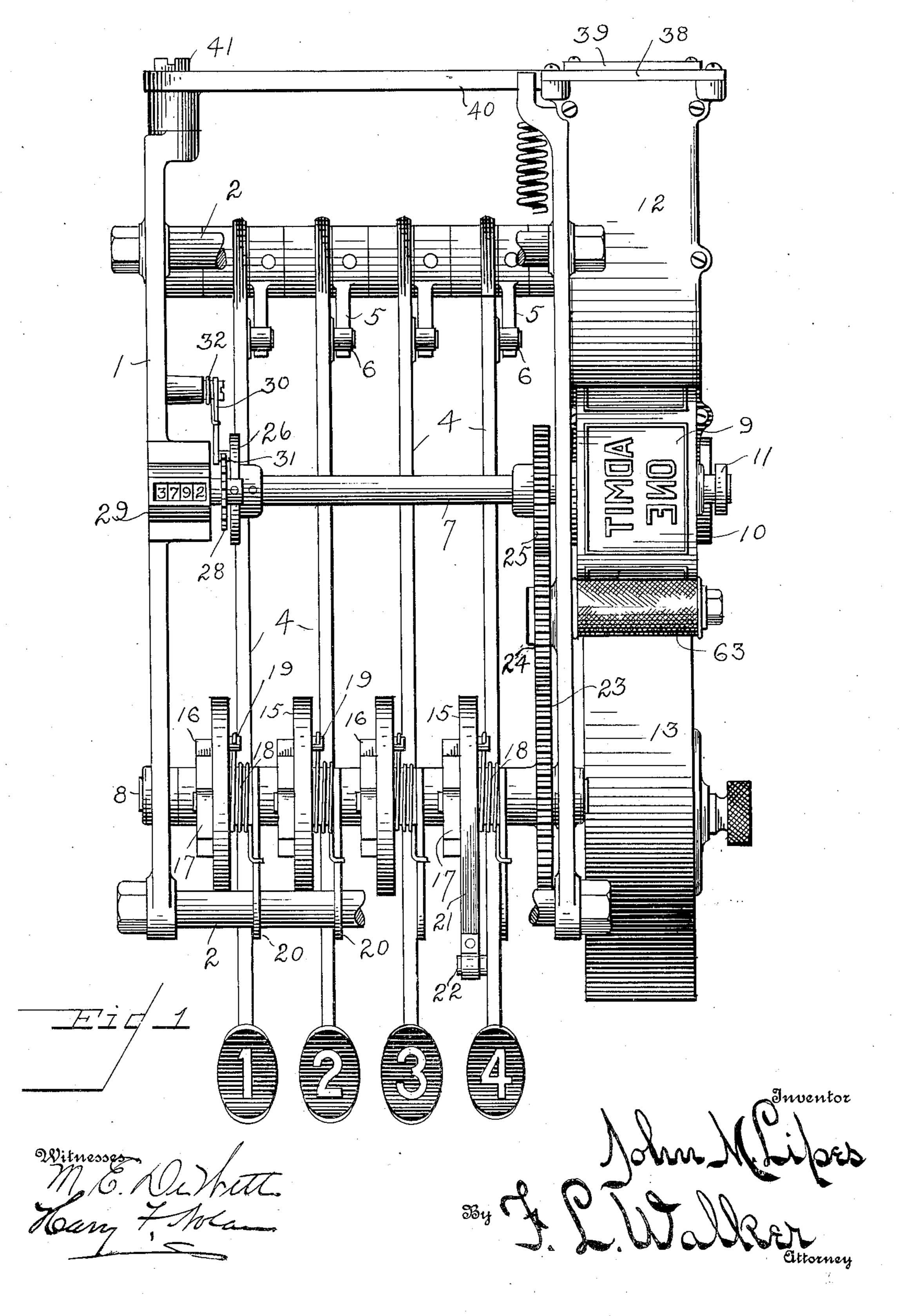
J. M. LIPES. TICKET PRINTING AND DELIVERING MACHINE. APPLICATION FILED SEPT. 30, 1909.

994,081.

Patented May 30, 1911.

