

No. 680,508.

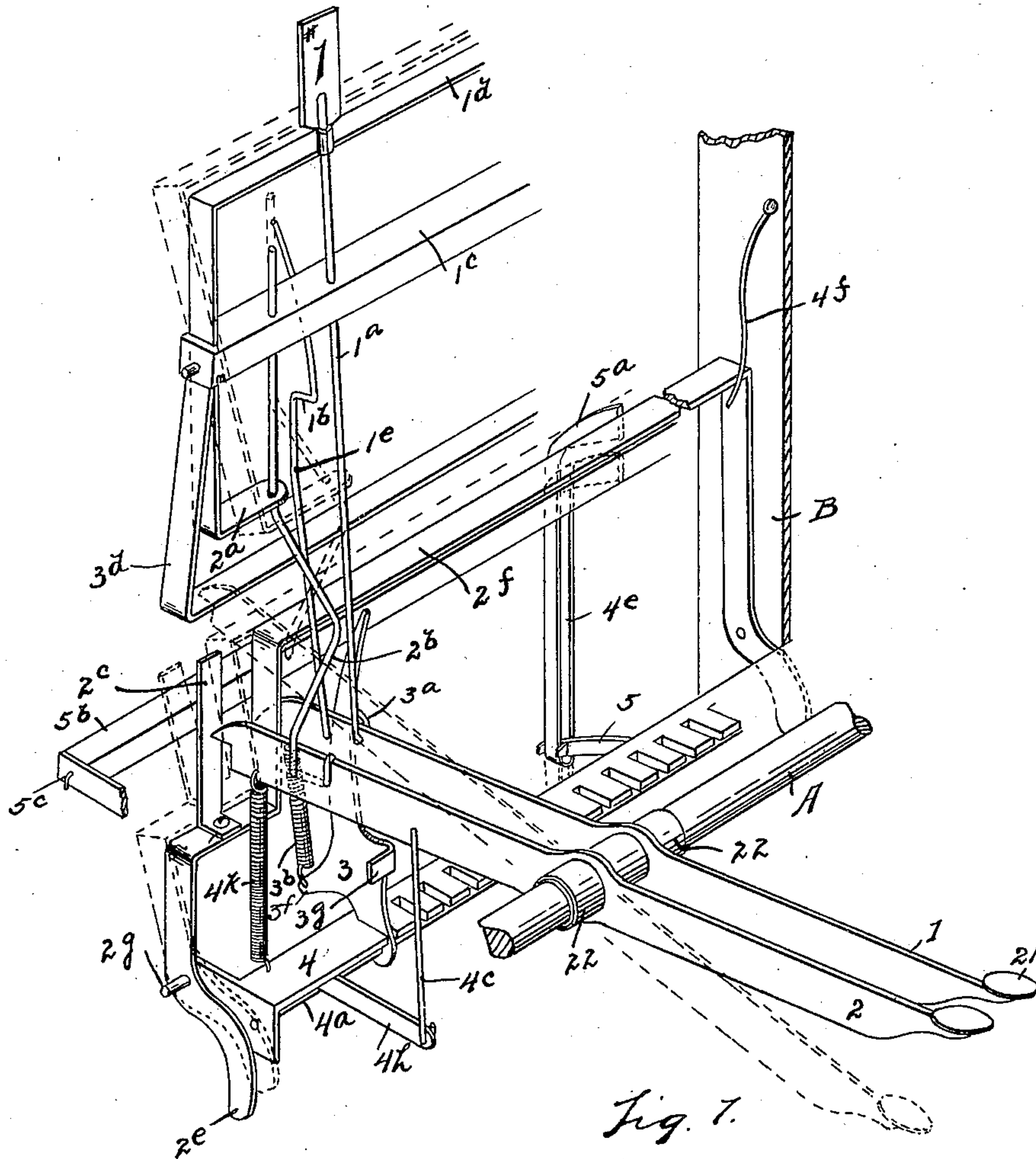
Patented Aug. 13, 1901.

F. M. WALKER.  
CASH REGISTER.

(Application filed May 11, 1900.)

(No Model.)

