

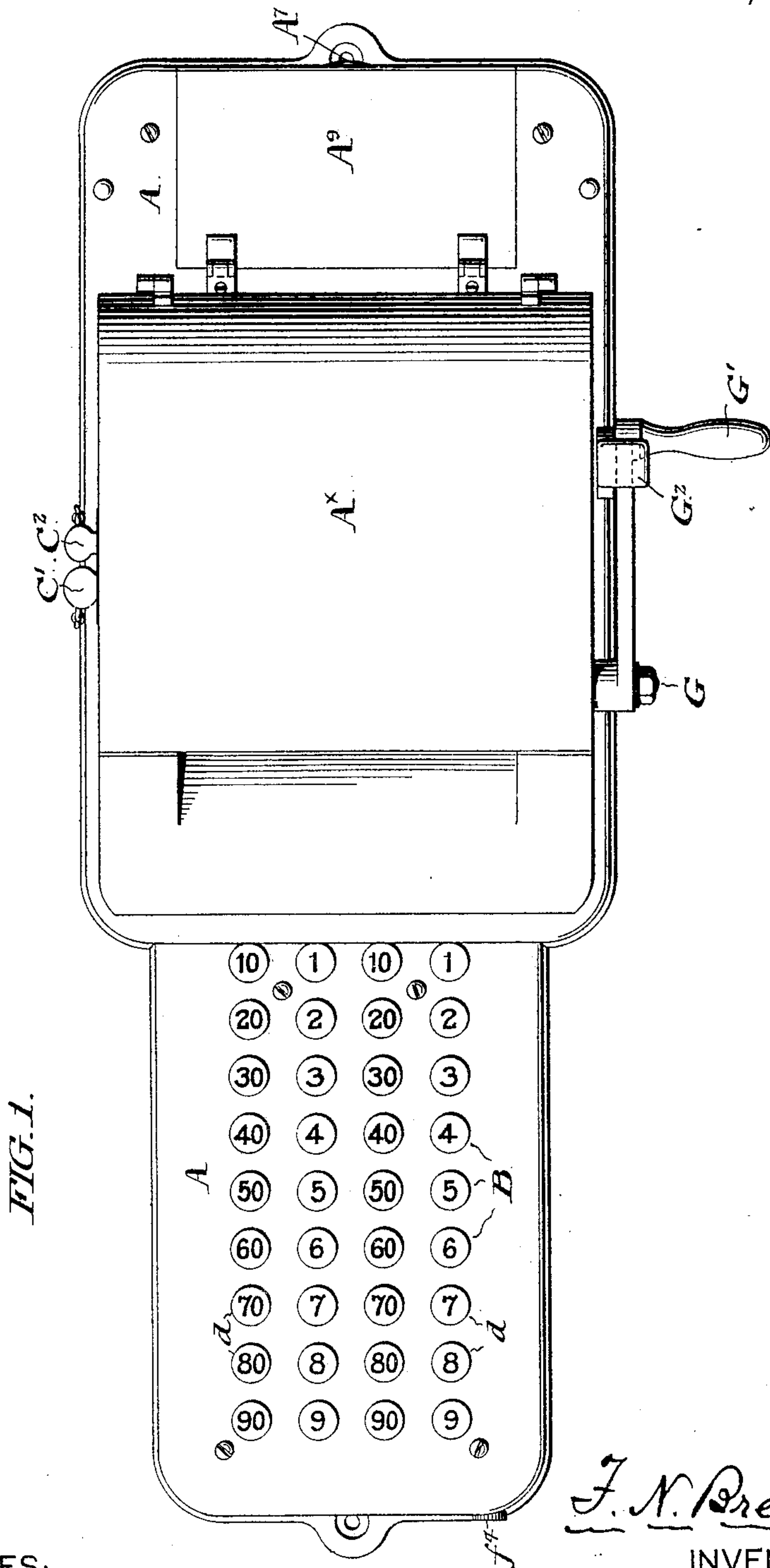
(No Model.)

7 Sheets—Sheet 1.

F. N. BREWER.
SALES RECORDING MACHINE.

No. 584,573.

Patented June 15, 1897.



WITNESSES:
V. E. Paige
J. Norman Dixon

F. N. Brewer
INVENTOR:
By his Attorneys
Wm. C. Strawbridge
Edmund Taylor

(No Model.)

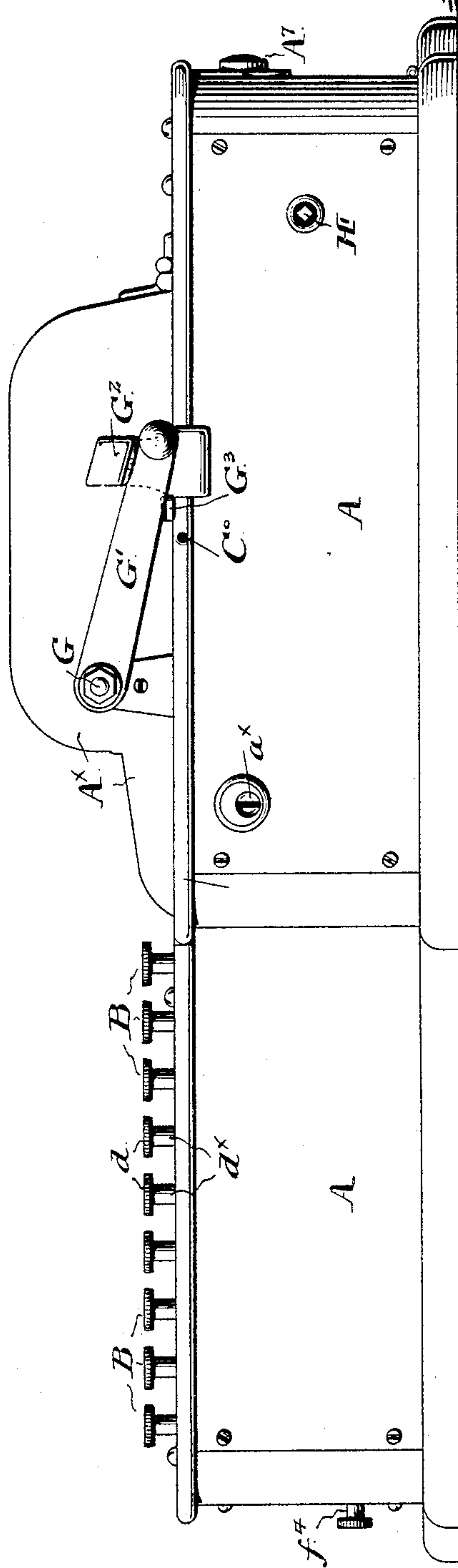
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F. N. BREWER.
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FIG. 2.



WITNESSES:

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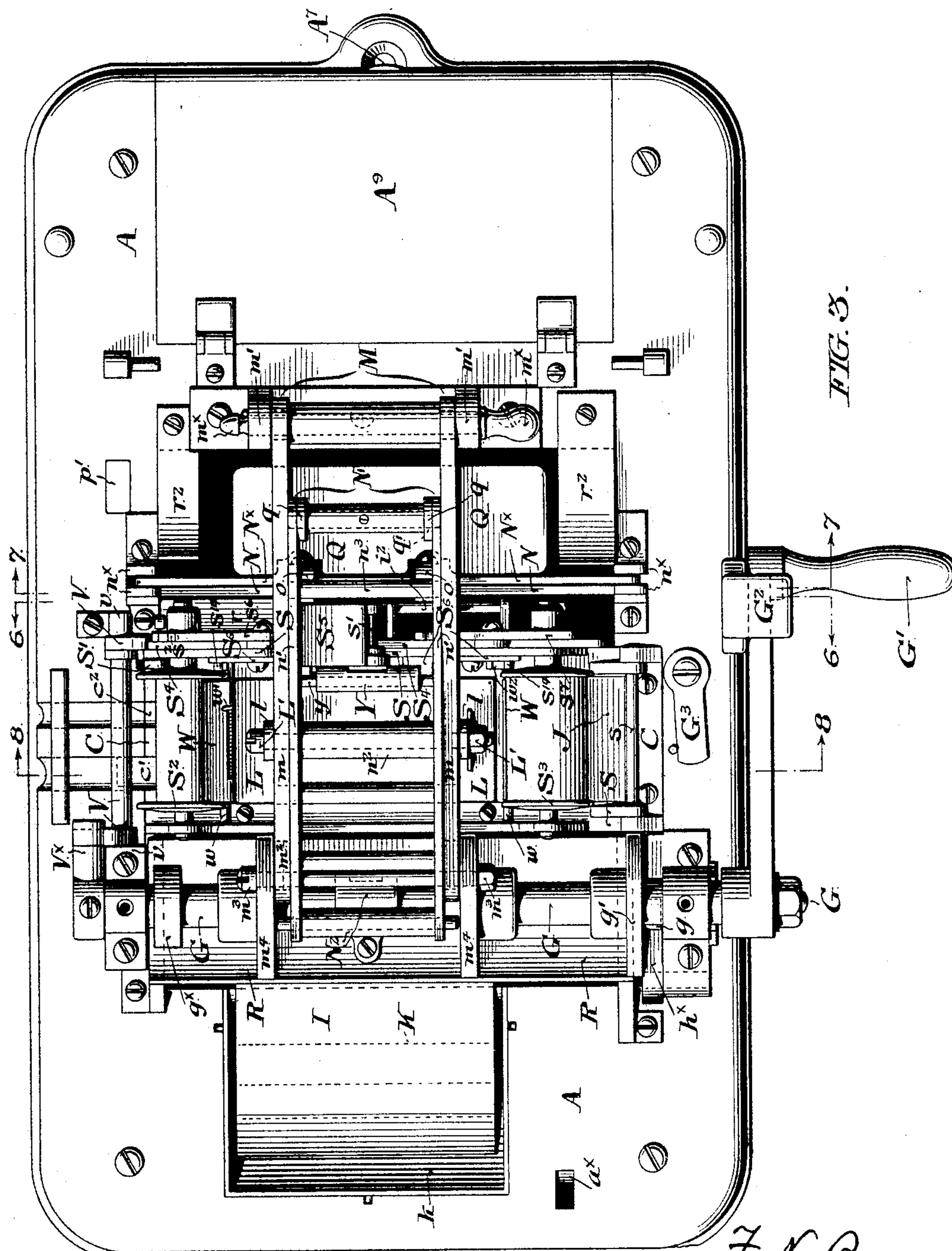
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7 Sheets—Sheet 3.