5 SHEETS-SHEET 1.



J. M. LIPES.

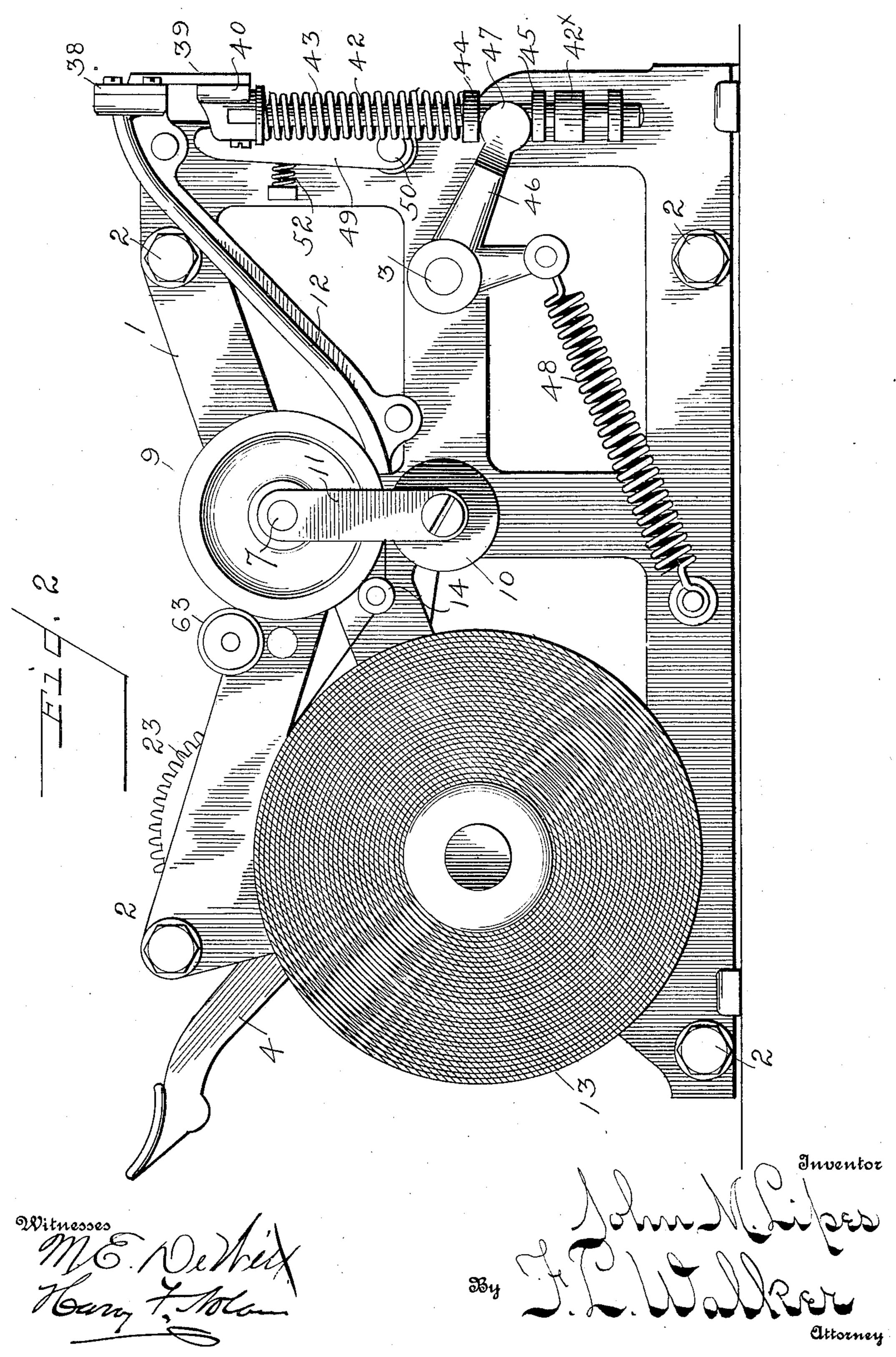
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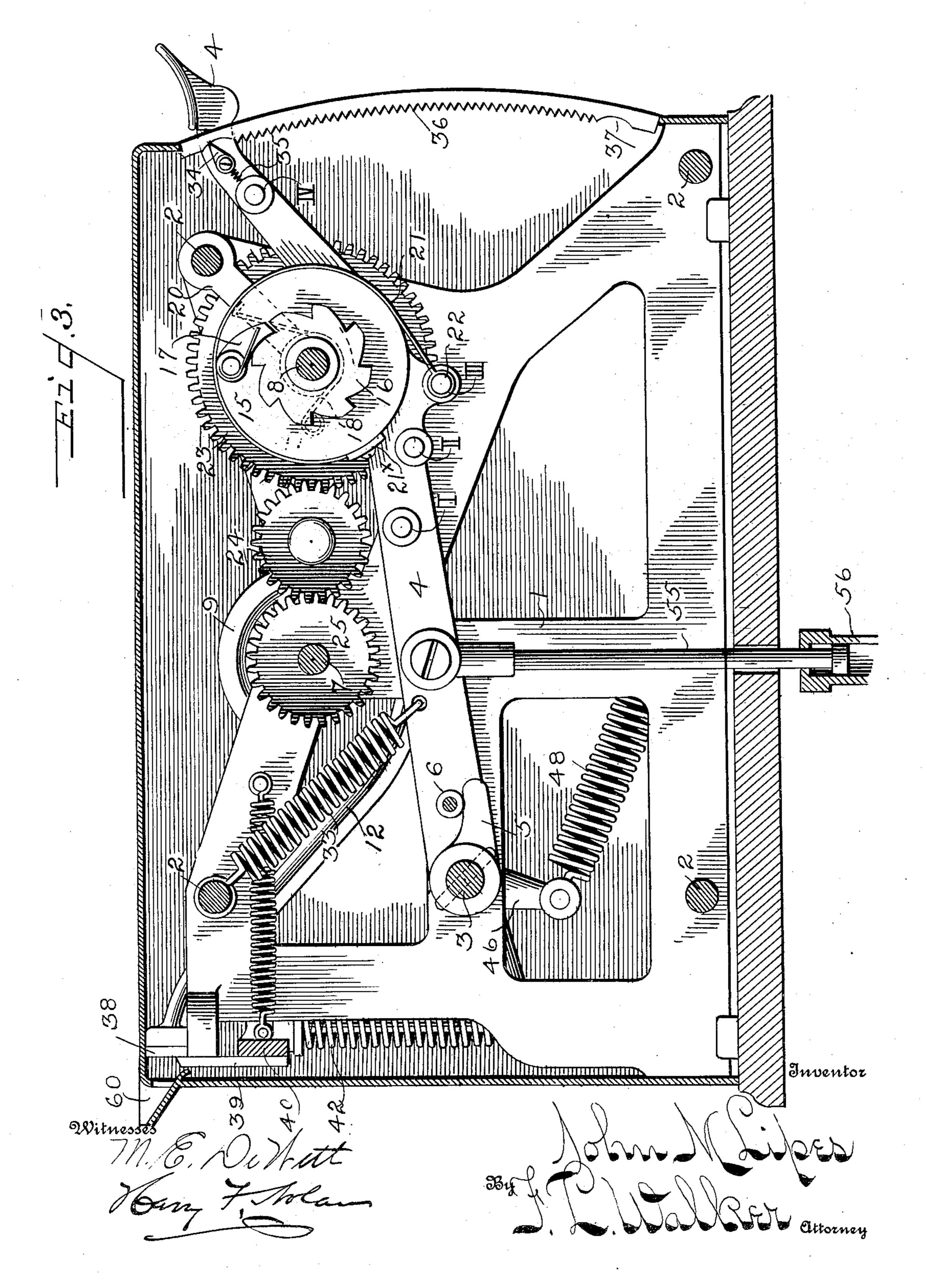
