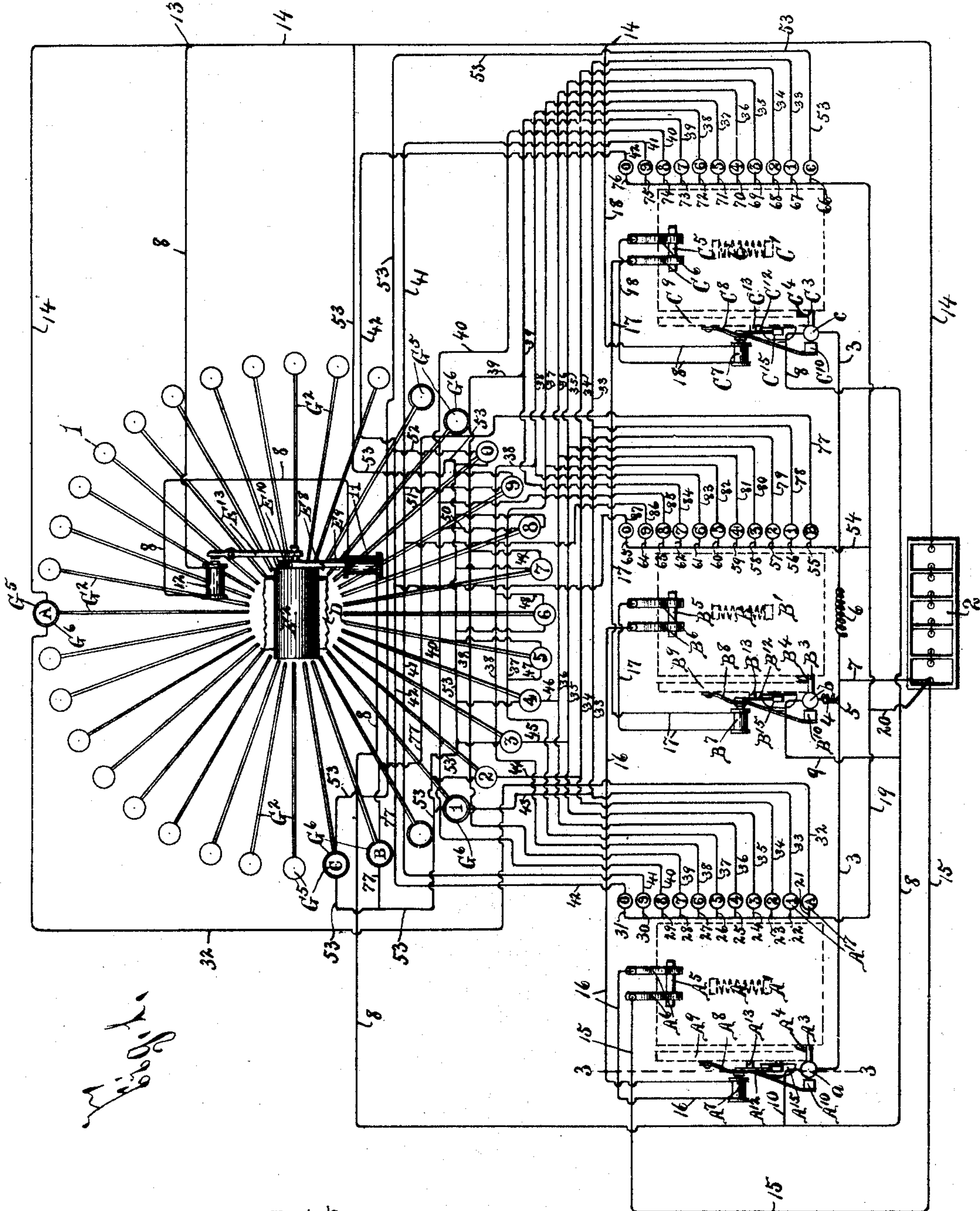
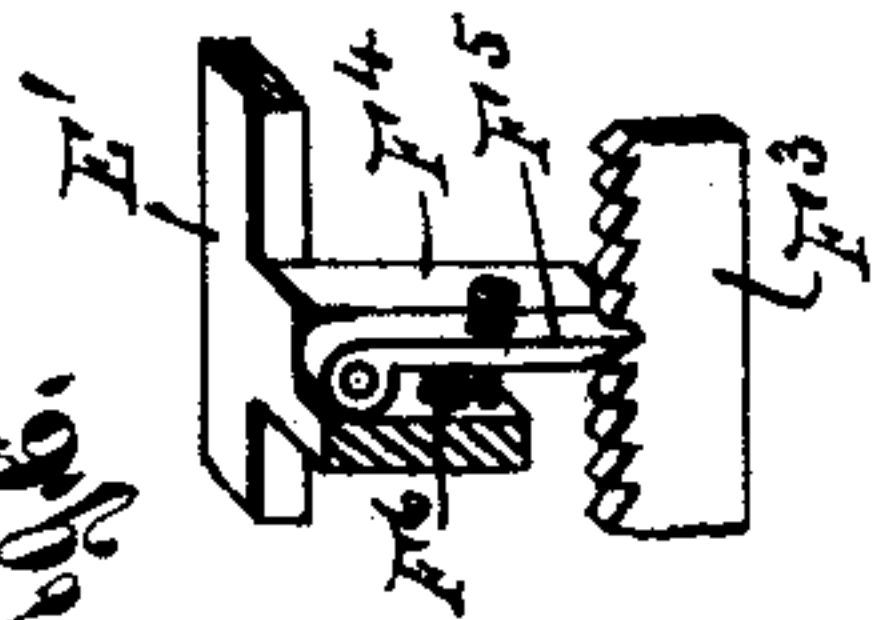


H. K. HESS.  
PRINTING TELEGRAPH FOR CASH RECORDING SYSTEMS.  
No. 505,293. Patented Sept. 19, 1893.



WITNESSES:

*H. Chase*  
*C. Schoenick*



INVENTOR

*Henry K. Hess*

BY

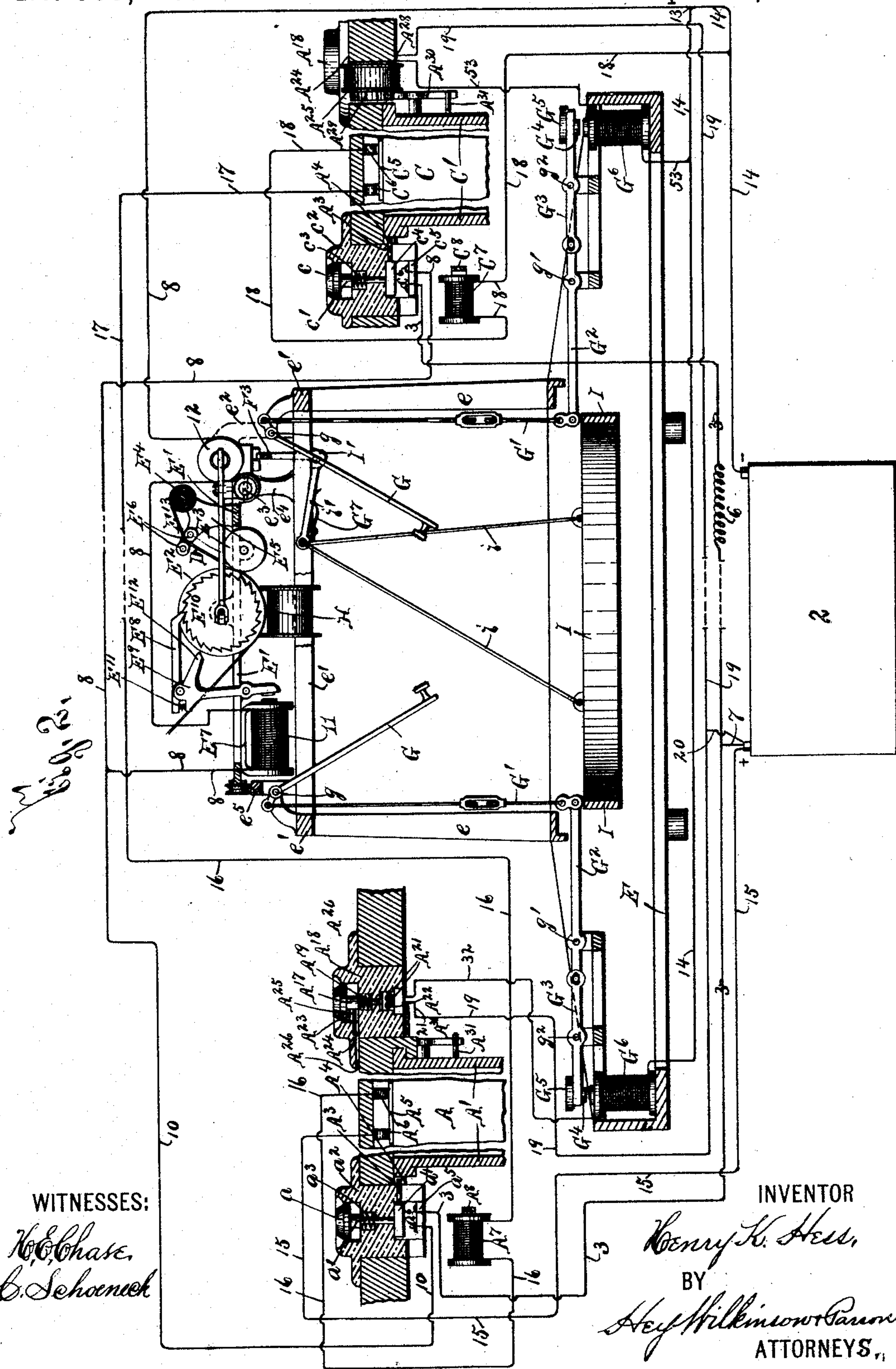
*Hayden & Parsons*  
ATTORNEYS.

