

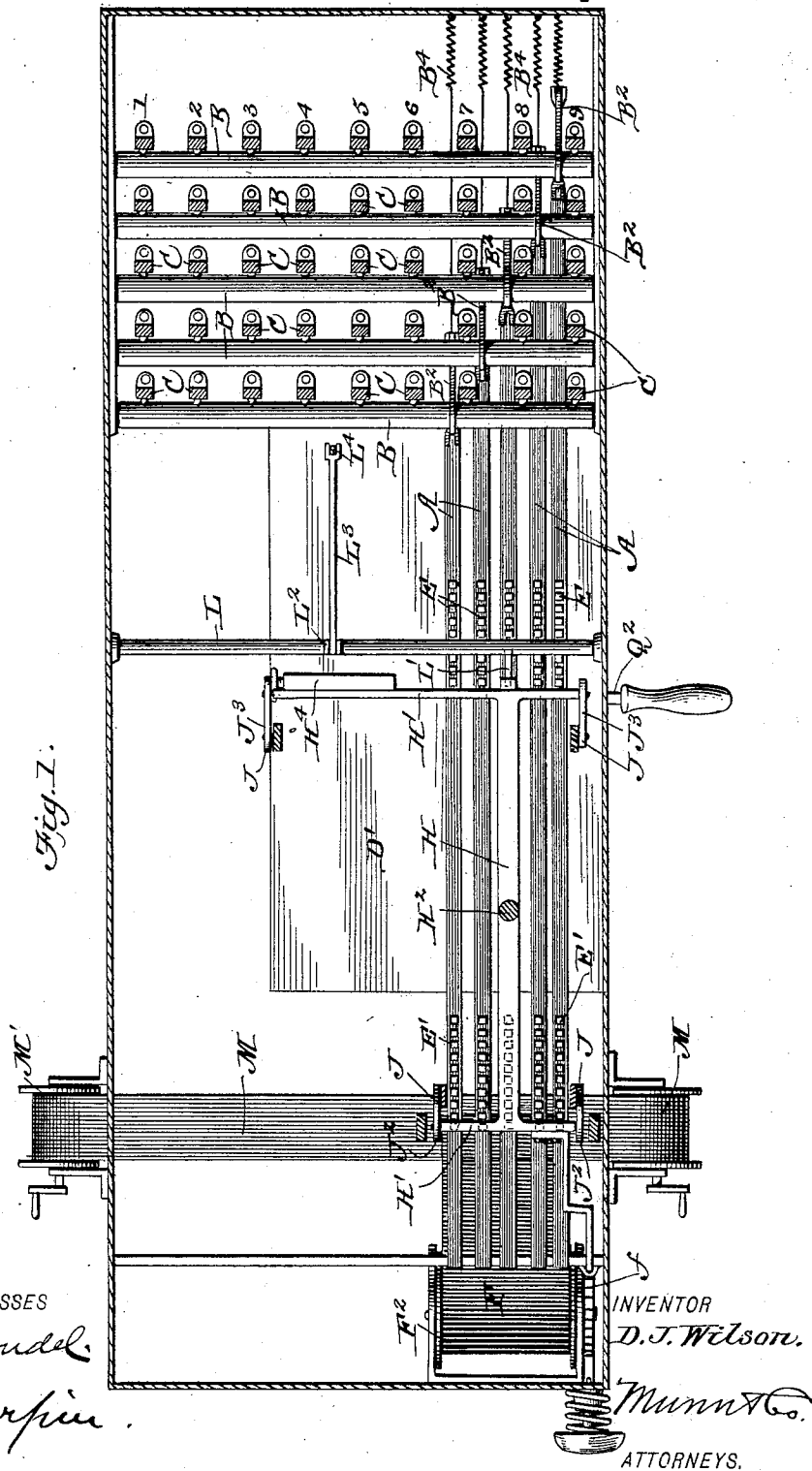
(No Model.)

5 Sheets—Sheet 1.

D. J. WILSON.
CASH RECORDER.

No. 567,431.

Patented Sept. 8, 1896.



(No Model.)

5 Sheets—Sheet 2.

D. J. WILSON.
CASH RECORDER.

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Patented Sept. 8, 1896.