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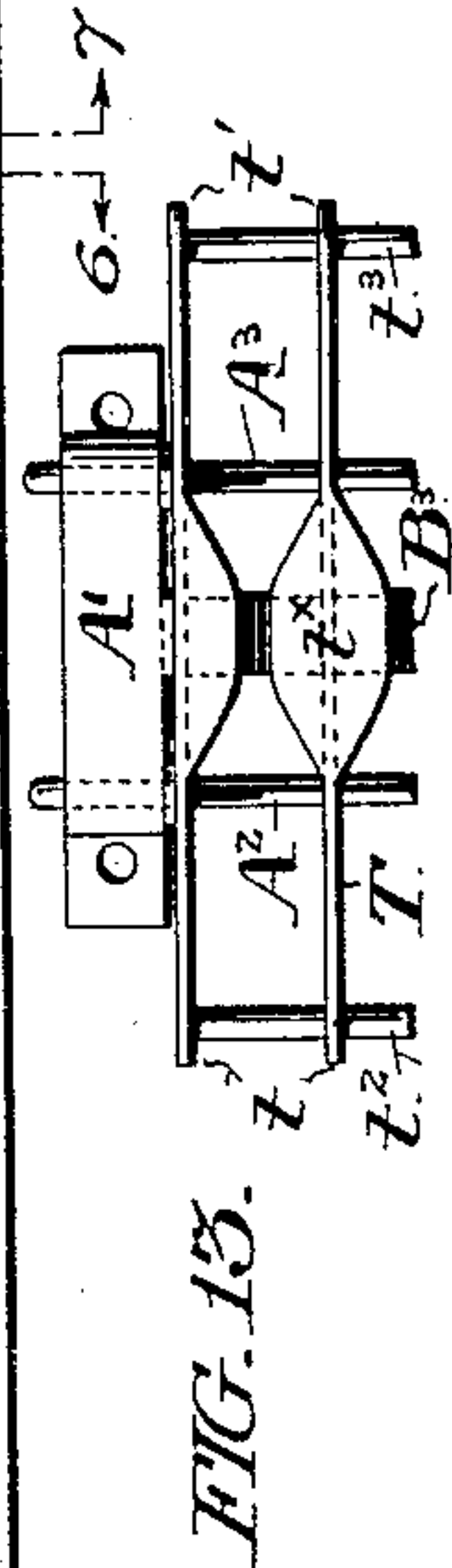
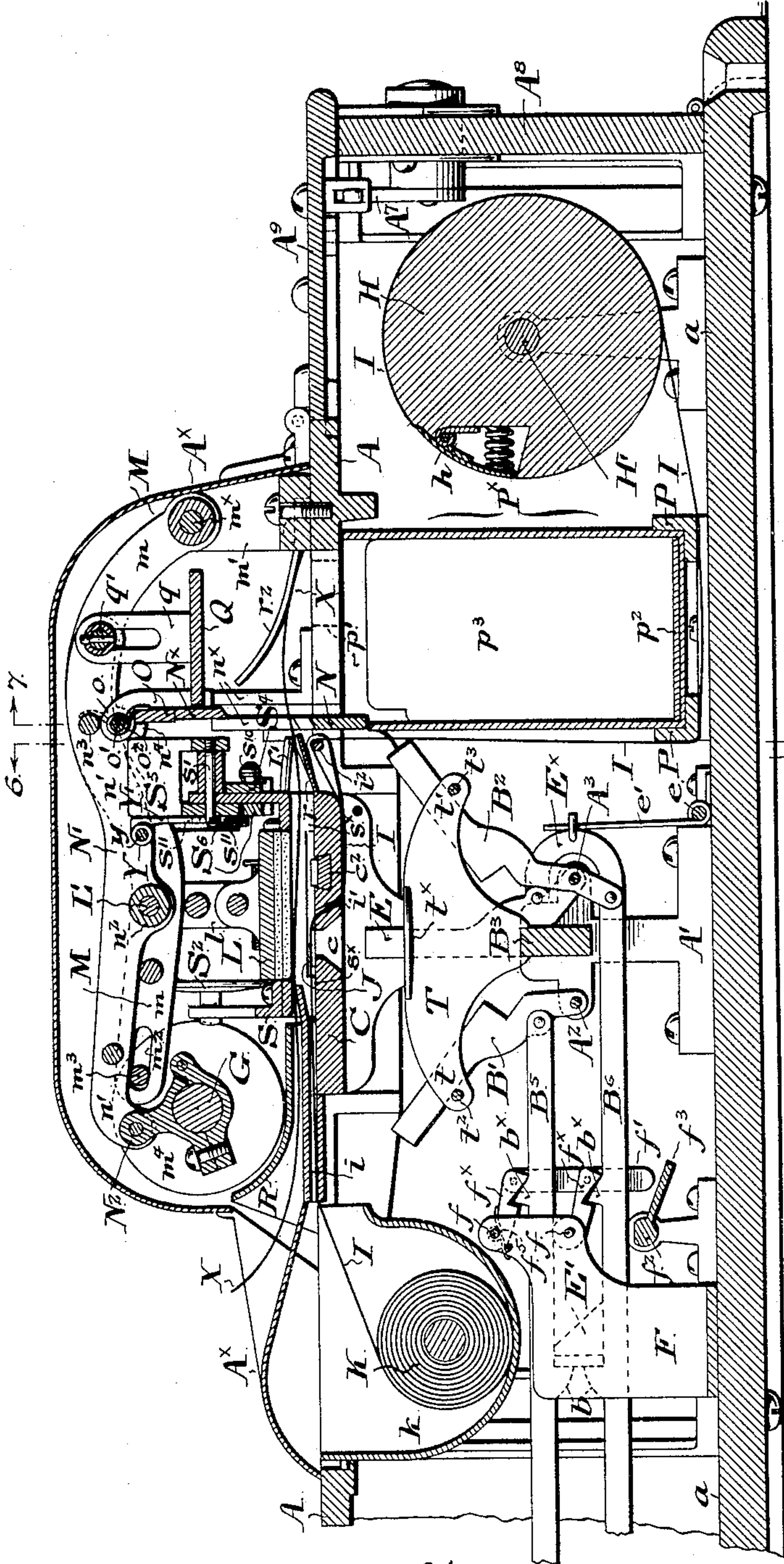
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F. N. BREWER.
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FIG. 4.



WITNESSES:

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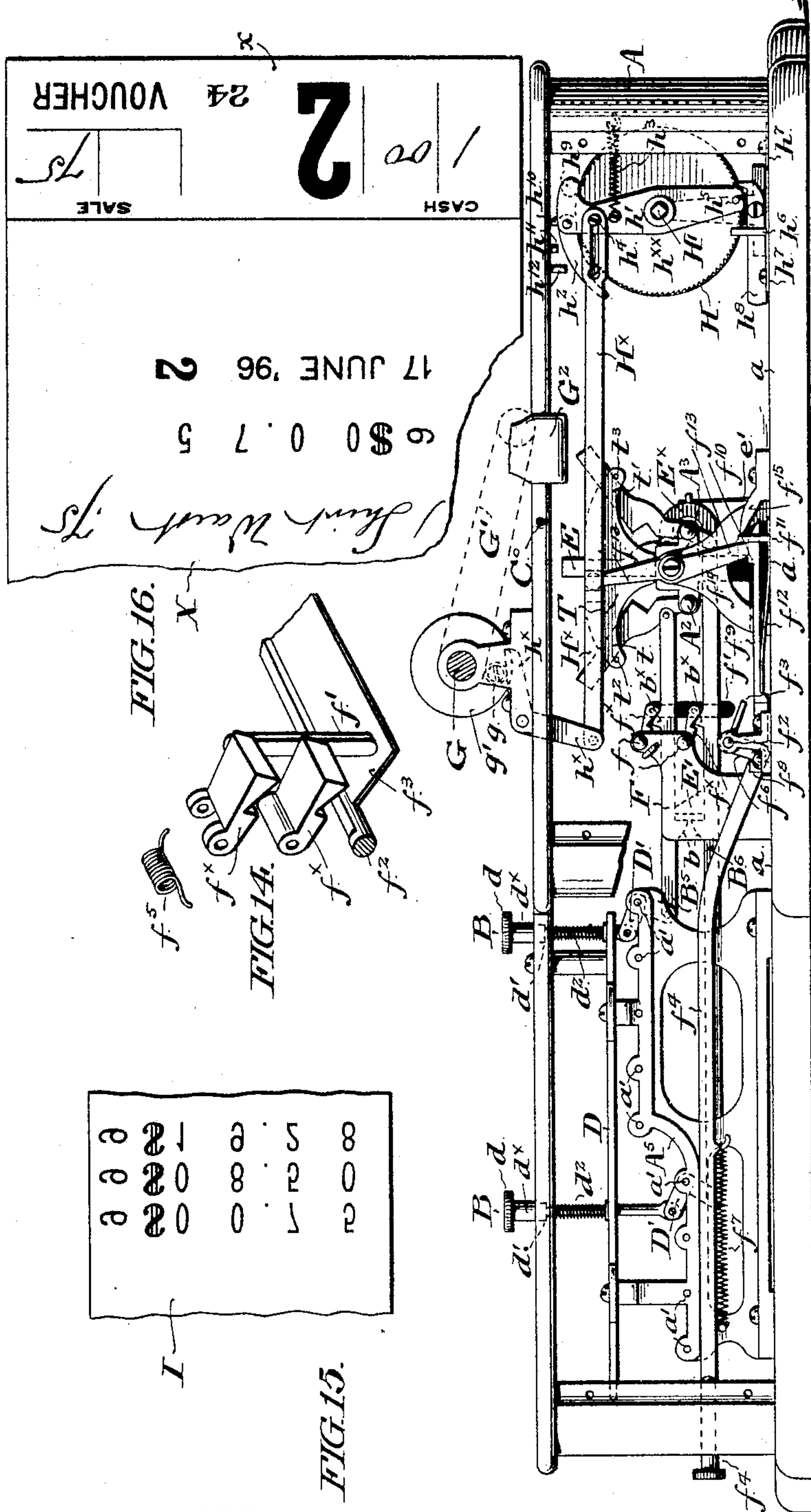
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7 Sheets—Sheet 5.

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7. Sheets—Sheet 6.

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FIG. 6.