H. K. HESS.

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(No Model.)

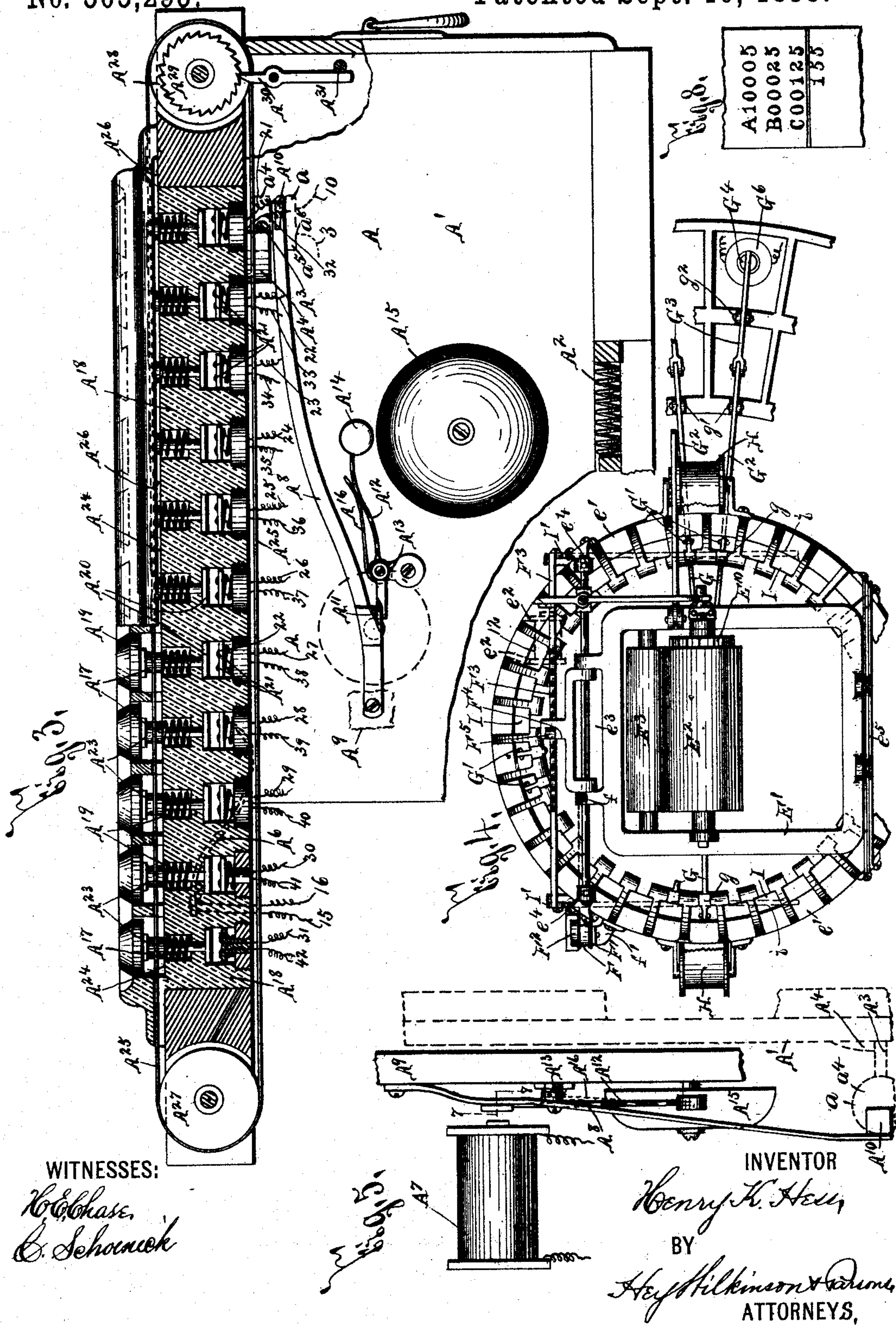
**4 Sheets—Sheet 3.**

H. K. HESS.

## PRINTING TELEGRAPH FOR CASH RECORDING SYSTEMS.

No. 505,293.

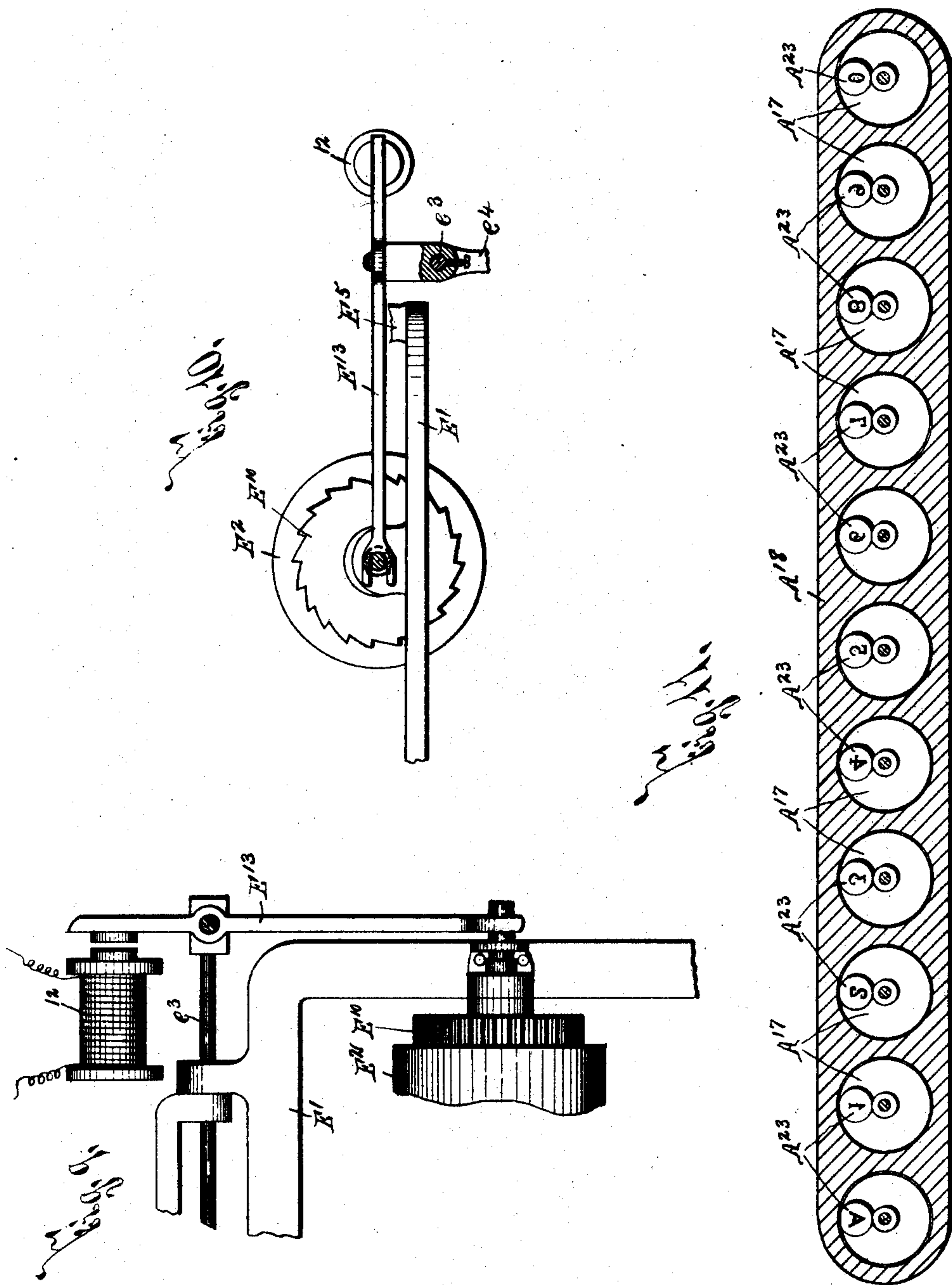
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(No Model.)