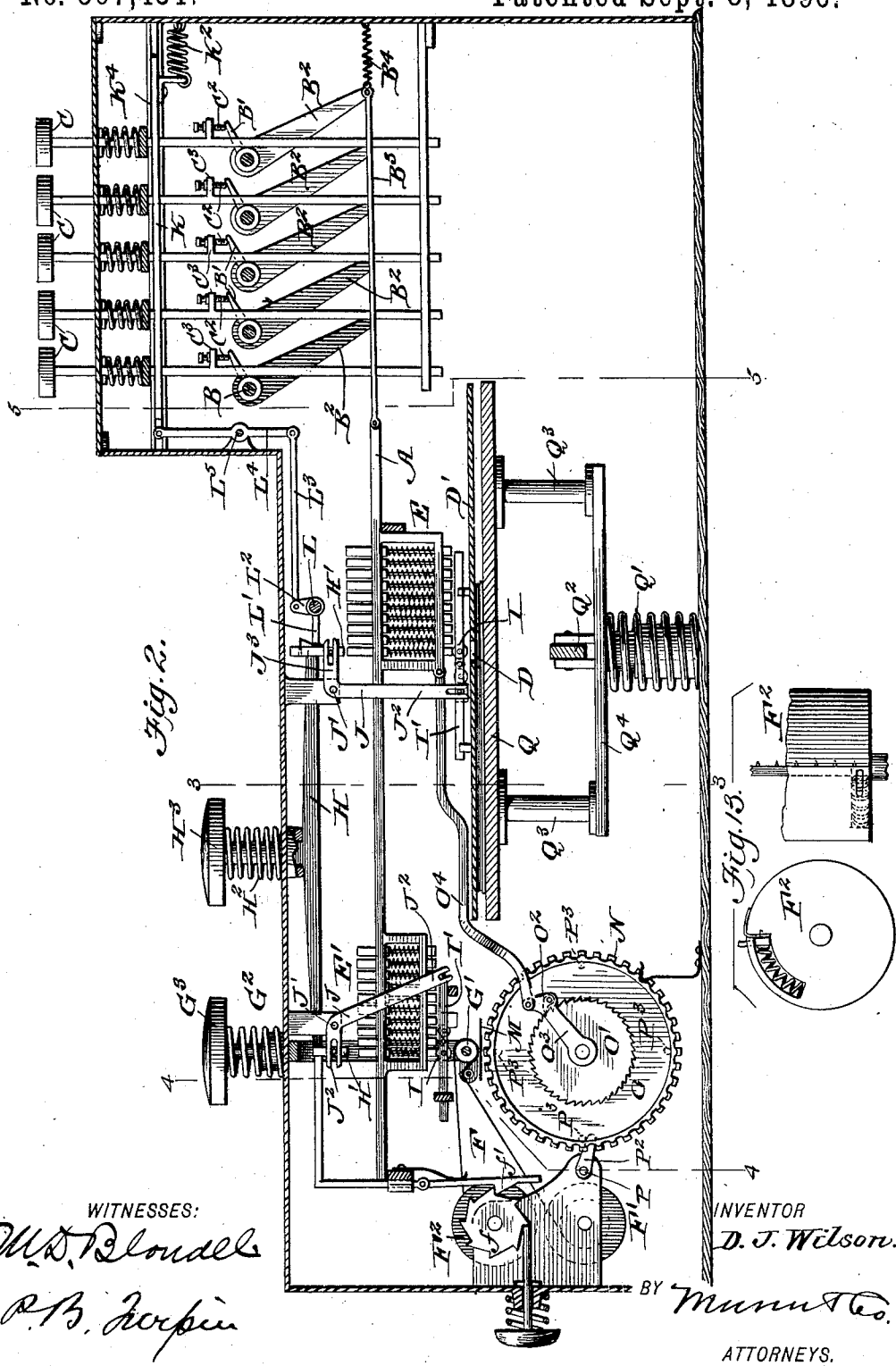


Fig. 2.

Fig. 13.

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(No Model.)

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Fig. 3.

