No. 683,048. Patented Sept. 24, 1901.

E. H. JAHNZ.

CASH REGISTER.

(Application filed Mar. 28, 1901.)

(No Model.) 4 Sheets—Sheet 1.

FIG. 2.

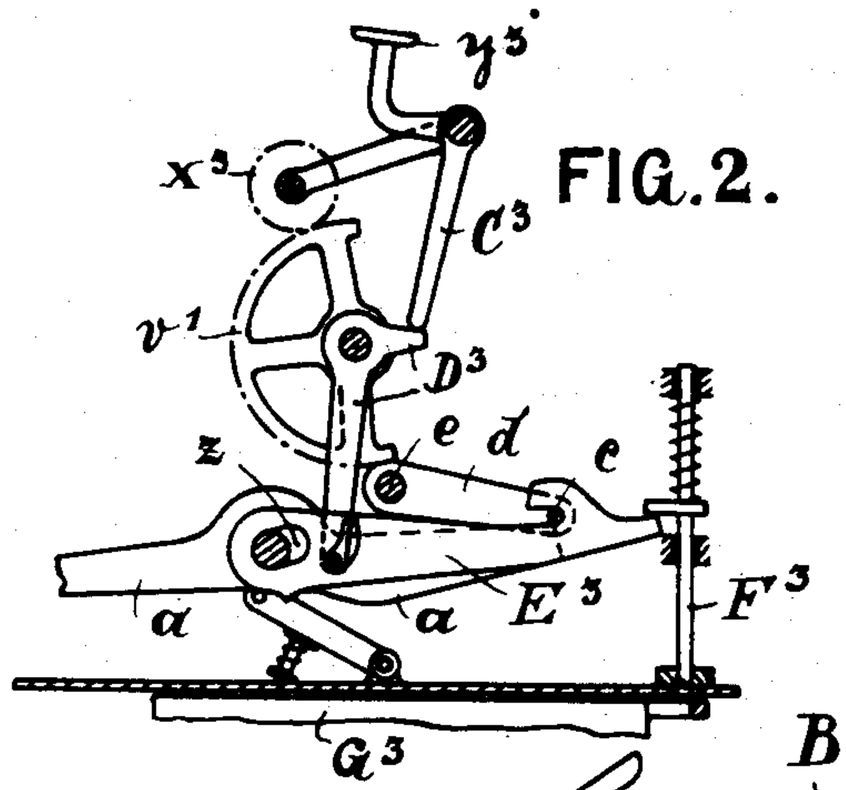
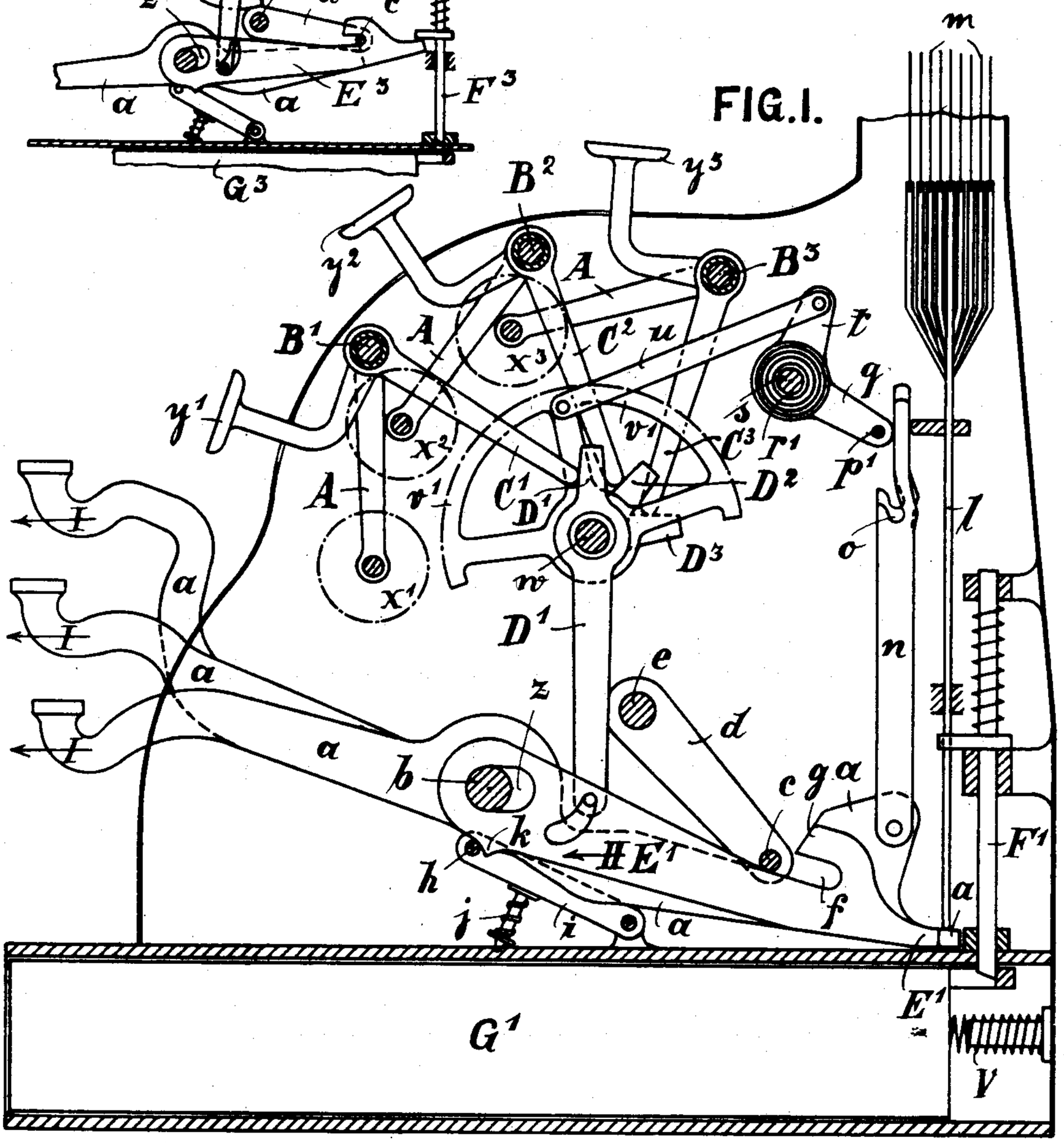