4 Sheets—Sheet 1.



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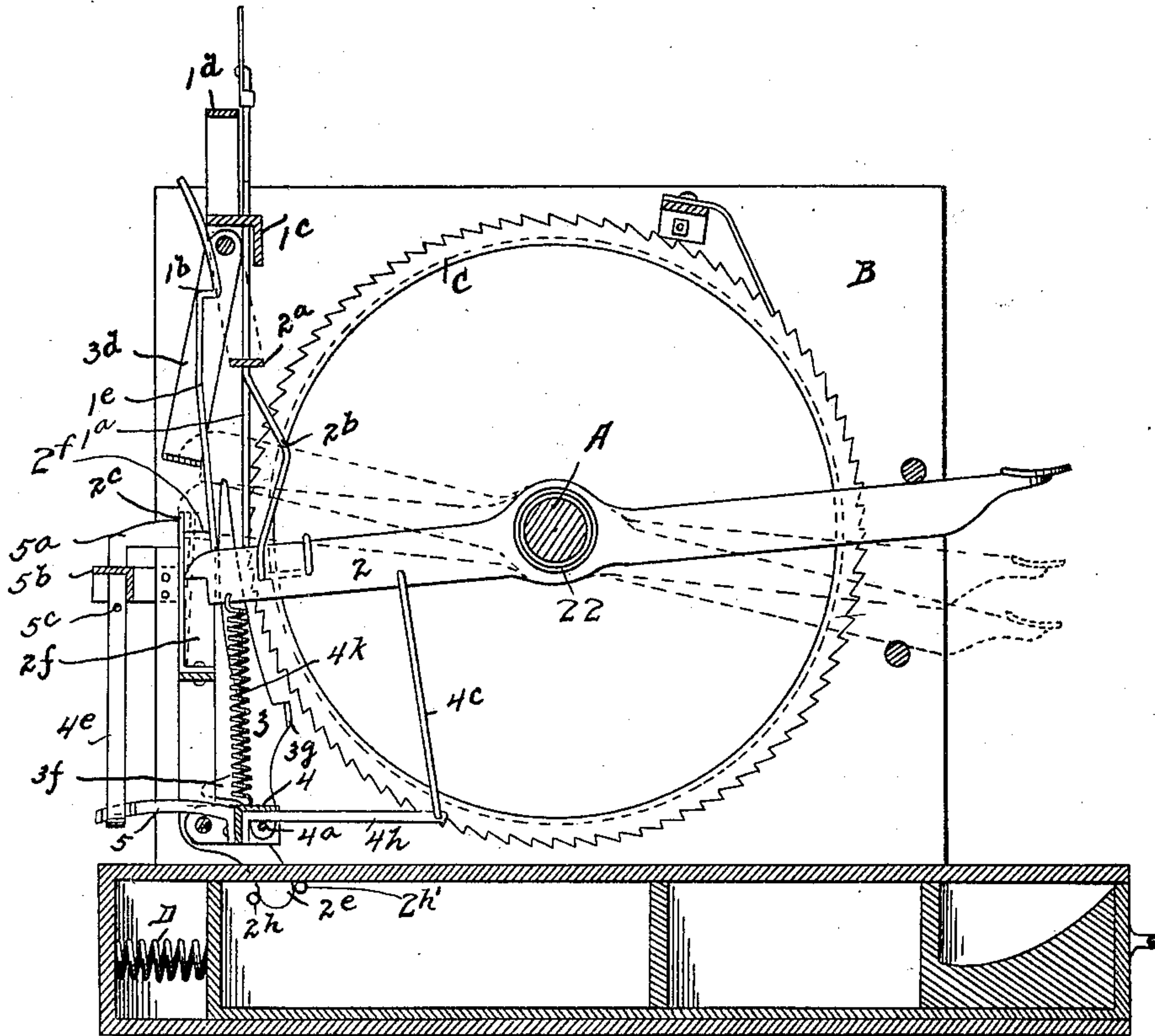


Fig. 2.

