(No Model.)

4 Sheets—Sheet 1.

C. H. DECKER.

CASH REGISTER.

No. 556,047. Patented Mar. 10, 1896.

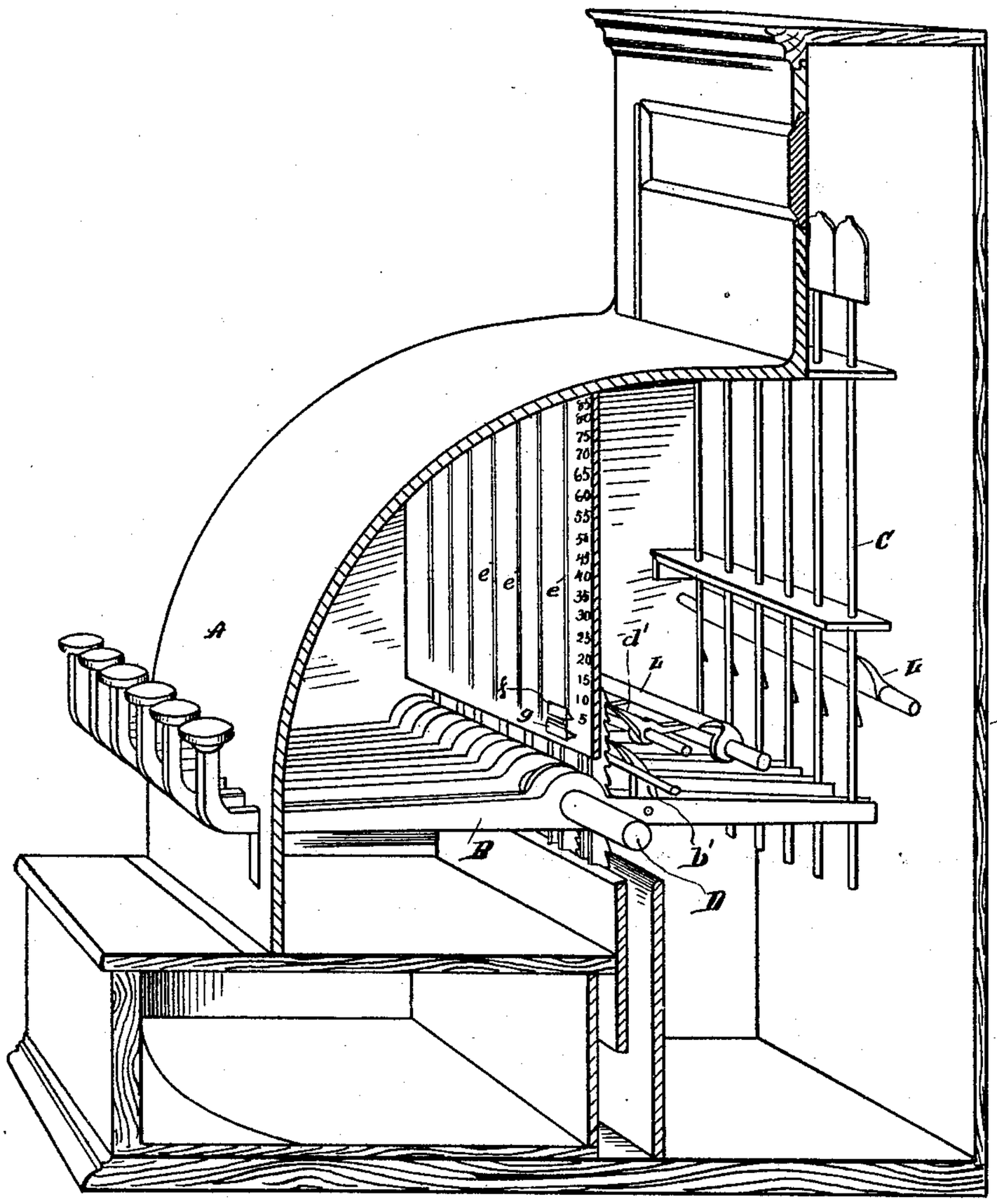

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

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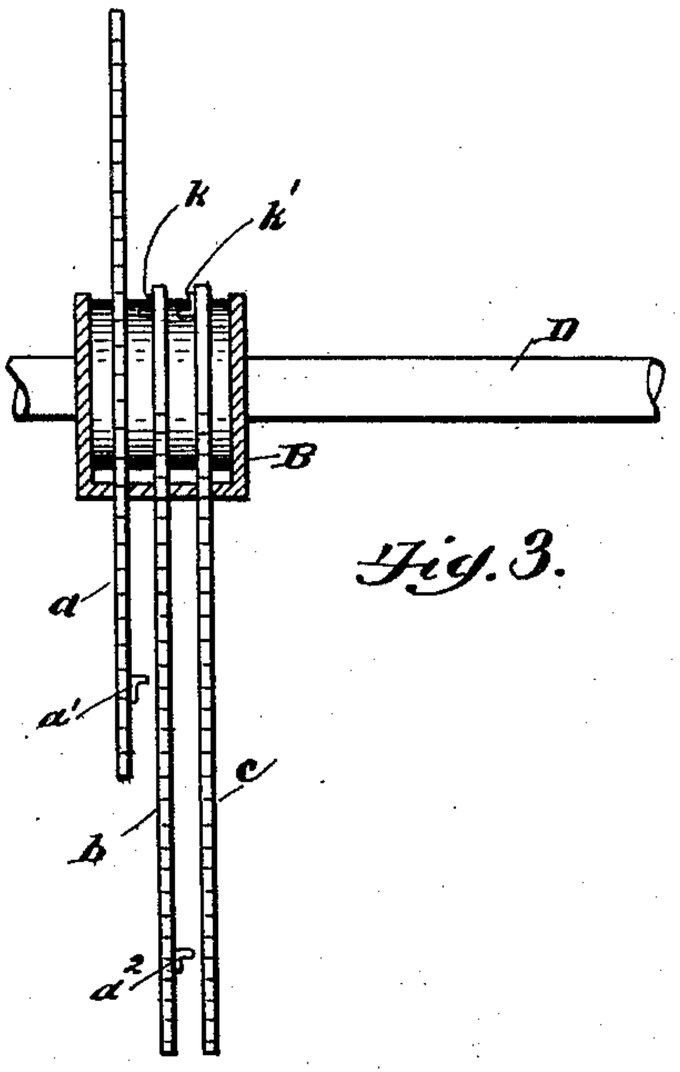

Fig. 3.