4 Sheets—Sheet 4.

H. K. HESS.  
PRINTING TELEGRAPH FOR CASH RECORDING SYSTEMS.  
No. 505,293. Patented Sept. 19, 1893.



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INVENTOR

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Wm. H. Dickinson & Co.  
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# UNITED STATES PATENT OFFICE.

HENRY K. HESS, OF SYRACUSE, NEW YORK.

## PRINTING-TELEGRAPH FOR CASH-RECORDING SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 505,293, dated September 19, 1893.

Application filed September 5, 1892. Serial No. 445,041. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY K. HESS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful  
5 Improvements in Recording Devices, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in  
10 recording devices particularly applicable for use in stores and similar places for producing an efficient and correct record of the number and amount of the sales of each clerk, preventing fraud, providing a check for each  
15 purchaser, giving the distinguishing character of the clerk and the price charged for the commodity purchased, and for enabling the clerks to quickly and readily give to the purchaser the desired amount of change upon  
20 notifying a main office that the cash drawer is being used; and to this end it consists, essentially, in a main or central station, printing mechanism at the main station, a series of branch stations, printing mechanisms at  
25 the branch stations, and electric connections between the printing mechanism at the main station and the similar mechanisms at the branch stations, whereby the printing mechanism at the main station is brought into action by the operation of the printing mechanism at one of the branch stations.

The invention furthermore consists in a distinguishing character, printing mechanism at each branch station connected to the printing mechanism at the main station, push buttons or other mechanism at each of the branch  
35 stations connected to the main station for feeding the record ribbon provided at said station, cash drawers or operating pieces at each of the branch stations adapted to be released by the mechanism for feeding the record ribbon at the main station, and electric  
40 connections between said push buttons and the cash drawers or operating pieces, whereby the push buttons and the remaining drawers or operating pieces are automatically locked when one of the drawers or operating pieces is opened or moved from its normal position.

50 The invention still furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters and figures indicate corresponding parts in all the views.

Figure 1 is a diagrammatic view of a main or central station and three branch stations, illustrating the general construction and arrangement of the parts of my invention. Fig. 2 is an enlarged vertical sectional view, taken through the main station, and the two outer branch stations which are, in this figure, illustrated as on opposite sides of the main station for the purpose of more clearly representing the construction and operation of my invention, although, as shown at Fig. 1, these two branch stations are illustrated as side by side at one side of the main station and as separated by a central branch station. Fig. 3 is an enlarged vertical sectional view, taken on line 3—3, Fig. 1, clearly representing the construction and arrangement of the separated terminals and the superimposed push rods of the printing mechanism at the left hand branch station. Fig. 4 is an enlarged top plan view of the upper portions of the printing mechanism at the main or central station and portions of the operating means for said mechanism. Fig. 5 is a top plan view of the alarm and the insulating stop of one of the branch stations. Fig. 6 is an isometric perspective, partly in section, of a portion of the feeding mechanism for the carriage of the printing mechanism at the main station. Fig. 7 is a vertical sectional view, taken on line 7—7, Fig. 5. Fig. 8 is a portion of the record ribbon of the central station. Figs. 9 and 10 are, respectively, enlarged top plan view and side elevation of the detached record ribbon-carriage and its retracting mechanism; and Fig. 11 is an inverted horizontal sectional view, taken on line 11—11, Fig. 3.

In large stores, owing to the great number of clerks and customers and the great amount of space to be watched and guarded by persons usually termed floor-walkers, there is more or less chance for deceit and fraud.

My invention is designed to produce, at a main or central station, an automatic record of each clerk's sales and to inform the proprietor positively and quickly of the relative



amount and number of sales made by the respective clerks.

My invention is also of such construction that in order to bring about its operation, it is necessary for the clerk, after making a sale, to print upon a strip of paper or other similar material his distinguishing character and the amount of the sale, and when these strips are given to the customers, they form a simple and practical means of security for the customer, a check on the exchange of the goods, and also enable the customer to seek the same clerk a second time when desired.

I also preferably use, in connection with my improved recording device, a series of cash drawers which cannot be opened unless a record is made at the central station, thus enabling the clerk to make change without necessitating undue waiting of the customer, and also, especially in connection with the strip of paper or other material upon which the designating character of the clerk and the amount of the sale are printed, preventing fraud on the part of the clerk.

—1— represents a main or central station, and —A—, —B—, —C—, branch stations in suitable proximity to the central station.

—2— is a battery for generating the electricity used in the operation of my invention, and —3— is an electric conductor or wire having its opposite extremities connected to push buttons —a—c— at the branch stations —A—C— and having its central portion provided with an arm or branch —4— connected to a push button —b— at the station —B—. The branch —4— is formed with a resistance coil —5— of greater resistance than the left hand portion of the wire —3—, and the right hand portion of the wire —3— is formed with a coil —6— of greater resistance than the branch —4— and coil —5—. The central portion of the wire —3— is connected by a branch or arm —7— to the positive pole of the battery —2—.

—8— is a wire having its right hand end connected to the push button —c—, and —9— 10— are branches or arms of said wire having their corresponding ends connected to the push buttons —b— a— and to the wire —8—. The opposite end of the wire —8— is coiled around a pair of magnets —11— and —12— for energizing the same, and is connected at —13— to a negative wire —14— which extends to the negative pole of the battery —2—.

At Fig. 2 I have shown the push buttons —a—c— which are each of similar construction and are composed of plunger rods —a'—c'— movable through insulating supports —a<sup>2</sup>—c<sup>2</sup>—, springs —a<sup>3</sup>—c<sup>3</sup>— encircling the plunger rods —a'—c'—, insulated conducting plates —a<sup>4</sup>—c<sup>4</sup>— at the bases of the plunger rods —a'—c'— and stationary plates —a<sup>5</sup>—c<sup>5</sup>— provided with separated terminals —a<sup>6</sup>—a<sup>6</sup>— and —c<sup>6</sup>—c<sup>6</sup>— arranged beneath the plates —a<sup>4</sup>—c<sup>4</sup>—. The wire —3— is connected at one end to one of the terminals —c<sup>6</sup>— and at the other to the corresponding

terminal —a<sup>6</sup>—. The right hand end of the wire —8— is connected to the other terminal —c<sup>6</sup>— and the branch —10— to the other terminal —a<sup>6</sup>—.

Although the push button —b— is not shown in section, it will be understood that it is of the same construction as the push buttons —a—c— and that the adjacent ends of the branch wires —4— and —9— are connected to the separated terminals of said push button.

Upon reference to the foregoing, it will be noted that the battery —2—, the wire —3— and its branches —4— and —7—, the wire —8— and its branches —9— and —10—, the magnets or relays —11— and —12— and the end of the negative wire —14— form an electric circuit which is normally open owing to the elevation of the conducting plates upon the plunger rods of the push buttons —a—b— and —c— above the separated terminals of said push buttons, and is closed whenever one of said conducting plates is in contact with the underlying terminals. To illustrate: Suppose the plunger rod —a'— of the push button —a— is depressed. The current passes through the branch —7—, wire —3—, right hand terminal —a<sup>6</sup>—, conducting plate —a<sup>4</sup>—, left-hand terminal —a<sup>6</sup>—, branch —10—, wire —8—, magnets —11—12—, and the wire —14— to the battery —2—. On the contrary, if the plunger rod of the push button —b— is depressed, the current flows from the wire —3—, through the branch —4—, the push button —b—, the branch —9—, wire —8—, magnets —11— and —12—, and wire —14—, and if the plunger rod —c'— of the push button —c— is depressed, the current passes from the wire —3—, push button —c—, wire —8—, magnets —11—12—, and wire —14— to the battery —2—. The magnets —11—12— are connected to operate the mechanism at the central or main station for feeding the record ribbon —D— provided at said station.