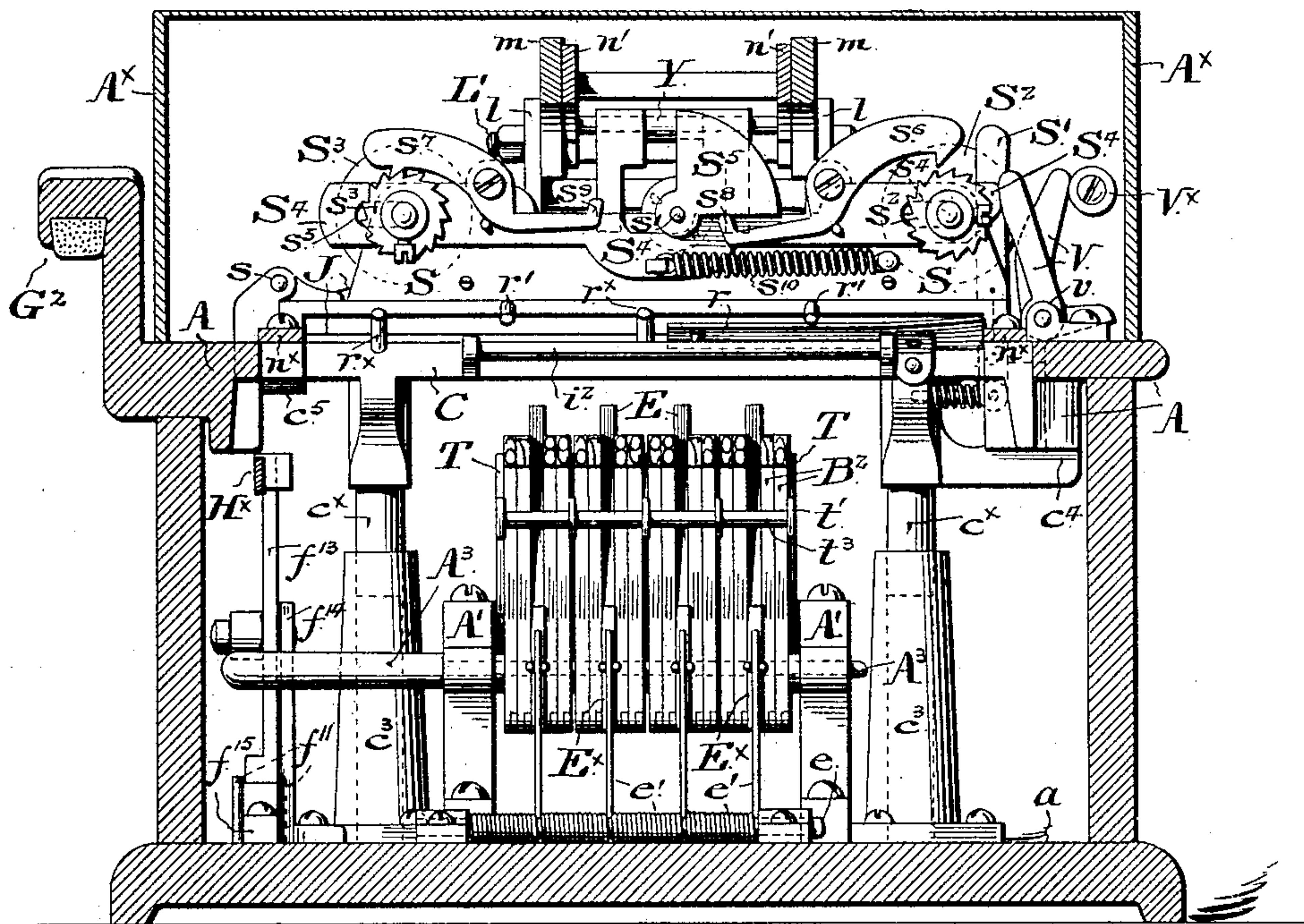
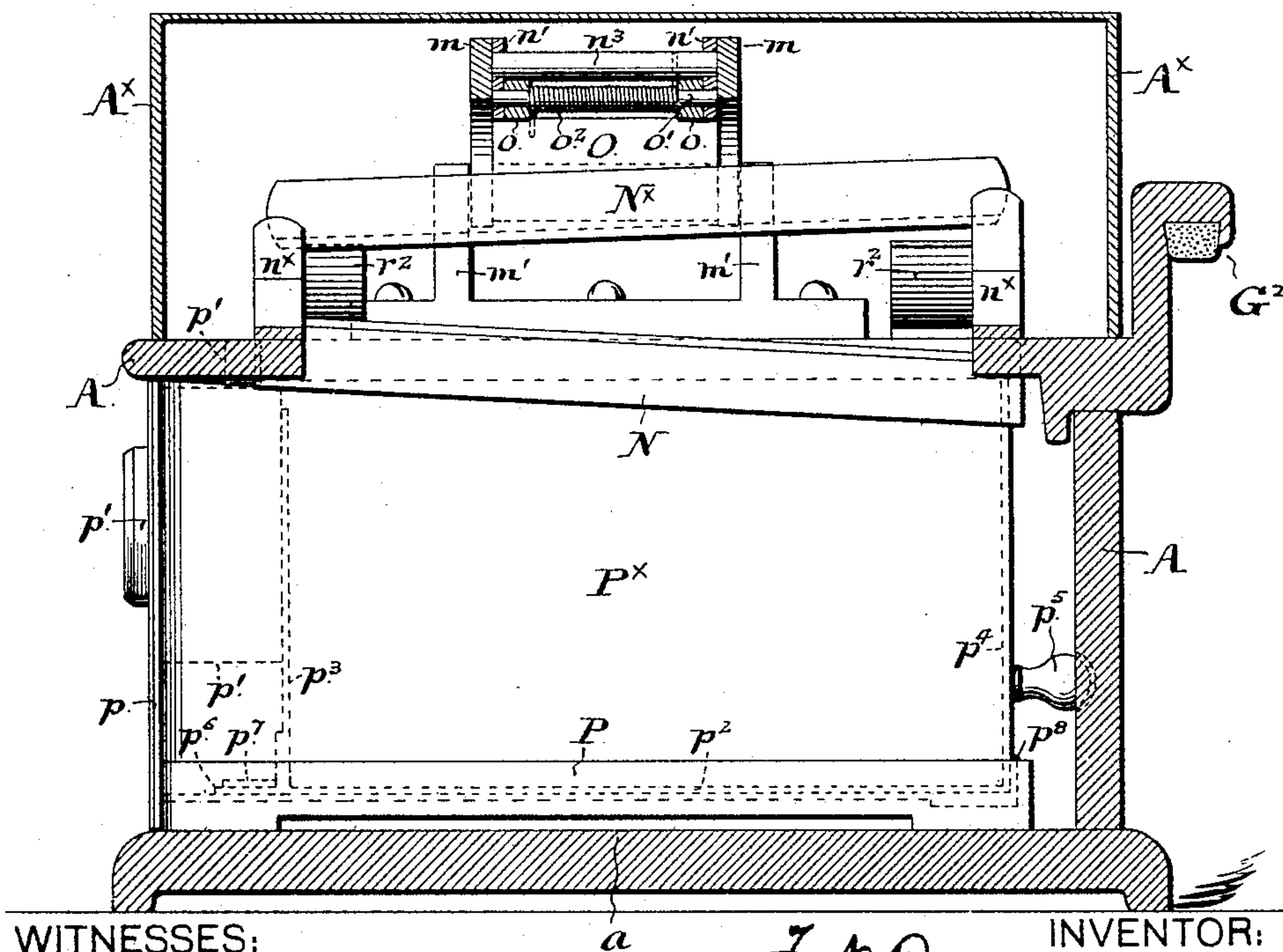


FIG. 7.



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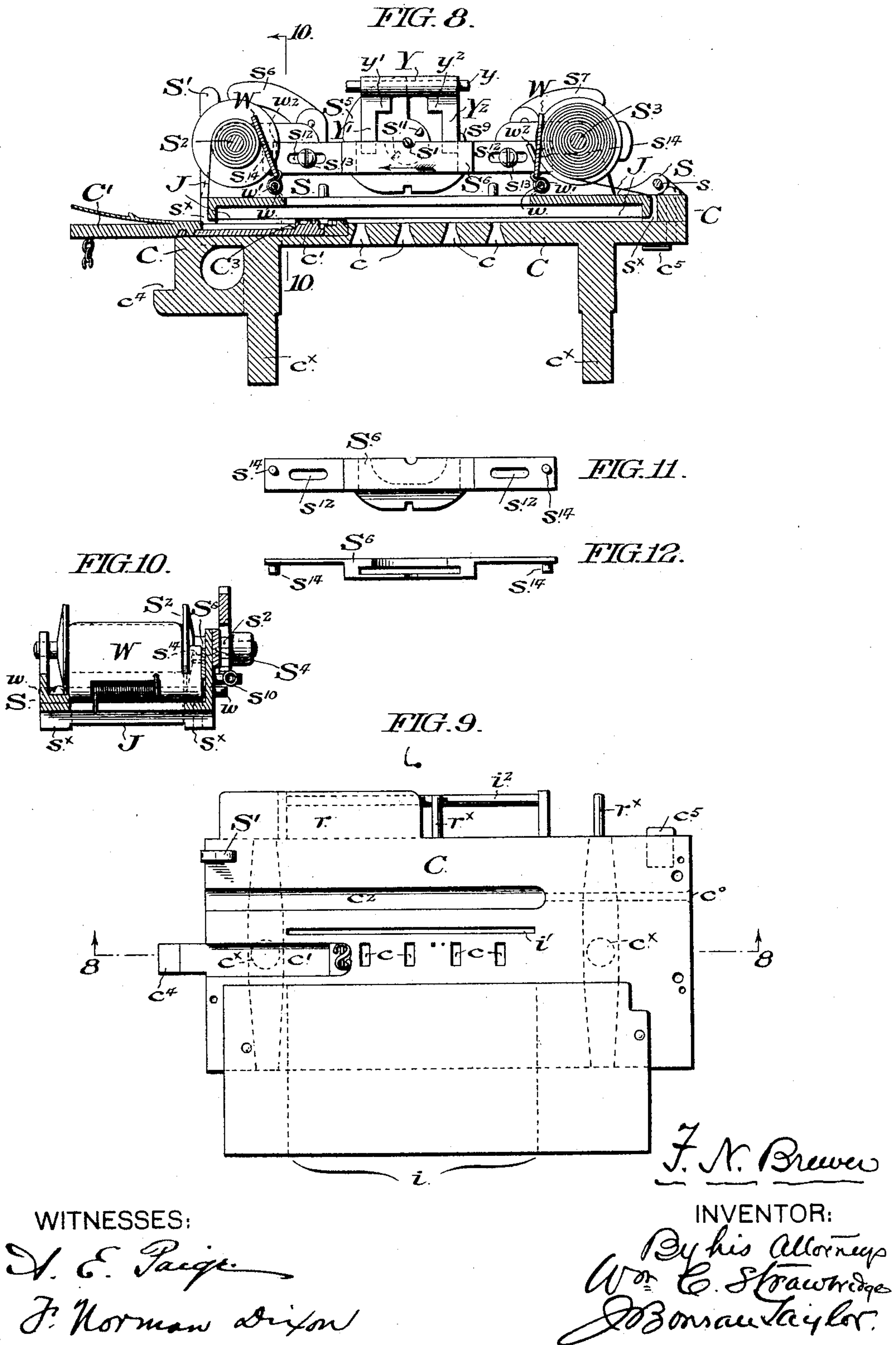
(No Model.)

7 Sheets—Sheet 7.

F. N. BREWER.
SALES RECORDING MACHINE.

No. 584,573.

Patented June 15, 1897.



UNITED STATES PATENT OFFICE.

FRANKLIN N. BREWER, OF PHILADELPHIA, PENNSYLVANIA.

SALES-RECORDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,573, dated June 15, 1897.

Application filed November 18, 1896. Serial No. 612,565. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN N. BREWER, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Sales-Recording Machines, of which the following is a specification:

In the conduct of large retail establishments, it is usual for all moneys received by the salespeople in each transaction or sale, to be transmitted by automatic cash carriers or otherwise to a cashier, together with a memorandum of the amount of the sale, the number or other designation of the salesperson, and a description of the goods sold. The cashier upon receiving the memorandum and money, examines the memorandum, stamps or marks upon it a suitable indorsement, and, after making a record of the same, returns the memorandum with any required change, to the salesperson, to be delivered to the purchaser.

The record of the transaction made or taken by the cashier may be either a transcript manually copied from the memorandum itself,—or, the original memorandum may be made in duplicate by the salesperson and transmitted to the cashier, who may return one of the copies to the salesperson, and retain the other as the required record.

However this may be, the system indicated requires the making and keeping of a record by the cashier, and as such records have heretofore been made they have been in handwriting, often hastily made, and presenting more or less difficulty by reason of illegibility and uncertainty, to the auditor who passes upon or audits said record.

My invention aims to provide a machine to be used by a cashier, and adapted to make the required continuous and permanent record of the individual sales as the same are reported, and to contemporaneously print upon the sales slip received from the salesperson, the amount of the sale, the date of the transaction, the number of the cashier, or other selected memoranda,—the machine elements being so combined and arranged that the machine may be operated by such simple and

obvious manipulation of the apparatus that practically no preliminary training or practice on the part of the operator is required.

In Letters Patent of the United States No. 565,133 granted to me upon the 4th, day of August, 1896, I have shown, described, and claimed, a sales recording apparatus of my invention, and upon which my present apparatus is an improvement, to which Letters Patent reference is to be made for the better understanding of my present improvements.

The object of my present invention is to simplify the construction of the apparatus referred to in my said patent, and to render the same more certain and direct in action, and it is a further object of my present invention to equip the said machine with a device for severing and depositing in a suitable receptacle an end portion of each sales slip inserted within the machine to receive an imprint.

In the accompanying drawings I show and herein I describe a good form of a convenient embodiment of my invention, the particular subject matter claimed as new being hereinafter definitely specified.

In the accompanying drawings,

Figure 1, is a plan view of a machine embodying my invention.

Figure 2 is a side elevation thereof.

Figure 3 is a plan of the rear portion of the machine, on a larger scale than Figure 1, the top hinged cover being removed.

Figure 4 is a central vertical section through the parts shown in Figure 3, the said top cover being shown as in position.

Figure 5 is a side elevation of parts within the lower portion of the casing the side of the casing being removed and certain parts omitted.

Figure 6 is a sectional view on the line 6—6, shown in Figures 3 and 4, sight being taken in the direction of the arrows of said line.

Figure 7, is a sectional view on the line 7—7 shown in Figures 3 and 4, sight being taken in the direction of the arrows of said line.

Figure 8 is a sectional elevation of the movable chase, showing the ink ribbon carrying frame hinged upon the top thereof, section being supposed upon the dotted lines 8—8 seen in Figures 3 and 9.

Figure 9 is a plan view of the movable chase,—the ink ribbon carrying frame and its hinged connection being removed.

Figure 10 is a transverse vertical section of the ink ribbon carrying frame, on the line 10—10 of Figure 8, sight being taken in the direction of the arrows of said line.

Figure 11 is a front elevation of the cage plate of the ink ribbon feeding mechanism.

Figure 12 is a plan of the said cage plate shown in Figure 11.

Figure 13 is a top plan view of the guide plates t^x showing their supports and associated parts.

Figure 14 is a perspective view of the linked pawls by which the selected type blocks are retained in assembled or operative position, during the impression-movement of the platen,—and the releasing device used in connection therewith, the spring by which the pawls are depressed being shown as detached.