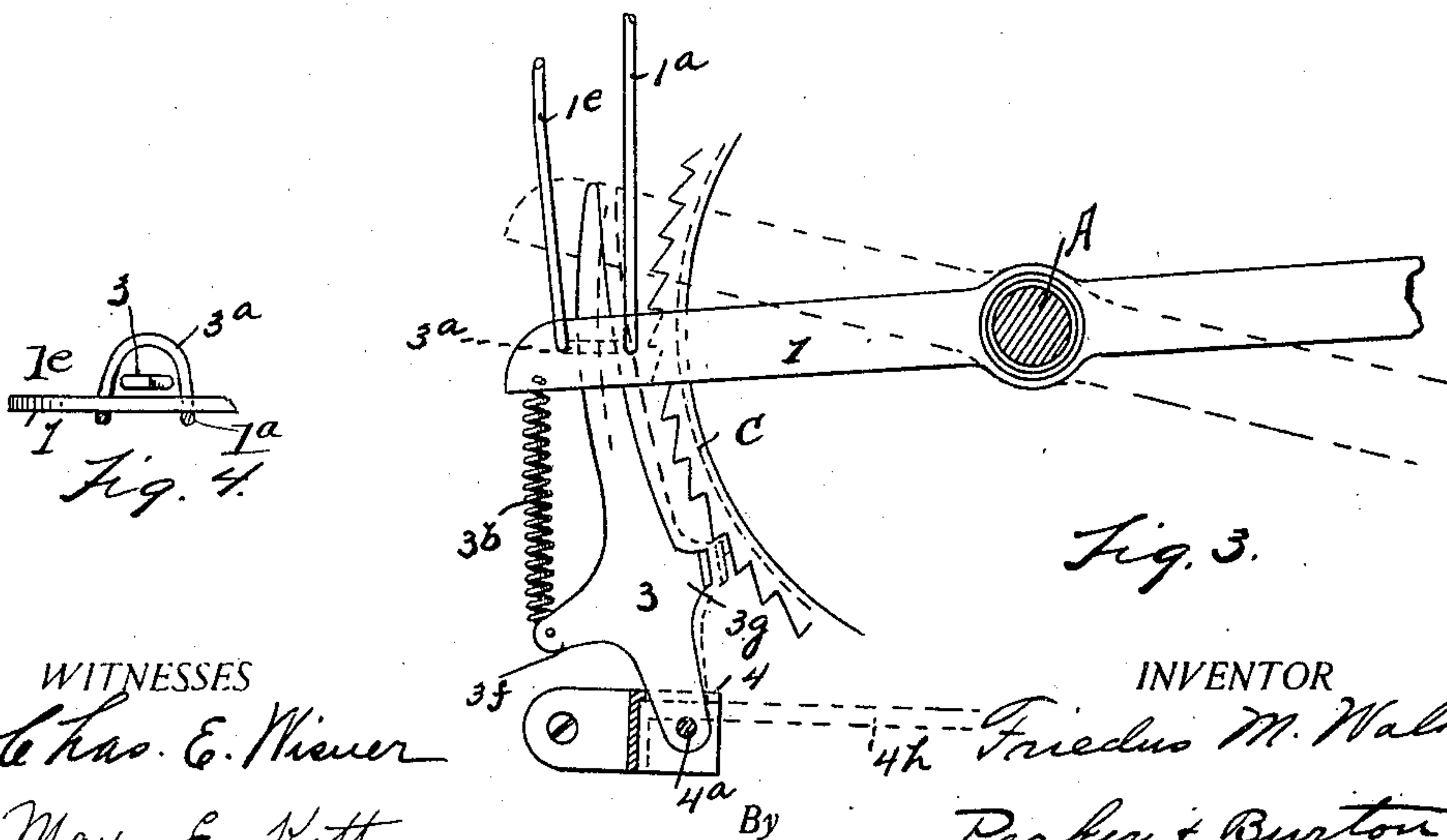


Fig. 3.