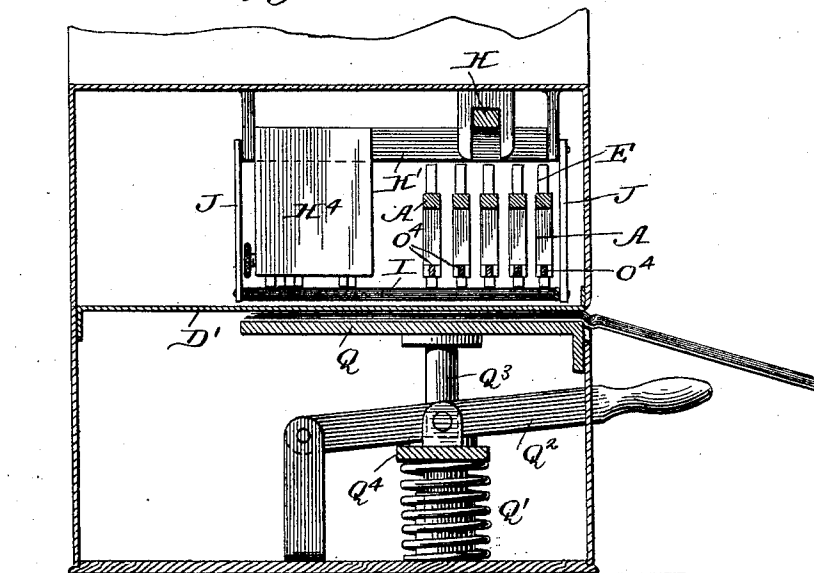
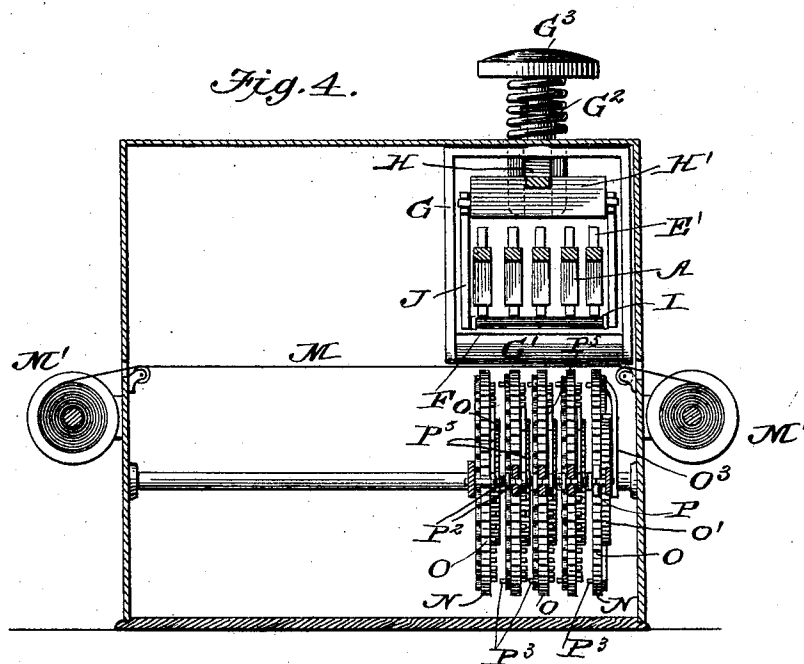


Fig. 4.



