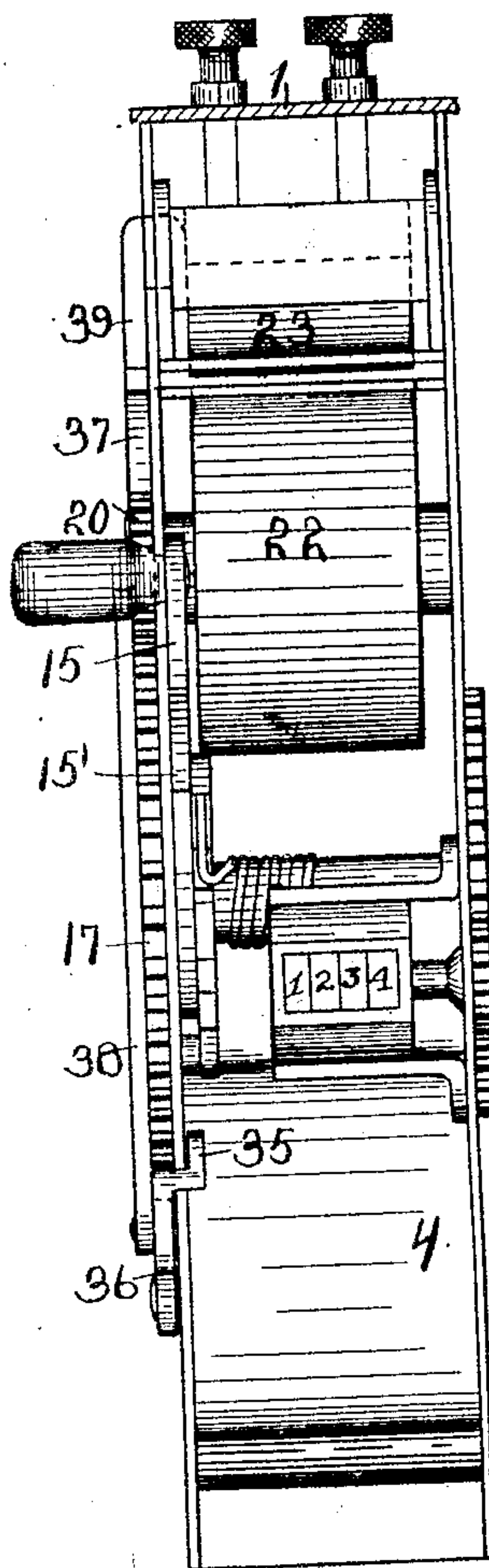


Fig-2-



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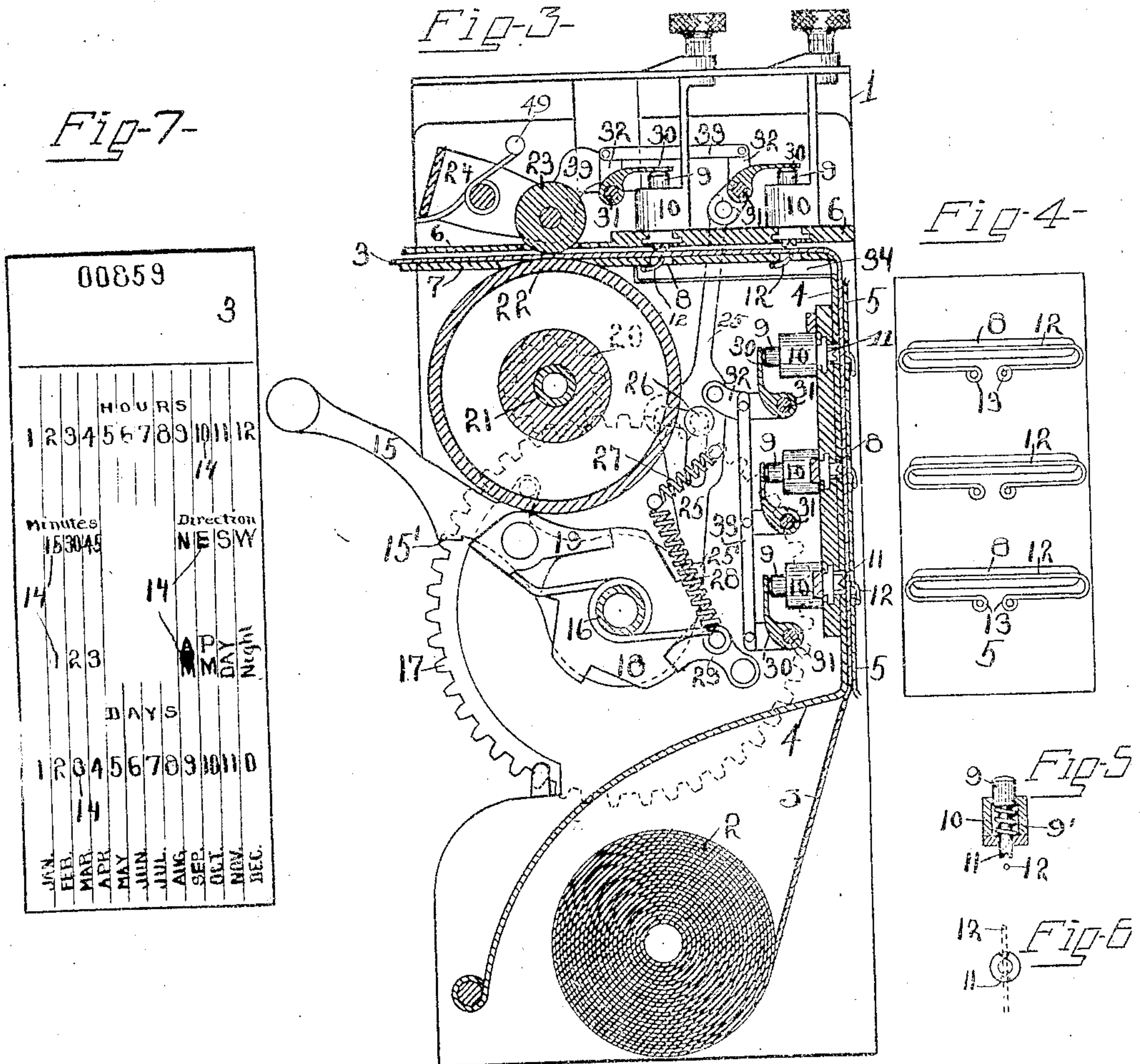
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