Figure 15 is a plan of a fragment of the record strip.

Figure 16 is a plan of a portion of the sales slip or check and of the portion clipped therefrom, by the operation of the machine.

Similar letters of reference indicate corresponding parts.

In the preferred embodiment of my invention depicted in the accompanying drawings and herein described, a strip of blank paper passes from an unwinding roll between a platen and a line of assembled type, and is, as fast as it receives its imprint, automatically wound upon a winding roll, from which latter the accumulated roll of duly printed paper, constituting a record, may be unwound and removed at will.

As each sale is reported to the cashier, the latter assembles suitable type with which the machine is provided, to express the amount of the sale in dollars and cents, and, by throwing a lever, occasions the contact of said type with the paper to make the imprint, as hereinafter described, and the machine is so organized that the reverse movement of the parts concerned in the making of said imprint, automatically permits or occasions the performance of several concomitant operations, viz: the scattering or distribution of the type, the advance of the record strip, and the longitudinal shifting of the inking ribbon.

I now proceed to describe the arrangement of the type and of the type manipulating contrivances, with which my apparatus is provided.

My apparatus is provided with a bank of keys, each of which keys controls a machine type block having a printing face corresponding to a number or symbol engraved printed or otherwise marked upon said key, and said keys are arranged in a series of rows, four rows of nine keys each being shown, extending from front to rear of the bank,—and is also provided with a movable chase through apertures in which said machine type blocks, when in operative position, and when the

chase is depressed as hereinafter described, extend, to make contact with the record strip. The said movable chase embodies a number of type apertures corresponding to the number of rows of keys composing the bank referred to,—namely, four,—the arrangement being such that any one, but not more than one at a time, of the series of nine machine type blocks described as controlled respectively by the nine keys of a given row, may be, by the manipulation of the appropriate key, placed in operative position in alignment with a type aperture in the movable chase common to all the type blocks controlled by the keys constituting said given row,—and three other selected machine type blocks, controlled respectively each by one of the keys of the other rows, may be placed in operative position in alignment each with one of the remaining three type apertures in the movable chase, and thereupon an impression may be taken from the four assembled machine type blocks, by the mechanism hereinafter described, upon the record strip.

The arrangement of markings upon the keys is as follows:

Keys of the first row, beginning at the left of the bank, bear the numerals, "10" "20" "30" "40" "50" "60" "70" "80" and "90" respectively; the keys of the second row bear the numerals "1" "2" "3" "4" "5" "6" "7" "8" and "9" respectively; the keys of the third row bear the numerals "10" "20" "30" "40" "50" "60" "70" "80" and "90" respectively; and the keys of the fourth row bear the numerals "1" "2" "3" "4" "5" "6" "7" "8" and "9" respectively.

The nine machine type blocks controlled by the keys of each row or tier of keys, are provided with printing faces which are adapted to print the numerals "1," "2," "3," "4," "5," "6," "7," "8," and "9," respectively, the four sets of machine type blocks being identical with each other.

It may be stated at this point, that when in assembling a row of type blocks to make a record or entry upon the record sheet, the amount to be printed does not call for a numeral in any particular column of the record sheet, no key in the row of keys corresponding to that column is manipulated, and the machine thereupon, when the imprint is made, prints a cipher in said column,—machine type blocks bearing ciphers being always normally in operative position in alignment with type apertures in the movable chase, unless replaced by machine type blocks bearing numerals of value.

The printing faces of the machine type blocks are substantially the same as the markings upon the respective keys with which they are connected, and may be exactly similar.

In practice, however, for the greater convenience of the operator, the keys controlling the first and third (from the left) rows of machine type blocks, and which machine type

blocks carry the numerals "1" to "9" inclusive, as stated,—bear, as shown, the designations "10" to "90" inclusive. Therefore, when it is desired to express the value "10.25" the operator touches the first key of the first row; bearing the numeral "10"; no key in the second row; touches the second key in the third row; touches the fifth key in the last row. Although no key of the second row was touched, a cipher will, as explained, be printed in the second column of the record sheet.

A is the frame work or casing of the machine, the same being conveniently formed as a box like structure, affording protection and support to the assemblage of working parts which in their entirety constitute my apparatus. Said casing is provided with a hinged top cover A^x , which is secured in its closed position by a lock a^x .

$A' A'$ are a pair of T-shaped supports erected from the base of the machine at opposite sides of the same, which serve to support in parallelism a pair of pivot bars $A^2 A^3$ (Figures 4 and 5) extending across the machine beneath the movable chase C.

$B' B^2$ are a series of machine type blocks, corresponding in number with the aggregate of the keys in the bank, the series B' being pivotally mounted upon the pivot bar A^2 and the series B^2 being pivotally mounted upon the pivot bar A^3 .

Each of the machine type blocks is provided at its upper end with a printing face, and the blocks of both series, are each provided as to their inner edges with a shoulder adapted when a block is thrown into operative position, to rest upon a supporting bar B^3 extending from one support A' to the other. When the type blocks are thrown into operative position, their shoulders, resting on the supporting bar, support and maintain the printing faces accurately in registry with the type apertures in the movable chase.

B^5 are a series of thrust bars corresponding in number to the number of machine type blocks B' , mounted horizontally and in parallelism in the machine, and free for limited longitudinal movement, the inner end of each bar being pivotally connected to one of the blocks B' at a point above the pivot bar A^2 .

B^6 are a corresponding series of thrust bars corresponding in number to the number of blocks B^2 , mounted horizontally and in parallelism with the machine, in a plane beneath that of the bars B^5 , and, similarly to said bars B^5 , free for limited longitudinal movement. The inner end of each bar B^6 is pivotally connected to one of the blocks B^2 at a point below the pivot bar A^3 .

The operating keys, B, are arranged in rows and provided with markings, as hereinbefore described.

Each key consists of a disk like head d and a depending shank d^x , Figures 1, and 5, of any preferred proportions and construction. The shanks of the keys extend through suit-

able apertures in the top wall or plate of the machine and through corresponding apertures in registry therewith in a plate D supported below and in parallelism with said top plate. Each shank is provided with a shoulder d' and is surrounded by a spiral push spring d^2 which bears as to its upper extremity against said shoulder and as to its lower end against the plate D and said springs by their expansive thrust tend to maintain the keys normally in their protruding positions.

Each key shank is connected by a bell crank lever D' with one of the thrust bars, through which levers downward movement of said keys occasions endwise inward thrust or movement of said thrust bars in a direction at right angles to said keys.

A pair of supporting plates A^5 are arranged at opposite sides of the machine, and upon a series of nine pivot bars a' , extending across the machine from one plate to the other are mounted said levers D' ; four of said levers being, in the organized machine illustrated, mounted upon each bar. The pivot bars a' , which support the bell crank levers D' , connected to the series of thrust bars B^5 of course occupy a higher level than those which support the bell crank levers D' , connected to the series of thrust bars B^6 .

Mounted upon the pivot bar A^3 at equidistant intervals throughout its length are four type carrying blocks, E, of substantially the same outline as the type carrying blocks hereinbefore described, each provided with a printing face adapted to make a cipher imprint, and which I therefore term cipher blocks.

E^x are four thrust bars, which I term the cipher thrust bars, approximately half the length of the thrust bars $B^5 B^6$, and disposed or interspersed among the thrust bars B^6 , at intervals corresponding to the distances apart of the cipher type blocks, and provided at their rear ends with upwardly curved extensions which make pivotal connection each with one of said cipher type blocks intermediate of the height of the latter. The front end of each of the cipher thrust bars is provided with a foot E' , disposed between and extending transversely of the two sets of thrust bars for a distance equal to one quarter of the transverse space occupied by the whole number of thrust bars, so that each foot E' lies abreast of all the thrust bars connected with one row of keys of a bank.

Upon the lower edge of each thrust bar of the series B^5 and the upper edge of each thrust bar of the series B^6 are mounted or formed cipher projections b , the series of which cipher projections exist in close proximity to the front or acting surfaces of the feet of the cipher thrust bars, the arrangement being such that all the thrust bars of both series are through their cipher projections in contact with the foot of one or another of the cipher thrust bars.

e , Figures 4 and 6, is a spring carrying bar

extending across the machine in the region of but below the type carrying blocks, upon which are mounted a series, e' , of four spiral springs, all of which four springs have free upwardly projecting ends engaged respectively one with each of the cipher thrust bars E^x , which tend to force said thrust bars forward to carry their feet E' into contact with the cipher projections b of the thrust bars, and to maintain the four cipher blocks E tilted forward in operative position beneath the four type apertures in the movable chase, C.

When then, as will be understood, a key in a particular row is depressed, the longitudinal movement imparted, through the bell crank D' , to the thrust bar associated in operation with it, occasions, first, through its cipher projection, and through the cipher thrust bar, the throwing rearwardly and out of operative position, against the stress of the spring e' , of the cipher type block, the foot E' of the cipher thrust bar E^x of which is in contact with the cipher projections of all of the thrust bars of all of the keys in the same row with the selected key depressed, and, second, occasions the throwing forward and into approximately vertical operative position, with its shoulder upon the bar B^3 , the particular machine type block to which said thrust bar connected with the key depressed, is itself connected.

T , are a series of vertical plates erected, at equi-distant intervals across the breadth of the machine, upon the block B^3 , said plates having ears t t' extending toward the front and rear of the machine; t^2 is a bar extending transversely of the machine and engaged with all the ears t , and t^3 is a corresponding bar engaged with the ears t' .

The top edges of the plates T are provided with deflecting plates, t^x , which are lozenge shaped in plan, forming passage or guide ways between them, which passages are wide at their own extremities and narrow at their central portions; see Figure 13.

The plates t^x are so spaced apart that the central portions of the passage or guide ways between each pair of adjacent plates is just wide enough to admit a single type block, while the ends or mouths of the passage or guide ways are of breadth equal to the transverse space occupied by five thrust bars.

The three intermediate plates T are so disposed that each separates a group of thrust bars associated with one row of keys from the bars associated with the adjacent rows of keys, with the result that each of the guide or passage ways is common to all the thrust bars and type blocks associated with a given row of keys. When, then, any key of a row is depressed, the corresponding type block will in being thrown encounter the edge of one or the other of the plates t^x and be guided to a position in the waist or narrowest portion of the passage way,—the narrow portions of the several guide ways being in reg-

istry with the respective openings in the movable chase.

The type blocks are so loosely mounted on the bars to which they are connected, that they are free to move sidewise thereupon and to thus be deflected into central position by the edges of the plates t^x .

The type blocks when not in operative position, rest against said rods t^2 and t^3 , as shown in Figure 4.

As hereinbefore described, in the operation of my machine, an entire line of four type blocks may be assembled before the impression is taken, and therefore, after the appropriate keys, one in each row, are depressed, to throw, through the bell cranks and thrust bars, the four or less number of type blocks into position for operation, with their shoulders resting on the supporting bar B^3 , mechanism is necessary to maintain the type blocks, the manipulation of which has just been described, in operative position pending the taking of the impression, and such mechanism I now proceed to describe.

Each of the thrust bars is provided as to its upper surface with a detent or inclined tooth b^x , all the detents of the upper series of thrust bars being abreast of each other and those of the lower series being similarly abreast of each other and in line beneath the detents of the upper thrust bars.

F are uprights or supports erected from the floor of the machine which serve as supports for two bars f extending transversely of the machine one above each of the series of thrust bars.

f^x are a series of pawl blocks loosely mounted upon said transversely-extending bars, each of said blocks being abrupt as to its outer or free end and inclined or cut away, as to its under face, to a degree corresponding to the inclination of the detents b^x .

Of these pawl blocks four are mounted upon the upper of the transversely-extending bars f , and four are mounted upon the lower of said transversely-extending bars, and each of the upper pawl blocks is by a depending link f' hingedly connected to the pawl block beneath it so that whenever one of said pawl blocks is moved its companion pawl block, or that to which it is connected by one of the links, f' , is caused to correspondingly move.