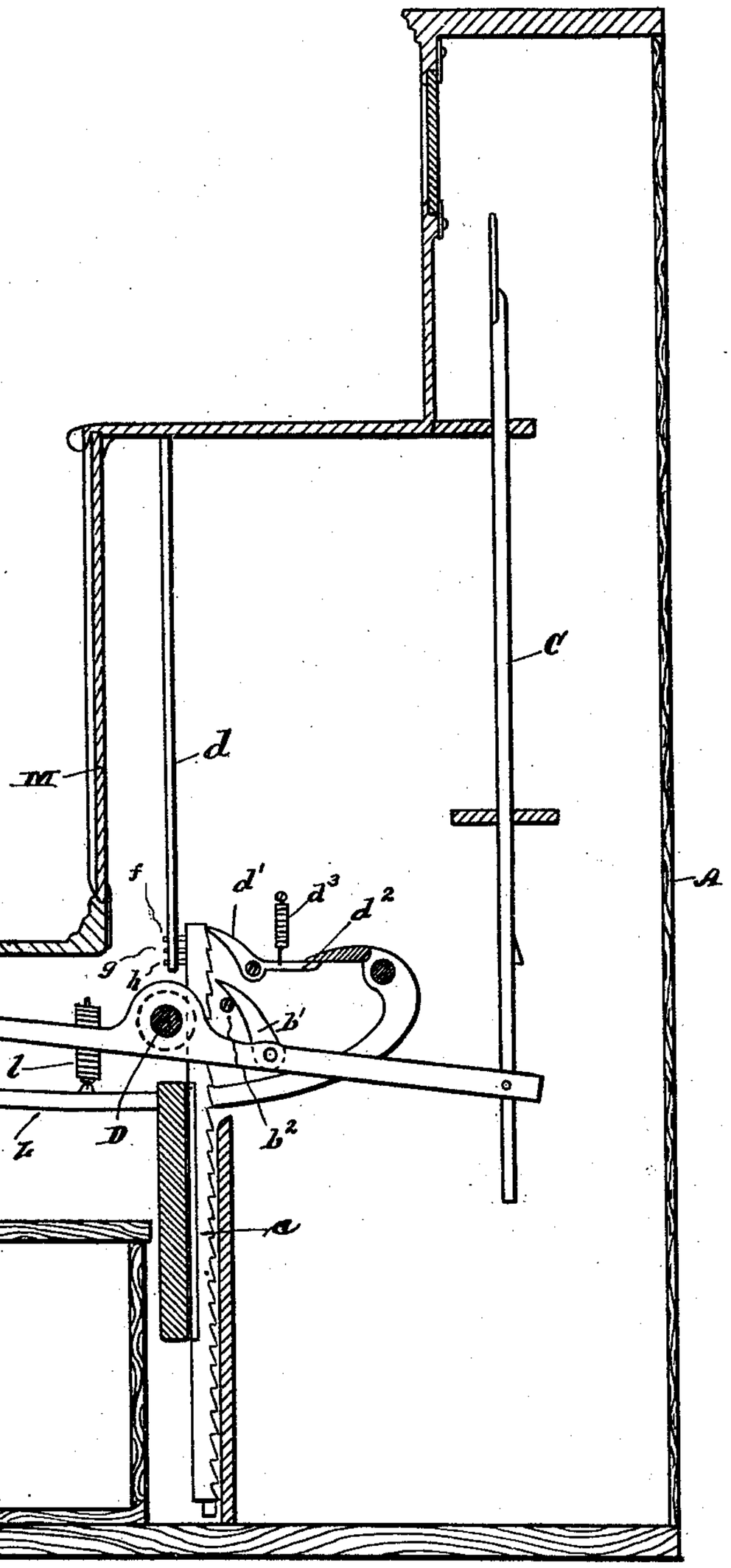

Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