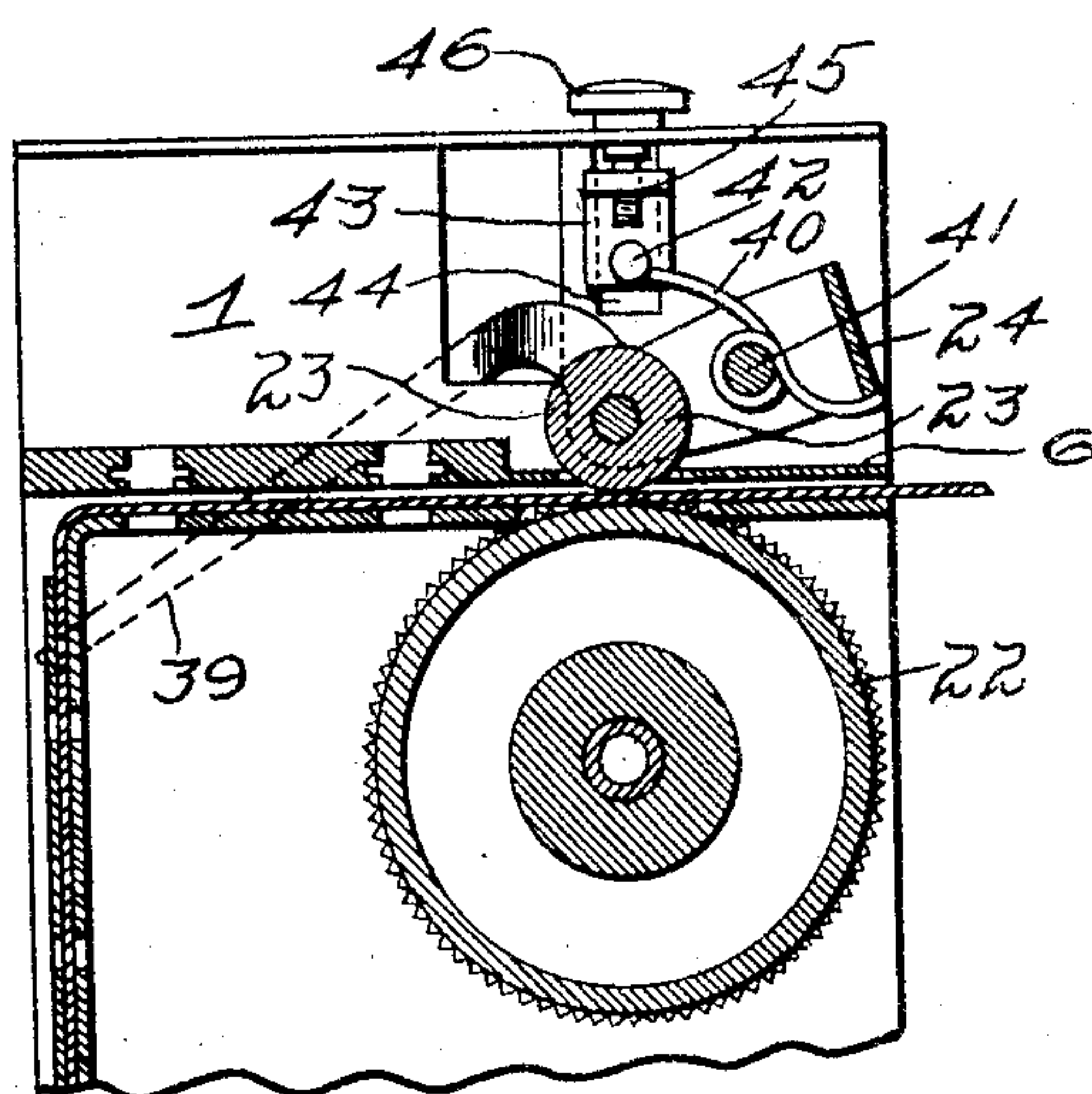


Fig-8-

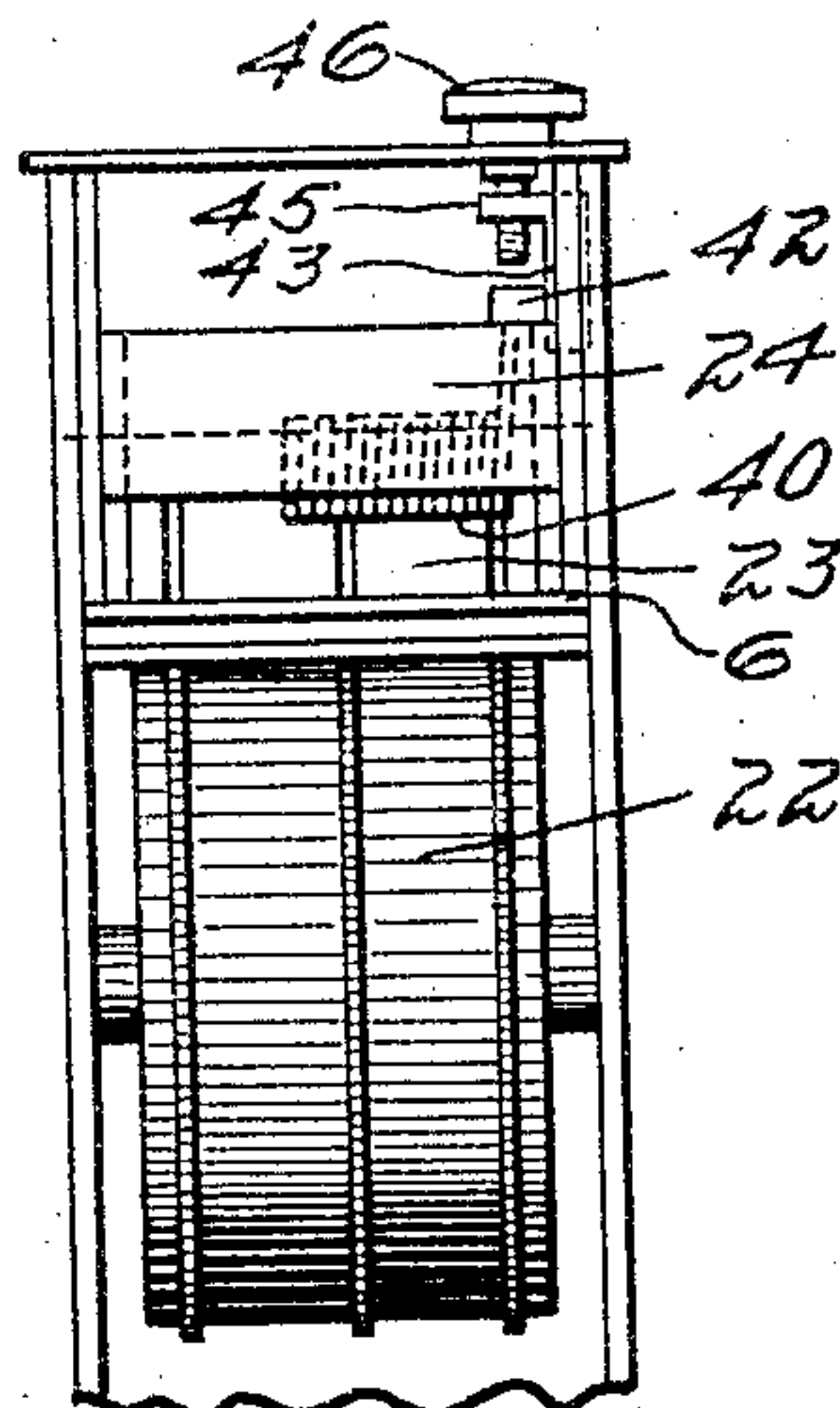


Fig-9-

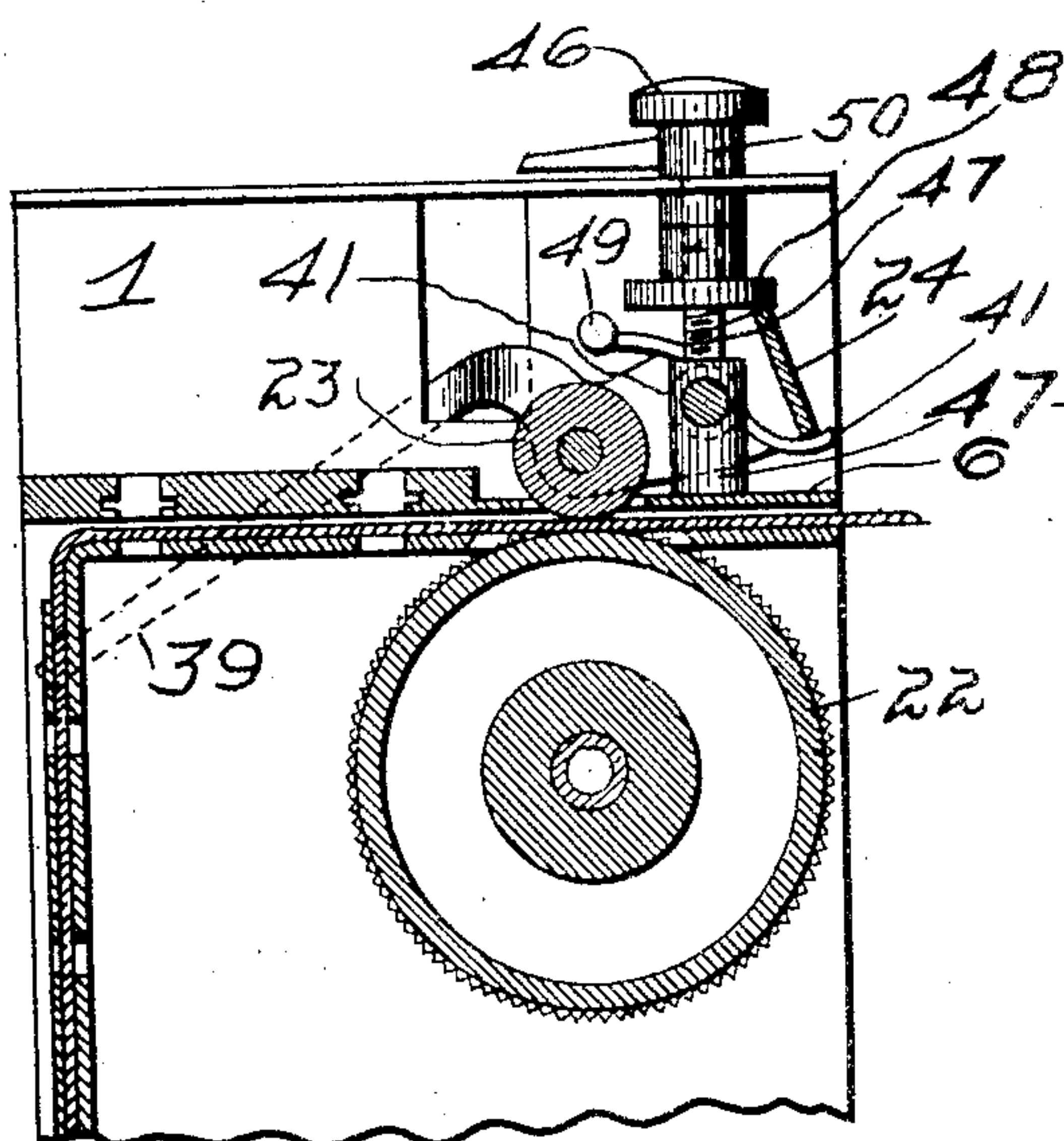


Fig-10-