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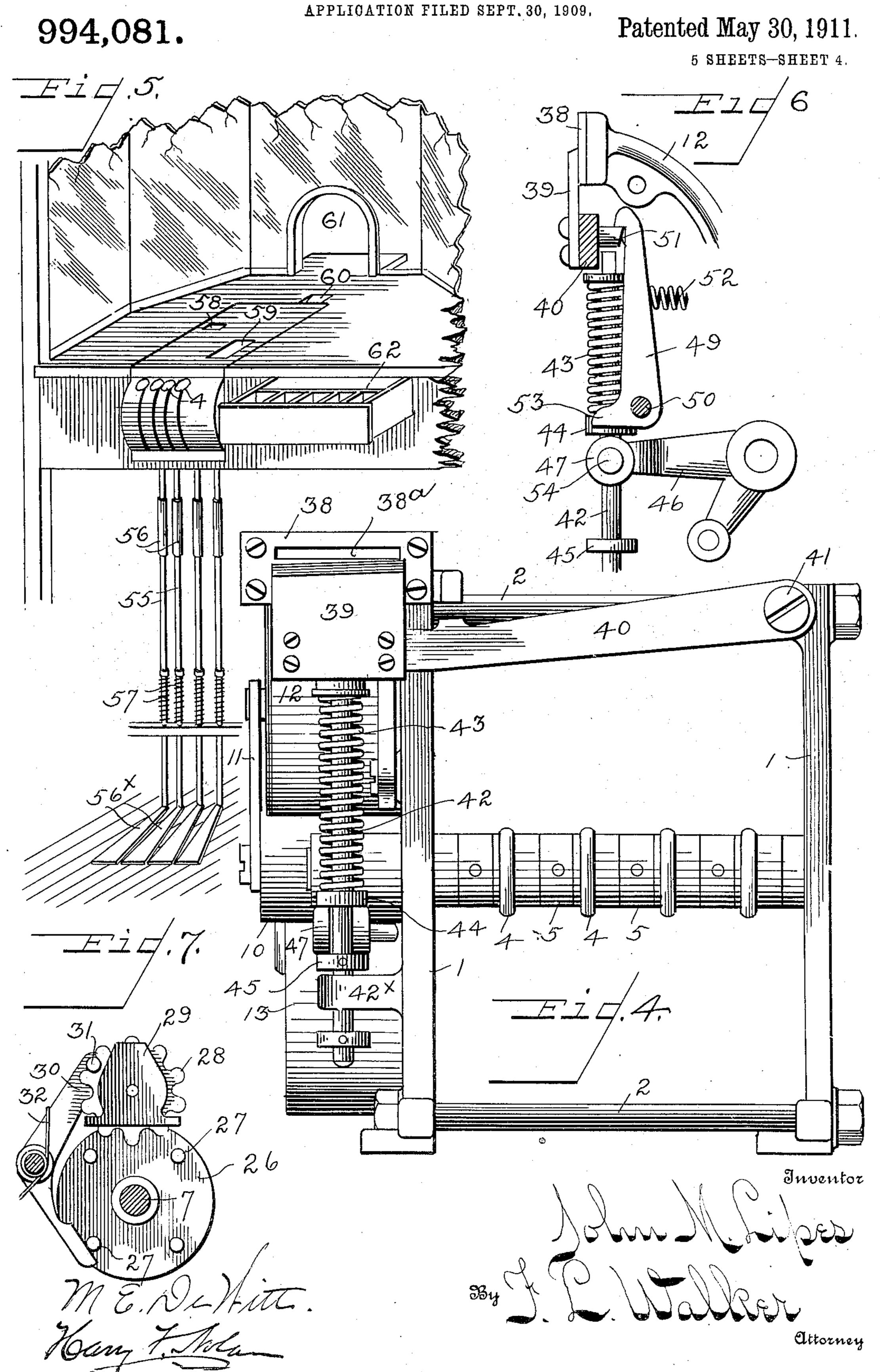
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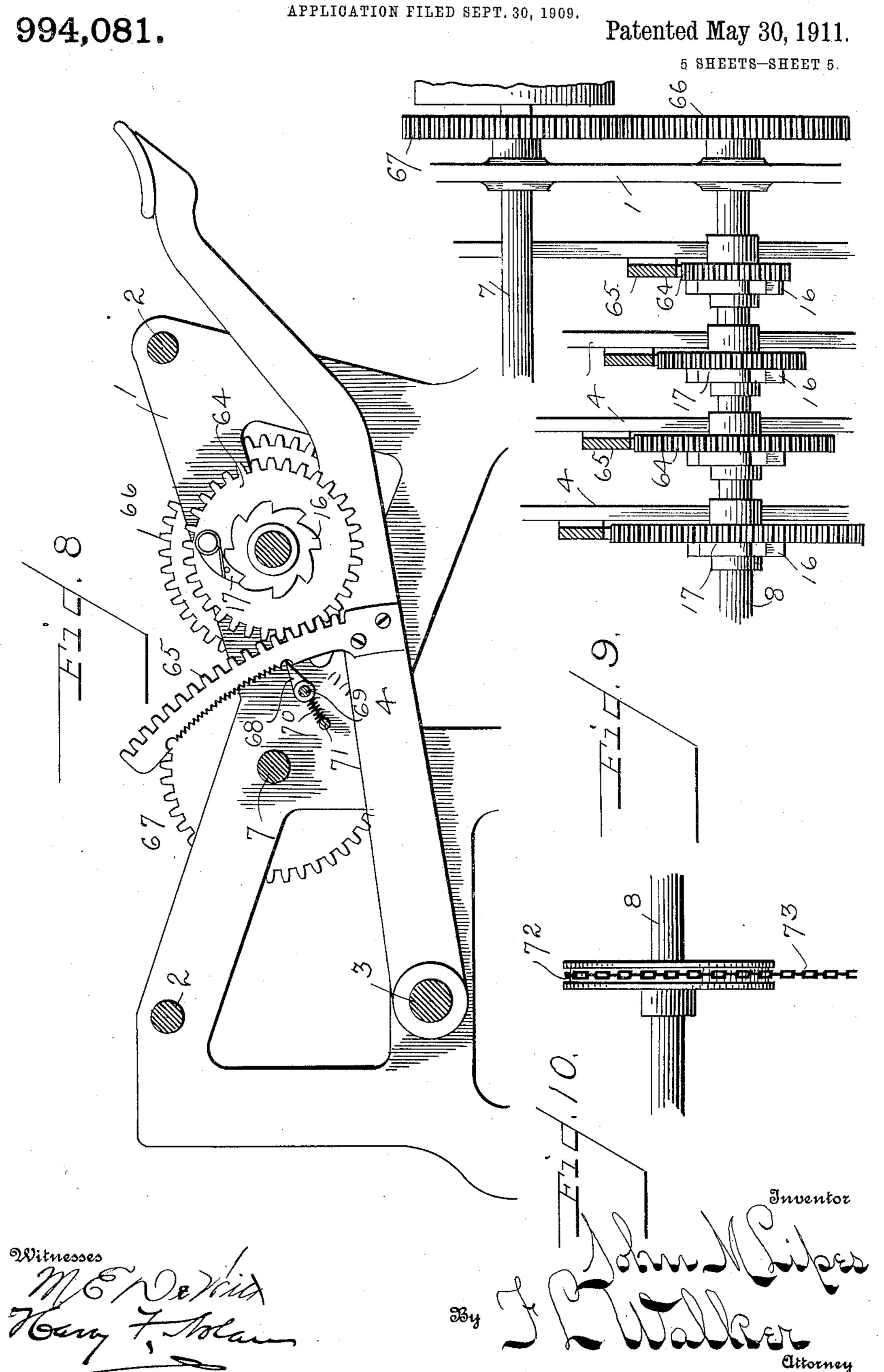
5 SHEETS-SHEET 3.