FIG. 1.



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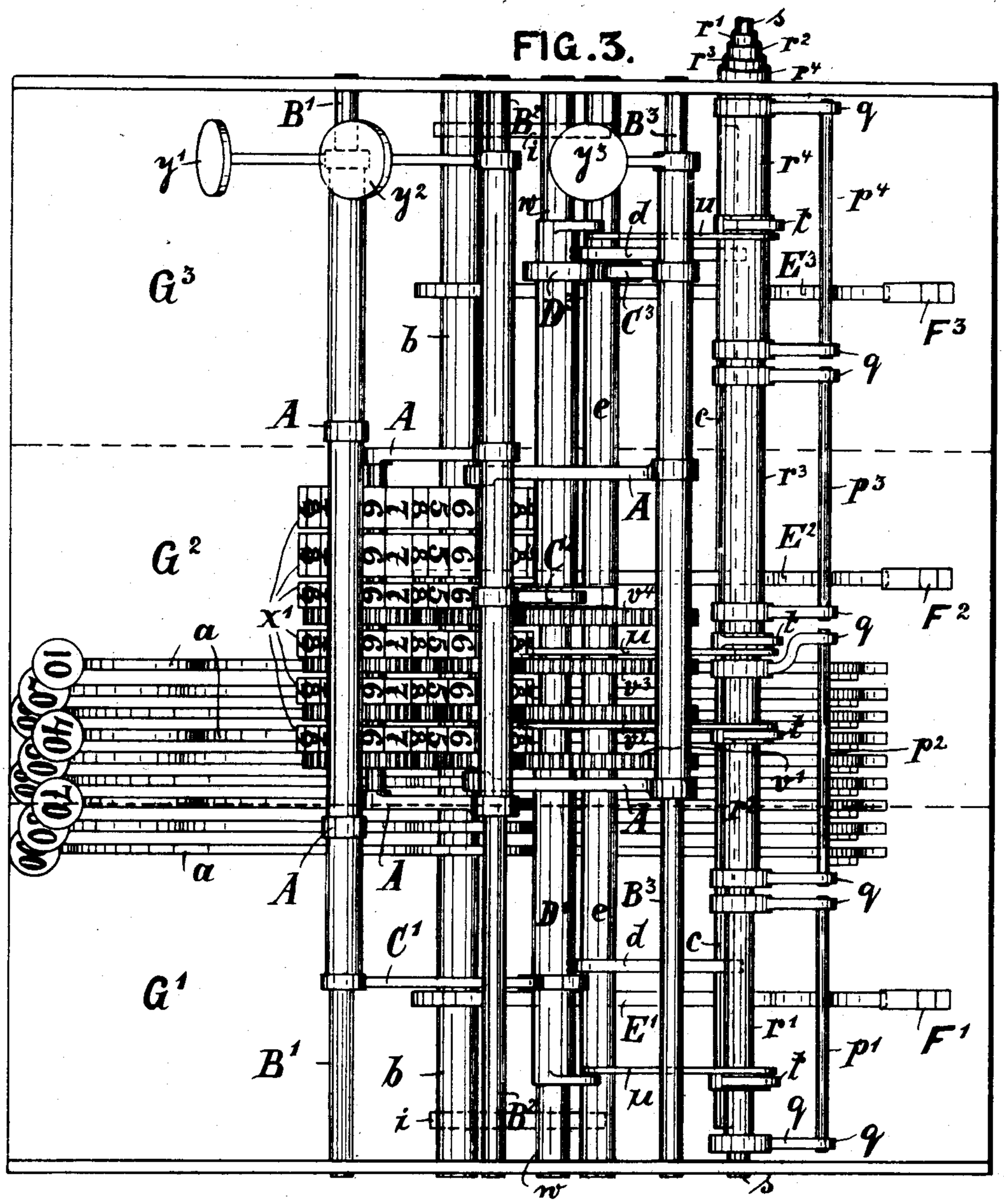
(No Model.) 4 Sheets—Sheet 2.

FIG. 3.



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No. 683,048. Patented Sept. 24, 1901.