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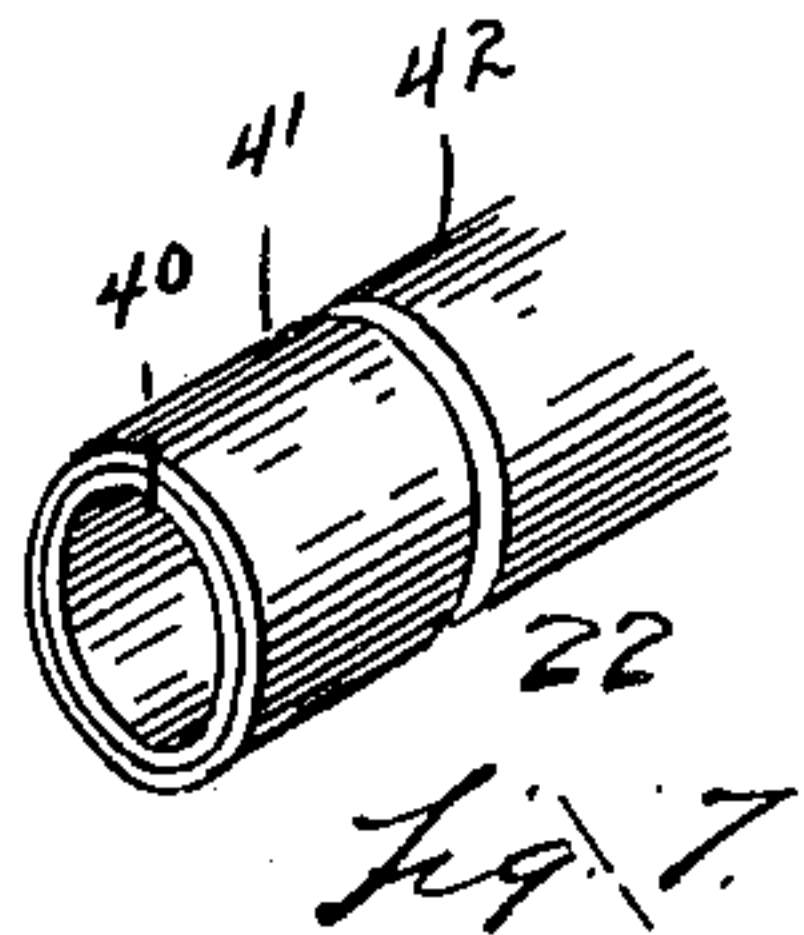
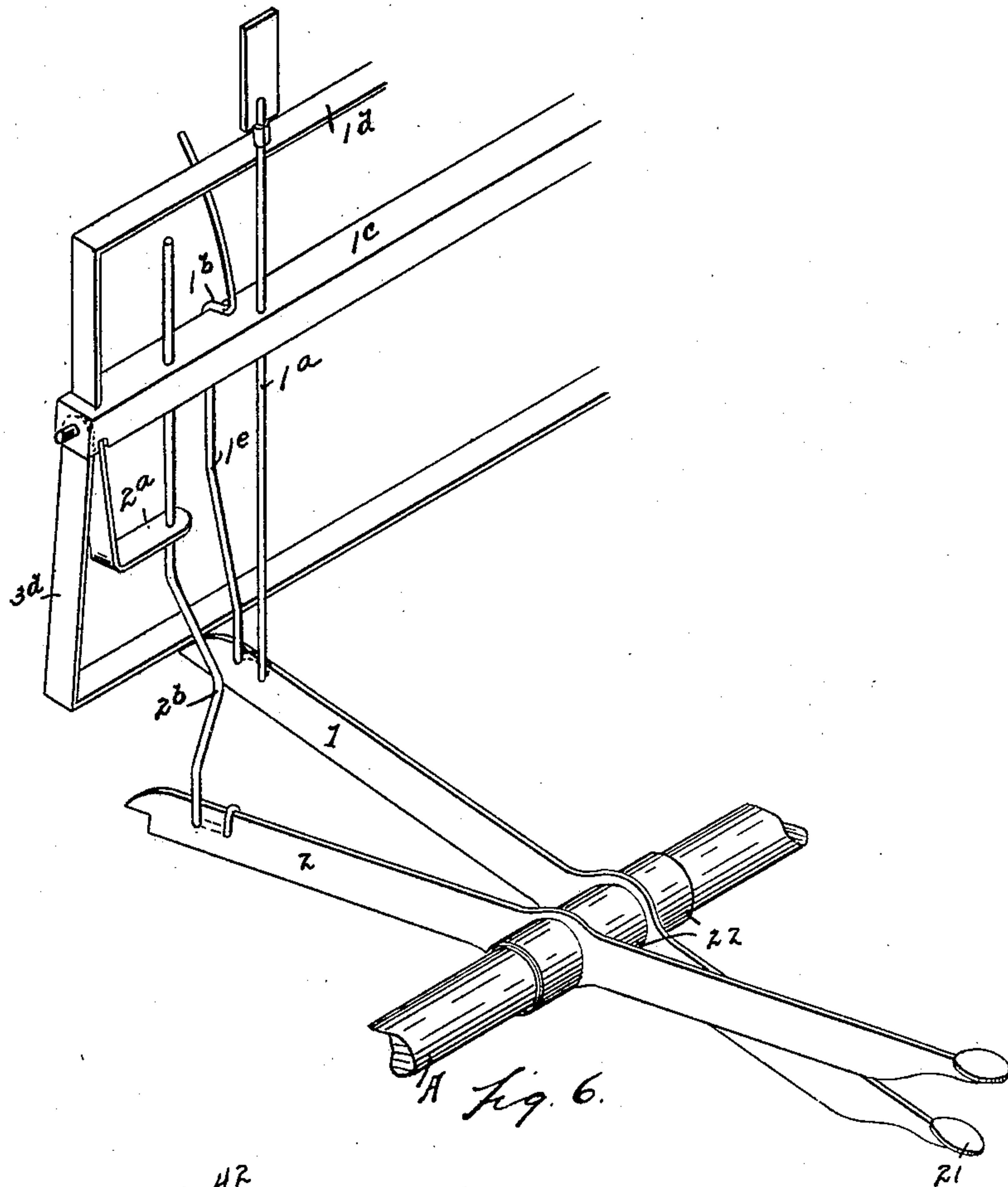
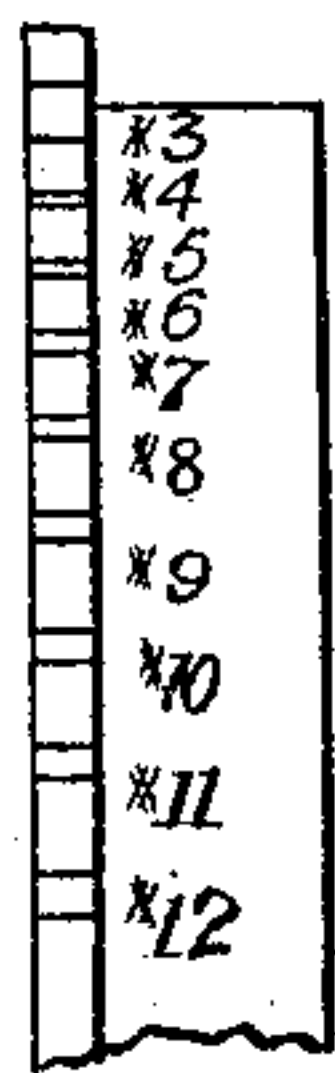
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4 Sheets—Sheet 3.

Fig. 8.