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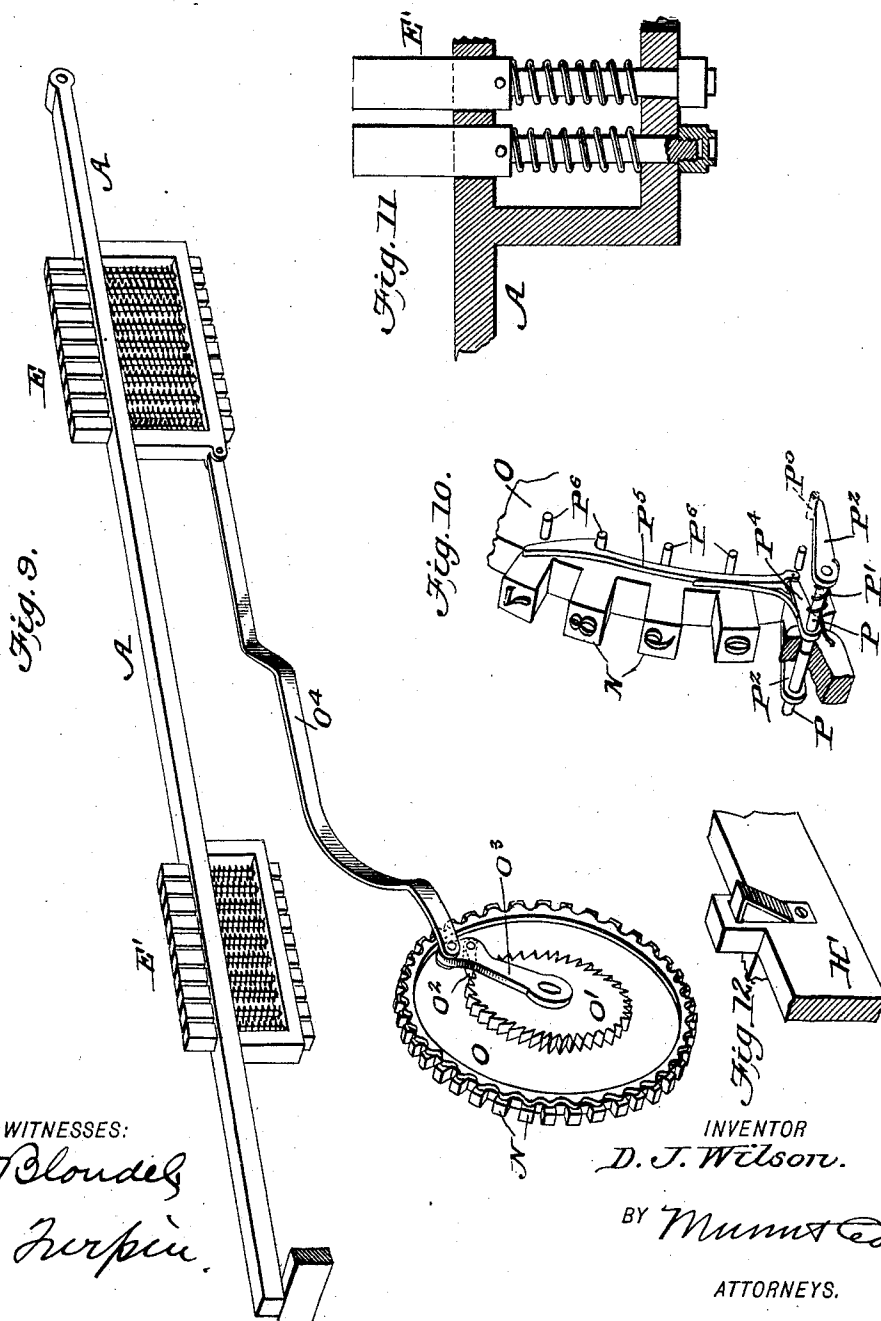
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5 Sheets—Sheet 5.

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CASH RECORDER.

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UNITED STATES PATENT OFFICE.

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CASH-RECORDER.

SPECIFICATION forming part of Letters Patent No. 567,431, dated September 8, 1896.

Application filed November 9, 1895. Serial No. 568,430. (No model.)

To all whom it may concern:

Be it known that I, DAVID J. WILSON, of Washington, in the District of Columbia, have invented a new and useful Improvement in Cash-Recorders, of which the following is a specification.

This invention is an improved cash-recorder intended especially for use by bank-tellers and similar officers; and the invention has for an object to provide devices whereby the teller may print in the depositor's book the amount of his deposit and the date thereof and simultaneously print upon a record-strip the amount printed in the book.

The invention also seeks to provide mechanism whereby to calculate the aggregate of the numbers indicated upon the record-strip and to print such aggregate at the foot of the recorded numbers.

The invention also has for its objects other improvements; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a horizontal longitudinal section, and Fig. 2 is a vertical longitudinal section, of my recorder. Figs. 3, 4, and 5 are respectively cross-sectional views on about lines 3 3, 4 4, and 5 5 of Fig.

Fig. 6 is a detail view of the locking-frame. Fig. 7 is a detail sectional view illustrating the connection between the key-bars and the rock-shaft. Fig. 8 represents in detail the connection between the locking-frame and the key-bars. Fig. 9 is a detail perspective view showing the connection between the type-frame and the wheel operated thereby. Fig. 10 is a detail perspective view illustrating the mechanism by which the tens-wheel registers upon the hundreds-wheel, and so on. Fig. 11 is a detail view illustrating the means for supporting the type-bars in the type-frame. Fig. 12 is a detail view illustrating the catch on the printing-frame for operating the locking-frame, and Fig. 13 is a detail view of the paper-receiving roll.