—E— represents the frame for the printing mechanism at the station —1—, and at Fig. 2, where best illustrated, this frame is shown as unsupported, but it will be evident that it may be placed upon a suitable shelf, table or other support.

Extending upwardly above the frame —E— are standards —e—e— and mounted thereon is a ring shaped table —e'—. Extending upwardly above this table —e'— is the support —e<sup>2</sup>— for the magnet —12—.

—E'— is a movable carriage having one end hinged upon a rod —e<sup>3</sup>— mounted in supports —e<sup>4</sup>—, and the other end movable along the top of a rib —e<sup>5</sup>— projecting from the table —e'—.

—E<sup>2</sup>— is a roller platen journaled in the carriage —E'— and —E<sup>3</sup>— is a friction roller of smaller diameter journaled in the carriage —E'— in advance of the roller —E<sup>2</sup>—.

The record ribbon —D— is mounted upon a suitable support, as a roller —E<sup>4</sup>— which is journaled in a bracket —E<sup>5</sup>— mounted on the carriage —E'—, and its end is passed down-



wardly beneath the roller —E<sup>2</sup>— and then upwardly between the rollers —E<sup>2</sup>—E<sup>3</sup>—. The ribbon —D— is additionally supported by two rollers —E<sup>6</sup>—E<sup>6</sup>— journaled in the bracket —E<sup>5</sup>— and interposed between the rollers —E<sup>2</sup>—E<sup>4</sup>—.

I have not herein shown a support for the right hand end of the record ribbon fed from the platen roller —E<sup>2</sup>—, but it will be evident that the same may be automatically wound upon a roller if desired, or may be fed to a suitable pocket or receptacle not necessary to herein illustrate or describe.

The magnet —11— is supported in a bracket —E<sup>7</sup>— depending from the carriage —E'— and movable therewith.

—E<sup>8</sup>— is an actuating dog having one end pivoted to a lever —E<sup>9</sup>— and the other adapted to engage a ratchet wheel —E<sup>10</sup>— on the roller —E<sup>2</sup>—. A suitable spring —E<sup>11</sup>— forces the dog —E<sup>8</sup>— into operative position, and the lever —E<sup>9</sup>— is formed at one end with a stop arm —E<sup>12</sup>— for engaging the ratchet wheel —E<sup>10</sup>—, and at the other with an armature adapted to be drawn toward the pole piece of the magnet —11— as the same is energized and thus rock the upper end of the lever —E<sup>9</sup>— toward the roller —E<sup>2</sup>— and cause the dog —E<sup>8</sup>— to partially rotate said roller for feeding the ribbon —D— lengthwise.

—E<sup>13</sup>— is a lever having one end hinged to the spindle of the roller —E<sup>2</sup>— and the other provided with an armature adapted to be drawn toward the pole piece of the magnet —12— as the same is energized, thus drawing the carriage —E'— to its normal position at the same time that the magnet —11—, when energized, partially rotates the roller platen —E<sup>2</sup>— and feeds the ribbon —D— lengthwise.

A suitable tape or flexible connection —F— is secured at one end by screws —f— to the carriage —E'— and at the other to a drum —F'— journaled in an arm —f'— mounted on the table —e'— and a suitable coiled spring —F<sup>2</sup>— secured to said drum normally draws the carriage —E'— toward the left hand out of its normal position.

Beneath the carriage —E'— is a rack —F<sup>3</sup>— which is slightly rocked to and fro through the medium of the printing mechanism presently described, into alternate engagement with a stationary dog —F<sup>4</sup>— and a spring actuated dog —F<sup>5</sup>—, for permitting the spring —F<sup>2</sup>— to draw the carriage —E'— laterally. This mechanism for feeding the record ribbon has been but briefly described, as it may be greatly varied without departing from the spirit of my invention, which I do not limit to any particular form of mechanism for feeding the record ribbon as the magnets —11— and —12— are energized.

From the foregoing it will be readily understood that when one of the plunger rods of the push buttons —a—b—c— is depressed, the electric current from the battery —2—

energizes the magnets —11— and —12—; the carriage at the main station —1— for the record ribbon —D— is drawn backwardly to its normal position, thus feeding the record ribbon laterally; and simultaneously the platen roller is partially revolved, thus feeding the ribbon lengthwise.

I preferably provide the stations —A—B—C— with cash drawers or other operating pieces —A'—B'—C'— of any suitable construction to facilitate the expeditious making of change by the clerk. Springs —A<sup>2</sup>—B<sup>2</sup>—C<sup>2</sup>— tend normally to force outward the respective drawers or operating pieces A'—B'—C', but are restrained by suitable locks —A<sup>3</sup>—B<sup>3</sup>—C<sup>3</sup>— which engage shoulders —A<sup>4</sup>—B<sup>4</sup>—C<sup>4</sup>— upon the adjacent sides of the drawers or operating pieces —A'—B'—C'—. The locks —A<sup>3</sup>—B<sup>3</sup>—C<sup>3</sup>— consist of laterally extending arms carried by the plunger rods of the push buttons —a—b—c— and as at Fig. 1 I have illustrated the push buttons —a—c— in vertical section, the locks —A<sup>3</sup>—C<sup>3</sup>— are clearly shown. As the plunger rod carrying any one of these locks is depressed, the same is forced out of engagement with the corresponding shoulder upon the cash drawer or operating piece, and the spring engaging said cash drawer or operating piece immediately forces the same outward and the clerk is free to make the desired change. It will be understood, however, that said locks and interlocking shoulders are so relatively proportioned and arranged with reference to the movement of the plunger rods of the push buttons that the shoulder on any one of the drawers or operating pieces is not released from engagement with the corresponding lock until the plunger rod of the push button at the station provided with said drawer or operating piece is forced downwardly a sufficient distance to make contact with the terminals underlying the conducting plate carried by said plunger rod. Consequently, when one of the drawers or operating pieces is opened or moved from its normal position, the record ribbon is fed lengthwise, as previously described, and unless the clerk makes an entry of the sales price of the purchase, a blank space is left upon the ribbon by its next movement, and the employer is at once aware of the discrepancy.

—A<sup>5</sup>—B<sup>5</sup>—C<sup>5</sup>— are conducting bars or plates at the rear end of each drawer or operating piece —A'—B'—C'—, and —A<sup>6</sup>—A<sup>6</sup>—, —B<sup>6</sup>—B<sup>6</sup>—, —C<sup>6</sup>—C<sup>6</sup>— are separated stationary terminals suitably supported at their rear extremities and adapted to engage the opposite ends of the bars or plates —A<sup>5</sup>—B<sup>5</sup>—C<sup>5</sup>—.

—15— is a wire extending from the positive pole of the battery —2— to the rear extremity of the left hand terminal —A<sup>6</sup>—, and —16— is a wire having one end connected to the rear extremity of the right hand terminal —A<sup>6</sup>— and the other to the corresponding end of the left hand terminal —B<sup>6</sup>—.



—17— and —18— are wires having corresponding ends connected respectively to the rear ends of the right hand terminals —B<sup>6</sup>—C<sup>6</sup>— and their other ends connected respectively to the rear end of the left hand terminal —C<sup>6</sup>— to the negative wire —14—.

—A<sup>7</sup>—B<sup>7</sup>—C<sup>7</sup>— are magnets or relays connected respectively to the wires —16—17— and —18— and arranged at the stations —A—B—C— in proximity to the drawers or operating pieces —A'—B'—C'—.