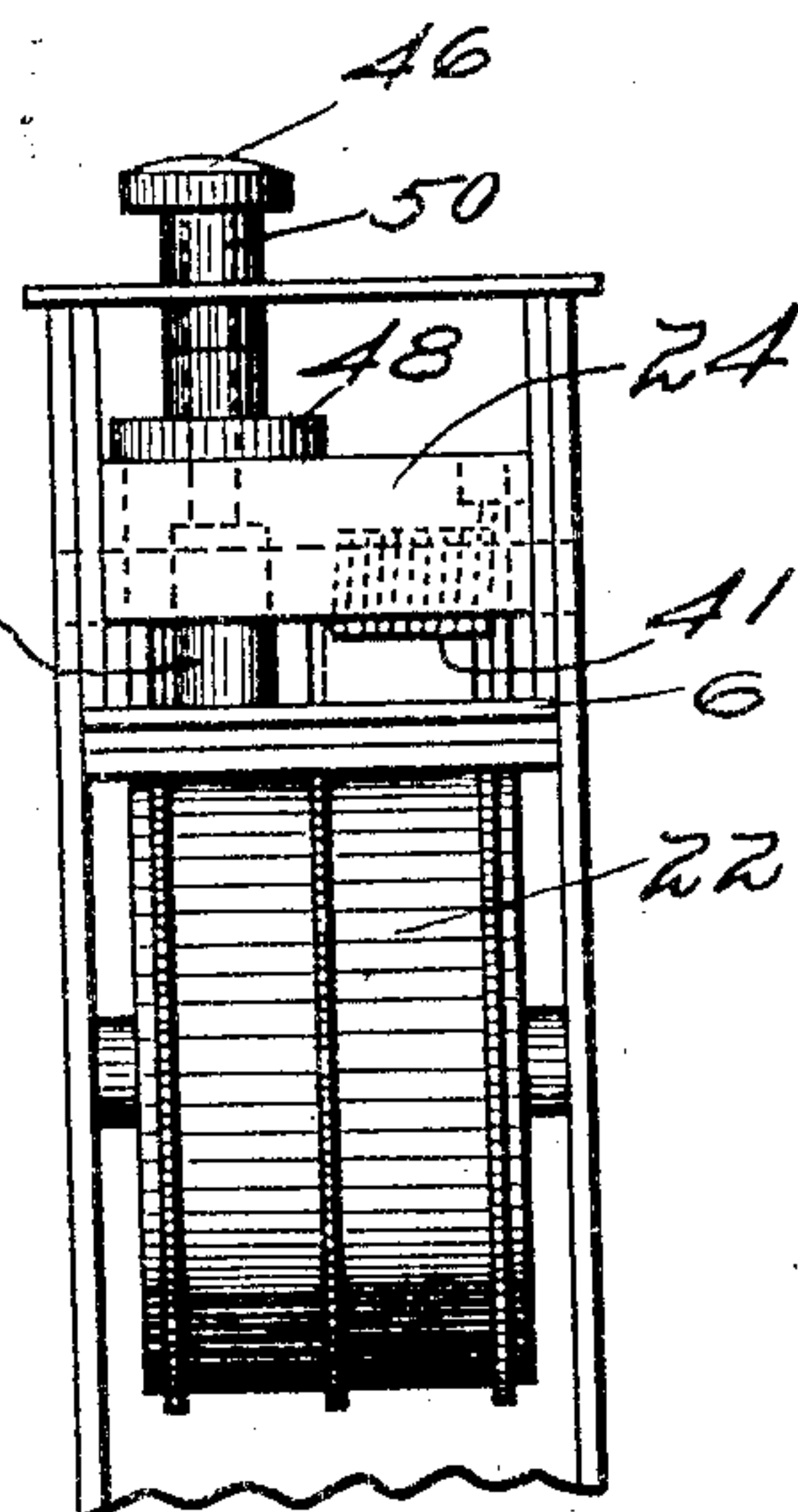


Fig-11-

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UNITED STATES PATENT OFFICE.

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TICKET ISSUING AND RECORDING MACHINE.

No. 854,666.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed October 7, 1905. Serial No. 281,750.