Each set, one upper and one lower, of pawl blocks f^x , controls all the thrust bars associated with one of the rows or tiers of keys in the bank of keys, that is to say the upper pawl block of the set extends across five of the thrust bars of the upper series and the lower pawl block of the set extends across four of the thrust bars of the lower series, the aggregate of nine thrust bars thus controlled being associated in operation with a single row of keys.

The inclined under face of the pawl blocks f^x normally rest upon the inclined upper faces of the detents, b^x .

When, however, one of the keys of the bank

is depressed, it through its bell crank lever, occasions the forward movement of its thrust bar, and in such movement of the thrust bar the inclined detent lifts the pawl block resting upon it, until said detent passes out beyond the end of the pawl block, whereupon said pawl block drops in front of said detent and thus secures the key connected to said thrust block, firmly in its operative or printing position.

In order to release the keys which have been placed in operative position and from which an impression has been taken I resort to the following arrangement:—

Each of the links f' , which connect the upper and lower pawl blocks together is of such length as to depend somewhat below the lower series of thrust bars.

f^2 is a rock shaft journaled in suitable bearings and extending transversely of the machine beneath the lower series of thrust bars, said shaft being provided with a radially-extending plate or apron f^3 which when the parts are in their normal position extends beneath the lower ends of all of the said links.

When then a thrust bar has been operated to throw its type block into printing position and a pawl block has engaged in front of its detent, and it is desired to release said pawl block from said detent to enable springs associated with the keys to exert themselves to draw back the thrust bar and carry the type block back into normal position, all that it is necessary to do is to impart slight rotation to the said shaft f^2 whereupon its plate or apron f^3 encounters the lower ends of the links f' and lifts the said links and their connected pawl blocks f^x against the stress of the pawl block depressing springs, f^5 , clear of the detents in the thrust bars and thereupon said thrust bars fly back to their normal position.

In order to permit the restoration of a key to its inoperative position, without bringing into play the impression making mechanism hereinafter set forth, when for instance, the wrong key has been struck, I provide the following mechanism:

f^4 is a push-bar suitably mounted in the casing (see Fig. 5) the front end of which extends through the front end of the casing and is provided with a disk like head. The inner end of said bar is pivotally connected to a crank arm f^6 , extending from the shaft f^2 , referred to, the arrangement being such that by the simple forcing inward of said push-bar the desired rocking movement may be imparted to the shaft f^2 to elevate the links f' , and lift the pawl blocks f^x away from the detents, b^x .

f^7 is a spiral pull spring attached to said push-bar and to a fixed part of the frame A^5 , which serves through said push-bar to retain the shaft f^2 in its normal position, with the crank arm f^6 , against the stop lug f^8 , upon the floor a , of the machine.

G is the operating shaft journaled in suitable bearings and extending transversely of

the machine and provided at one end with an operating handle, G' , (see Figs. 1, 2, 3 and 5.)

After the operating handle has been thrown downwardly and forwardly to occasion the making of an impression the return movement of the parts occasions the automatic release of the thrust bars and their connected type blocks, which have been retained in printing position by the pawl blocks f^x , the mechanism involved in this movement being as follows:—

Connected to the arm f^6 is a draw bar f^9 the rearwardly extending head of which is of greater vertical thickness than its body portion, to form an abrupt shoulder f^{10} , and the rear extremity of which, behind said shoulder, is inclined or tapered off, as shown in Fig. 5. Stud guides, f^{11} , existing respectively on its opposite sides, prevent lateral movement of this draw-bar, and a spring f^{12} , mounted on the under side of said draw-bar, tends to constantly elevate it, by bearing against the floor a , of the machine.

f^{13} is an oscillating lever mounted free for slight rocking movement upon a suitable support f^{14} . Against the lower end of said lever the draw-bar f^9 , is constantly pressed by its spring, f^{12} .

f^{15} is a fixed deflecting plate overhanging the rear inclined end of the draw-bar, which, being encountered by the draw-bar in the rearward movement of the latter, deflects said draw-bar downward against the stress of its spring f^{12} , into close proximity to the floor of the machine.

The upper end of the oscillating lever f^{13} , is entered in a suitable boxing or recess formed for it in a reciprocating actuating bar H^x , the front end of which is pivotally connected to one arm of a bell crank lever h^x , the other end of which bell crank is adapted to be encountered by a stud or wrist pin g , mounted in a plate g' carried by the main operating shaft, G , as shown in Figs. 3 and 5.

In the downward and forward movement of the operating handle, G' , to occasion the making of an impression, the said wrist-pin g , is carried away from the bell crank lever h^x with the result that a spring h^3 secured at its rear end to the casing, A , and at its front end, indirectly connected to the longitudinally reciprocating bar H^x , occasions the rearward movement of said bar H^x , and consequently occasions the tilting of the oscillating lever f^{13} , on its pivot, until the lower end of said oscillating lever passes to the front of the shoulder of the draw-bar f^9 the head or rear end of which immediately springs up so that its shoulder engages behind the lower end of said oscillating lever.

In the return movement of the operating handle, however, the wrist pin g , in the plate g' encounters the bell crank lever and tilts it on its pivot occasioning the movement of the reciprocating bar H^x toward the front of the machine and the corresponding movement of the upper end of the oscillating lever f^{13} , with

the result, that the lower end of said oscillating lever, engaged with the shouldered head of the draw bar, draws said bar rearward, occasioning thereby a rocking movement of the shaft f^2 , and the consequent elevation of the pawl blocks f^x and release of the thrust bars and type blocks.

In the continued rearward movement of the draw bar it encounters the fixed deflecting plate f^{15} , with the result that said draw bar f^9 , is, in such rearward movement, gradually forced down against the floor of the machine, with the result that its shoulder is disengaged from the lower end of the oscillating lever f^{13} , and thereupon under stress of the spring f^7 assumes the normal position shown in Figure 5.

II is the winding roll, provided with a spring clip h , for the end of the record strip I, and situated in a small locked compartment inclosed by doors A^8 and A^9 , at the rear end of the machine, said roll being mounted upon a shaft II' , the respective extremities of which are suitably supported and journaled. Access to said roll II, may be had by turning the lock A^7 , which secures the double doors A^8 and A^9 in their normally closed position, as shown in Figure 4.

The spring clip extends longitudinally of the roll II, and over a longitudinally extending groove formed therein. One edge of the clip is hinged to an edge of said groove, and the body of the clip is adapted to be swung on such hinged connection, down within the groove. A spring seated within the groove constantly forces the clip outward to carry its free edge against the projecting or overhanging edge of the groove, in which position the outer face of the clip is flush with the surface of the roll.

The end of the record strip is engaged with the roll by depressing said clip and entering the end of the strip between it and the overhanging edge of the groove in position to be caught by the clip when the latter is, upon being released, returned by its spring to its normal position.

It is desired that after each movement of the impression-making parts this winding roll shall be given a slight movement of rotation so that the record strip I may be progressively wound upon it, and this rotation of the winding drum or roll is automatically effected by the following mechanism:—

h^{xx} , is a toothed disk mounted upon the shaft II' , of the winding roll II, and adapted to rotate with it.

h' is a pawl carrying lever, loosely mounted upon the shaft of said winding drum and plate, so as to be capable of rocking movement independently of said roll and plate, and being provided with a pawl h^2 , the point of which is adapted to engage with the teeth of the disk, h^{xx} .

h^3 is a spiral spring connected to the said pawl lever h' , and to a fixed part of the framework of the machine, the tension of which

spring constantly draws said pawl carrying lever rearwardly, in the direction opposite to that of the rotation of the drum in its winding movement.

The inner end of the reciprocating bar II^x hereinbefore referred to is provided with a longitudinally-extending slot which takes over a suitable stud h^1 , upon the pawl carrying lever h' .

In the downward and forward throw of the operating handle G' , the reciprocating bar II^x as already described, moves slightly toward the rear end of the machine, under the stress of the spring h^3 , which pulls the pawl carrying lever, connected through said stud h^1 , with said reciprocating bar, II^x .

In such movement of the reciprocating bar II^x to the rear of the machine the pawl h^2 , of course slips over several notches of the toothed disk h^{xx} , and takes, so to speak, a fresh hold upon said disk.

In the return or reverse movement of the operating handle G' and its shaft G , however, in which the wrist pin g , encounters the bell crank lever h^x , the reciprocating bar is drawn positively forward rocking the pawl carrying lever h' , and of course partly rotating the toothed plate h^{xx} , and the winding roll II, with it, thereby winding upon said roll a selected length of the record strip, I.

The rearward movement of the pawl carrying lever, h' , under the stress of the spring h^3 is limited by the contact of a stud h^5 at the lower end of said lever, with a stop h^6 , mounted in a plate h^7 , secured to the floor of the machine.

The plate h^7 is provided with a longitudinally-extending slot through which screws pass to secure said plate to the floor of the machine, as a result of which arrangement, as will be understood, said plate may be set to various positions of adjustment and consequently the extent of movement of the winding roll, II, under the actuation of the reciprocating bar II^x , be regulated and controlled.

h^8 is a keeper pawl disposed between the notch or tooth disk h^{xx} and the floor of the machine, being pivotally supported intermediate of its length, in such manner that the weight of its front end, constantly forces its pointed rear end, into engagement with the toothed disk h^{xx} , this arrangement insuring against reverse movement of the winding roll.

When, however, it is desired to reversely rotate the winding roll II, for instance, to remove the record strip I therefrom, both the pawl h^2 , and the pawl h^8 , may be disengaged from the toothed wheel h^{xx} , by forward movement of the upper end of the pawl carrying lever h' , which is provided with a handle h^9 indicated in dotted lines in Fig. 5. In said movement the lug h^{10} , on the pawl h^2 encounters a stud h^{11} upon the casing A and is thus raised to contact with the stud h^{12} , while the pawl h^8 is disengaged by the lower end of said lever h' .

C is a movable chase the apertures c of

which correspond in position with the up-
turned faces of the type blocks placed in op-
erative or printing position and the upper
face of said movable chase embodies a groove
5 or channel c' , in which type of any selected
character may be inserted to indicate, for in-
stance, the cashier operating the machine,
and said movable chase also embodies a cor-
responding groove or recess c^2 , in which may
10 be inserted type indicating the day, month
and year, upon which the record is made, in
conjunction with the number of the machine,
or any other selected data.

In the casing A, normally alined with said
15 grooves c' and c^2 in the chase C, are similar
outlet grooves, which are normally closed by
spring plugs, C' and C^2 , respectively, Figures
1 and 8; said plugs are conveniently attached
to the casing A, by chains.

20 To facilitate the removal of the single type
 C^3 , from the groove c' , the plug C' , is pro-
vided with a pin lug adapted to engage an
aperture in the shank of said type C^3 , as
shown in Figure 8.

25 To conveniently effect the removal of the
type in the groove c^2 , a passage way c^0 is pro-
vided in said chase C, in line with said groove
and also in normal alinement with an exter-
nal opening C^0 , in the casing A, Figures 2 and
30 5. Through said alined openings, a suitable
rod may be thrust, to unseat the said type.

The said movable chase is provided with
depending legs, c^x , Figure 8, which are in-
serted in sockets c^3 erected from the floor of
35 the machine, within which sockets are located
springs, which, bearing against said depend-
ing legs constantly force said movable chase
upward. Said chase C, is provided with suit-
able stop-lugs c^4 , c^5 , adapted to encounter the
40 casing A, (see Figs. 6, 8 and 9) and retain
said chase in its normal position, (see Figs.
4 and 6).

K is the supply roll from which the record
strip to be printed is unwound; said roll lies
45 in a suitable compartment k , at the rear end
of the key board and said record strip I, passes
through a guide way i , and over the open-
ings c , formed in the movable chase C, down
through the slot i' , formed in the central por-
50 tion of the movable chase, thence rearwardly
beneath the lower portion of the movable
chase over a guide rod i^2 , thence down to the
floor of the machine and beneath the track
P, rearwardly to the winding roll II.

55 The inking ribbon, J, whereof hereinafter,
is constantly fed across the top of the mov-
able chase by means hereinafter described.