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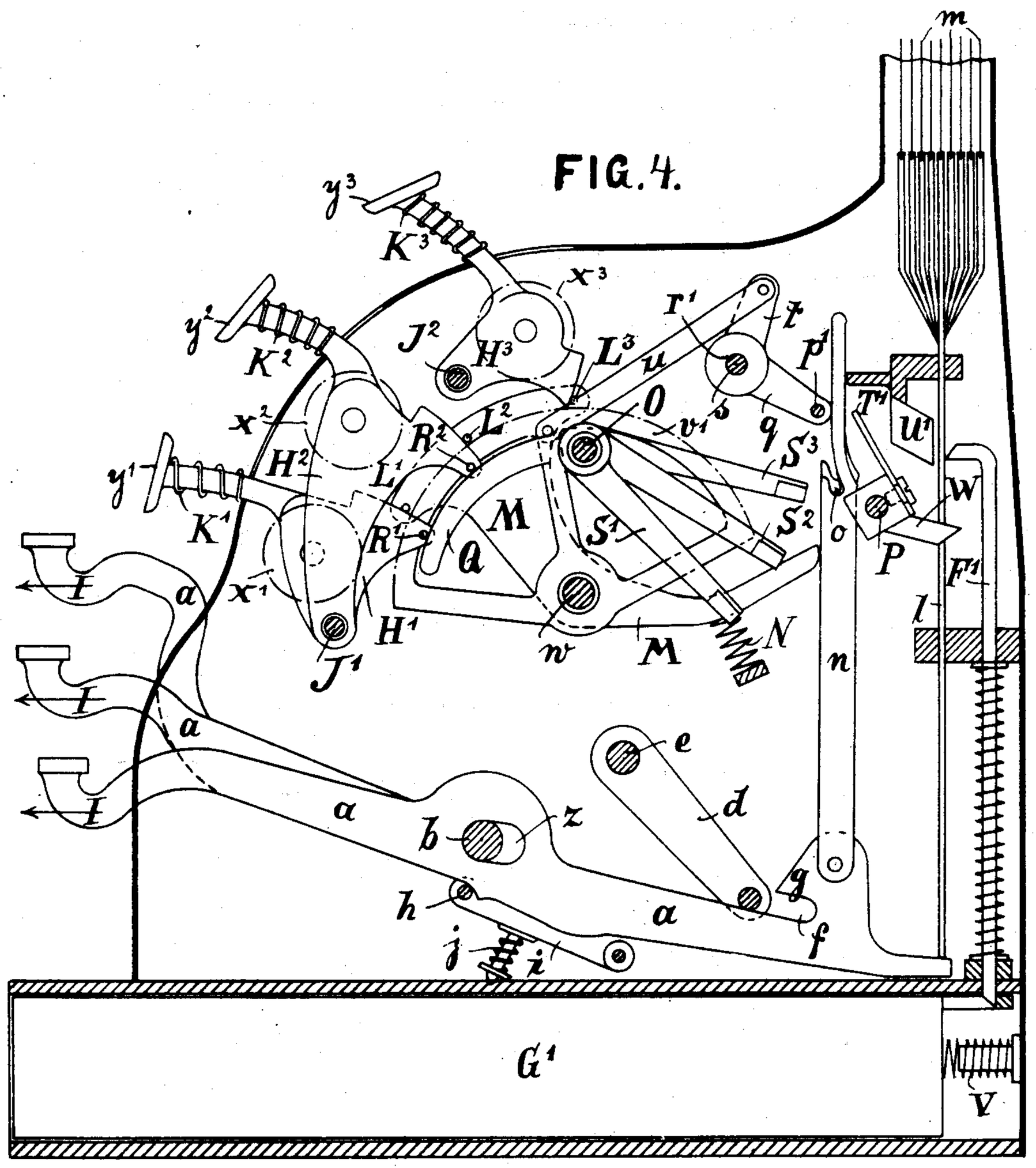
CASH REGISTER.

Application filed Mar. 28, 1901.

(No Model.) 4 Sheets—Sheet 3.

FIG. 4.



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No. 683,048. Patented Sept. 24, 1901.