To all whom it may concern:

Be it known that we, JOHN F. OHMER and ELMER H. BRIDENBAUGH, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Ticket Issuing and Recording Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in ticket-issuing machines for public conveyances upon which passengers are conveyed from one point to another.

The object of the invention is to effect certain improvements in the mechanism of ticket-issuing and recording machines of the type shown and described in Letters Patent No. 789,333, which was granted to John F. Ohmer, (one of the applicants) May 9th, 1905.

The present improvements relate to the means for perforating the ticket at various points, and to means for elevating the pressure roller from the feed roller when such becomes necessary in order to insure an accurate feeding of the tickets; and to further means hereinafter described and claimed.

The tickets used are previously printed, are consecutively numbered and are fed from a continuous strip concealed within the machine. It will therefore be seen that the perforations must be at all times accurate; in other words, the particular data to be punched from each ticket must be moved in alinement with the punches or perforators in each operation of the machine. In the continued operations of the machine, owing to the constant feed of the paper, there is some liability of the data upon each particular ticket shifting out of alinement with the punches or perforators. This at times may require an adjustment of the ticket strip, and in order that said adjustment may be easily accomplished without opening the casing of the machine, means are provided which may be operated through the operating lever to release the ticket strip and permit an adjust-

ment thereof without opening the machine, when it is discovered that the perforations in the tickets are becoming out of accurate positions relative to the data on said tickets to be perforated. As these machines are almost in constant operation, it will be readily seen that the punched portions from the tickets will accumulate fast, and that in order to preserve the working of the machine, these punched portions must not be permitted to drop into the machine. To prevent this, we provide a receptacle for the upper punches which catches the punched portions.

Preceding a detail description of the invention, reference is made to the accompanying drawings, of which—

Figure 1, is a vertical sectional side elevation of the casing, showing the interior mechanism for permitting the adjustment of the ticket strip when such becomes necessary. Fig. 2, is a front elevation with the front portion of the casing removed. Fig. 3, is a side elevation of the ticket-issuing and perforating mechanism. Figs. 4—5 and 6, are detail views of the punch or perforator. Fig. 7, is a view of a form of ticket designed to be used in the machine. Figs. 8—9—10 and 11, sheet 3, illustrate adjustment mechanism by which the feed of the ticket strip is regulated by varying the pressure upon the feed roll.

In a detail description of the invention, similar reference characters indicate corresponding parts.

As shown in Fig. 3, the punch-actuating devices and the ticket-feeding devices are substantially the same as those shown and described in the patent heretofore referred to; these are located within a proper housing or casing 1, in a suitable portion of which is mounted a continuous roll 2 or supply of printed tickets 3 similar to those shown in Fig. 7. This strip of tickets passes upward in the rear of the casing between an inner guide wall 4 and an outer plate 5, and thence upwardly and horizontally across the upper portion of the machine through an upper guide wall 6 and a lower guide wall 7, and discharges at the front of the machine where each ticket is detached by the hand of the operator. The plates 5 and 7 have transverse slots 8 therein, the number of said slots corresponding with the number of punches or

perforators 9 which are mounted in proximity to said plates. The plate 5 also performs the additional function of holding the ticket-strip against the outward pressure exerted thereon by the punches in the operations of punching said tickets. It may be stated, however, that instead of the apertured plate 5, a series of parallel bars may be employed with intervening open spaces; the open spaces in this case would perform the functions of the apertures 8 in the plate 5, and the bars themselves would serve as guides for the moving ticket-strip and would also serve to hold the ticket-strip against the outward pressure of the punches. This slight modification requires no illustration in the drawings, as it simply amounts to cutting the plate 5 into a number of bars or parts and attaching them with intervening open spaces.

The punches or perforators are mounted in housings or guides 10 in which they are movable and are provided with returning springs 9'. The lower ends of said punches are provided with V-shaped notches 11 which extend centrally across the engaging end of each of said perforators—see Figs. 5 and 6. Each of said punches is mounted in a position in line with one of the slots 8, and mounted over or in front of each of said slots 8, is a yielding or resilient member or bar 12, the ends 13 of which are secured to the plates 5 and 7 at one side of the slots 8. As shown in Fig. 4, the resilient portion of each of said bars 12, lies lengthwise of the slots 8 and centrally thereof, and in a position below the notch 11 in the end of the punch or perforator.—See Fig. 5. This is necessary in order that said bars may have proper yielding movement when engaged by the punches.

The tickets, as before stated are fed between the plates 4, 5—6 and 7 and between the slots 8 and the notched ends 11 of the punches. When said punches are depressed to perforate the selected portions of the tickets, said tickets are engaged between the notched ends of the punches and the portions of the bars 12 which lie across the openings 8. In the operations of punching the tickets, these bars yield, as before stated, by reason of the openings 8, and a complete perforation or punching is made by said punches or perforators. The ticket as shown in Fig. 7, shows the perforations 14 as made by the punches on this particular ticket. The upper punches or perforators punch the figures representing the hours and fractional parts thereof and the directions, while the lower series of punches or perforators punch the time and the dates, together with the months. The punches or perforators are all operated simultaneously upon each depression of the operating lever 15. The resilient members 12, in addition to providing a co-operating yielding impact for the punches, also serve as a means for throwing said

punches back to their normal positions after each operation, in this, they supplement the springs 9' on said punches.

The lever 15 is fulcrumed on shaft 16 upon which the feed roller-actuating spur wheel 17 is mounted, also the ratchet wheel 18, said wheels 17 and 18 being rigid upon the shaft. Carried upon said lever 15 is a ratchet pawl 19 which engages the ratchet wheel 18 and actuates the spur wheel 17 upon each upward movement of said lever.