In carrying out my invention I provide a plurality of sets of keys, each set extending from front to rear across the machine and the several sets being arranged side by side, the first set to the right, as viewed in Fig. 1, being the units or cents set, and the sets ranging to

the left thereof being, respectively, tens, hundreds, thousands, and ten thousands. Recapitulated, the first two sets to the right are cents, and to the left of those two are respectively dollars, tens of dollars, hundreds of dollars, &c.

Each set is composed of nine type-bars and are numbered, respectively, one, two, three, four, five, six, seven, eight, and nine. The cipher is omitted because the type-bars when in normal position are adjusted to cipher.

In connection with each set of keys I provide a corresponding type-bar A, a rock-shaft B, and intermediate devices, whereby as any one of the keys C is depressed it will operate to move the corresponding type-bar a predetermined distance, such distance being so regulated that the key 1 will move the type-bar in such manner as to bring the type "1" to printing position, the key 2 will bring the type "2" to printing position, and so on, this being effected by adjusting the keys to move the type-bar different distances, as will be readily understood.

In specifically describing this construction the key-bars C are provided with slots C', through which project crank-arms B' on the rock-shaft B, and the key-bar C is provided with a bearing C² to engage such crank-arm B', and such bearing C² is so set that its key-bar will when depressed turn the rock-shaft the desired distance.

In order that the several key-bars may be depressed a uniform distance and yet only turn the rock-shaft the different distances desired for each of said key-bars from one to nine, I so arrange the several bearings C² that they will strike the crank-arms B' when the key in question has reached a certain point in its downward movement. Thus the nine-key may be set to engage its crank-arm B' throughout its entire travel, the eight-key to engage its crank-arm shortly after such key is depressed, and so on down to the key 1, which may be set to engage its rock-shaft only at the last portion of the downward travel of such key 1, as will be understood.

The rock-shaft B also has crank-arms B², which extend downward and are connected by pitmen B³ with their respective type-bars A, and springs B⁴ are arranged to readjust the rock-shafts to their normal positions when

the printing operation has been effected, as more fully described hereinafter.

While the bearings C^2 of the key-bars may be fixed with respect to such key-bars, it is preferred for nicety of adjustment to make them as shown in Figs. 2 and 7, in which they consist of a set-bolt turned through a threaded bearing in a bracket C^3 and secured by a jam-nut C^4 . This construction permits of the making of the several key-bars alike and adjusting the bearing C^2 in each case to suit.

From the foregoing it will be understood that if any key in any set be depressed it will actuate the type-bar of such set to bring the type corresponding to such key into printing position, which, in the construction shown in Fig. 2, is directly above an opening D in a plate D' , below which the bank-book is to be held. This refers to the types of what may be called the "bank-book" set E. In addition to this set E the type-bar A has what may be called the "recording-strip" set E' of types, which are adjusted correspondingly to the set E, so that the proper type of the set E' is brought to position to print upon the recording-strip F, which strip is wound on roll F' , passes thence around a roll G' , carried in a frame G, and winds onto a roll F^2 . The frame G, carrying the guide-roll at G' , has a limited vertical movement, being actuated upward by a spring G^2 , bearing underneath the head G^3 , so that such frame G is ordinarily held up in position to be printed on by the types of the set E' , but may be depressed to print from the wheels of the adding mechanism in marking the total upon the strip, as more fully described hereinafter.

Each of the types of the sets E and E' is independently spring-actuated, so that it is pressed upward clear of the book or strip upon which they are designed to print, and in order to press them downward, to effect the printing, I provide what I term a "printing-frame" H, which has an arm extended to each of the sets E and E' , and is provided over such set with a transversely-extending bar H' , extending over the several type-bars and adapted to actuate the type of each of such bars as may be lying below such bar H' and directly above the printing-opening D of plate D' or the guide-roller G' of the record-strip F. This printing-frame H is actuated upward by a spring H^2 , bearing beneath the head H^3 , so the frame will be instantly raised after the printing operation.