L is what I term a movable platen, the
same being a plate suspended above the mov-
60 able chase and being adapted in the throw of
the operating handle G, to be depressed to
bear against the movable chase and force it
downward until the selected type blocks pre-
sent through the openings c , in said chase,
65 said platen L, operating to press the inserted
sales slip X, face downward upon the inking
ribbon, the inking ribbon J against the rec-

ord strip I, and the record strip against the
type blocks presenting through said open-
ings c , and against the type mounted as de- 70
scribed in the upper face of said movable
chase C, in the groove c' with the result of
causing an inverted impression thereof to be
made upon said record strip I.

In connection with the printing of the rec- 75
ord strip I, my apparatus is designed to print
upon the sales slip X, which comes to the
cashier from the sales person in connection
with each transaction, a complete impression
of the type just described, together with an 80
impression from the type contained in the
recess or groove c^2 in the upper face of the
movable chase C, and contemporaneously to
shear off the bottom portion x , of such check
and deposit it within a suitable receptacle 85
formed in the apparatus.

In the use of my improved apparatus the
slips sent to the cashier by the sales person
are made out with duplicate entries at the
top and bottom and when the slip is inserted 90
face downward in the machine the type in
the grooves or recesses c' , c^2 , of the movable
chase C, and the selected type blocks, make
an impression upon the middle part of the
sales slip (Figure 16) while the lower part x 95
of the sales slip is shorn off and deposited in
the receptacle referred to. The said imprint
upon the sales slip X, is not, however, in-
verted, as upon the record strip I.

The printed portion of the slip is of course 100
to be returned to the sales person to be
handed to the customer or otherwise dis-
posed of.

The platen L, is supported by a pair of
links l , l , from a pivot bar L' mounted in a 105
depressing frame M, said frame consisting of
a pair of parallel plates m , m , the rearward
extremities of which are pivotally mounted
upon a pin m^x mounted in a fixed support m' 110
and the front extremities of which plates m ,
are formed with longitudinally-extending
slots m^2 through which slots extend a pin m^3
mounted in carrying plates m^4 upon the op-
erating shaft G.

As will be understood, in the downward 115
and forward throw of the operating handle
G', the front extremity of the depressing
frame M, will be caused to descend a dis-
tance governed by the proportioning of the
parts and sufficient to make the impression 120
referred to.

g^x is a coil spring mounted upon the oper-
ating shaft G, the free end of which is secured
to a fixed part of the framework, the arrange-
ment being such that said spring constantly 125
tends to rotate the operating shaft G, (Fig. 4)
to the left and therefore to return said shaft
to its normal position in which its handle G'
is in contact with the cushioned stop lug G^2 ,
and accordingly to elevate the depressing 130
frame after the handle has been thrown down-
wardly and forwardly to make an impression.

I have already stated that in the improved
construction of machine herein set forth the

bottom portion of the sales check sent by the sales person to the cashier is, while its body receives its imprint, contemporaneously severed intermediate of its length, leaving said bottom portion within the machine while its body only, duly imprinted, is returned to the sales person.

I will now describe the mechanism by which this cutting action is effected.

To the rear of the platen L, and movable chase C, is mounted a transversely extending blade N the upper edge of which is beveled to form a cutting edge.

N^x is a blade mounted free for vertical movement between upwardly extending guides n^x the lower edge of which blade is correspondingly ground or beveled away to conform it to a cutting edge adapted in the descent of the said blade N^x to co-operate with the upper edge of the fixed blade N and act as a shears.

The position of the blades N and N^x is such that a sales slip inserted from the front of the machine between the platen and the movable chase extends between said blades with the result that if said blade N^x be caused to descend at the same time that the platen is caused to descend the blades N and N^x will sever the bottom end portion of the check from its body.

Both of the blades N and N^x are preferably slightly inclined as indicated in Figure 7, with the result that the shearing action of the two blades is rendered more perfect.

N' is what I term the shears-carrying frame, the same consisting of a pair of plates n', n', arranged in parallelism and connected intermediate of their length by a sleeve n² through which extends the pivot bar L' which connects the hangers l, l, of the platen L, with the depressing frame M,—the plates n', n', of the shears-carrying frame being at a less distance apart than the plates m, m, of the depressing frame, with the result that the plates of the shears carrying frame, N', lie between the plates of the depressing frame M.

The shears-carrying frame N', being thus mounted intermediate of its length upon the pivot bar L', which connects the hangers of the platen with the depressing frame receives motion from said frame M, the said frame N' being fulcrumed in the yoke N² which is loosely journaled upon the shaft G, as shown in Figure 4.

The blade N^x, is mounted in a swing plate O, (see Figures 4 and 7), the upper end of which is provided with a pair of apertured lugs o, o, through which and into suitable seats formed in the side plates of the shears-carrying frame extends a pivot pin o', said pivot pin serving to pivotally connect through the swing plate O, the blade N^x to the said shears carrying frame N'.

A spiral spring o² surrounding said pivot pin o', bears as to one extremity against the rear face of the plate O, and as to its other end against a bar n³ extending from one plate

n', to the other, of the shears carrying frame, the tendency of which spring is to constantly swing said blade N^x into close contact with the front guides n^x and the lower shears blade N, thus insuring a clean cutting action of the shears.

Shoulders or stops n⁴, (see Figure 4,) formed upon the plates n', n', of the shears carrying frame, are however, encountered by the swing plate O, referred to, when said blade N^x, is for any cause lifted above the guides n^x n^x and prevent the shears blade N^x from being carried out of line with the shears blade N.

As a result of the arrangement described, in the throw of the operating shaft G force is applied to said shears carrying frame at the central portion of said frame with the result that the movement of said shears carrying frame is practically in straight vertical lines with the result that to the plate N^x is imparted a movement of reciprocation in a corresponding straight line.

P, Figures 4, and 7, is a transversely extending track or way upon the floor of the machine.

P^x is a drawer of length about equal to the breadth of the machine and adapted to be seated for in and out movement upon said track, the outer end plate p, of said drawer normally closing an opening in the side wall of the casing of size sufficient to admit of the removal of the drawer. Said drawer may be provided with a lock p', by which it may be secured in position in the casing.

The walls of the drawer extend preferably to the top plate of the machine; the wall however which exists beneath and in line with the shears blade N, is reduced in height, to allow for the presence of said shears blade. Said drawer has no inner end wall.

A skeleton frame, consisting of a base p², and two upwardly extending end plates p³, and p⁴, shown in Figures 4 and 7, of breadth equal to the breadth of the drawer box P^x and of the length less than said drawer box, is contained within the latter, the purpose of its employment being to enable the easy removal of the sales slip sections x', clipped off, and deposited within the box, said sections being of course deposited upon the bottom of the skeleton frame in the operation of the machine and being, when the skeleton frame is elevated from the drawer box by the handle p⁵ in the end plate p⁴, of course elevated with it.

A lug p⁶ on one end of the skeleton frame is engaged beneath a corresponding keeper p⁷, in the floor of the drawer box, and an upturned lug p⁸, on the end of the drawer box, embraces the outer end of the skeleton frame, so that said skeleton frame is normally retained firmly in position within the drawer box P^x.

As will be manifest the drawer box may be employed without the skeleton frame and in fact any form of drawer box or receptacle for the clipped sections of the sales slips may be employed.

Q is a follower provided with a pair of upwardly extending slotted hangers q through the slots of which hangers passes a pin q' the respective ends of which are mounted in the ends of the plates n', n' , of the shears carrying frame N' .

The dimensions of this follower which is in effect a horizontal plate depending from the shears carrying frame are such as to enable it to enter the drawer box, in the descending movement of the shears frame.

As will be understood the plate N^x and the follower are contemporaneously caused to descend, the plate N^x being slightly in advance of the follower with the result that immediately after the end of the slip is severed by the shears blade the follower encounters the severed end and forces it down within the drawer box.

R, Figures 3, and 4, is a curved plate supported upon the casing A, above the front end of the movable chase, forming, with the front end of said movable chase C, a guide way for an entering sale slip X.

The entering slip passing beneath said plate and across the face of the movable chase passes between the lower face of the platen L and the upper face of the inking ribbon J over an upwardly and rearwardly inclined guide plate r and pins r^x , (Figures 4 and 9) situated upon the chase C, just in front of the shears-plate N, and thence beneath the guide-plates r^2 which overhang the drawer box, until the advance end of the said slip X, comes into contact with blocks or stops at the base of said plates r^2 .

Pins r' , (see Figure 6) extend from the rear edge of the ribbon carrying frame S, over the upwardly-extending guide plate r situated at the front of the shears plate N and the conjoint action of said pins r' , and the upwardly extending guide plate r , is to maintain that portion of the check which has to be acted upon by the shears, firmly in a slightly inclined position, so that the shears blades may, in acting upon it, make a clean cut through it, from edge to edge.

S, Figures 3, 4, 6, 8 and 10, is the ribbon-carrying frame, hingedly mounted as to one end at s , to the top of the movable chase C, and adapted to rest through suitable feet or lugs s^x , upon said movable chase.

S' is a latch bar which normally secures said frame down in its normal position, with its feet s^x upon the chase C, and which, when retracted, permits of the frame being thrown up, upon its hinge s , to disclose the face of the chase C.

The central portion of this ribbon carrying frame is open to permit of the descent of the platen L, through it, to effect the printing operation.

$S^2 S^3$ are a pair of ribbon reels suitably mounted for rotation upon the respective extremities of the ribbon frame S, the shafts of said ribbon reels extending to the rear of the frame and being each equipped with a ratchet

wheel designated s^2, s^3 , respectively. S^4 , Figure 6, is a pawl carrying plate having slots s^4, s^5 , in its respective ends, by virtue of which slots it is seated upon the shafts of the ribbon reels between the ratchet wheels and the adjacent end of the reels, said pawl carrying plate being provided with a pair of pawls designated s^6, s^7 , pivotally connected to it, and adapted to press against the ratchet wheels s^2, s^3 , respectively, said pawls s^6, s^7 , being provided with tail pieces designated s^8, s^9 , respectively, which tail pieces extend toward each other.

These pawls are intended to be placed alternately in operation, one of them serving to rotate its ribbon reel through its ratchet wheel until the ribbon J is nearly all wound upon it and to be then thrown out of operation, whereupon, the other pawl is placed in operation, and, by its action upon the ratchet wheel opposite to that first named, occasion the winding of the ribbon upon the other of the ribbon reels.

Manifestly, if the pawl s^6 be engaged with the ratchet s^2 (see Figure 6) while the pawl s^7 is held out of engagement with the ratchet s^3 , in the continued movement of the parts, and the pawl carrying plate S^4 be reciprocated, the pawl s^6 will operate to constantly wind the ribbon J upon the reel S^2 , while if the pawl s^6 be thrown out of operation or held out of engagement with its ratchet wheel s^2 , and the pawl s^7 be thrown into engagement with its ratchet wheel s^3 , as shown in said figure, in the continued movement of the pawl carrying plate S^4 , the ribbon J will be wound upon the ribbon reel S^3 .

I impart reciprocating movement to the pawl carrying plate S^4 , by the bell crank V, Figures 3 and 6, mounted in suitable bearings v , in the framework of the machine, at the end of the movable chase C, one arm of said bell crank lever V, bearing against the end of the pawl carrying plate S^4 and the other arm of the bell crank lever being encountered by a trip arm V^x , carried by the operating shaft G.

The spiral pull spring s^{10} , connected to the pawl carrying plate S^4 , and to the ribbon frame S, respectively, constantly draws said pawl carrying plate against the adjacent arm of the said bell crank lever V.

As will be understood, therefore after the operating handle G' of the machine is thrown, it, in its return movement, occasions, through the trip arm V^x , and through the bell crank V, referred to, the longitudinal throw of the pawl carrying bar S^4 to the left, (Figure 6), with the result of occasioning the advance movement of the inking ribbon J and the exposure of a fresh portion of said ribbon to the action of the type and type blocks.

In order to hold the pawls alternately out of engagement with the ratchet wheels I provide a hinged weight S^5 , pivotally mounted upon the ribbon carrying frame S, and adapted to be thrown alternately to opposite sides of

its point of hinged connection at s' , with said frame S, and to rest in either position upon the upper edge of said frame.