When the cash drawers at the stations —A—B—C— are in their normal closed position, the current is closed through the wire —15—, left hand terminal —A<sup>6</sup>—, conducting bar or plate —A<sup>5</sup>—, right hand terminal —A<sup>6</sup>—, magnet —A<sup>7</sup>—, and wire —16— and thence through the like parts of the stations —B—C— to the wire —14—. These parts form a closed circuit and when one of the drawers or operating pieces is open, or moved from its normal position, the circuit is broken by the disengagement from the terminals at the rear of said drawer or operating piece of the conducting bar or plate carried by said drawer or operating piece.

—A<sup>8</sup>—B<sup>8</sup>—C<sup>8</sup>— are spring levers provided with armatures normally in engagement with the magnets —A<sup>7</sup>—B<sup>7</sup>—C<sup>7</sup>— and having corresponding ends secured to suitable supports —A<sup>9</sup>—B<sup>9</sup>—C<sup>9</sup>— at corresponding sides of the respective drawers or operating pieces —A'—B'—C'— and having their other ends provided with insulating stop plates —A<sup>10</sup>—B<sup>10</sup>—C<sup>10</sup>—. When one of the drawers or operating pieces is opened or moved from its normal position by depressing one of the push buttons —a—, —b—, —c— the magnets —A<sup>7</sup>—B<sup>7</sup>—C<sup>7</sup>— lose their power as the current is broken, and the levers —A<sup>8</sup>—B<sup>8</sup>—C<sup>8</sup>— automatically spring toward the drawers or operating pieces —A'—B'—C'— of the stations A. B. C and carry said insulating stop plates A<sup>10</sup>, B<sup>10</sup>, C<sup>10</sup> between the plunger rods of the push buttons —a—, —b— and —c— at said stations, and the conducting plates, secured to the lower ends of said plunger rods for making contact with the separated terminals directly beneath said conducting plates, it being understood that the insulating stop plate of the station at which the drawer or operating piece is open or moved from its normal position is restrained from passing beneath the conducting plate secured to the base of the plunger rod of the push button of said station until the operator relieves said push button from pressure and allows its spring to force it upward.

As seen at Figs. 3 and 7, the lever —A<sup>8</sup>— is formed with an arm —A<sup>11</sup>— having the opposite sides of its lower edge beveled and adapted to engage and depress the rear end of a hammer carrying lever —A<sup>12</sup>— pivoted to a suitable arm —A<sup>13</sup>— on the support —A<sup>9</sup>— and engaged by a spring —A<sup>16</sup>— for forcing said lever —A<sup>12</sup>— against the bell or vibrating hol-

low shell —A<sup>15</sup>—. As the spring lever —A<sup>8</sup>— moves toward and away from the magnet —A<sup>7</sup>— upon the opening and closing of the circuit through said magnet, the rear end of the hammer carrying lever —A<sup>12</sup>— is free to raise along the beveled sides of the lower edge of the arm —A<sup>12</sup>—, whereupon the spring —A<sup>16</sup>— forces said lever into engagement with the bell and alarms the operator. The right hand side of the lower edge of the arm —A<sup>11</sup>— is beveled more than the opposite side in order that the hammer may strike more vigorously as the lever —A<sup>8</sup>— is brought to its normal position when the current energizes the magnet —A<sup>7</sup>—, thus distinguishing between the signal used when the circuit is open and the push button plunger rod is free to move, and that used when the circuit is closed and said plunger rod is locked from operation. The stations —B—C— are also provided with bells —B<sup>15</sup>—C<sup>15</sup>— adapted to be brought into operation by the movement of the respective levers —B<sup>8</sup>—C<sup>8</sup>—, but it is unnecessary to herein illustrate and fully describe said bells and the mechanism for operating the same, as the circuit is opened and closed, since said parts are of similar construction and operation to the parts of the corresponding mechanism of the station —A—. It will now be readily understood that when the drawer or operating piece of one of the stations is open or moved from its normal position, the push buttons of the other stations for moving the cash drawers or operating pieces of said stations are prevented from movement, and consequently, as the clerk first operates the push buttons to move his drawer or operating piece and lock the plunger rods of the other stations before using the printing mechanisms, presently described, at these stations, he is effectively prevented, when his push button cannot be opened, from using his printing mechanism. As soon, however, as the circuit is open for permitting the operation of his push button, the alarm at his station is rung.

In some cases, it is not deemed advisable to use separate cash drawers, and it will be understood that, without departing from the spirit of my invention, any other suitable operating piece as a movable block or plate may be used instead of a drawer to inform the clerks when another is using my improved recording apparatus.

Each of the branch stations is provided with suitable printing mechanism, consisting, preferably, of movable push buttons electrically connected to printing mechanism at the central or main station, whereby, when the printing mechanism of one of the branch stations is operated, that of the main station is also brought into action. As here illustrated, these separate printing mechanisms are so constructed that the printing mechanism at the main station duplicates the impression made at the branch station, and I have here



illustrated, and will proceed to describe, a very simple form of such mechanism.

The push buttons at each branch station are arranged in a series at the right hand of the cash drawers or operating pieces, and one push button is used to represent the particular distinguishing character for said station, nine to represent the digits, and one the cipher.

- 10 At Fig. 3 I have shown, in cross section, the push buttons of the station —A—, and it will be noted that these buttons are all of similar construction to the push buttons —a—b—c— and consist, essentially, of plunger rods —A<sup>17</sup>— movable in an insulating support —A<sup>18</sup>—, springs —A<sup>19</sup>— for forcing the plunger rods upwardly, insulated conducting plates —A<sup>20</sup>—, and separated terminals —A<sup>21</sup>— carried by supporting plates —A<sup>22</sup>—.
- 15 The plunger bars are provided with type or impression plates —A<sup>23</sup>— mounted above a horizontal face —A<sup>24</sup>— of the support —A<sup>18</sup>— and interposed between said impression plates and the face —A<sup>24</sup>— is an inking ribbon —A<sup>25</sup>—. In the side of the support —A<sup>18</sup>— is a slot —A<sup>26</sup>— extending beneath the plunger rods for receiving one of a number of strips of card board or other suitable material with which each branch station is
- 20 provided.

- 25 The plunger rods —A<sup>17</sup>— are provided on their top faces with characters corresponding to those of the impression plates —A<sup>23</sup>— mounted on said plunger rods and the clerk, after inserting the strip of card board in the slot —A<sup>26</sup>—, moves the same into alignment with the proper plunger, forces the same downwardly until the impression plate thereon impinges the inking ribbon against the card and makes the desired impression. The clerk then moves the card lengthwise in the slot —A<sup>26</sup>— until the second desired plunger rod is reached, then depresses this plunger rod and makes a second impression on the
- 30 strip of card board and depresses any of the other plunger rods in like manner. The strip of card board or paper is then handed to the purchaser and contains, first, the distinguishing character of the station, as —A—, and
- 35 second, the numerals which represent the amount of the purchase.

- 40 The printing mechanisms of each of the stations are identical and consequently, I have not deemed it necessary to illustrate said mechanisms in section in the same manner as the printing mechanism of the station —A— is illustrated at Fig. 3.

- 45 The printing mechanism at the central station may be of any desirable form, size and construction, but is here illustrated as consisting of levers —G— hinged at —g— to the table —e'— and provided with type for imprinting the same characters as the impression plates of the branch stations, links —G'— connected to the levers —G—, levers —G<sup>2</sup>—
- 50 formed with upwardly extending arms connected to the links —G'—, and levers —G<sup>3</sup>—

pivoted at —g<sup>2</sup>— to the frame —E— and loosely hinged at one end to the levers —G<sup>2</sup>— and provided at their opposite ends with armatures —G<sup>4</sup>— and with index plates —G<sup>5</sup>—. Suitable magnets —G<sup>6</sup>— draw the armatures downwardly and through the medium of the levers —G<sup>3</sup>—G<sup>2</sup>— and the links —G'— force the type carrying levers —G— upwardly against an inking ribbon —H— which is supported directly beneath the platen roller —E<sup>2</sup>—. These type carrying levers, their actuating links —G'—, the levers —G<sup>2</sup>—G<sup>3</sup>— and the magnets —G<sup>6</sup>— are arranged in a circle upon the frame —E—, as best seen at Fig. 1. A wire —19— is connected by a branch —20— with the positive pole of the battery —2— and is formed with branches —21—22—23—24—25—26—27—28—29—30—31— leading respectively, to the adjacent terminals of the push buttons —A—1—2—3—4—5—6—7—8—9—0— of the branch station —A—. Wires —32—33—34—35—36—37—38—39—40—41—42— extend from the opposite terminals of the push buttons —A—1—2—3—4—5—6—7—8—9—0— of the station —A— to the magnets —G<sup>6</sup>— beneath the levers —G<sup>3</sup>— connected to the levers —G— which carry type corresponding to the type or impression plates carried by the plunger rods of said push buttons.