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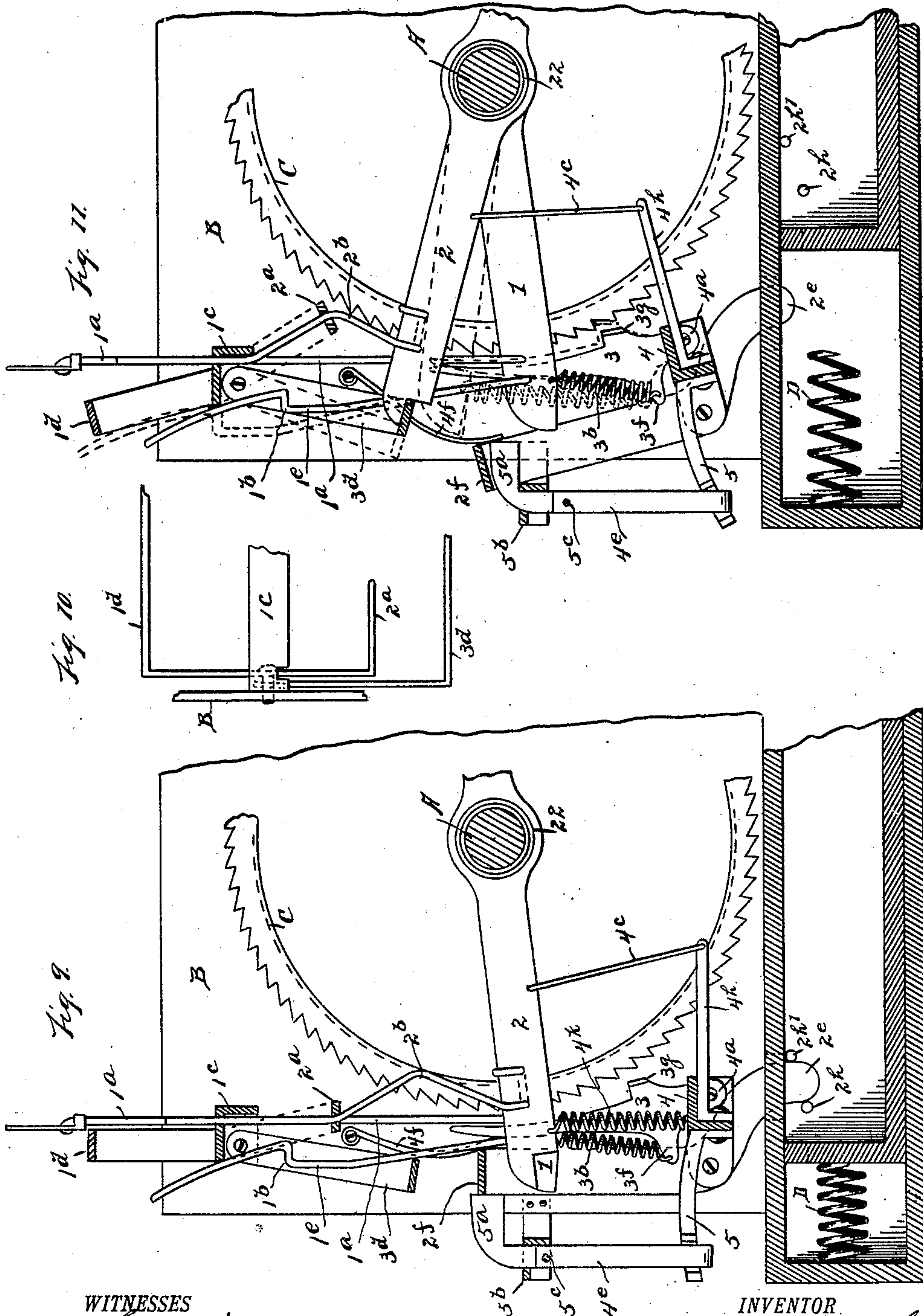
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# UNITED STATES PATENT OFFICE.

FRIEDUS M. WALKER, OF DETROIT, MICHIGAN.

## CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 680,508, dated August 13, 1901.

Application filed May 11, 1900. Serial No. 16,280. (No model.)

*To all whom it may concern:*

Be it known that I, FRIEDUS M. WALKER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Cash-Registers; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to cash-registers, and has for its object an improved register of the class employed in stores to register the amounts received by the salesman or clerk.

The object of the improvements is to introduce into the register a cycle of checks which compel the salesman to make a complete registering action each time that he uses the register, and to this end provision is made that on using what may be termed the "readjusting-key" the money till or drawer will be unlocked and opened; but the money till or drawer cannot be closed and locked so as to remain closed until a registration has been made and an indicating-tablet is exposed to view. The registration is made by the use of any one of a number of keys, each one of which is used in conjunction with a tablet to indicate a definite sum proper to that key. The actuation of the tablet-key releases the readjusting-lever, places the parts in position to lock the drawer, and allows the drawer to be closed and locked, and the drawer cannot again be opened until the readjusting-key has been used, and this releases the previously-exposed tablet and causes that to drop out of sight, but sets the parts in position for another actuation by the tablet-lifting key.

The tablet-lifting key does not itself actuate the register-wheel; but it throws into position an actuating-pawl that is subsequently actuated by the readjusting-key, and the readjusting-key actually causes the simultaneous forward movement of all the register-wheels of the machine whose actuating-pawls have been brought into actuating position by the movement of the levers and the contemporaneous exposure of tablets belonging to them.