In order to ink the types of the sets E and E' , I provide therefor inking-rollers I, carried by frame I' , so supported that the rollers I may bear, when the printing-frame H is at rest, directly below the type which is set to printing position, so such type will be inked as desired, and in order to set the inking-roll out of the way when the printing is being effected I provide levers J, pivoted at J' , having an arm J^2 , connected with the frame I' , and arms J^3 , engaged by the printing-frame,

so the depression of the printing-frame will automatically move the rolls out of the way during the printing operation and instantly return such rolls after the printing has been effected. On the transverse bar H' , extended over the set E of types, I provide a type-holder H^4 to receive dating-types, which may be changed from day to day and will stamp the date in the book at the same time and in the same line with the amount stamped by the types of the set E.

In the operation of the described construction, if, for instance, it is desired to stamp in the book the amount twelve thousand three hundred and forty-five dollars the key 1 of the seventh set (not shown) to the left (see Fig. 2) may be depressed together with the keys 2, 3, 4, and 5 of the succeeding sets, from the left to the right, which will bring the proper figures of the several type-frames into printing position, as before described, the two ciphers in the cents-column being made in normal position of type-bar.

To avoid the necessity of holding each key down until the others are depressed and until the printing operation is effected, I provide the locking-frame K. (See Figs. 2 and 6.) This frame has bars K' , extended adjacent to each of the keys C and movable from a position against such keys at which they are held by an actuating-spring K^2 to a position clear of such key-bars, and upon the key-bars I provide a catch K^3 , preferably a spring, as shown, which when the key-bar is depressed engages below the adjacent portion of the frame K and tends to hold the key-bar depressed until the frame K is moved clear of the key-bar. Now the essential feature of this portion of my improvement is the provision of a movable locking-frame and the key-bars having interengaging portions, which, when the key-bars are depressed, will hold the same in such position until the locking-frame is adjusted to free such parts, and the particular construction shown is preferred.

To adjust the frame K to release the key-bars, I provide connections between the locking-frame and the printing-frame H, so arranged that when the printing-frame is depressed it will on its return movement adjust the locking-frame to free the key-bars. (See Figs. 2 and 12.) This construction is shown as composed of a rock-shaft L, having a crank-arm L' for engagement by the printing-frame, a crank-arm L^2 , connected by a pitman L^3 with one end of a lever L^4 , such lever L^4 being pivoted at L^5 and connected with the locking-frame, as shown most clearly in Fig. 2, so that as the printing-frame moves upward it will operate to draw the locking-frame K to a position clear of the key-bars and permit the latter to resume their normal positions.

From the foregoing it will be seen that as each key is depressed it will be held, together with its corresponding type-bar, in the position to which it has been adjusted until the

several other keys have been adjusted to make up the number desired to be entered, when the printing-frame may be operated to print the number, such operation of the printing-frame automatically releasing the several key-bars by the movement of the locking-frame K in its guides K⁴.

In connection with the several type-bars I provide a set of adding-wheels ranging from 10 units upward, according to the capacity of the machine, and connected so that the registration of "10" upon the units-wheel will register "1" upon the tens-wheel, and so on, so that there is always indicated on the wheels an aggregate or sum total of the amounts which 15 have been entered upon the book at D and recorded upon the record-strip at G', and to facilitate the printing of such sum total upon the record-strip I arrange the adding-wheels 20 directly below the movable guide-roller G', extend a printing-ribbon M between the adding-wheels and such roller, and furnish upon the periphery of the adding-wheels type N, which, by the depression of the roller-carrying frame G, will print upon the record-strip 25 passed around the roller G' the aggregate indicated by the adding-wheels. The ribbon M is passed around rollers or drums M' and may be fed by hand or in any suitable manner 30 desired.

The construction of the adding-wheels and the means whereby the units-wheel will actuate the tens-wheel, and so on, is best shown in Figs. 9 and 10. Each of the wheels O is 35 provided with a ratchet-wheel O', engaged by a pawl O², carried by a swinging arm O³, connected by a pitman O⁴ with the corresponding type-bar, so that each movement of the type-frame will effect a movement in like degree of the swinging arm O³, operating by the 40 pawl O² to move the particular wheel of the adding set a distance corresponding to that given its type-bar, so that if the type-frame be moved to bring "1" to printing position 45 the adding-wheel will be moved one point, if the type-bar be moved to bring "3" to printing position the adding will be moved three points, and so on.