For the purpose of clearly elucidating the operation of my invention, I have shown the index plate —G<sup>5</sup>— of the lever —G<sup>3</sup>— for operating the lever —G— carrying the letter —A—, at the top of Fig. 1, and it will be readily noted that the wire —32— passes around the magnet beneath said plate —G<sup>5</sup>— and is then connected to the negative wire —14—. Consequently, as the plunger bar of the push button —A— of the station —A— is depressed, the circuit is closed through the wire —19—, push button —A—, wire —32—, magnet —G<sup>6</sup>— for operating the lever —G— carrying the type for printing the letter —A—, and the wire —14—.

As will be presently described, the wires —33—34—35—36—37—38—39—40—41—42— are connected to the printing mechanisms of the remaining branch stations —B—C— but it will be noted, upon reference to Fig. 1, that branches —43—44—45—46—47—48—49—50—51—52— extend, respectively, from the portions of the wires —33—34—35—36—37—38—39—40—41—42— connected to the printing mechanism or push buttons of the branch station —A— to a wire —53—, which, as presently described, extends from the station —C— to the magnet at the central station for operating the lever —G— carrying the type for printing the letter —C— upon the ribbon —D—, and thence to the negative wire —14—. Connected, respectively, to these various branches —43—44—45—46—47—48—49—50—51—52— are the magnets —G<sup>6</sup>— connected to operate the levers —G— carrying type corresponding to the impression plates of the plunger rods con-



needed to said branches. Consequently, if the plunger rod of the push button —1— is depressed, the current passes from the battery —2— through the wire —19—, branch —22—, push button —1—, wire —33—, branch —43—, magnet  $G^6$ —, beneath the index plate —1—, and wire —53— to the negative wire —14— of the battery —2—, and said magnet — $G^6$ — becomes energized and operates the type bar carrying the numeral —1— so as to print the same upon the ribbon —D—. Without following separately the circuits from each one of the remaining push buttons —2—3—4—5—6—7—8—9—0—, it will be readily understood that, in like manner, as a particular push button is depressed, the electric circuit is closed and a character corresponding to that of the plunger rod is printed upon the record ribbon.

As clearly seen at Fig. 2, the inner ends of the levers — $G^2$ — rest upon a movable ring —I— which is connected by bars — $i-i'$ — to the arm — $i'$ — of a lever —I'— which carries the rack — $F^3$ — previously mentioned. This rack — $F^3$ — is normally in engagement with the dog — $F^5$ —, and the spring — $F^2$ — for drawing the ribbon carriage —E'— laterally normally compresses the spring — $F^6$ — bearing against said dog. As the rack — $F^3$ — is rocked laterally into engagement with the stationary dog — $F^4$ —, the spring — $F^6$ — throws the dog — $F^5$ — toward the left hand of the carriage and when the rack is retracted into engagement with said dog — $F^5$ — it engages the tooth at the right hand of the one previously engaged and the carriage is drawn slightly toward the left hand by the spring — $F^2$ —. As each lever — $G^2$ — is operated to cause the type lever connected thereto to print upon the ribbon —D—, the rack — $F^3$ — is moved from the movable dog — $F^5$ — to the stationary dog — $F^4$ — and on the return movement of the lever — $G^2$ — is automatically retracted into engagement with the movable dog — $F^5$ — by a spring — $G^7$ — bearing against said lever — $g'$ — thus laterally feeding the record ribbon. It will thus be noted that as the plunger rods of the printing mechanism of one of the branch stations are operated, as described, to print the required characters upon the record ribbon, these characters are arranged side by side thereon.

As previously described, the record ribbon is fed lengthwise every time one of the push buttons — $a-b$ — or — $c$ — is operated, and consequently, the characters printed upon the record ribbon through the medium of the printing mechanism at the stations —A—B—C— are arranged one in advance of the other.

In order that the entire amount or sum total of the numerals on the record ribbon may be readily ascertained and easily computed, the clerks are informed of the maximum number of columns to be used in printing upon said ribbon. Upon the portion of the record ribbon shown at Fig. 8, it will be noted that only five columns of figures are used, namely,

units, tens, hundreds, thousands, and tens of thousands. Consequently, if a sale is made requiring less figures for its indication than tens of thousands, the operator prints a sufficient number of ciphers in advance of the numerals to make five characters side by side in addition to his distinguishing character, and by this method the units, tens, &c., are arranged in columns one in advance of the other. To illustrate: Suppose the clerk at station —A— has made a sale amounting to five cents. He depresses the plunger rod of the push button — $a$ —, as previously described. The drawer or operating piece —A'— is immediately opened or moved from its normal position, locking from operation all the cash drawers releasing plungers of the remaining stations and informing the clerks at such stations that the sales recorder is in use. The clerk then depresses the plunger rod of the push button —A—, thus printing his distinguishing character upon the record ribbon. He then depresses the plunger rod of the push button —0— a sufficient number of times to print the required number of ciphers upon the record ribbon and then depresses the plunger rod of the push button —5— and prints a 5 in the unit column.

The printing mechanisms of the stations —B—C— are of similar construction to the printing mechanism just described of the station —A—, and as clearly shown at Fig. 1, a branch wire —54—, extends from the wire —19— and is provided with branches —55—56—57—58—59—60—61—62—63—64—65— extending respectively from the branch —54— to the corresponding terminals of the push buttons —B—1—2—3—4—5—6—7—8—9—0— of the station —B—. The right hand end of the wire —19— is formed with similar branches —66—67—68—69—70—71—72—73—74—75—76— extending to the corresponding terminals of the push buttons —C—1—2—3—4—5—6—7—8—9—0— of the station —C—. Consequently, the printing mechanisms of all three stations —A—B—C— are connected to the wire —19—. The opposite terminal, not illustrated, of the push button —B— is connected by a wire —77— to the wire —53—, and is also connected to the magnet directly beneath the index plate lettered —B— at Fig. 1, and connected to the lever —G— printing —B— upon the record ribbon. The opposite corresponding terminals of the push buttons —1—2—3—4—5—6—7—8—9—0— of the stations —B— are connected, respectively, by branches —78—79—80—81—82—83—84—85—86—87— to the wires —33—34—35—36—37—38—39—40—41—42—, and through the medium of the branches —43—44—45—46—47—48—49—50—51—52— are connected to the magnets — $G^6$ — for operating the corresponding type levers and imprinting upon the record ribbon characters similar to those imprinted by the push buttons of the printing mechanism of the station —B—. The



opposite terminal of the push button —C— of the station —C— is connected by the wire —53— to the magnet connected to operate the type carrying lever —G— adapted to print —C— upon the record ribbon, and is also connected by said wire—53— to the negative wire —14—. The opposite ends of the wires —33—34—35—36—37—38—39—40—41—42— are connected, respectively, to the corresponding terminals of the push buttons —1—2—3—4—5—6—7—8—9—0— of the printing mechanism of the station —C—, and as previously stated, these wires are connected to type-carrying levers of the printing mechanism of the main or central station —1— carrying type corresponding to the type carried by said push buttons. It will be evident, that, as many branch stations as may be desired are connected to the central station in the same manner as the stations —A—B—C— just described, and I have, at Fig. 1, indicated a number of separate type levers and their actuating mechanisms to which said stations may be connected.

To further illustrate the operation of my invention, it may be supposed that the clerk at station —B— has made a sale amounting to twenty-five cents. Immediately upon being warned that the clerk at the station—A— is through with the recording mechanism, he operates the push button —b— and feeds the record ribbon lengthwise the required distance. He then depresses the plunger rod of the push button —B— and prints his distinguishing character beneath the character —A—; and then he depresses the plunger rod of the push button —0— three times and immediately depresses the plunger rods of the push buttons —2— and —5—, whereupon —2— is printed in the tens column and —5— in the units column. It may also be supposed that the clerk at station —C— has made a sale amounting to one dollar and twenty-five cents. Upon being notified by the alarm that my recording device may be used, this clerk at station —C— opens or moves from its normal position his drawer or operating piece, and feeds the record ribbon by operating the push button —C—. He depresses the plunger rod of the button —C— twice, and then depresses the plunger rods of the push buttons —1—2—5—, whereupon the numeral —1— is printed in the hundreds column, —2— in the tens and —5— in the units column. If these records are the total amount of these clerks' sales for a single day, the operator at the main station draws a line beneath the characters printed on the record ribbon —D— and adds the numerals together, thus ascertaining that the total amount of sales has been one dollar and fifty-five cents, and the operator is instantly informed what each clerk has sold.