In the drawings, Figure 1 is a perspective of the operative parts of the machine. In this figure there are shown only one of the tablet-actuating levers and the readjusting-lever and those parts which are common to all the wheels and tablets and tablet-rods of the machine. The register-wheel is omitted. Fig. 2 is a side elevation of a register-wheel and the readjusting-lever. The readjusting-lever is shown in full lines in the position it takes when the drawer is locked, in broken lines in a second position, and again in broken lines in a third position. The third position is the one taken when the drawer has been unlocked. Fig. 3 is a side elevation showing the inner end of the tablet-lever and the parts immediately connected with the tablet-lever. Fig. 4 is a plan view of the guide-loop on the tablet-lever. Fig. 5 is a rear view of the drawer-locking device. Fig. 6 is a detail of the push-off bar and the connection between this bar and the readjusting-key. Fig. 7 is a detail of the hub of one of the key-levers. Fig. 8 is a detail elevation of a portion of one of the register-wheels looking at the edge thereof. Fig. 9 is a side elevation of a portion of the cash-register, the part of the frame which is toward the front being removed and portions of some of the parts broken away, the parts being in the position they assume when the drawer is locked. Fig. 10 is a detail elevation. Fig. 11 is a view similar to that of Fig. 9, except that the parts are shown by full lines in the position they assume when the drawer is unlocked, and a registering-key and connected parts are shown by dotted lines in the position at which they are just releasing the readjusting-key to put the parts into position to relock the drawer.

B indicates the main frame, and A the shaft on which all of the actuating-levers are hung.

1<sup>a</sup> and 5<sup>b</sup> are cross-pieces of the frame, and preferably having the L-like cross-section shown in Figs. 2, 9, and 11.

The tablet-lifting lever is shown at 1. It is journaled in the shaft A, and the lever is provided with a finger-button 21, spaced from other levers that are strung on the shaft A by short sleeves or nipples 22. The use of the sleeves 22 enables me to employ a lever made from sheet-steel punched to engage the shaft A, but not provided with a hub or



extended bearing, inasmuch as the sheet metal of the lever engaging between the ends of the sleeves 22 is held properly without such hub. The inner end of the tablet-lever 1 is cut diagonally from the upper side to the bottom, and the bottom projects farther toward the back of the case. Near its inner end the key-lever 1 is pierced with holes through which are drawn a wire, one end of which 1<sup>a</sup> projects vertically upward through a hole in a guide-bar 1<sup>c</sup> and carries at its upper terminal the indicating-tablet. Another part of the wire is bent to form a loop 3<sup>a</sup>, that rises at one side of the inner end of the tablet-lever 1 and forms a guide-loop around the actuating-pawl 3, hereinafter described. From the loop 3<sup>a</sup> the wire rises, as shown at 1<sup>c</sup>, and near its upper end is bent at an angle to engage over the upper side of the bar 1<sup>c</sup> and act as a hook to hold the tablet in its elevated position. Above the hook 1<sup>b</sup> the wire is continued far enough to extend into the path of a knock-off swing-bar 1<sup>d</sup>. (See Figs. 1 and 10.) The knock-off swing-bar 1<sup>d</sup> is one branch of a rock-frame that is journaled or pivoted to the main frame close to the place where the guide-bar and rest-bar 1<sup>c</sup> is engaged to the main frame, and the guide and rest bar 1<sup>c</sup> is substantially the axis of the rock-frame, of which 1<sup>d</sup> forms one side. The opposite side 2<sup>a</sup> of the rock-frame engages a wire 2<sup>b</sup>, that is connected to and rises from the end of the readjusting-lever 2, and passes up through the guide-bar 1<sup>c</sup>; but intermediate the guide-bar and the end of the readjusting-lever it passes through the side 2<sup>a</sup> of the rock-frame, and the wire 2<sup>b</sup> is properly bent to cause the rock-frame to rock on its pivots when the inner end of the readjusting-lever 2 is lifted, and the side 1<sup>d</sup>, engaging with the upper end of the wire 1<sup>c</sup>, is pushed outward and the hook 1<sup>b</sup> is pushed off from the rest-plate 1<sup>c</sup> and the inner end of the tablet-lever 1 drops, pulling down with it the tablet. The downward movement of the inner end of the tablet-lever is aided by the contraction of a spring 3<sup>b</sup>, which joins the inner end of the lever to the pawl 3 and which has been put in tension when the tablet was lifted. When the inner end of the tablet-lever 1 drops, a swinging detent 2<sup>f</sup> swings forward over the end of the lever and prevents the lever being again actuated to lift and expose the tablet-rod (see Fig. 9) until the detent 2<sup>f</sup> has been swung back from over the end of the tablet-lever 1. The detent is itself locked in its forward position by mechanism that is connected with the drawer. The detent 2<sup>f</sup> is in itself merely a swinging bar, pivoted at 2<sup>g</sup>, which is the common pivot of this lever and of another rock-shaft 4. The detent-bar 2<sup>f</sup> bends under the end of the readjusting-lever 2 and rises between the end of that lever and the end of the tablet-lever 1, and it has attached to it beyond the end of the readjusting-lever 2 a spring-rest 2<sup>e</sup>, that bears against the end of the readjusting-lever when the detent has swung forward over