To cause each of the adding-wheels when 50 moved to register "10" to move the next higher wheel one point, I provide for each pair of the adding-wheels a rock-shaft P, actuated by the spring P' and having an arm P², arranged to be engaged by a pin P³ on the wheel of 55 less value, and an arm P⁴, having a pawl P⁵, which operates by a dragging action upon pins P⁶ upon the next higher wheel. The projections or pins P³ are provided one for each ten steps of the wheel of less value, 60 while the pins P⁶ are provided one for each of the steps of the next succeeding wheel, so that the movement of one wheel ten degrees will adjust the next succeeding wheel one degree or step. As the construction of the connecting devices for each pair of the adding- 65 wheels is alike, the description of one set of such devices may answer for all.

As before indicated, each of the adding-wheels has type N upon its periphery.

The roller F², upon which the record-strip 70 F is wound, is provided with a ratchet-wheel f, engaged by a pawl f', arranged for operation by the printing-frame H, so that with each operation of such printing-frame the record-strip may be fed forward one step. 75

Immediately below the printing-opening D I provide book-clamping mechanism consisting of a top frame Q, which is movable vertically, is pressed upward by a spring Q' to hold the book firmly against the plate D', 80 as shown in Fig. 3, and may be depressed by a lever Q² for the purpose of inserting or removing the book. In the construction shown the book-holding plate Q is connected by posts Q³ with a lower plate or bar Q⁴, and the 85 lever Q² and the spring Q' engage the bar Q⁴, as shown most clearly in Figs. 2 and 3.

In the operation of my invention the bank-book when presented to the teller is inserted through an opening in the side of the casing, 90 as shown in Fig. 3, with the line to receive the entry located immediately below the printing-opening D. The operator then depresses the proper keys C to indicate the amount desired to be entered in the bank- 95 book, which adjusts the type-bar to set the figures denoting such amount above the printing-opening D, and also above the record-strip passed over the roller G'. When adjusted to such positions, the type will be 100 inked by the rollers I, and the locking-frame K will tend to hold the several type-bars in the position to which they may be adjusted by the engagement of such locking-frame with the corresponding key-bar. The move- 105 ments of the several type-bars are communicated to the respective adding-wheels, as before described, thereby setting up on said wheels the aggregate of the numbers which may have been recorded from time to time. 110 When the type-bars are properly adjusted, the printing-frame may be operated by pressing upon the head H³. This operation first moves the inking-rolls I clear of the type and then moves the proper types downward to print 115 upon the book and also upon the record-strip. The depression of the printing-frame at the end of its downward stroke tends to withdraw the locking-frame K and permit the key-bars to return to normal position. 120

At the end of the day's work or at any other time desired the aggregate of the number noted on the record-strip may be printed upon such strip by depressing the frame G, as before described. Thus I secure an entry upon 125 the bank-book and a corresponding entry upon the record-strip, and am able to print upon such strip at any time a record of the aggregate of the numbers hitherto printed upon such strip. 130

It should be understood that the record-strip may, and ordinarily will, be under the control of a supervising official or other person having authority over the teller.

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

1. In an apparatus substantially as described, the combination with the type, for indicating the amount of the printing-frame by which to actuate such type and a date-holder carried by such printing-frame, substantially as set forth.
2. In an apparatus substantially as described, the combination of a series of type-bars, a series of adding-wheels each having a ratchet-wheel, connections between said wheels and their respective type-bars whereby the wheels may be moved correspondingly to their type-bars, and means for operating such type-bars whereby the latter will in turn operate their respective ratchets substantially as set forth.
3. An apparatus substantially as described, comprising a type-frame, having a plurality of sets of type, and movable longitudinally as described, inking devices for said sets of type, a printing-frame adapted to actuate the type of both sets and the inking devices therefor, rock-shafts having crank-arms connected with the type-frames, the key-bars by which to turn the rock-shaft, a locking-frame engaging the key-bars and intermediate devices between the locking-frame and the printing-frame, substantially as shown and described.
4. In an apparatus substantially as described the combination of the longitudinally-movable type-bars provided with the two sets of movable type the adding-wheels pitmen and pawls and ratchets connecting the type-bars to their respective wheels and means by which to actuate the movable type of the several type-bars all substantially as set forth.
5. In an apparatus substantially as described, the combination of the independently longitudinally-movable type-bars, having two sets of type, such type being movable in their supporting-bars, the independent keys one for each of said bars and adapted to operate their respective bars to a predetermined position and the printing-frame by which to simultaneously actuate the type of both sets substantially as shown and described.
6. In an apparatus substantially as described, the combination of the longitudinally-movable type-bars, each being provided at different points along its length with two sets of type movable in their supporting-bars, strip-supporting devices by which to guide a strip in position to receive the impression from the type of one set, a printing-frame by which to operate the type of both sets, and mechanism whereby the operation of said printing-frame will operate the strip-supporting devices substantially as shown and described.
7. In an apparatus substantially as described, the combination of the type-bars each having two sets of type, the type of the two sets corresponding as described, and the