In order that the inking ribbon —A<sup>25</sup>— may be constantly fed forward, I mount the same upon an idler —A<sup>27</sup>— and an actuating drum —A<sup>28</sup>—. A ratchet wheel —A<sup>29</sup>— is mounted on the drum —A<sup>28</sup>— and is engaged by a piv-

oted lever —A<sup>30</sup>— upon the drawer —A'—. The upper end of the lever engages one of the teeth of the ratchet wheel and its lower end is restrained from forward movement by a suitable stop —A<sup>31</sup>—. As the drawer or operating piece —A'— is forced outward or moved from its normal position by the spring —A<sup>2</sup>—, the ratchet wheel is partially rotated, and when the drawer is returned to its normal position, the lower end of the lever —A<sup>30</sup>— is free to swing inwardly to permit the upper end to swing into engagement with the ratchet wheel —A<sup>29</sup>— without rotating the same.

The operation of my invention will be readily understood from the foregoing description and upon reference to the accompanying drawings, and it will be particularly noted, that the same is simple in construction, and arrangement, and is practical and efficient; that in order to operate the device it becomes necessary to print the amount of the sale upon a strip of card board or paper which may then be handed to the customer as a preventive of fraud, and as a means of identification of the clerk; that the amount of each sale is printed upon a record ribbon thus informing the operator at the central station of the clerk making the sale, the amount of his sale, and enabling the operator to readily foot the sum total of sales; and that the great delay in making change now usual in crowded stores is entirely obviated when the operating piece consists of a drawer, since each clerk is then provided with a separate cash drawer which is opened by a movable engaging piece connected to simultaneously move the record ribbon lengthwise and give notice at the central station of the opening of a cash drawer, and connected also to simultaneously warn the clerks at the remaining stations provided with such cash drawers, not to use their printing mechanism. It will be evident, however, that my recording device is not limited to the detail construction and arrangement of the parts herein described, and that such parts may be considerably changed without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a record ribbon, mechanism for feeding the ribbon, a series of independently movable drawers or operating pieces, and connections between the ribbon feeding mechanism and said operating pieces, whereby one of said drawers and the feeding mechanism move simultaneously, substantially as and for the purpose set forth.

2. The combination of a record ribbon, mechanism for feeding the ribbon, a series of independently movable drawers or operating pieces, connections between the ribbon feeding mechanism and the operating pieces for bringing said mechanism into action, locks for preventing the movement of the operating pieces and movable engaging pieces for



moving said lock from operative position and bringing said connections into action, substantially as and for the purpose specified.

3. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, and an electric circuit substantially as described connected, substantially as described, to said magnet and operating piece, whereby the magnet brings said mechanism into action as the operating piece is moved, substantially as and for the purpose set forth.

4. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an electric circuit connected, substantially as described, to said magnet and operating piece, whereby the magnet brings said mechanism into action as the operating piece is moved, a lock substantially as described for preventing the movement of the operating piece, and a movable engaging piece for forcing said lock out of operative position, substantially as and for the purpose set forth.

5. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an electric circuit connected, substantially as described, to the magnet and operating piece, and an engaging piece movable conjointly with the operating piece and connected to said circuit, substantially as described, whereby the magnet brings the feeding mechanism into action with the movement of the engaging piece, substantially as and for the purpose set forth.

6. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an electric circuit connected, substantially as described, to the magnet and operating piece, a lock substantially as described for preventing the movement of the operating piece, and an actuating piece movable conjointly with the operating piece and connected, substantially as described, to said circuit and to the lock, whereby the lock is forced out of operative position and the magnet brings the feeding mechanism into action with the movement of the engaging piece, substantially as and for the purpose specified.

7. The combination of a record ribbon, mechanism for feeding the said ribbon lengthwise, mechanism for feeding the ribbon laterally, a drawer or operating piece, and connections, substantially as described, between said mechanisms and operating piece, whereby said mechanisms and the operating piece move simultaneously, substantially as and for the purpose set forth.

8. The combination of a record ribbon, mechanism for feeding said ribbon lengthwise, mechanism for feeding said ribbon laterally, a magnet connected to the former

mechanism and movable conjointly with the ribbon, a second magnet connected to the latter mechanism, a drawer or operating piece, and an electric circuit between said magnets and operating piece, whereby the magnets bring said mechanisms into action as the operating piece is moved, substantially as and for the purpose specified.

9. The combination of a frame, a carriage movable on the frame, a record ribbon mounted on the carriage, mechanism for feeding the ribbon lengthwise, mounted on the carriage, mechanism for feeding the ribbon laterally, mounted on the frame, a magnet mounted on the carriage for actuating the mechanism for feeding the ribbon lengthwise, a second magnet for actuating the mechanism for feeding the ribbon laterally, a drawer or operating piece, and an electric circuit between said magnets and operating piece, whereby the magnets bring said mechanisms into action as the operating piece is moved, substantially as and for the purpose set forth.

10. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an open electric circuit connected to said magnet, and connections between said operating piece and circuit for releasing the operating piece and closing the circuit, substantially as and for the purpose specified.

11. The combination of a record ribbon, mechanism for feeding the ribbon, a series of independently movable drawers or operating pieces, an electric generator, and electric conductors between the feeding mechanism and the generator, connected to said operating pieces, whereby the feeding mechanism is brought into action as one of the operating pieces moves outward, substantially as and for the purpose set forth.

12. The combination of a record ribbon, mechanism for feeding the ribbon, a series of independently movable drawers or operating pieces, locks for preventing said operating pieces from movement, an electric generator, electric conductors between the feeding mechanism and the generator, and movable engaging pieces connected to said locks and to the electric conductors for bringing said feeding mechanism into action and releasing said operating pieces, substantially as and for the purpose specified.

13. The combination of a record ribbon, mechanism for feeding said ribbon lengthwise, mechanism for feeding the ribbon laterally, a series of drawers or operating pieces, an electric generator, and electric conductors between the feeding mechanism and the generator, connected to said operating pieces, whereby the feeding mechanisms are brought into action as one of said operating pieces moves outward, substantially as and for the purpose set forth.

14. The combination of a record ribbon, mechanism for feeding the ribbon, a series of



independently movable drawers or operating pieces, and connections between the ribbon feeding mechanism and said operating pieces, whereby the feeding mechanism and one of

5 said operating pieces move simultaneously, and alarms connected to said operating pieces, whereby the movement of one of the operating pieces actuates the alarms of the other, substantially as and for the purpose set forth.

10 15. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an electric circuit connected, substantially as described, to said

15 magnet and operating piece, whereby said mechanism is brought into action as the operating piece is moved, and an alarm connected to said circuit and adapted to be brought into action upon the movement of

20 the operating piece, substantially as and for the purpose specified.

16. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a

25 drawer or operating piece, an electric circuit connected, substantially as described, to said magnet and operating piece, whereby said mechanism is brought into action by the magnet as the operating piece is moved, a lock

30 for preventing the movement of the operating piece, a movable engaging piece for forcing said lock out of operative position, and an alarm connected to said circuit and adapted to be brought into action by the movement

35 of the engaging piece, substantially as and for the purpose set forth.

17. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a

40 drawer or operating piece an open electric circuit connected to said magnet, a normally inactive alarm connected to said open circuit and adapted to be brought into action by the closing of the circuit, and connections between said operating piece and circuit for releasing the drawer and closing the circuit, substantially as and for the purpose set forth.

45 18. The combination of a record ribbon, mechanism for feeding the ribbon, a drawer or operating piece, connections between the operating piece and the ribbon feeding mechanism for bringing said mechanism into action, a lock for preventing the movement of the operating piece, a movable engaging piece

50 for bringing said connections into action and moving said lock from operative position, and a stop for preventing movement of the engaging piece, substantially as and for the purpose specified.