the end of the tablet-lever. The inner end of the readjusting-lever is notched on its under side, and if the readjusting-lever be actuated to lift its inner end until it has made about half its throw the inner end rises above the end of the spring 2<sup>e</sup> and the spring slips under the notch and prevents the inner end of the readjusting-lever from being drawn downward until other parts have been actuated to disengage the spring 2<sup>e</sup> and the lever, and before the tablet-lever can be actuated the inner end of the readjusting-lever must be lifted until it engages over a stirrup 3<sup>d</sup>, arranged to swing forward under and engage under the notched end of the readjusting-lever. This motion of the readjusting-lever releases the drawer-lock 2<sup>e</sup>. The drawer-lock 2<sup>e</sup> is an arm that extends from the rock-frame pivoted at 2<sup>g</sup>. One part of the rock-frame 4 extends across the frame above a pivot-rod 4<sup>a</sup>. The bar 4 is notched, and the notched parts act as guides for set-pawls 3, which are strung on the pivot-rod 4<sup>a</sup>.

An arm 4<sup>b</sup> extends forward parallel with the readjusting-lever and is linked to the readjusting-lever by a link 4<sup>c</sup>. The readjusting-lever is also connected to the bar 4 by a spring 4<sup>k</sup>. Another rock-arm 5 extends to the rear and engages through the depending stirrup 4<sup>e</sup> of the detent-stop 5<sup>a</sup>. The detent-stop is capable of vertical movement through a frame-bar 5<sup>b</sup> and is normally held up to the extent of its upward travel by a lifting-spring 5<sup>c</sup>. When the inner end of the readjusting-lever is lifted, the link 4<sup>c</sup> pulls the outer end of the arm 4<sup>b</sup> up and pulls the outer end of the arm 5 down and pulls the detent-stop 5<sup>a</sup> down under it. Said stop drops below the detent-bar 2<sup>f</sup>, and the detent-bar then swings backward under the impulse of springs, of which there are two. (The one at the near end is not shown; but the corresponding spring 4<sup>f</sup> at the far end is shown in Fig. 1.) As soon as the detent-stop has been drawn downward and the detent 2<sup>f</sup> is allowed to swing back the drawer-lock 2<sup>e</sup>, which is an extension on the opposite part of the rock-frame of which 2<sup>f</sup> forms a part, rises out of engagement with the catch 2<sup>h</sup> on the drawer, and the drawer is free to move outward and does move outward under the impulse of the spring D.

The registering is done by the readjusting-lever, and registration is made on all wheels whose tablet-rods have been lifted and remain up. With each tablet-lever there is an actuating-pawl 3, and each pawl has four branches, one branch pivoted to the pivot-rod 4<sup>a</sup>. A second branch extends upward through the loop 3<sup>a</sup>. The third and fourth branches are on a cross, and one of them, 3<sup>f</sup>, extends to the back of the pawl and has connected with it the spring which reaches to the end of the lever 1. The fourth branch 3<sup>g</sup> reaches forward and is the part of the pawl which engages with the ratchet-wheel C. Normally the pawl is not in engagement



with the ratchet-wheel; but it is brought into engagement by the actions of the tablet-lever 1. As the inner end of the lever 1 rises tension is put upon the spring 3<sup>b</sup>, and the upper end of the pawl 3 is swung forward (see dotted lines in Fig. 11) toward the ratchet-wheel. Its forward travel is limited by the guide 3<sup>a</sup>; but the parts are proportioned to bring the pawl-engaging part 3<sup>c</sup> properly into engagement with a tooth of the ratchet-wheel C, and the pawl remains in this position so long as the tablet remains lifted, and the pawl must be actuated and in turn actuate the ratchet-wheel before the tablet can be released and dropped, and this actuation is effected by lifting the rock-bar 4 through its connection with the readjusting-lever 2. The action of the readjusting-lever lifts all the pawls which have been set and moves all the corresponding ratchet-wheels. Each ratchet-wheel is a part of a barrel-wheel on the periphery of which are the registering-figures, and the position of the registering-wheel and the figures on its periphery with reference to a given reading-line make known the number of times the registering-wheel has been actuated.

The key-levers and the readjusting-lever are each provided with their own individual bearings on the arbor or shaft A, and each hub is so arranged that when all are strung on the shaft or arbor the keys themselves are not crowded by the spacing material between them, and yet each key is provided with a bearing of a character such that it is held to its proper position. A short piece of tubing or sleeve 40 is inserted loosely through the eye of the lever, and a still shorter piece of tubing is placed at each side of the lever and over the first short piece 40. The outer pieces 41 and 42 engage upon the inner piece 40 with a close drive fit, and each outer piece is driven over the inner pieces until the inner edges of the two pieces approach closely to the sides of the lever, leaving the lever, however, free to swing on the inner tube 40. The lever thus has a hub which is properly arranged to hold it in position and from which it cannot escape, and when several of the levers thus provided with hubs are strung on the arbor A the hubs may be brought into close engagement, as the hub itself does not move on the arbor.