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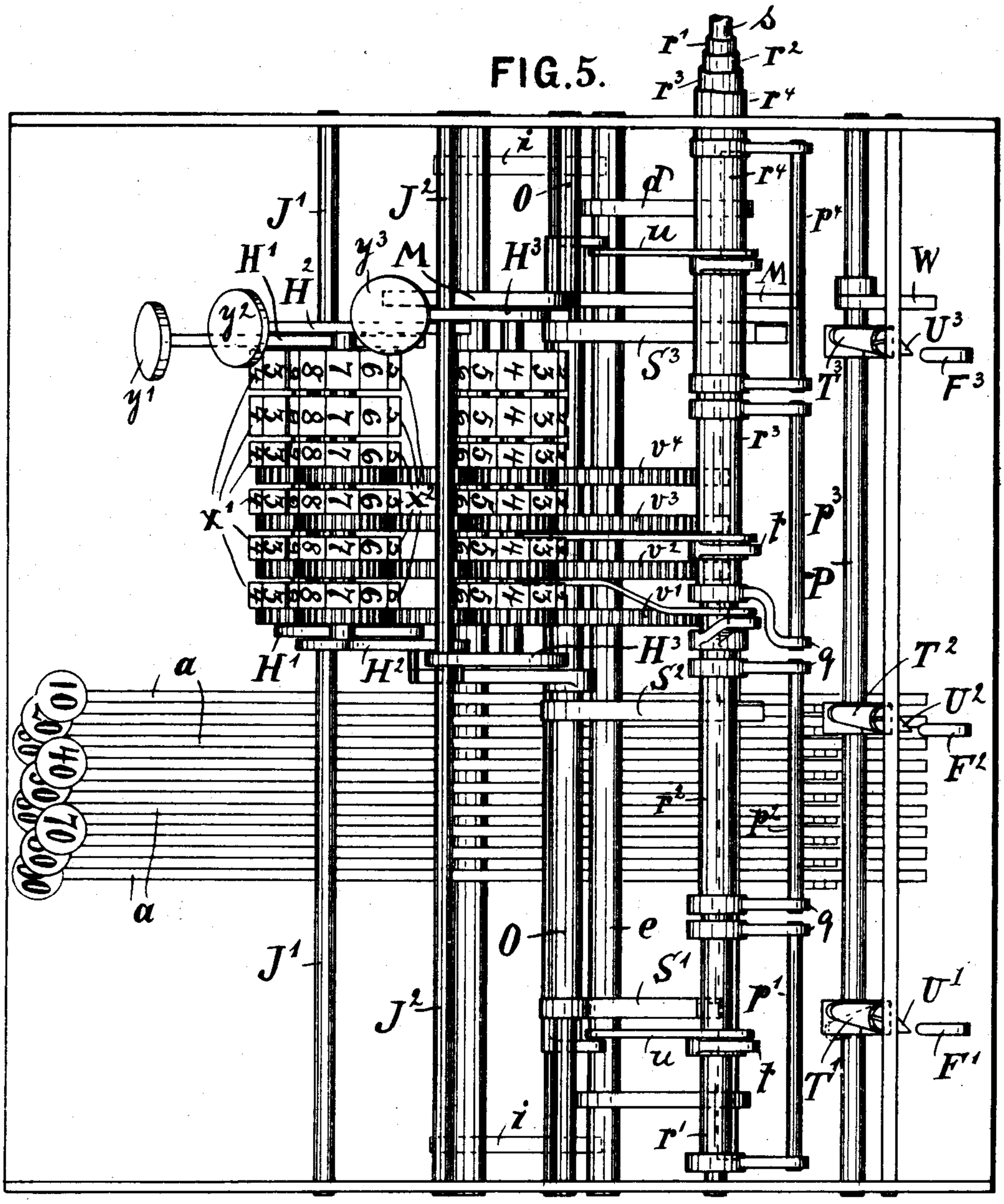
CASH REGISTER.

Application filed Mar. 28, 1901.

(No Model.) 4 Sheets—Sheet 4.

FIG. 5.



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UNITED STATES PATENT OFFICE.

ERWIN HERMANN JAHNZ, OF WESTEND, GERMANY, ASSIGNOR OF ONE-HALF TO DR. PAUL MEYER, ACTIENGESELLSCHAFT, OF BERLIN, GERMANY.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 683,048, dated September 24, 1901.

Application filed March 28, 1901. Serial No. 53,280. (No model.)

To all whom it may concern:

Be it known that I, ERWIN HERMANN JAHNZ, engineer, a subject of the King of Prussia, German Emperor, residing at Westend, near Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Cash-Registering Apparatus; and I do hereby declare that the following is a full, clear, and exact description.

My invention concerns the combination of the key-levers displaceable or adjustable on a common axle longitudinally with a plurality of adders and an equal number of drawers corresponding to the adding mechanisms. The individual adders are brought into engagement with the actuating mechanism common to all adders by pressing down a special sales-registering key or an analogous device. The release or disengagement of the corresponding drawer, however, is only prepared thereby. The final execution of this releasing operation takes place later only during the registry. Hence every drawer can only open after the corresponding adder has been actuated.

In the accompanying drawings are illustrated two different forms of execution of cash-registers arranged according to the present invention, in which the mechanisms for the release or disengagement of the drawers are executed in a modified manner. The other mechanisms are identical.

Figures 1 to 3 represent the one form of execution and Figs. 4 and 5 the other. Fig. 1 is a side view of the cash-register. Fig. 2 is a side view of certain parts, showing the engagement of an adder and the release of a drawer. Fig. 3 is a plan view of Fig. 1. Fig. 4 shows the second form of execution in side view; Fig. 5, a plan view of Fig. 4.