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Fig. 4.

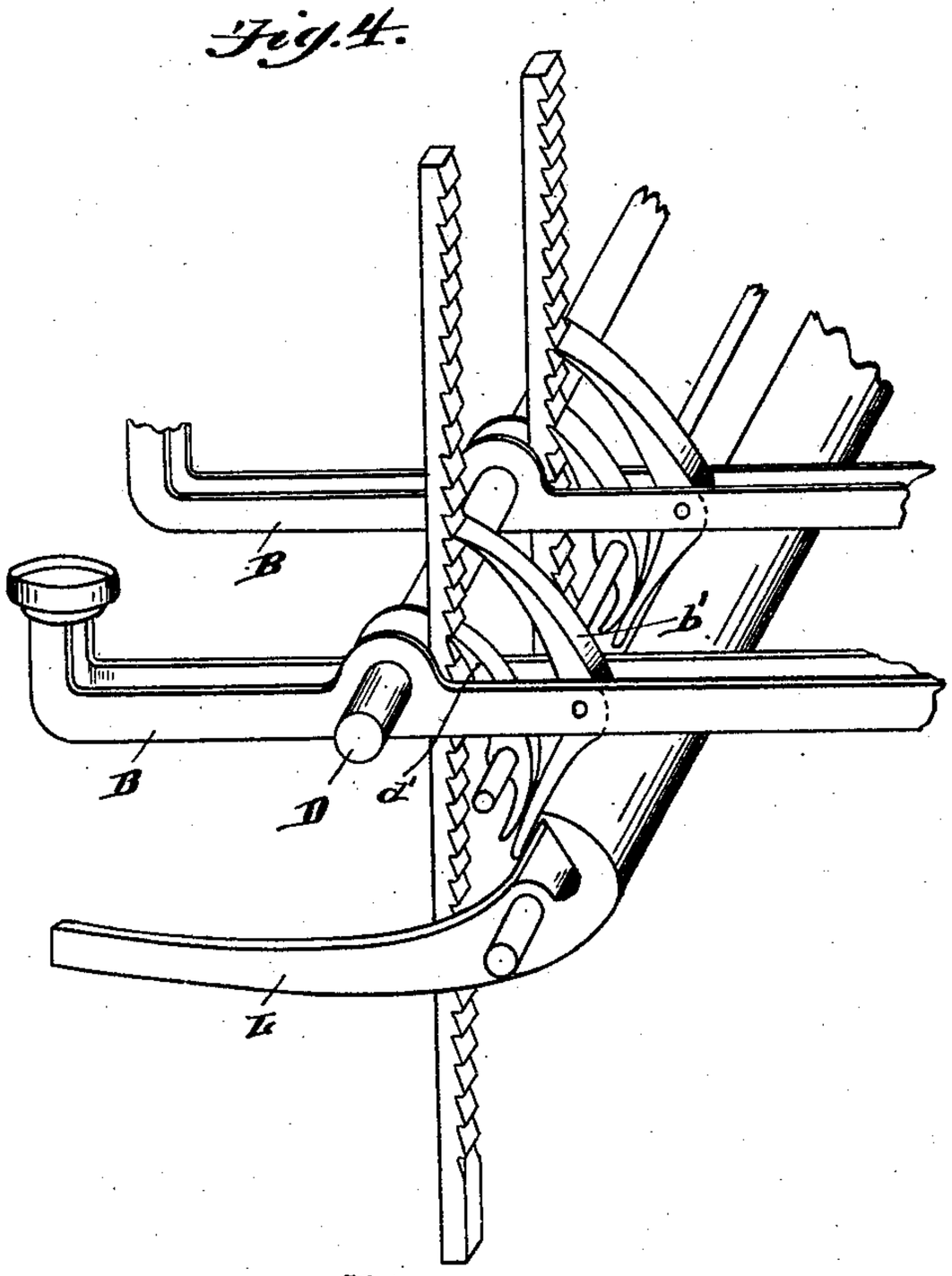
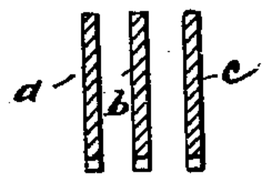