The wheel 17 engages a pinion 20 upon shaft 21 of the feed drum 22 and rotates said drum. Above this feed drum there is a pressure roller 23 which presses the strip of tickets in contact with the feed drum 22 and thereby insures the feed of said ticket strip. The pressure roller 23 is mounted upon arms 24 which are pivoted to the sides of the casing. The lever 15 is engaged by a slotted pitman 25, said pitman resting on shoulder 25' and held in position by a stud 26 which passes through an angular slot in the body of said pitman and thereby permits of the necessary movement being imparted to the pitman from said lever. In Fig. 3, this pitman is shown to rest upon the shoulder 25' on said lever 15, and is held in such position by means of a spring 27; a similar spring 28 engages a pawl 29 and holds the latter in engagement with the ratchet wheel to prevent any backward movement of said wheel during the operations of the machine.

From the pitman 25, the various punches or perforators are operated through the following devices and in a manner similar to that described in the patent hereinbefore referred to. The vertical or rear series of punches have actuators 30 which are fixed to shafts 31. Extending from the uppermost one of said shafts, is an arm 32 which is pivoted to the pitman 25. The lower series of actuators 30 are connected to this arm 32 by a link bar 33. The upper or horizontal series of actuators 30 are similarly connected by means of arms 32 and link 33. The shaft 31 of one of these upper actuators is connected to the upper end of the pitman 25 so that it will be seen all the actuators 30 are connected to this operating lever or pitman 25, and that when said pitman is operated by the lever 15 in each feed of tickets, all of the perforators 30 will be operated to punch the tickets at the desired places.

In the upper portion of the casing below the punch openings 8—8 in the upper plate 7, there is a stationary receptacle 34 which receives the confetti or punched portions of the tickets and prevents the same from falling into the machine to clog it up. The receptacle is open at its rear end to permit of the punched portions being removed by tilting the machine when the back or door is opened. The punched portions of the tickets from the vertical series of punches fall

out of the rear of the machine when the back or rear door is opened.

Fig. 1, illustrates the mechanism for elevating the pressure roller 23 when it becomes necessary to shift the paper to bring it in proper position relative to the punches or perforators. The operating lever 15 has upon it a shoulder 15'. In the normal operations of the machine, this shoulder is not utilized, but whenever it is desired to shift or adjust the strip of tickets to bring the tickets in proper position, the operating lever 15 is lowered below its normal travel until it engages a lug 35 on one end of a bell crank lever 36 which is pivoted to the frame at 36'. 37 is a second lever which is connected with lever 36 by link 38, and upon this lever 37 an arm 39 normally rests. Arm 39 is connected with the frame 24 upon which the pressure roller 23 is supported, and is thus held in proper position relative to the lever 37.

It will be seen that when the lever 36 is actuated, the upper lever 37 will have its upper end or that end, engaging the arm 39, elevated to lift the pressure roller 23 away from the feed roller 22, and the levers 36 and 37 are maintained in such position by holding the operating lever 15 in its lower position as shown in dotted lines in Fig. 1, while the other hand shifts or adjusts the ticket strip to its proper position from the exterior of the machine. The end of the ticket projecting from the machine is caught hold of by the fingers and is drawn outward to the proper position, after which the handle 15 is elevated and the levers 36 and 37 and the pressure roller 23 assume their normal positions.

In the event of any variation in the position of the printed matter upon each ticket, relative to the speed of the feed rollers, the same may be compensated for by increasing or decreasing the pressure of the pressure roller upon the feed roller. For example, if the ticket strip is feeding too fast, an increased pressure upon said ticket strip will cause said ticket strip to feed slower, and vice versa.

Referring to Figs. 8 and 9, the arms 24 which support the pressure roller 23, are provided with a tension spring 40 which surrounds a stud or pin 41 and has its lower end projected below the transverse portion of said arms. The other end of said spring 40 is held by a pin 42 which projects laterally from an angle plate 43 which is suitably guided in a slot 44 in the upper portion of the frame 1. This angle plate 43 has its upper end projected at right angles to receive an adjusting screw 45. This adjusting screw has its head terminated in a finger-piece 46 which lies above the top of the casing in a position to be turned by the fingers to elevate or lower the plate 43. The tension of the spring 40 is thereby increased or decreased to

the desired extent which has a corresponding effect upon the pressure roller 23 through the supporting arms 24. The amount of movement of the adjusting screw 45 is very slight in order to decrease or increase the tension of the spring 40.

In Figs. 10 and 11, a slight modification is shown consisting of applying the pressure on the top of the arms 24 by means of a flanged collar 48 which screws up and down upon a screw-threaded post 47. The lower portion of this post 47 is devoid of screw-threads and is supported upon the plate or wall 6. The stud or pin 41 around which the spring 40 is coiled, passes through said post and the spring, as in Fig. 8, projects below the cross-piece of the arms 24 at its lower end. The upper end of said spring is secured to a stationary pin 49 that projects from a side of the casing. The hub of the flange 48 is engaged by a sleeve 50 which screws upon the screw 48 above said hub, said sleeve being provided with the finger-piece 46. It will thus be seen that by screwing down the sleeve 50, the flange 48 imparts movement to the arms 24 and the pressure roller 23 is accordingly raised or lowered to the desired extent to relieve or increase the pressure upon the strip of tickets.

Having described our invention, we claim:

1. In a ticket-machine, the combination with ticket-issuing mechanism, of a punch to perforate the tickets at selected points, a resilient member lying transversely to the plane of the punch and in the path thereof, and co-operating with said punch in perforating the tickets, and means for holding the tickets against the outward pressure of the punch.