J. M. LIPES.
TICKET PRINTING AND DELIVERING MACHINE.



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TICKET PRINTING AND DELIVERING MACHINE.



UNITED STATES PATENT OFFICE.

JOHN M. LIPES, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF TO WILLIAM A. SHROYER, OF DAYTON, OHIO.

TICKET PRINTING AND DELIVERING MACHINE.

994,081.

Specification of Letters Patent. Patented May 30, 1911.

Application filed September 30, 1909. Serial No. 520,338.

To all whom it may concern:

Be it known that I, John M. Lipes, a citizen 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 Printing and Delivering Machines, of which the following is a specification.

My invention relates to ticket printing and delivering machines, and is particularly adapted for use in small theaters, amusement resorts, refreshment stands, and similar places where tickets are issued to pa-

trons.

The object of the invention is to simplify the structure as well as the means and mode of operation of such machines whereby they will not only be cheapened in construction, but will be positive and rapid in their action, easily operated, and unlikely to get out of repair.

A further object of the invention is to provide a machine which will produce the tickets from a continuous paper web or roll at the time of sale and will automatically issue tickets in various quantities without the necessity of counting or other supervi-

sion by the operator.

A further object is to provide a machine in which the tickets will not only be produced and issued to the purchaser in the required amount, by which an accurate record will be kept of the tickets so produced and issued.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation or their equivalents, as hereinafter described and set forth in the claims.

Referring to the drawings, Figure 1 is a plan view of the assembled machine, removed from the case. Fig. 2 is a side elevation of the assembled machine. Fig. 3 is a longitudinal sectional view showing the operating lever and connections. Fig. 4 is a rear elevation of the assembled machine. Fig. 5 is an interior perspective view of the ticket selling booth or box office showing the printing and vending machine in position therein. Fig. 6 is a detail view showing the tripping mechanism for the ticket cut-off.

Fig. 7 is a detail view of the counter oper- 55 ating mechanism. Figs. 8, 9 and 10 illustrate modifications of the machine as hereinafter described.

Like parts are indicated by similar characters of reference throughout the several 60

views.