printing-frame having portions arranged and adapted to actuate the type of both sets whereby in the operation of the apparatus the entry upon the bank-book will be duplicated in a retained entry substantially as shown and described.

8. The combination in an apparatus substantially as described of the type, movable supports by which the type may be adjusted to printing position and a clamp having a spring by which a book may be held in position to receive the imprint from such type substantially as set forth.

9. In an apparatus substantially as described the combination of the keys, the type-frame, the printing-frame, the locking-frame by which to hold the keys depressed and intermediate devices between the locking-frame and the printing-frame whereby the operation of the printing-frame may serve to release the keys substantially as shown and described.

10. In an apparatus substantially as described, the combination of the keys, the frame for locking the same, the printing-frame, a rock-shaft having an arm engaged by said frame, a lever pivoted between its ends and having one end connected with the key-locking frame and its other end connected with the rock-shaft all substantially as and for the purposes set forth.

11. In an apparatus substantially as described the combination with the type-bar, devices for supporting the record-strip, the adding-wheels, a guide-roller for said record-strip arranged between the adding-wheels and the type-frame, and a movable frame supporting such guide-roller substantially as and for the purposes set forth.

12. In an apparatus substantially as described, the combination of the type-bar, a printing-frame, an adding-wheel, having peripheral type and arranged adjacent to the type-bar devices for supporting a record-strip, a roller between the type-bar and adding-wheel and of a movable support for said roller the type of the bar being movable to bear against the strip on said roller and the roller being movable with its support to print against the adding-wheel, substantially as set forth.

13. The combination of devices for supporting the record-strip, a roller over which said strip is passed, the type-frame having a type set to print against the said roller, the adding-wheels on the opposite side of said roller from the printing-frame and a frame carrying said roller and movable whereby the roller may be set toward the adding-wheels substantially as described.

14. In an apparatus substantially as described the combination of a printing-frame, an adding-wheel, having type upon its periphery a roller extended between said printing-frame and adding-wheel and adapted to receive a record-strip and a movable support for said roller substantially as described.

15. In an apparatus substantially as de-

scribed the combination of the casing, the longitudinally-movable type-bars, the rock-shaft having crank-arms connected with the type-bars, the keys having slots, arms on the rock-shaft entering said slots, and bearings on the keys for engaging such arms substantially as set forth.

16. In an apparatus substantially as described the combination of the longitudinally-movable type-bar, the rock-shaft having a crank-arm connected with said bar whereby the rocking of the shaft will move the type-bar longitudinally, said rock-shaft being provided with a series of crank-arms, and the keys having bearings engaging the respective arms of such series at different points in the depressing movement of the keys substantially as and for the purposes set forth.

17. In an apparatus substantially as described the combination of the casing a type-bar provided with two sets of independently-movable type, means by which to adjust said

bar to bring different ones of the type of the sets opposite the printing devices, the strip-holding devices arranged in position adjacent one set of type, the book-clamp adapted to secure a book in position to receive the impression from the other set of type and the printing devices arranged and adapted to operate the type of both sets substantially as shown and described.

18. The combination in an apparatus substantially as described of the type-bars, a plate below the same having an opening through which the printing is effected, such plate forming a bearing against which the book is held, a clamp for so holding the book, an inking-roller playing between the said plate and type and means by which to operate said roller substantially as set forth.

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Witnesses:

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