2. In a ticket machine, the combination with ticket-issuing mechanism, of a series of ticket punches to perforate the tickets at selected points, a resilient member lying in the path of each point and co-operating therewith to perforate the tickets, and means adjacent to said resilient members for holding the tickets while being perforated.

3. In a ticket machine, the combination with ticket-issuing mechanism, of a series of ticket punches actuated by said mechanism to perforate the tickets, a series of resilient members lying in the paths of and transversely to said ticket punches and co-operating therewith in punching the tickets, and means for holding the tickets against the pressure of the punches.

4. In a ticket-issuing machine, the combination with ticket-issuing mechanism, of series of punches or perforators having V-shaped notches, a series of resilient bars mounted in line with said V-shaped notches and co-operating with the perforators in punching the tickets, and means comprising a perforated plate for holding the tickets

against the outward pressure of the punches, and upon which the resilient members are supported.

5. In a ticket-issuing machine, the combination with ticket-feeding devices adapted to feed previously printed tickets from a continuous strip, of a plurality of perforators so arranged with reference to the matter on the tickets that each perforator will punch selected data from said tickets, said perforators being operated each time through the ticket-issuing mechanism, a series of resilient bars lying in the paths of said perforators and co-operating therewith in punching the tickets, and means in the rear of the tickets for holding them against the outward pressure exerted by the perforators.

6. In a ticket-issuing machine, the combination with ticket-feeding devices adapted to feed previously printed tickets from a continuous roll or strip, of a plurality of punches so arranged that each punch will perforate selected data from a different part of each ticket, said punches being operated each time through the ticket-feeding mechanism, a series of resilient members mounted in the paths of said punches and co-operating therewith in perforating the tickets, and means for holding the tickets against the pressure of the punches.

7. In a ticket-issuing machine, the combination with mechanism adapted to feed a continuous strip of tickets containing printed data, of a plurality of perforators mounted in the machine and adapted to punch or perforate said tickets at the desired points, a series of resilient bars mounted in the paths of the perforators and engaged by the ends of said perforators in punching the tickets and means for guiding the tickets and holding them against the pressure of the perforators.

8. In a ticket-issuing machine, the combination with ticket-issuing mechanism adapted to feed a continuous strip of tickets containing printed data in transverse parallel groups, of a plurality of perforators adapted each to punch selected data from said groups, a series of actuators to operate said perforators, a series of resilient members in the paths of said perforators and co-operating therewith in punching the tickets, and means for guiding the tickets into positions to be punched and for holding the same against the pressure of the perforators.

9. In a ticket-issuing machine, the combination with ticket-issuing devices, of a series of perforators adapted to punch or perforate said tickets at predetermined points, means in the rear of the ticket strip for holding the same against the pressure of the perforators, a series of resilient bars adjacent to the ends of the perforators and co-operating with said perforators in punching said tickets, a series of actuators arranged adjacent to the perforators, and means for operating said actua-

tors upon each ticket-feeding operation of the machine.

10. In a ticket-issuing machine, the combination with ticket-feeding devices including an operating lever, of a plurality of perforators adapted to punch or perforate each ticket at predetermined points, said perforators having notches in their punching ends, means in the rear of the ticket strip for holding the same against the pressure of the perforators, a series of resilient bars mounted in alinement with said notches and co-operating with the punches in punching the tickets, a series of actuators to operate said perforators, and means interposed between said actuators and said main operating lever whereby the perforators are operated upon previous to each feeding operation of the machine.

11. In a ticket-issuing machine, the combination with a main operating lever, a feed roller, means interposed between said feed roller and said lever for operating said feed roller, a pressure roller mounted in contact with said feed roller, and means interposed between said pressure roller and the main operating lever, whereby said pressure roller is removed from the feed roller when said lever is moved to the limit of its movement in one direction.

12. In a ticket-issuing machine, the combination with ticket-issuing devices including an operating lever, of a plurality of perforators adapted to punch or perforate each ticket at predetermined points, said perforators having notches in their ends, means in the rear of the ticket strip for holding the same against the pressure of the perforators, a series of resilient bars mounted in alinement with said notches and co-operating with the perforators in punching the tickets, a series of actuators to operate said perforators, and means interposed between said actuators and the operating lever of the machine whereby the punches or perforators are operated upon each initial movement of the operating lever.

13. In a ticket-issuing machine, the combination with a ticket-issuing mechanism, of a perforator or punch to perforate each ticket, a resilient member lying in the path of the perforator or punch and co-operating with said perforator or punch in perforating said ticket, and means in the rear of the ticket strip for holding the same against the pressure of the punches.

14. In a ticket-issuing machine, the combination with ticket-issuing mechanism, of a movable punch or perforator, a resilient member mounted in the rear of the ticket strip, means in the rear of the ticket strip for holding the same against the pressure of the punch or perforator, and a receptacle to receive the punched portions of the ticket.

15. In a ticket-issuing machine, the combination with ticket-issuing mechanism, of a movable punch or perforator, a resilient

member engaging said perforator in its operations, means in the rear of the ticket strip for holding the same against the pressure of the perforator, and a receptacle to receive the punched-out portions of the ticket.

16. In a ticket-issuing machine, a movable punch or perforator, in combination with a resilient member co-operating with the punch to perforate a ticket, and means for holding the ticket strip against the pressure of said punch or perforator.

17. In a ticket-issuing machine, a plurality of punches, in combination with a corresponding number of resilient members engaged by the ends of said punches in perforating the tickets, and means for holding the tickets against the pressure of the punches and the resilient members.