Fig. 5.



WITNESSES

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4 Sheets—Sheet 4.

C. H. DECKER.

CASH REGISTER.

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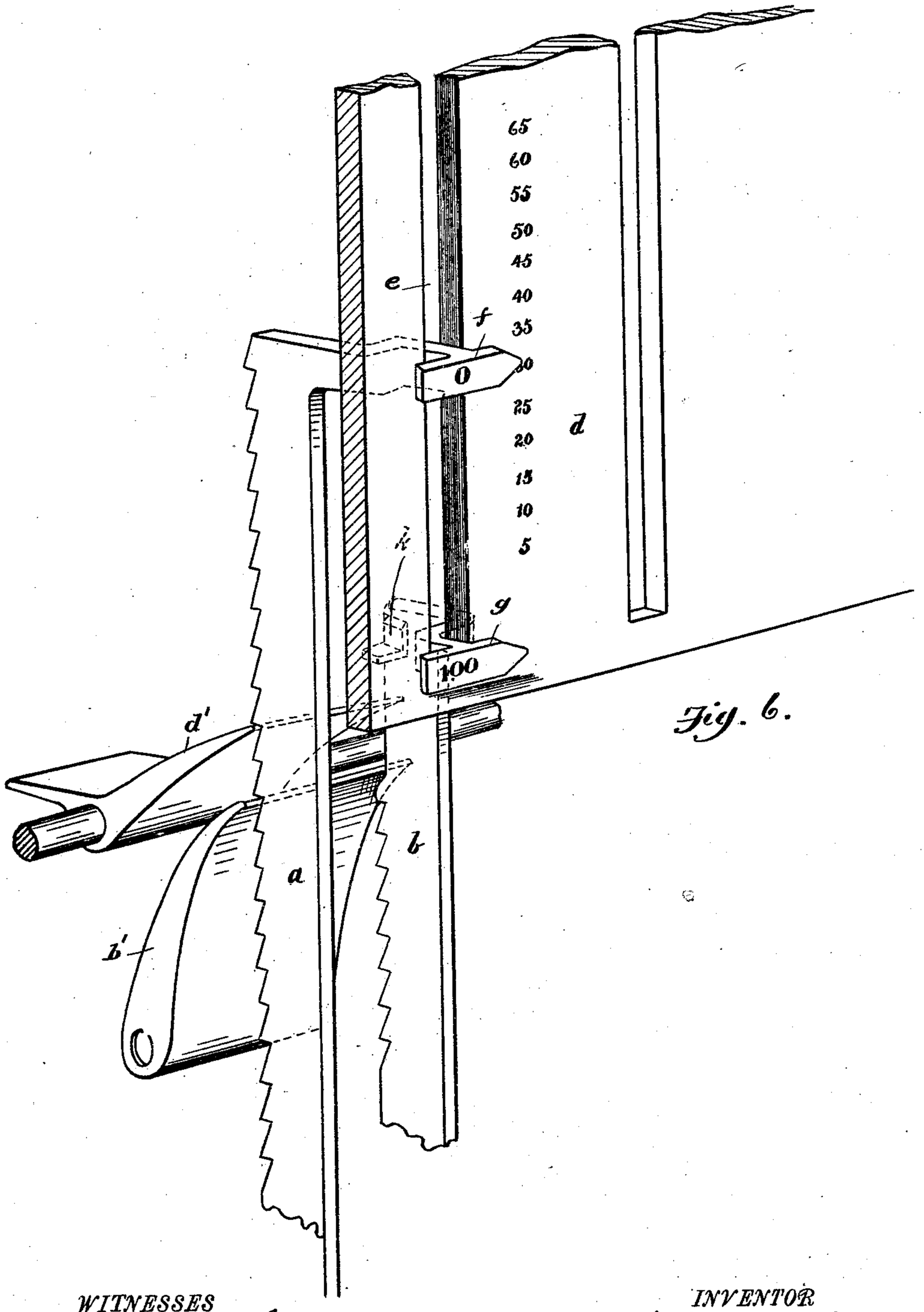

Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES H. DECKER, OF DETROIT, MICHIGAN, ASSIGNOR TO FREDERICK W. DECKER, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 556,047, dated March 10, 1896.

Application filed February 11, 1895. Serial No. 537,878. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DECKER, 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 improvement that pertains particularly to what may be termed a "partial adder," being the register or part of the machine on which is shown from time to time the total sums that have been indicated by any particular one of the keys.

In cash-registers there are usually a number of keys each one of which is devoted to the registry of a particular sum or amount, and this register by this particular key is repeated as often as may be necessary to satisfy the times of the business of the proprietor. Generally the register will be employed for a stated period and will then be reset and begin its operations anew.

The invention about to be described is confined to this partial adder, and can be employed with various means for displaying or indicating the individual sums that enter into the total sum, and I have therefore indicated one of the most common forms of making the display, but omit both from the drawings and the description the details of these features.

In the drawings, Figure 1 shows in perspective the cash-register containing my invention, and from the drawings the register is shown as though the end of it were cut into parts for the purpose of showing the interior arrangement. Fig. 2 shows in elevation a single actuating-key and the racks that comprise the registering device. Fig. 3 shows in front elevation the racks that compose a single partial adder, indicating the means by which they are brought into successive action. Fig. 4 shows somewhat modified in form and on an enlarged scale the register-racks and their actuating mechanism. Fig. 5 shows a cross-section of the rack-bars. Fig. 6 is an enlarged view of the racks, the scale in front of them, and the pointers reaching from the racks through the slots. In this figure only two racks of a set are shown.

A indicates the case of a register; B, the actuating-key by which the tablet-rod C is lifted. This key B swings on a bar D, which forms the common pivot of all the keys of the register.

As shown in the drawings, the key is a bar of thin metal stamped into a U-shaped form; but this form is not material to the invention. At a suitable point along the key B are supports for a set of rack-bars *a b c*, that have a vertical travel about equal to the length of any one of them, as shown in Fig. 3. There are three such rack-bars in the set, but they may be in number one or several. These are arranged to travel successively from the lowermost position (shown in Fig. 2) to an elevated position.

In front of the rack-bars above the key B is an indicating-plate *d*, provided with vertical slots *e*, and there is one vertical slot for each key or set of register-bars, and to the top of each of the register-bars is an index-finger or pointer *f g h*, that reaches forward through the slot *e* and is provided with a proper terminal, as appears in Fig. 1.

The pointer *f* forms a part of the register-bar *a*, the pointer *f* being the topmost of the pointers of this set and the bar *a* being the first one of the bars to engage the pawl and travel upward. The pointer *g* forms a part of the second bar *b*, and the pointer *h* forms a part of the third (or last bar of a set of three).