In constructing the machine there are employed parallel side frames 1 connected by transverse tie-bars 2. Journaled in the side frames 1—1 is a transverse shaft 3 upon 65 which are loosely journaled a plurality of operating levers 4. Intermediate the operating levers 4 there are secured upon the shaft 3 a plurality of rock arms 5. Each of the operating levers 4 is provided with a 70 stud, preferably equipped with a roller, as shown at 6, adapted to engage the rock arm 5 upon the downward movement of the operating lever 4 to thereby oscillate the rock shaft 3. The construction is such that the 75 operation of any one of the series of operating levers 4 will cause a corresponding oscillation of the rock shaft 3 independent of the remaining levers which are loosely journaled on said shaft. The rock arms 5 all op- 80 erate in unison and with the shaft 3. Thus, the shaft 3 may be oscillated by any one of the series of operating levers. Extending transversely of the main frame are two revoluble shafts, an operating shaft 7 and the 85 drive shaft 8. The operating shaft 7 carries at its extremity beyond the main frame 1 a printing disk or type wheel 9 having about the periphery thereof a plurality of similar printing plates bearing characters for print- 90 ing the desired tickets. In the drawings, this printing disk is provided with four plates whereby the complete revolution of the printing disk or type wheel will produce four tickets. Immediately below the 95 printing disk or type wheel 9 is a platen roll 10 suitably journaled in the main frame 1 and in the bracket 11 suspended on the operating shaft 7. Leading upward and rear ward from the point of impingement of the 100 type wheel and platen roll is a conduit 12 through which the paper strip bearing the imprint of the tickets passes to the discharge orifice. There is provided on the side of the main frame 1 a suitable supporting bearing 105 for the roll 13 of ticket material from which the strip of material passes under the guide roller 14, thence between the printing

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disk and platen roll and through the conduit.

The printing disk or type wheel is caused to rotate throughout either a complete rotag tion whereby four tickets will be produced or throughout a predetermined portion of complete rotation such as a quarter, a half or three-quarter rotation thereby producing one, two or three tickets by the operation of 10 the corresponding operating lever 4. This variable movement of the type wheel is produced through differently proportioned actuating connections between the operating levers and the drive shaft 8. Loosely jour-15 naled upon the drive shaft 8 are a plurality of revoluble disks 15, one for each of the operating levers 4. Rigidly secured upon the drive shaft 8 are a plurality of ratchet wheels 16, one for each of the operating le-20 vers 4 and located adjacent to the corresponding revoluble disks 15. Each of the disks 15 carries a spring actuated pawl 17 engaging the ratchet wheel 16 whereby the revoluble movement of any one of the disks 25 15 in one direction will cause a corresponding movement of the ratchet wheels and the drive shaft 8. Each of the disks 15 is proyided with a helical spring 18 located about the drive shaft 8, the one end of said spring 30 engaging a stud 19 in the face of the disk 15, the other extremity of the spring engaging a link 20 extending from the drive shaft 8 to the tie-rod 2 at the forward upper portion of the frame. The construction is such 35 that each revoluble movement of the disk whereby the drive shaft 8 will be rotated by means of the pawl 17 and ratchet wheel 16 will wind the spring 18 placing it under tension whereby the spring 18 will return the 40 disk 15 to normal position independent of the drive shaft 8 and ratchet wheel 16 the pawl 17 riding freely over the teeth of the ratchet.

In order to rotate the disks 15 each of the 45 disks is provided with a strap or tape 21 secured thereto by a suitable clamp or other fastening 21×. The strap or tape 21 passes about the periphery of the disk 15 and is attached at its opposite end to the stud 22 50 on the operating lever 4. The points of connection of the strap or tape 21 with the operating lever is different upon each of the levers of the series, the connecting stud 22 with which the tape is engaged, being lo-55 cated at different distances from the fulcrumed point or rock shaft 3. The points of attachment of the tape 21 with the respective operating levers whereby the operation of the lever will produce one, two, three or 60 four tickets, are indicated upon the lever in Fig. 3 by the characters I., II., III., and IV. The difference in the points of attachment upon the different levers produce different degrees of rotation of the drive shaft 8 65 which rotation is transmitted to the print-

ing disk or type wheel by a train of gears comprising a gear 23 secured upon the drive shaft 8 and rotating therewith, which meshes with the idler pinion 24 journaled on the main frame 1 and in turn meshing with 70 a pinion 25 on the operating shaft 7 which shaft carries the afore-mentioned type wheel. The shaft 7 also carries adjacent to the opposite side of the machine a disk 26 having in the face thereof a plurality of 75 studs 27 adapted to engage with the gear pinion 28 of a counting device 29 and thereby rotate the pinion 28 to register upon the counting device the number of tickets produced by the type wheel and issued through 80 the discharge conduit. The counting device 29 is of the ordinary type. There is provided in the disk 26 one stud 27 for each printing plate carried upon the periphery of the type wheel.

In order to prevent the overthrow of the counting mechanism when rapidly operated, particularly upon the key of highest numerical value there is pivoted adjacent to the counting mechanism upon the main 90 frame 1 a bell lever 30 carrying in one arm thereof a stud 31 adapted to engage the teeth of the counter pinion 28 into engagement with which it is yieldingly held by a spring 32. The opposite arm of the lever 30 95 extends in such position as to be successively engaged by the studs 27 of the disk 26. The relation of the two arms of the pawl lever is such that at the time the stud 31 is engaged with the counter pinion 28 the opposite arm 100 of the lever will likewise be engaged with one of the studs 27 of the disk 26 as shown in Fig. 7 whereby the bell lever 30 will be positively locked against movement, thereby locking the mechanism. However, upon the 105 initial movement of the operating shaft 7 necessary to bring the next succeeding stud 27 into engagement with the counter-pinion 28, the stud 27, which has been engaged with the pendant arm of the bell lever will be 110 advanced sufficiently to free said arm of the lever whereby the lever may be oscillated against the tension of the spring 32 when the counter pinion 28 is engaged by the next succeeding stud and rotated thereby. As 115 the operating stud 27 disengages from the counter pinion 28 the bell lever 30 will oscillate under the action of the spring 32 and reëngage the stud 31 with the said pinion and at the same time the next succeeding 120 stud 27 will engage the pinion arm of the bell lever to again lock the lever and prevent the overthrow of the counting mechanism. The operating levers 4 are returned to their normal or elevated position after each oper- 125 ation by the helical springs 33.