Inasmuch as the tail pieces of the pawls normally project slightly above the edge of the ribbon frame it is obvious that when said hinged weight S^5 falls to the left of the machine, (being the right in Figure 6), it will encounter the tail piece of the pawl s^6 , and tilt said pawl out of engagement with its ratchet wheel s^2 leaving the other pawl s^7 at liberty to drop into engagement with its ratchet wheel s^3 and in the reciprocation of the pawl carrying plate S^4 to effect the winding of the ribbon J, upon the reel S^3 with which said ratchet wheel s^3 , is connected.

Upon the hinge weight S^5 being thrown to the opposite side of its point of connection to the ribbon frame S, the reverse of that shown in Figures 3 and 6, it will tilt the pawl s^7 , last mentioned, out of its engagement with its ratchet wheel s^3 , and permit the pawl s^6 , first mentioned to drop into engagement with its ratchet wheel s^2 , with the result in the continued reciprocation of the pawl carrying plate S^4 of effecting the reverse travel of the ribbon J.

I provide means for automatically tilting the hinged weight to effect the automatic reversal of the pawls and of the movement of the ribbon, said automatic means being as follows:—

Upon the front face of the hinge weight S^5 are mounted two studs s^{11} , s^{11} , situated respectively upon opposite sides of the pivot or hinge s' , of said weight.

S^6 , is a plate mounted upon the inner portion of the ribbon carrying frame,—see Figures 4, 8, 11 and 12,—the hollow interior of which, forms a cage so to speak. Said cage plate, as I term it, is provided with longitudinally extending slots s^{12} through which pass screws s^{13} which secure it upon the side member of the ribbon frame S, but permit of its longitudinal movement, said cage plate being provided at its respective extremities with forwardly extending studs s^{14} .

W, Figures 8, and 10, are what I term gage plates, being plates of metal hingedly mounted respectively upon the members of a pair of pins w , located respectively in adjacency to the respective ribbon reels s^2 s^3 and each pressed by a spiral spring w' against the face of the roll of the ribbon J, upon the adjacent reel and each provided (see Figures 3, 8 and 10) with a finger w^2 adapted to encounter respectively the studs s^{14} , at the respective ends of the cage plate S^6 .

Y' Y^2 , Figures 3, 4, 6 and 8, are a pair of plates, depending from a sleeve Y, in fixed relationship with respect to each other, said sleeve being loosely mounted upon a suitable bar y carried by the shears carrying frame N' and free for limited longitudinal movement upon said bar; said depending plates extend down within the hollow interior of the cage plate S^6 and exist respectively upon op-

posite sides of the two projections s^{11} of the hinged weight S^5 .

In the operation of the apparatus, as the ribbon J is gradually shifted from one of its reels, to the other, the plate W, which presses against the unwinding roll, upon its respective reel, of course continues to press against said roll and thus has a movement corresponding to the reduction in size of the said roll upon its reel and in such movement the finger w^2 , of said plate pushes the stud or projection s^{14} , at the adjacent end of the cage plate S^6 , and draws said cage plate in the direction of such emptied or nearly emptied ribbon reel.

The depending plates Y' , Y^2 , which normally, in the vertical movement of the shears carrying frame which carries them, work up and down without effect upon the projections s^{11} , of the hinged weight S^5 , are, by this movement of the cage plate, shifted along their supporting bar toward the emptied or nearly emptied reel and to a position in which one of the shoulders y' , y^2 , of the respective plates Y' , Y^2 , overhangs the uppermost of the two projections s^{11} of the hinged weight S^5 , and in the succeeding depression of the shears carrying frame N' said shoulder encounters said projection s^{11} and occasions the tilting of the hinged weight over to the opposite side, thereby reversing the pawls and consequently the direction of traverse of the ribbon J.

In the continued movement of the ribbon J in the new direction, the said depending plates Y' , Y^2 , in rising and falling are without effect upon the hinge weight S^5 because the uppermost projection s^{11} in the hinged weight, lies midway between the two plates and is not encountered by the shoulders of either until the full reel becomes emptied, or nearly emptied, and the cage plate S^6 and consequently the depending drop plates Y' , Y^2 , are drawn toward it, with the result of carrying the opposite shoulder of the depending drop plates over the uppermost projection s^{11} , of the hinged weight S^5 , whereupon, said shoulder encountering said projection occasions the retilting of the hinged weight to its original position and the restoration of the parts to the condition first referred to.

From a consideration of the drawings and the description so far given, it will be understood, that after the type blocks have been selected and are held in position by the instrumentalities described, a sales slip X, received from the sales person, containing a record of a sale upon its body portion and a record of the sale or other memoranda upon its bottom portion, is inserted within the machine, face downward, and with its bottom portion x , toward the rear of the machine, as indicated in Figure 16.

The order of the several printing parts, as will be understood, is as follows:—

First and lowermost the faces of the selected type blocks, second, and slightly above said type blocks, the movable chase C, having openings c , for the type blocks and bear-

ing also removable type mounted on its upper face, preferably two rows of such movable type one in alinement with the openings in the chase and intended with the type blocks to make an imprint upon the record strip, and a second row of removable type intended to make an imprint together with said first row of type upon the inserted sales slip or check;—third, a record strip I, extending over the openings c, in the movable chase C, and over the removable type mounted in alinement with said openings,—said record strip however, not passing over the second row of removable type, but passing down through the movable chase between said two rows of type; fourth, the inking ribbon J, passing across the movable chase and over both that part of the record strip which exists above the openings in the movable chase and also extending over the second row of removable type; fifth, the inserted sales slip or check X which exists immediately above the inking ribbon J, and, finally the platen L.

As will be understood, in the operation of the devices the platen in its depression bears against the check X and through the check against the ribbon J, and record strip I, and against the movable chase C,—depressing the latter until it reaches the limit of its downward movement, at which time the faces of the selected type blocks will be flush with the faces of the removable type mounted in the upper face of the movable chase.

Inasmuch as the record strip exists between the inking ribbon and the type blocks instead of said inking ribbon existing between the record strip and the type-blocks, it will be understood that when said record strip, is, by the platen, pressed against the type blocks, the ink impression will be made upon the upper side of said record strip I, and consequently will be, so to speak, reversed, when looked at from the side on which the ink impression is made. (See Fig. 15.)

To render the record strip easily read, and to avoid the necessity of reading the record strip backward, I form the record strip of quite transparent tough paper, through which the record may be readily perused.

Inasmuch as the inking ribbon J exists between the second row of type, that is to say the row composite wholly of removable type mounted in the movable chase, and the sales slip or check to be imprinted, the imprint made upon said check will be straight or unreversed.

When the machine is not in use the handle G', may be conveniently secured against manipulation, by the locking plate G³, pivoted to the casing A, as shown in Figure 3, said plate being turned, to project through a notch in the top cover A^x, and beneath the handle G', as shown in Figure 2.

Having thus described my invention, I claim:—

1. In a sales recording apparatus, in combination, a movable type block, a thrust bar,

a key controlling the thrust bar in such manner as to occasion its rearward movement, a detent mounted on the thrust bar, a pivoted pawl block adapted to engage in front of said detent in the rearward movement of the thrust bar, substantially as set forth.

2. In a sales recording apparatus, in combination, a movable type block, a thrust bar, a key controlling the thrust bar in such manner as to occasion its rearward movement, a detent having an inclined face mounted on the thrust bar, and a pivoted pawl block adapted to engage in front of said detent in the rearward movement of the thrust bar, substantially as set forth.

3. In a sales recording apparatus, in combination, a movable type block, a thrust bar, a key controlling the thrust bar in such manner as to occasion its rearward movement, a detent having an inclined face mounted on the thrust bar, a pivoted pawl block adapted to drop by gravity in front of said detent in the rearward movement of the thrust bar, and a pawl block having an inclined under face normally resting upon the inclined face of the detent, substantially as set forth.

4. In a sales recording apparatus, in combination, a movable type block, a thrust bar, a key controlling the thrust bar in such manner as to occasion its rearward movement, a detent mounted in the thrust bar, a pivoted pawl block adapted to engage in front of said detent in the rearward movement of the thrust bar, a link depending from the pawl block, and a plate or apron adapted to encounter and raise said link and pawl block, substantially as set forth.

5. In a sales recording apparatus, in combination, a series of type blocks, a series of thrust bars connected one with each of said type blocks and arranged in double parallel series, a series of keys connected one to each of said thrust bars, detents formed one on each of the thrust bars, a series of pawl blocks having inclined under faces and pivotally supported in such manner as to normally rest upon the inclined faces of the thrust bars, one pawl block being equal in breadth to a number of the thrust bars and the aggregate breadth of the pawl blocks being equal to the aggregate breadth of the thrust bars, links which connect the pawl blocks of the upper series with the pawl blocks of the lower series, a pivoted plate adapted to encounter said links and elevate said pawl blocks, and means for occasioning the movement of said plate, substantially as set forth.

6. In a sales recording apparatus, in combination, a series of type blocks, a series of thrust bars, connected one with each of said type blocks and arranged in double parallel series, a series of keys connected one to each of said thrust bars, detents formed one in each of the thrust bars, series of pawl blocks having inclined under faces and pivotally supported in such manner as to normally rest upon the inclined faces of the thrust bars,

links which connect the pawl blocks of the upper series with the pawl blocks of the lower series, a plate adapted to encounter said links and elevate said pawl blocks, means for occasioning the movement of said plate, a rock shaft upon which said plate is mounted, an arm projecting from said shaft, a push bar connected to said arm and extending to the exterior of the machine, and a spring controlling said push bar, substantially as set forth.

7. In a sales recording apparatus, in combination, a series of type blocks, a series of thrust bars connected one with each of said type blocks and arranged in double parallel series, a series of keys connected one to each of said thrust bars, detents formed one in each of the thrust bars, series of pawl blocks having inclined under faces and pivotally supported in such manner as to normally rest upon the inclined faces of the thrust bars, links which connect the pawl blocks of the upper series with those of the lower series, a movable plate adapted to encounter said links and elevate said pawl blocks, means for occasioning the movement of said plate, a rock shaft upon which said plate is mounted, a draw-bar connected to said shaft and provided with a shoulder, an oscillating lever adapted to engage with said draw bar, and means for occasioning the movement of said oscillating bar, substantially as set forth.

8. In combination with a thrust bar provided with a detent, an oscillatory type block pivotally connected with said bar a pawl block mounted in association with said bar, a rock shaft, an apron plate and link or other mechanism for transmitting motion from said rock shaft to said pawl block, a draw bar connected with said rock shaft, an oscillating bar, adapted to engage said draw bar, and a spring which controls said draw bar, substantially as set forth.

9. In combination, a thrust bar provided with an oscillatory type block and having a detent, a pawl block, a rock shaft, means for communicating motion from said rock shaft to said pawl block, the spring controlled draw bar, the oscillating lever, the reciprocating bar, a bell crank lever, and the operating shaft, substantially as set forth.

10. In a sales recording apparatus, in combination, a series of type blocks, a series of thrust bars connected respectively one to each of said type blocks, and adapted in their rearward movement to throw said blocks into operative position, keys which control the rearward movement of said thrust bars, detents mounted on said thrust bars, pivotally supported pawl blocks adapted to be raised by said detents in the rearward movement of the thrust bars and to drop in front of said detents to lock said bars in their said rear positions, a platen adapted to carry a record strip against type blocks thrown into operative position, an operating shaft adapted to impart movement to said platen, a rock shaft, mechanism through which movement of said

rock shaft elevates the pawl blocks clear of the detents to release the thrust bars, a draw bar engaged with an arm connected with said rock shaft, mechanism operatively connecting said operating shaft with said draw bar, through which the reverse movement of said operating shaft exerts traction upon the draw bar, substantially as set forth.

11. In a sales recording apparatus, in combination, a series of type blocks, a series of thrust bars connected respectively one to each of said type blocks and adapted in their rearward movement to throw said blocks into operative position, keys which control said bars, detents mounted on said bars, pivotally supported pawl blocks adapted to be raised by said detents in the rearward movement of the bars, and to drop in front of said detents to lock such bars in their rearward positions, a platen adapted to carry a record strip against type blocks thrown into operative position, an operating shaft adapted to impart movement to said platen and rock shaft, a plate or apron connected to said rock shaft and adapted to encounter a link connected to a pawl block to elevate said pawl block clear of a detent to release the thrust bar and arm connected with said rock shaft, a draw bar engaged with said arm, an oscillating lever adapted to engage with and exert traction upon said draw bar, a reciprocating bar engaged with said oscillating lever and a bell crank lever adapted to transmit motion from the operating shaft to said reciprocating bar, substantially as set forth.