Arranged vertically beside each slot is a scale of which the divisions are equal to the pitch of the rack-teeth. At the top of each rack-bar, except the first of the series, is a space on which there are no teeth, and the pawl *d'*, the face of which is wide enough to reach across all the bars of the series, engages the rack-bars at this place. When all the pawls are at their lowermost position, the operating-pawl *b'*, pivoted to the key-levers, will engage and lift the bars of the series, but the upper pawl *d'* will engage with and hold up only the first bar of the series, and this bar

alone will continue to rise under the successive actuating impulses of the key and the holding action of the pawl d' until the first bar, rising to near its upper limit, lifts the succeeding bar until its toothed portion engages the pawl d'. This lifting of the succeeding bar is accomplished by the following-described means: At the top of each rack-bar, except the first in the series, is a lug $k\,k'$, and at the bottom of each rack-bar, except the last one of the set, is a lug $a'\,a^2$. When the first rack-bar of the set has been lifted within one or two notches of its extreme capacity for elevation, the lug a' engages the lug k of the second rack of the set and lifts it during the next succeeding stroke of the key B. The upper tooth of the rack b now engages with the pawl b', and the rack b continues to be lifted step by step in the same way that the first rack has already been lifted. The third follows the second rack in the same way.

As the rack a rises it carries the pointer f up along the scale beside the slot e until the capacity for registering of the first rack has been exhausted and the second rack begins to register along the same scale from the bottom upward, and the second index may, if desired, carry upon its face a figure which indicates the total amount registered by the rack that has preceded it, and each succeeding rack and index may in a similar way indicate at once to the eye the total registry of this set of rack-bars. In order to lift the rack-bars step by step there is hinged to the key a pawl b', that engages with a tooth of the rack-bar and lifts the rack a definite distance each time that the key-lever is actuated. A rest-bar or guard-bar b^2 prevents the pawl b' from engaging the rack-bar at a point lower down than it ought to engage it in lifting it irregularly or too much at each actuation of the key-lever. A holding-dog d' sustains the rack-bars as they are lifted.

When it is desired to readjust the rack-bars by dropping all of those that have been lifted the readjustment is actuated at once by a single lever L, one leg of which consists of a bar (seen in section in Fig. 2 and in perspective in Fig. 1) that reaches across the register above the tails d^2 and the dogs d'. By actuating the lever L the dogs d' are thrown out of engagement with the rack-bars, and the pawls b' are out of engagement at all times when not brought into and held in engagement with the rack-bars by the finger of the operator. When both the pawl and the dogs cease to engage the rack-bars, the bars drop by gravity to their non-registering position.

The spring d^3 serves to maintain the engagement between the dog d' and the rack-bars, and the spring l serves to hold the lever L against accidentally readjusting the rack-bars. A single pawl b' is used to successively lift the rack-bar belonging to the key to which the pawl is attached, and the single holding-dog serves to hold them as they successively come into action.

The front of the case may be closed in by a piece of glass M, (shown in Fig. 2,) through which the register can at all times be inspected, or it may be closed in by the usual metal casing.

In the form shown in Fig. 4 the holding-dog is located below the actuating-pawl, but in other respects the construction is as has been already described. I have shown, however, in this figure only a single register-rack with each key.

What I claim is—

1. In a cash-register, the combination of a plurality of vertical racks adapted to engage a single lifting-pawl, a lifting-pawl actuated by a key-lever, means by which the racks are brought successively into engagement with said lifting-pawl, a scale located parallel to the path of said pawls, and pointers provided with indicating characters whereby they unite with the scale in indicating the total actuating impulses given by the key, substantially as described.

2. In a cash-register, a plurality of vertical racks adapted to engage a single lifting-pawl, a lifting-pawl actuated by a key-lever, and means by which the racks are brought successively into engagement with said lifting-pawl, substantially as described.

3. In a cash-register, the combination of a key-lever, a lifting-pawl on the key-lever, a plurality of racks, each of which, except the first in series, is provided with an untoothed portion over which the pawl can act without lifting the rack, a lug at the bottom of the first, and a similar lug at the top of the second, said two lugs being adapted to engage and start the second rack upward when the first rack is near the end of its upward travel, substantially as specified.

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

CHARLES H. DECKER.

Witnesses:

CHARLES F. BURTON,

F. CLOUGH.