The key-levers *a*, Figs. 1, 3, 4, and 5, each representing a given money value, are arranged in a row on a shaft *b*. Altogether are provided four times nine—*i.e.*, thirty-six—keys *a*—nine keys for one to nine cents, nine keys for ten, twenty, &c., to ninety cents, nine keys for one to nine dollars, and nine keys for ten, twenty, &c., to ninety dollars; but of these four sets of keys only the one which represents the tenths of cents is shown in the figures in order to make them clearer.

The key-coupler consists of the cross-bar *c* and two swinging arms *d*, which are revoluble on the rod *e*. The cross-bar *c* is placed transversely over all the keys *a*.

The keys *a* are pivoted on the rod *b* by means of a slot *z*. On the inner head of each key is provided another slot *f* opposite to the bar *c*. Each key can be pulled out in the direction of the arrow I. The bar *c* enters then in the slot *f* under the nose *g*. A key is always to be pulled out if a value is to be registered, to which a single corresponding key is not provided—for instance, twenty-five cents. In this case first one pulls out the twenty-cent key and then one presses down the five-cent key, or vice versa. The key pulled out is also raised by the key later pressed down by the intermediary of the key-coupler. The keys are secured in their position when they are pulled out or not by the cross-bar *h*, supported by two lateral arms *i*; and always pressed up by the springs *j*. The bar *h* lies either against the one or the other side of a projection *k*, provided on the under side of each key *a*. On the inner end of each key *a* rests a vertical slab *l*, supporting in the usual manner on its upper end an index-plate *m*, with the corresponding value on it. On the upper edge of the inner end of each key is pivoted a driving-rod *n* in the usual manner. The recesses *o* in their upper ends are of different depths corresponding to the values represented by the several keys. The rods *n* engage with one of the four bars p' p^2 p^3 p^4, provided for the four sets of keys *a*. Each rod *n* is supported by means of two arms *q* by one of the tubes r' r^2 r^3 r^4. These tubes are revoluble around one another and around the bar *s*. On each tube is further fastened an arm *t*, which is linked by a joint *u* to one of the four toothed main driving-sectors v' v^2 v^3 v^4, supported by the shaft *w*. The tubes r' r^2 r^3 r^4 project, as it is well known, on the one side of the casing of the cash-register and support the type-disks for printing the checks and the record-strips. If one presses down

one of the keys a, the corresponding driving-rod n turns the tube r and also the corresponding sector v through an angle, which is different according as the pressed key represents a smaller or a greater value.

In the new apparatus are provided, for example, three different addition mechanisms $x' x^2 x^3$. Each adding mechanism can be brought into engagement with the sectors v' $v^2 v^3 v^4$ by depressing the corresponding salesman's key y', y^2, or y^3.