12. In combination, in a sales recording apparatus, a rock shaft, a draw bar connected therewith, said draw bar being provided with a shoulder, a spring beneath said draw bar and operating to force said bar constantly upward, an oscillating lever, the lower end of which is adapted to alternately rest upon the head and in front of the shoulder of said draw bar, and means for communicating motion to said oscillating lever, substantially as set forth.

13. In a sales recording apparatus, in combination, a rock shaft, a draw bar having a head formed with an incline at its extremity and provided with a shoulder, an upwardly pressing spring, an inclined deflecting plate overhanging the head of said draw bar, an oscillating lever the lower end of which is adapted to alternately rest upon the head and in front of the shoulder of said draw bar, and means for communicating oscillation to said oscillating lever, substantially as set forth.

14. In a sales recording apparatus, in combination, a rock shaft, a draw bar having a head formed with an incline at its extremity and provided with a shoulder, an upwardly pressing spring, an inclined deflecting plate overhanging the head of said draw bar, an oscillating lever the lower end of which is adapted to alternately rest upon the head and in front of the shoulder of said draw-bar, a reciprocating bar engaged with the

upper end of said oscillating lever, and means for imparting reciprocation to said reciprocating bar, substantially as set forth.

15. In a sales recording apparatus, in combination with the rock shaft, a draw bar having a head formed with an incline at its extremity and provided with a shoulder, an upwardly pressing spring, an inclined deflecting plate overhanging the head of said draw bar, an oscillating lever the lower end of which is adapted to alternately rest upon the head and in front of the shoulder of said draw bar, a reciprocating bar engaged with the upper end of said oscillating lever, a spring adapted to draw said oscillating lever in one direction, a bell crank lever the movement of which tends to draw the reciprocating bar in the other direction, and an operating shaft adapted to impart movement to said bell crank lever, substantially as set forth.

16. In combination, a paper winding roll, a toothed wheel mounted for rotation with the winding roll, a pawl carrying lever mounted loosely upon the axle of the winding roll, a pawl mounted on said lever and adapted to engage with the teeth of said wheel, a spring adapted to draw said lever in one direction, a reciprocating bar engaged with said pawl carrying lever, means for imparting reciprocation to said bar, and an adjustable stop which limits the movement of said pawl carrying lever, substantially as set forth.

17. In combination, a paper winding roll, a toothed wheel mounted for rotation with the winding roll, a pawl carrying lever mounted loosely upon the axle of the winding roll, a pawl mounted on said lever and adapted to engage with the teeth of said wheel, a spring adapted to draw said lever in one direction, a reciprocating bar engaged with said pawl carrying lever, a bell crank lever connected in operation with said reciprocating bar, an operating shaft, and a wrist pin carried by said operating shaft and adapted to encounter said bell crank lever, substantially as set forth.

18. In a sales recording apparatus, in combination, a series of type blocks, means for assembling selected blocks in operative position, a platen, means for feeding a record strip between said platen and said selected type blocks, means for supplying ink to said selected type blocks, a cutting or shearing mechanism, devices to guide a sales slip to a position beneath said platen in which its end extends beyond the platen and between the blades of the shearing mechanism, and means for causing the contemporaneous descent of the platen and the operation of the shearing mechanism, substantially as set forth.

19. In a sales recording apparatus, in combination, a series of type blocks, means for assembling selected blocks in operative position, a platen, a cutting or shearing mechanism, means for feeding a record strip between said platen and said selected type blocks,

means for supplying ink to said selected type blocks, devices to guide a sales slip to a position beneath said platen in which its end extends beyond the platen and between the blades of the shearing mechanism, means for causing the contemporaneous descent of the platen and the operation of the shearing mechanism, and a removable receptacle into which the shorn off ends of the slips descend, substantially as set forth.

20. In a sales recording apparatus, in combination, a series of type blocks, means for assembling selected blocks in operative position, a platen, a shearing or cutting mechanism, means for feeding a record strip between said platen and said selected type blocks, means for supplying ink to said selected type blocks, devices to guide a sales slip to a position beneath said platen in which its end extends beyond the platen and between the blades of the shearing mechanism, means for causing the contemporaneous descent of the platen and operation of the shearing mechanism, a removable receptacle into which the shorn off ends of the slips descend, and a plunger or follower which follows said shorn off ends within said receptacle, substantially as set forth.

21. In a sales recording apparatus, in combination, a series of type blocks, means for assembling said blocks in operative position, a platen, a depressing frame for carrying said platen, means for feeding a record strip between said platen and said selected type blocks, means for supplying ink to said blocks, devices to guide a sales slip to a position beneath said platen in which its end extends beyond the platen and between the blades of a shearing mechanism, a shears carrying frame, and means for causing the contemporaneous descent of the depressing frame and the shear-carrying frame, substantially as set forth.

22. In a sales recording apparatus, in combination, a series of type blocks, means for assembling selected type blocks in operative position, a platen, a depressing frame for carrying said platen, means for feeding a record strip between said platen and said selected type blocks, devices to guide a sales slip beneath said platen to a position in which its end extends beyond the platen and over a shearing blade, a shears carrying frame, a shears blade carried by said frame, a follower carried by said shears carrying frame, an operating shaft, and a connection between said operating shaft and said shears carrying frame, whereby in the rotation of said shaft said shears carrying frame is caused to descend, substantially as set forth.

23. In combination, an operating shaft, a depressing frame, one end of said depressing frame being pivotally connected to a permanent fixture and the other end of said frame being connected by a suitable connection to said operating shaft, a shears carrying frame pivotally connected intermediate of its length

to the depressing frame and operatively connected to the operating shaft, and provided at its free end with a shears blade mounted in suitable guide ways, substantially as set forth.

24. In combination, an operating shaft, a depressing frame, one end of said depressing frame being pivotally connected to a permanent fixture and the other end of said frame being connected by a stud or slot connection to said operating shaft, a shears carrying frame pivotally connected intermediate of its length to the depressing frame and pivotally connected in the region of the operating shaft to a sleeve mounted on said operating shaft, and provided at its free end with a shears blade mounted in suitable guide ways, and also provided with a follower loosely suspended from its outer or free end, substantially as set forth.

25. In combination, a fixed shears blade, a vertically movable shears blade, means for supporting a strip of material in slightly inclined position between said blades guides for said movable shears blade, a shears carrying frame to which said movable shears blade is pivotally connected, and a spring which tends to force said movable shears blade laterally toward the fixed shears blade, so that the edges of the meeting shears blades are carried into contact, substantially as set forth.

26. In a sales recording apparatus, in combination, a casing, guides to receive a sales slip, mechanism for cutting off a portion of said slip, a drawer mounted in said casing in the region of the cutting mechanism, the said drawer having no wall at its inner end, and a U-shaped removable skeleton frame mounted in said drawer, said frame being provided with devices for securing itself in place within said drawer, substantially as set forth.

27. In a sales recording apparatus, in combination,—an inking ribbon,—a pair of ribbon reels,—devices for occasioning the rotation of said reels to wind the ribbon upon one and unwind it from the other,—and means, governed by the movement of a weight block caused to tilt alternately in opposite directions through the alteration in size of the ribbon rolls upon the reels, for controlling the operation of the aforementioned devices, and causing them to automatically shift or draw the ribbon alternately in opposite directions, substantially as set forth.

28. In combination, an inking ribbon, a pair of ribbon reels, toothed wheels mounted upon the axles of said reels, a pawl carrying plate, pawls mounted on said plate and adapted to engage respectively one with each of said toothed wheels, each pawl being provided with a tail piece, a hinged weight mounted on the pawl carrying plate and adapted to rest alternately upon the tail pieces of the respective pawls to hold said pawls alternately out of engagement with their toothed wheels, and means for imparting reciprocation

to said pawl carrying plate, substantially as set forth.

29. In combination, an inking ribbon, a pair of ribbon reels, toothed wheels mounted upon the axles of said reels, a pawl carrying plate, pawls mounted on said plate and adapted to engage respectively one with each of said toothed wheels, each pawl being provided with a tail piece, a hinged weight mounted on the pawl carrying plate and adapted to rest alternately upon the tail pieces of the respective pawls to hold said pawls alternately out of engagement with their toothed wheels, means for imparting reciprocation to said pawl carrying plate, and means for automatically shifting said hinged weight from one position to the other, substantially as set forth.

30. In combination, an inking ribbon, a pair of ribbon reels, toothed wheels mounted upon the axles of said reels, a pawl carrying plate, pawls mounted on said plate and adapted to engage respectively one with each of said toothed wheels, each pawl being provided with a tail piece, a hinged weight mounted on the pawl carrying plate and adapted to rest alternately upon the tail pieces of the respective pawls to hold said pawls alternately out of engagement with their toothed wheels, means for imparting reciprocation to said pawl carrying plate, and means controlled by the alteration of the amount of the ribbon upon one of the rolls for automatically shifting the hinged weight from one position to the other, substantially as set forth.

31. In combination, the inking ribbon, a pair of ribbon reels provided with toothed wheels mounted upon their axles, a pawl carrying plate adapted for reciprocation, means for reciprocating said plate, pawls mounted upon said plate and adapted to engage said toothed wheels, said pawls being provided with tails or extensions which when depressed raise them out of engagement with their toothed wheels, a hinged weight adapted to alternately encounter said pawls and throw them out of operation, a pair of deflecting plates operating respectively one against each of the roll portions of the ribbon upon the ribbon rolls and changing their positions constantly as the ribbon rolls increase and decrease, and mechanism through which said deflecting plates occasion the shifting of the hinged weight from one of its positions to the other, substantially as set forth.

32. In a sales recording apparatus, in combination, the inking ribbon, a pair of ribbon reels provided with toothed wheels mounted upon their axles, a pawl carrying plate adapted for reciprocation, means for reciprocating said plate, pawls mounted upon said plate and adapted to engage said toothed wheels, said pawls being provided with tails or extensions which when depressed raise them out of engagement with their toothed wheels, a hinged device adapted to alternately encounter said pawls and throw them out of opera-

tion, a pair of deflecting plates operating respectively one against each of the roll portions of the ribbon upon the ribbon rolls and changing their positions as the ribbon rolls increase and decrease, projections mounted on said 5 hinged weight, a pair of depending shoulder plates mounted upon a vertically reciprocating member of the apparatus, which plates are, as to their lower ends, inclosed by a movable cage plate, and means through which the 10 movement of the deflecting plates is communicated to the cage plate, substantially as set forth.

33. In a sales recording apparatus, in combination, the inking ribbon, a pair of ribbon 15 reels provided with toothed wheels mounted upon their axles, a pawl carrying plate adapted for reciprocation, means for reciprocating said plate, pawls mounted upon said plate 20 and adapted to engage said toothed wheels, said pawls being provided with tails or extensions which, when depressed, raise them out of engagement with their toothed wheels, a hinged device adapted to alternately encounter 25 said pawls and throw them out of opera-

tion, a pair of deflecting plates operating respectively one against each of the roll portions of the ribbon upon the ribbon reels and changing their positions as the ribbon rolls increase and decrease, projections, mounted on said 30 hinged device, a pair of depending shoulder plates mounted upon a vertically reciprocating member of the apparatus which plates are as to their lower ends inclosed by a movable cage plate, projections formed in said cage 35 plate, and fingers connected with said deflecting plates, substantially as set forth.

34. A paper winding roll having a longitudinally extending channel, a clip adapted to be depressed within the channel, a spring 40 mounted in the channel beneath the clip, and means for limiting the outward movement of the clip, substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto signed my name 45 this 9th day of November, A. D. 1896.

FRANKLIN N. BREWER.

In presence of—

GEO. W. CLEMENT,

THOS. K. LANCASTER.