In order to insure the completion of the stroke of the operating lever in either direction, there is provided on each of the operating levers adjacent to its forward end 130

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a pivoted pawl 34 freely movable in either direction but yieldingly held in a medial position by a spring 35. Secured to the interior of the case of the machine is a ser-5 rated bar 36 over the serrations of which the pawl 34 freely rides as the operating lever is moved in either direction. The serrated bar 36 is provided with depressions 37 adjacent to the extremities thereof to be 10 engaged by the pawl 34 as the lever approaches the limit of its stroke in either direction whereby the pawl 34 may be reversed. Thus upon the downward movement of the operating lever 4, the pawl 34 15 engaging with the series of the bar 36 will prevent the return or upward movement of the operating lever until said lever has been operated to the limit of its movement when the pawl 34, passing into the depression 37 ²⁰ will be free to assume a reverse position and upon the return movement of the operating lever 4 by again engaging the serrations of the bar 36 will prevent further downward operation of the lever until it has been re-25 turned to its normal position where the pawl 34 is again permitted to reverse. At the upper rear extremity or discharge orifice of the ticket conduit 12 there is provided a shear plate 38 having therein a slot 38a 30 through which the ticket strip emerges. Cooperating with the shear plate 38 is a cutting blade 39 carried upon a cut-off lever 40 pivoted at 41 to the main frame 1. Pivotally connected to the cut-off lever 40 is a 35 reciprocating stem or rod 42 passing through a keeper or guide 42× on the main frame 1. Located about the stem or rod 42 is a helical compression spring 43 bearing at its upper end against the under side of the cut-40 off lever 40 and at its lower extremity against the reciprocating collar 44 slidingly mounted upon the stem or rod 42. There is also secured upon the rod 42 a collar 45. Secured upon the rock shaft 3 and movable 45 therewith is a bell lever rock arm 46, one extremity of which is bifurcated and extends on opposite sides of the stem or rod 42 and is provided with bearing heads 47 engaging between the reciprocating collar 44 and the stationary collar 45 upon said rod or stem 42. To the opposite extremity of said bell lever is attached a helical spring 48. The construction is such that upon the operation of any one of the operating levers 4, the rock shaft 3 will be oscillated, carrying therewith the bell lever 46 against the tension of the spring 48. This movement of the lever 46 will elevate the sliding collar 44 upon the stem or rod 42 and compress the helical ⁶⁰ spring 43 surrounding the said rod or stem. This movement of the rock arm and compression of the spring 43 will also tend to oscillate the cut-off lever 40. However, the cut-off lever 40 is held against movement by a detent arm 49 pivoted at 50 to the main frame

1 and having a hook extremity engaging a stud 51 on the inner side of the cut-off lever 40. The detent arm 49 is held in engagement with the stud 51 by a spring 52. At its lower extremity the detent arm 49 70 is provided with a lateral lug or foot 53 adapted to be engaged by a stud 54 projecting from one of the heads 47 of the bifurcated extremity of the rock arm 46. The inter-engagement of the stud 54 with the lug 75 or foot 53 of the detent will not occur until the spring 43 has been compressed substantially to its limit and until the lever 4 has almost reached the limit of its actuating stroke. As the operating lever approaches 80 the limit of its stroke the stud 54 engaging the lug 53 will disengage the detent 49 from the stud 51 of the cut-off lever thereby releasing said lever, permitting it to spring upward suddenly under the impulse of the 85 compressed spring 43, the cutting blade 39 coöperating with the shear plate 38 to sever the strip of tickets which has been projected through the conduit 12 by the action of the type wheel 9 and platen roll 10. Upon the 90 return movement of the parts to normal the heads 47 of the rock arm 46 engage the rigid collar 45 and thereby positively return the cut-off lever 40 to normal position where it is again engaged by the detent 49 actuated 95

It is to be understood that the advance or the feeding movement of the ticket strip through the conduit and beyond the shear plate 38 is accomplished by the action of 100 the type wheel 9 and platen roll 10 between which the ticket strip is impinged. It is obvious that instead of employing a type wheel 9 a plain wheel or disk might be substituted therefor and the ticket roll 13 105 might comprise a continuous strip of tickets previously prepared or printed and merely fed through the machine by the action of the wheel 9 and roll 10 being thereby measured and cut off in proper amounts according to 116

the operating lever depressed. One of the primary objects of the invention is to facilitate the handling of the tickets rapidly and to enable the operator to wait on more patrons and make the neces- 115 sary change in a given length of time without the responsibility of having to handle and count the tickets. To this end the machine may be either hand or foot operated or may be combined, both means of opera- 120 tion. To provide for foot operation each of the operating levers 4 is provided with a pendant link or rod 55 pivoted thereto and extending through the base of the machine where it is attached to the pedal 56x. In 125 order to provide for either foot or hand operations in the same machine the link 55 is provided with the telescoping section 56 whereby the operating lever and upper portion of the link 55 may be moved independ-

ent of the pedals 56× and the connecting portion of the links. In this case, it is desirable to provide springs 57 which will tend to hold

the pedals in their elevated position.