55 19. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a drawer or operating piece, an electric circuit connected, substantially as described, to said

60 magnet and operating piece, whereby the magnet brings said mechanism into action as the operating piece is moved, a lock for pre-

venting the movement of the operating piece, a movable engaging piece for forcing said lock out of operative position, and a stop for

70 preventing movement of the engaging piece, substantially as and for the purpose set forth.

20. The combination of a record ribbon, mechanism for feeding the ribbon, a magnet for actuating said feeding mechanism, a

75 drawer or operating piece, an open electric circuit connected to said magnet, connections between said operating piece and circuit for releasing the operating piece and momentarily closing the circuit, and a stop for preventing closing of said circuit after the drawer or operating piece is moved from its normal position, substantially as and for the purpose set forth.

80 21. The combination of a record ribbon, mechanism for feeding the ribbon, a series of independently movable drawers or operating pieces, an electric generator, electric conductors between the feeding mechanism and the generator connected to said operating pieces,

85 whereby the feeding mechanism is brought into action as one of the operating pieces moves outward, and a series of stops connected to said conductors for preventing the passage of the current therethrough when one of

90 the operating pieces is moved from its normal position, substantially as and for the purpose set forth.

22. The combination with a drawer or operating piece of an engaging piece a record

100 ribbon, mechanism for feeding the record ribbon electrically connected to said operating piece and to said engaging piece, and an insulating stop for preventing movement of said engaging piece, substantially as and for

105 the purpose specified.

23. The combination of a series of independent movable operating pieces, locks for preventing the movement of the drawers or operating pieces, engaging pieces for with-

110 drawing said locks from operative position, electric connections between said engaging pieces, and insulating stops connected to said connections for preventing the movement from normal position of more than one operating piece at a time, substantially as and for the purpose set forth.

115 24. The combination of a series of drawers or operating pieces, a series of locks for preventing movement of the operating pieces, a

120 series of engaging pieces connected to the locks for forcing the same from operative position, electric conductors between said locks of unequal resistance or conductivity, whereby but one lock is moved when two engaging

125 pieces are simultaneously operated, substantially as and for the purpose specified.

25. The combination of a series of drawers or operating pieces provided with electric conductors, an electric circuit having a series

130 of terminals adapted to engage said conductors when the operating pieces are in their normal position, and a series of alarms connected to said circuit and adapted to be op-



erated when the circuit is broken by the movement from normal position of one of the operating pieces, substantially as and for the purpose set forth.

5 26. The combination of a series of drawers or operating pieces provided with electric conductors, an electric circuit having a series of terminals adapted to engage said conductors when the operating pieces are in their  
10 normal position, a series of alarms connected to said circuit and adapted to be operated when the circuit is broken by the movement from normal position of one of the operating  
15 pieces, engaging pieces for releasing said drawers, and stops connected to said electric circuit for preventing the operation of said engaging pieces, substantially as and for the purpose specified.

27. The combination with a main station,  
20 printing mechanism at the main station, a branch station, printing mechanism at the branch station, and connections between said printing mechanisms, whereby the printing  
25 mechanism at the main station is brought into action by the operation of the printing mechanism at the branch station, a record ribbon at the main station for receiving the impression of the printing mechanism at said  
30 station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose set forth.

28. The combination of a main station, print-  
35 ing mechanism at the main station, a series of branch stations, printing mechanisms at the branch stations, connections between said printing mechanisms whereby the operation of the printing mechanism at the main sta-  
40 tion is brought into action by the operation of the printing mechanism at one of the branch stations, means, substantially as described, for preventing the simultaneous operation of the printing mechanisms at two of  
45 the branch stations, a record ribbon at the main station for receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as de-  
50 scribed, to feed said record ribbon substantially as and for the purpose specified.

29. The combination of a main station, a record ribbon at the main station, mechanism  
55 at the main station for feeding the ribbon, and mechanism at said station for printing upon the ribbon, a branch station, printing mechanism at the branch station, electric con-  
60 nections between the feeding and printing mechanisms at the main station and the printing mechanism at the branch station, whereby the feeding and printing mechan-  
isms at the main station are brought into ac-  
tion by the operation of the printing mechan-  
ism at the branch station, and a movable  
65 drawer or operating piece at the branch station connected, substantially as described, to said mechanism at the main station for feed-

ing the record ribbon substantially as and for the purpose set forth.

30. The combination of a main station, a  
70 record ribbon at the main station, mechanism at the main station for feeding the ribbon laterally, mechanism at said station for print-  
ing on the ribbon, branch stations, printing mechanisms at the branch stations, electric  
75 connections between the feeding and printing mechanisms at the main station, and the printing mechanisms at the branch stations, whereby the feeding and printing mechanisms  
80 at the main station are brought into action by the operation of the printing mechanisms at the branch station, and a movable drawer or operating piece at the branch station con-  
85 nected, substantially as described, to said mechanism at the main station for feeding the record ribbon substantially as and for the purpose specified.

31. The combination of a main station, a record ribbon at the main station, mechan-  
90 ism at the main station for feeding the ribbon laterally, mechanism at said station for printing on the ribbon, a branch station, printing mechanism at the branch station, electric connections between the feeding and  
95 printing mechanisms at the main station and the printing mechanism at the branch station, whereby the feeding and printing mechanisms at the main station are brought into ac-  
tion by the operation of the printing mech-  
anism at the branch station, a push button  
100 for bringing the electric connections into action, and a movable drawer or operating piece at the branch station connected, substantially as described, to said mechanism at the main  
105 station for feeding the record ribbon substantially as and for the purpose set forth.

32. The combination of a main station, a record ribbon at the main station, mechan-  
ism at the main station for feeding the rib-  
110 bon lengthwise, mechanism at said station for printing on the ribbon, a branch station, print-  
ing mechanism at the branch station, electric connections between the feeding and printing mechanisms at the main station and the print-  
ing mechanism at the branch station, whereby  
115 the operation of the feeding and printing mechanisms at the main station are brought into action by the operation of the printing mechanism at the branch station, a push but-  
120 ton at the branch station for bringing the electric connections into action, and a movable drawer or operating piece at the branch station connected, substantially as described, to said mechanism at the main station for  
125 feeding the record ribbon substantially as and for the purpose specified.

33. The combination of a main station, printing mechanism at the main station, a series of branch stations, station indicating  
130 push buttons at each branch station, electric connections between the printing mechanism at the main station and said buttons, whereby each station is indicated at the central station, a record ribbon at the main station for



receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose set forth.

34. The combination of a main station, printing mechanism at the main station, a series of branch stations, station indicating push buttons at each branch station, electric connections between the printing mechanism at the main station and said buttons, whereby each station is indicated at the central station, printing mechanisms at the branch stations connections between the printing mechanism at the main station and the printing mechanisms at the branch stations, a record ribbon at the main station for receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose specified.

35. The combination of a main station, printing mechanism at the main station, a branch station provided with a series of terminals, electric connections between the printing mechanism and the terminals, push rods, each of which is movable toward two of said terminals for connecting the same, printing characters carried upon the push rods, a record ribbon at the main station for receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose set forth.

36. The combination of a main station, printing mechanism at the main station, a series of branch stations, a series of terminals at the branch stations, electric connections between the printing mechanism at the main station and the terminals, push rods at the branch stations movable toward said terminals for connecting the same, printing characters carried by said push rods, a record ribbon at the main station for receiving the impression of the printing mechanism at said

station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose specified.

37. The combination of a main station, printing mechanism at the main station, a branch station provided with a series of terminals, electric connections between the printing mechanism and the terminals, push rods, each of which is movable toward two of said terminals for connecting the same, printing characters carried upon the push rods, a support beneath said printing characters, an ink- ing ribbon above said support, a record ribbon at the main station for receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose set forth.

38. The combination of a main station, printing mechanism at the main station, a branch station provided with a series of terminals, electric connections between the printing mechanism and the terminals, push rods, each of which is movable toward two of said terminals for connecting the same, printing characters carried upon the push rods, a support beneath said printing characters, an ink- ing ribbon above said support, mechanism for feeding said ribbon, a record ribbon at the main station for receiving the impression of the printing mechanism at said station, and a movable drawer or operating piece at the branch station connected, substantially as described, to feed said record ribbon substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 31st day of August, 1892.

HENRY K. HESS.

Witnesses:

CLARK H. NORTON,  
M. BAXTER.