The means of engaging the adding mechanisms with the main driving-sectors in the first constructional form, Figs. 1 to 3, are as follows: The separate addition mechanisms are arranged on a circle around the shaft w and are supported by arms A, which are pivoted on shafts B' B^2 B^3. By pressing down, for instance, the key y' an arm C', connected therewith, is also pressed down and acts on a suitable two-armed lever D' and moves it, so that the lever E', placed with its slot z on the shaft b, is moved in the direction of the arrow II. Owing to this movement, the slot f of the lever E' engages on the bar c of the key-coupler, so that the two are coupled. The following actuation of the registering mechanism is illustrated in Fig. 2, in which a key-lever a and the salesman's key y^3 are shown pressed down. The lever E^3 is raised by the key-coupler, and thus releases the bolt F^3 of the respective cash-drawer G^3. A spring is provided in the usual manner for each drawer, which quickly pushes it forward after the respective bolt is released. The rest of the cash-drawers and the rest of the adding mechanisms remain in the position of rest. During the rising movement the key-coupler pushes farther and farther into the slots f of the keys a and of the lever E^3 and touches the back of the slots, because the radius from the slot f till to the shaft b is greater than the radius from the bar c till to the shaft e. The keys a and the lever E^3 are thus pushed back in the contrary direction to the arrow II, Fig. 1. When the key has moved back, all the moving parts are again in the position of rest shown in Fig. 1. In the constructional form illustrated in Figs. 4 and 5 by depressing one of the salesman's keys its respective addition mechanism is also immediately put in gear. To release the cash-drawer, another intermediate mechanism is, however, employed. The salesman's keys y' y^2 y^3 are placed on toggle-joints H' H^2 H^3, pivoted on bars J' J^2. By pressing down one of the salesman's keys one of the springs K' K^2 K^3 is compressed and tends to move back the key into the position of rest. If the key is depressed, it is held in the operating position by means of one of the pins L' L^2 L^3, which engage it behind a projection. These pins are placed on the key-bolt M, freely revoluble on the shaft w, which bolt is controlled by a spring N. Across the whole width of the cash-register extends two shafts O P. The first bears on one side an arm Q, which rests against pins R' R^2 on the keys, and on the other side three arms S' S^2 S^3. According as one or the other salesman's key is depressed the axle O will either remain in the position shown or be turned at a smaller or greater angle. The axle P, which makes a complete revolution every time the cash is registered, is provided with three reversible cams T' T^2 T^3, in the path of which the arms S' S^2 S^3 can project. The top of each arm is so sloped off that it turns the cam coming in contact with it, which usually takes the position shown in Fig. 5, around to the left, as shown in the dotted lines, for the cam T'. The reversed cam—for instance, T'—in its further rotation raises the bolt F' of the cash-drawer G' and is finally turned again by means of the fixed slanting stop U' into the original position. The unreversed cams T^2 T^3 pass by their bolts F^2 F^3 without releasing them and without touching the stops U^2 U^3. By altering the point of engagement between cams T' and bolts F the period can be fixed when the cash-drawers are released. In the present case this release takes place while the previously-depressed value-keys are going up and after the addition has been finished. The axle P also bears another arm W, which operates the key-bolt M and allows the depressed salesman's key to return to its original position, when the addition is completed in a manner easily understood. It will be seen that in both cash-registers set forth the releasing of a cash-drawer is not directly effected by means of pressing down the corresponding salesman's key. The releasing is rather only prepared by it. The releasing is then effected during the registering movement. If a cash-drawer would be released directly by pressing down a salesman's key, the drawer would be opened before the registration of the amount to be registered is effected. It is easily understood that such a cash-register would be worthless. Instead of keys other devices—for instance, handles for drawing out, turning, or pushing in, or other locks—may be employed for connecting up the adding mechanism and releasing their respective cash-drawers without departing from the spirit of the present invention. Moreover, the lever releasing its corresponding cash-drawer instead of by the key-coupler could be actuated by any other rocking part of the apparatus or even by the cams of a rotating shaft. When examining the cash-register, one glance at the adders will show at once how much each salesman should have taken in, and one glance at the drawer will show what each salesman has taken in actually. Hence differences between the amount in the drawer and what has been recorded can be established immediately. Moreover, there is no possibility of a doubt which salesman is at fault.

What I claim is—

1. In a cash-register, the combination, the key-levers, each having a slot, a shaft com-

mon to the key-levers passing through the said slots, each key-lever having also a slot at its inner end, a key-coupler with which the key is coupled by means of said inner slot when the key is pulled out, a plurality of adding mechanisms, a common driving mechanism therefor, a special cash-drawer for each adding mechanism, a salesman's key for each adding mechanism which when operated brings its adding mechanism into engagement with the common driving mechanism and at the same time prepares the parts for the release of the corresponding cash-drawer, substantially as described.

2. In combination in a cash-register, key-levers, each having a slot z, a common shaft b, passing through the said slots, each key-lever having a further slot f, in its inner head end, a key-coupler c with which the said slot f couples when the key a is pulled out, a plurality of adding mechanisms x', x^2, x^3, a common driving mechanism v', v^2, v^3, v^4, a special cash-drawer G', G^2, G^3, for each adding mechanism, a salesman's key y', y^2, y^3, one for each adding mechanism which when operated brings its respective adding mechanism into engagement with the common driving mechanism, bolts for holding the cash-drawers and levers E', E^2, E^3, the said salesman's keys when operated serving to prepare for the release of the corresponding cash-drawer by coupling one of the levers E', E^2, E^3, with the coupler, the said lever releasing the bolt of the corresponding cash-drawer, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ERWIN HERMANN JAHNZ.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.