In Fig. 5 there is shown the interior of a ticket selling booth or box office in which the printing and vending machine has been installed. In installing the machine the upper surface of the casing is located flush with the 10 counter so as to become a part thereof and not to interfere with the handling of money. In the upper face of the case is provided two glass covered or transparent openings an opening 58 for the observation of the count-15 ing mechanism and an opening 59 through which to observe the condition of the ticket supply roll. The ticket discharge orifice 60 is located adjacent to the window 61 of the box office whereby the tickets may be placed 20 within reach of the patron without the necessity of being handled by the ticket seller. The location of the machine in the counter of the box office will in no wise interfere with the cash drawer 62.

By the machine as before described, the ticket seller by operating the corresponding lever 4 either by foot or by hand movement will pass to the patron through the discharge orifice 60 the required number of tickets, one, 30 two, three or four, according to the lever operated and if the machine is operated by the pedals 56 the ticket seller has both hands free to receive money and make change. It is obvious that the series of levers may ex-35 tend indefinitely, thereby providing for any

desired number of tickets by one operation of the corresponding lever.

The printing disk or type wheel 9 may be constructed to print, impress or mark the 40 tickets in any desired manner, but is preferably designed to print the tickets, and an inking roll 63 is provided for supplying the ink to the periphery of the printing disk 9.

In Figs. 8 and 9, which are detail sectional 45 and detail plan views respectively, there is illustrated a modification of the means for actuating the operating parts by the movement of the operating lever 4. In this modified construction the drive shaft 8 is provided with the ratchet wheels 16 similar to the construction before described, but for the disks 15 of the former described construction there are substituted gear pinions 64, which gear pinions carry the ratchet pawls 17 en-55 gaging the ratchet wheel 16 as before mentioned. The series of gear pinions 64 as more particularly shown in Fig. 9 are of different diameters and are loosely journaled on the drive shaft 8. Secured upon the operating levers 4 are curved rack-bars or segmental gears 65 concentric with the rock shaft 3. The curved rack-bar 65 of each operating lever 4 is so located as to intermesh with the corresponding gear pinion 64, the rack-bars 65 being located at different dis-

tances from the fulcrum of the operating levers 4 upon the rock shaft 3 and intermeshing with gear pinions 64 of different diameters will cause different degrees of rotation of the drive shaft 8 by the movement of the re- 70 spective operating levers 4 through similar paths of travel. The rack-bar of the number one operating lever engaging with the large gear pinion will give to the drive shaft 8 only a limited oscillation while the rack- 75 bar of the number four operating lever engaging with the small gear pinion will give to the drive shaft a complete rotation, number two and number three levers giving respectively half and three-quarter rotations, the 80 corresponding gear pinions thereof being so proportioned. Motion is transmitted from the drive shaft 8 to the operating shaft 9 by means of two intermeshing spur gears 66 and 67. Inasmuch as the drive shaft in this 85 modified construction is rotated in a reverse direction, or the opposite of that first described, only a two gear train will be required to transmit the proper motion to the operating shaft 8. Upon the upward or re- 90 turn movement of the operating levers 4 and due to the springs 33, the gear pinions 64 will be returned to normal position independent of the drive shaft 8 by the interengagement of the rack-bar 65 and said pin- 95 ions. In this construction in order to insure the operation of the levers 4 to the limit of their stroke in either direction, the rear face of the rack-bar 65 may be serrated and a plurality of pawls 68, one for each rack-bar, 100 may be mounted upon the transverse shaft 69. The actuating spring 70 of said pawls being connected to a second transverse shaft 71, the operation of the pawls being similar to that of the pawls 34 previously described. 105

In Fig. 10 is illustrated a modification of the revoluble disk 15 in which the disk is shown as provided with a peripheral groove 72 in which is located a chain or cable 73 to be connected with the operating lever 4 in 110 substitution for the tape or strap 21.

From the above description it will be apparent that there is thus provided a machine of the character described, possessing the particular features of advantage before enu- 115 merated as desirable but which obviously is susceptible of modification in its form, proportion, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advan- 120 tages.

Having thus described my invention, I claim:

1. In a machine of the character described, a main frame, a plurality of manually actu- 125 ated operating levers, a revoluble printing wheel, means to rotate said wheel throughout complete rotations and different predetermined fractional portions thereof by the operation of the different operating levers 130

whereby a predetermined number of impressions will be made in accordance with the

lever operated.

operated.

2. In a machine of the character described, 5 a main frame, a plurality of operating levers, a revoluble printing wheel actuated by said levers to imprint predetermined numbers of impressions on a continuous strip and cutting devices adapted to sever from 10 the strip the number of impressions made by the printing wheel at each operation in accordance with the lever operated.

3. In a machine of the character described, a main frame, a plurality of operating le-15 vers, printing devices adapted to imprint upon a continuous strip multiple impressions at each operation of the operating levers and cut off mechanism to sever at each operation of the machine the number of impres-20 sions imprinted in accordance with the lever

4. In a machine of the character described, a main frame, a plurality of manually actuated operating levers, printing devices com-25 mon to all the operating levers adapted to imprint a different number of successive impressions upon the operation of each of the levers in accordance with the lever operated.

5. In a machine of the character described, 30 a main frame, a plurality of operating levers, a revoluble printing wheel, means to rotate said wheel throughout predetermined degrees of rotation including a drive shaft, revoluble disks loosely journaled on the 35 shaft, ratchet wheels carried by the shaft, pawls carried by the revoluble disks and engaging the ratchet wheels, and connections between the revoluble disks and the operating levers differently proportioned in the 40 case of each lever whereby the operation of the levers through strokes of equal extent will operate the corresponding revoluble disks through various degrees of rotation.