18. In a ticket-issuing machine, the combination of a punch or perforator, a resilient bar mounted in the path of said punch or perforator and co-operating therewith to punch the tickets, a perforated plate in the rear of the tickets and holding the same against the pressure of said punch or perforator, and a receptacle to receive the punched portions of the tickets.

19. In a ticket-issuing machine, the combination with a punch or perforator, of a resilient member mounted adjacent to the end of said punch and co-operating therewith in punching the tickets, means for holding the tickets against said punch, and a receptacle to receive the punched portions of the tickets.

20. In a ticket machine, a movable punch, a resilient bar mounted in the path of said punch and engaging the ticket on one side, and means for shifting said punch to operative positions.

21. In a ticket-machine, a series of ticket punches, a resilient bar mounted in the path of each of said punches and engaging the tickets on the sides opposite the punches in the operations of punching the tickets, a slotted plate on the rear side of said punches for holding the tickets against the pressure exerted thereon by the punches.

22. In a ticket machine, the combination of a main operating lever, a feed roller, and means interposed between said feed roller and said lever for operating said roller, a pressure roller, a pivotal frame upon which said pressure roller is mounted, lever and link connections between said pressure roller and the operating lever whereby said pressure roller is elevated from the feed roller when the operating lever is actuated beyond the limit of its ticket-feeding movement.

23. In a ticket machine, ticket feeding rollers, and a main operating lever, in combination with two series of ticket punches, a resilient bar mounted in the path of each of said punches and engaging the tickets, a perforated plate mounted adjacent to each of

said ticket punches, the perforations in said plate being in alinement with the resilient bars, and means operated by the main operating lever to actuate said punches.

24. In a ticket machine, the combination with feeding rollers, and a main operating lever, of a series of horizontal ticket punches, a series of vertical ticket punches, a perforated plate mounted adjacent to each of said ticket punches, the perforations in said plates being oblong and in alinement with the ticket punches, and resilient bars mounted in the paths of said punches parallel with the perforations in said plates and lying between said perforations and the ticket punches.

25. In a ticket-issuing machine, the combination with two feeding rollers, and a main operating lever, of an upper series of ticket punches, a lower series of ticket punches, perforated plates mounted adjacent to said punches, the perforations therein being elongated and in alinement with the punches, resilient members mounted upon said perforated plates parallel with the openings in said plates and adjacent to the punches, and a mechanism between said upper series of punches and said lower series of punches, whereby all of said punches are operated simultaneously from the main operating lever.

26. In a ticket-issuing machine, the combination with ticket-feeding rollers, and a main operating lever, of a series of upper punches and a series of lower punches, a resilient member co-operating with each punch to perforate the tickets, means in the rear of the tickets for holding them against the pressure of the punches mechanism interposed between said upper and lower series of punches and the main operating lever, whereby said punches are simultaneously operated upon each operation of the lever, and means interposed between said operating lever and one of the feeding rollers, whereby said feeding roller is removed from an operative position when the lever is moved beyond the limit of its movement in feeding tickets.

27. In a ticket-issuing machine, the combination with a main operating lever, and ticket feeding rollers, of an upper series of ticket punches, a lower series of ticket punches, a resilient bar mounted in the path of each of said punches and co-operating with each punch in perforating the tickets and serving to initially retract each punch after each perforating operation, means in the rear of the tickets to hold the same against the pressure of the punches, and mechanism interposed between the lower series of punches and the upper series of punches whereby said punches are simultaneously operated from the main operating lever.

28. In a ticket-issuing machine, the combination with ticket-feeding rollers, and a main operating lever, of an upper series of ticket punches, a lower series of ticket

punches, a resilient member co-operating with each punch in perforating the tickets and adapted to initially retract a punch after each operation, means for holding the tickets against the pressure of the punches, an actuator for each punch, a connection between the actuators of the upper series of punches, a connection between the actuators of the lower series of punches, a pitman to which the upper series of punches are connected, and to which the lower series of actuators are connected, and means on the main operating lever for actuating said pitman.

29. In a ticket-issuing machine, the combination with a feeding roll, a pressure roller mounted on pivotal arms above the feed roll, an arm projected from said pressure roller in the direction opposite to that of the supporting arms of said feed roll, a lever engaging said oppositely projected arm, a link extending downwardly from said lever, a bell crank lever to which said link is connected, one arm of said bell crank lever having a lug thereon and a main operating lever having a projection thereon adapted to engage the lug of the bell crank lever when said operating lever is moved to its lowest position, and whereby the pressure roller is lifted from the feed roll.

30. In a ticket-issuing machine, the combination with a feeding roll and a pressure roller mounted upon a pivotal frame, of a

tension device for increasing or decreasing the contact of the pressure roller and consisting of a spring engaging said pivotal frame at one end, a stud engaging said spring at the other end, a pin engaging said spring at an intermediate point, and an adjusting screw for said spring on one side of its intermediate connection, said adjusting screw being extended from the outside of the casing of the machine and having an intermediate portion through which the adjusting movements are imparted to the spring.

31. In a ticket-issuing machine, a ticket-feeding roll, a pressure roll to maintain the ticket strip in a suitable contact with the feed roll, a pivotal frame upon which said pressure roll is mounted, a spring secured to the pivot of said frame, one end of the spring engaging the frame, an adjusting plate engaged by the other end of the spring, and a screw engaging said plate to regulate the tension of the spring and thereby maintain the pressure roll in suitable contact with the feed roll.

In testimony whereof we affix our signatures, in presence of two witnesses.

JOHN F. OUMER.

ELMER H. BRIDENBAUGH.

Witnesses:

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