The operation of the above-described cash-register is as follows: The drawer being closed and locked, the parts are in the position shown in Figs. 2 and 9. The registering-keys cannot now be raised, because the detent-bar 2<sup>f</sup> is over them and locked in that position by the stop 5<sup>a</sup>, as most distinctly shown in Fig. 9. If now the readjusting-key 2 is operated, the link 4<sup>c</sup> pulls the outer end of the arm 4<sup>h</sup> up and pulls the outer end of the arm 5 down, thus drawing the stop 5<sup>a</sup> below the detent-bar 2<sup>f</sup> and allowing said bar to pass to the position shown in Fig. 11, in which position the registering-keys are free to move and the

drawer unlocked. The readjusting-key 2 now rests upon the stirrup 3<sup>d</sup>, and said stirrup is thereby held in such a position that the drawer-lock 2<sup>e</sup> is above the line of travel of the pin 2<sup>h</sup> upon the drawer, so that the drawer cannot be locked. Now if one of the registering-keys is raised its slanting end comes against the stirrup 3<sup>d</sup>, forcing said stirrup backward and releasing the readjusting-key. If now the drawer is closed, the pin 2<sup>h</sup> strikes against the drawer-lock 2<sup>e</sup>, forcing it downward to engage with the pin 2<sup>h</sup>. At the same time and by the same means the detent-bar 2<sup>f</sup> is forced over the registering-keys into the position shown in Fig. 9. When a registering-key is operated, the spring 3<sup>b</sup> is extended, and the pawl 3 is thereby caused to engage the teeth of the ratchet-wheel C, as shown in dotted lines in Fig. 11. When the readjusting-key 2 is again operated, the rock-bar 4 is tilted, carrying up the pawls 3, and those pawls which have been brought into engagement with the teeth of their respective wheels C actuate said wheel and register the amount of the purchases, which have been indicated by cards actuated by the registering-levers which have been operated to indicate the amount of the purchases.

In order to prevent the actuation of the readjusting-key, so as to unfasten the drawer and then return into such a position that the drum will be locked when closed without requiring a registering-key to be actuated, a spring 2<sup>c</sup> is provided.

What I claim is—

1. In a cash-register, in combination with the register-wheel, a pawl normally out of actuating contact with said wheel, a tablet-lifting rod and lever therefor, a guide on the lever adapted to engage the pawl and swing it into position to engage the registering-wheel, a readjusting-lever, and means intermediate the readjusting-lever and the pawl, whereby the pawl is actuated by the readjusting-lever, substantially as described.

2. In a cash-register, the combination of a registering-wheel, a registering-wheel-actuating pawl, a lever and indicating-tablet, said lever being adapted to actuate said indicating-tablet to bring said tablet into view, and at the same time to bring into operative position the registering-wheel-actuating pawl, a readjusting-lever, and means intermediate said readjusting-lever and said pawl, whereby the readjusting-lever actuates the registering-wheel, substantially as described.

3. In a cash-register, the combination of an indicator-actuating lever, a bar arranged to engage and hold the indicator in its exposed position, a knock-off bar adapted to contact said indicator and push it from the bar which holds it in its exposed position, a readjusting-lever, means actuated by the readjusting-lever for actuating the knock-off bar, substantially as described.

4. In a cash-register, in combination with a tablet and its lifting-rod, means for support-



ing the tablet in its elevated position, a knock-off bar, a readjusting-lever, and means intermediate the readjusting-lever and the knock-off bar for actuating the same, a stirrup  
5 adapted to engage the readjusting-lever after it has actuated the knock-off bar, and prevent its return movement, substantially as described.

5. In a cash-register, in combination with  
10 the tablet and tablet-actuating lever, a drawer, a detent comprising one branch extending from a rock-shaft and adapted to engage with the drawer to lock said drawer, a rock-plate extending from the same rock-  
15 shaft and arranged to engage over the tablet-actuating lever, a readjusting-lever, a second rock-shaft, a link connecting the second rock-shaft and the readjusting-lever, an arm extending from the second rock-shaft, a link en-  
20 gaging with said arm and adapted to extend into the path of the plate which lies over the tablet-actuating lever, and adapted to be drawn out of said path by the readjusting-lever, whereby the readjusting-lever must be

actuated and release the drawer before the  
25 tablet-actuating lever can be actuated to expose the tablet, substantially as described.

6. In a cash-register, the combination of a tablet, a tablet-actuating lever, a tablet-rod connected therewith, a spring-holding hook  
30 also connected therewith, a register-wheel, a register-wheel-actuating pawl, and a guide for the register-wheel-actuating pawl also connected with said tablet-actuating lever, substantially as described. 35

7. A bearing for key-levers consisting of a short tube strung through a hole in the key-lever, and a short piece of tubing closely en-  
gaging over the first tube at each side of the  
40 lever, leaving the lever free to swing on the inner tube and between the ends of the outer tubes, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

FRIEDUS M. WALKER.

Witnesses:

JOHN N. GOODRICH,  
CHARLES Y. BURTON.