6. In a machine of the character described, 45 a main frame, a plurality of operating levers, a revoluble printing wheel, means to rotate said wheel throughout predetermined degrees of rotation including a drive shaft, revoluble disks loosely journaled on the 50 shaft, ratchet wheels carried by the shaft, pawls carried by the revoluble disks and engaging the ratchet wheels, and flexible connections passing about the revoluble disks and attached to the respective levers 55 at different distances from the fulcrum points thereof, thereby causing the levers by equal degrees of operation to transmit to the corresponding disks unequal degrees of rotation.

7. In a machine of the character described, a main frame, a plurality of operating levers, a revoluble printing wheel carrying a series of similar printing plates and adapted by its rotation to imprint a multiple of du-65 plicate impressions, actuating connections lated.

between the operating levers and printing wheel whereby the operation of the operating levers through equal degrees of movement will cause the printing wheel to be moved through unequal degrees of rota- 70 tion and thereby imprint different numbers of impressions according to the lever operated.

8. In a machine of the character described, a main frame, a plurality of operating le- 75 vers, printing devices common to all said levers, means for actuating the printing devices by any one of the levers independent of the remaining levers, and whereby each of the levers will cause the printing devices 80 to imprint a different number of impressions.

9. In a machine of the character described, a main frame, a rock shaft mounted in said frame, a plurality of rock arms secured on the shaft, a plurality of operating levers 85 journaled on said rock shaft, one for each rock arm, interengaging means between each lever and its corresponding rock lever whereby the rock shaft may be oscillated by any one of the operating levers independ- 90 ent of the remaining levers, cut off devices actuated by the movement of the rock shaft, and printing mechanism operated by the levers to imprint multiple impressions in accordance with the lever operated.

10. In a machine of the character described, a main frame, a rock shaft mounted therein, a plurality of operating levers any one of which is adapted to oscillate the rock shaft, cut off devices, an actuating spring 100 for said devices placed under tension by the oscillation of the rock shaft, a detent for the cut-off devices, and means to trip said detent as the operating lever reaches a predeter-

mined point in its path of travel. 11. In a machine of the character described, a main frame, a rock shaft mounted therein, a plurality of operating levers any one of which is adapted to oscillate the rock shaft, cut-off devices, an actuating spring 110 for said devices, a detent retaining the cutoff devices in inoperative position, a rock arm on said shaft engaging the spring and adapted by the initial oscillation of the shaft to place said spring under tension and by an 115 additional oscillation to release the detent permitting the cut-off devices to operate under the influence of the spring.

12. In a machine of the character described, a main frame, a plurality of oper- 120 ating levers, a printing device operated by any one of the operating levers independent of the other levers, and a cut off mechanism also operated by any one of the operating levers independent of the remaining levers, 125 whereby different numbers of impressions may be made on a continuous strip and such number of impressions severed from the strip according to the particular lever oper

13. In a machine of the character described, a main frame, a plurality of operating levers, a support for a continuous strip of ticket material, means for advancing such strip predetermined distances by the operation of any one of the levers, the operation of each lever causing the strip to be advanced a different distance, and a cut-off device operated by any one of the levers to sever a length of the strip equal to its advance movement.

14. In a machine of the character described, a main frame, a plurality of operating levers, a support for a continuous strip 15 of ticket material, means for advancing such strip predetermined distances by the operation of any one of the levers, a pivoted cutoff lever, a cutting blade carried thereby, a stem projecting from the cut-off lever, a 20 compression spring located on said stem, a reciprocating collar on said stem, a rock shaft mounted in the main frame and oscillated by the operation of any one of the operating levers, a rock arm carried by said shaft, said arm engaging the reciprocating collar and moving said collar to compress the spring upon the oscillation of the rock shaft, whereby the cut-off lever will be actuated to sever the strip of ticket material.

scribed, a main frame, a plurality of operating levers, a support for a continuous strip of ticket material, means for advancing such strip predetermined distances by the operation of any one of the levers, a pivoted cut-off lever, a cutting blade carried thereby, an actuating spring for said cut-off lever, a detent maintaining the cut-off lever in inoperative position, a rock shaft mounted in the main frame and actuated by any one of the operating levers, a rock arm carried by said

shaft and adapted upon the oscillation of the rock shaft to disengage the detent from the cut-off lever permitting the lever to move under the influence of the spring to sever 45 the strip of material.

16. In a machine of the character described, a main frame, a plurality of operating levers, printing devices and cut-off mechanism adapted to imprint upon and 50 sever from a continuous strip of material different numbers of impressions according to the particular lever operated.

17. In a machine of the character described, a main frame, a plurality of operating levers, printing devices and cut-off mechanism adapted to imprint upon and sever from a continuous strip of material different numbers of impressions according to the particular lever operated, foot treadles, 60 and links connecting the foot treadles and operating levers whereby said levers may be operated by foot movement.

18. In a machine of the character described, a main frame, a plurality of operating levers, printing devices and cut-off mechanism adapted to imprint upon and sever from a continuous strip of material different numbers of impressions according to the particular lever operated, foot treadles, links connecting the treadles with the operating levers, and telescopic sections in said links whereby the operating levers may be operated by hand independent of the foot treadles.

In testimony whereof, I have hereunto set my hand this 18th day of September A. D. 1909.

JOHN M. LIPES.

Witnesses:

Mabel B. Carr,

F. L. Walker.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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