

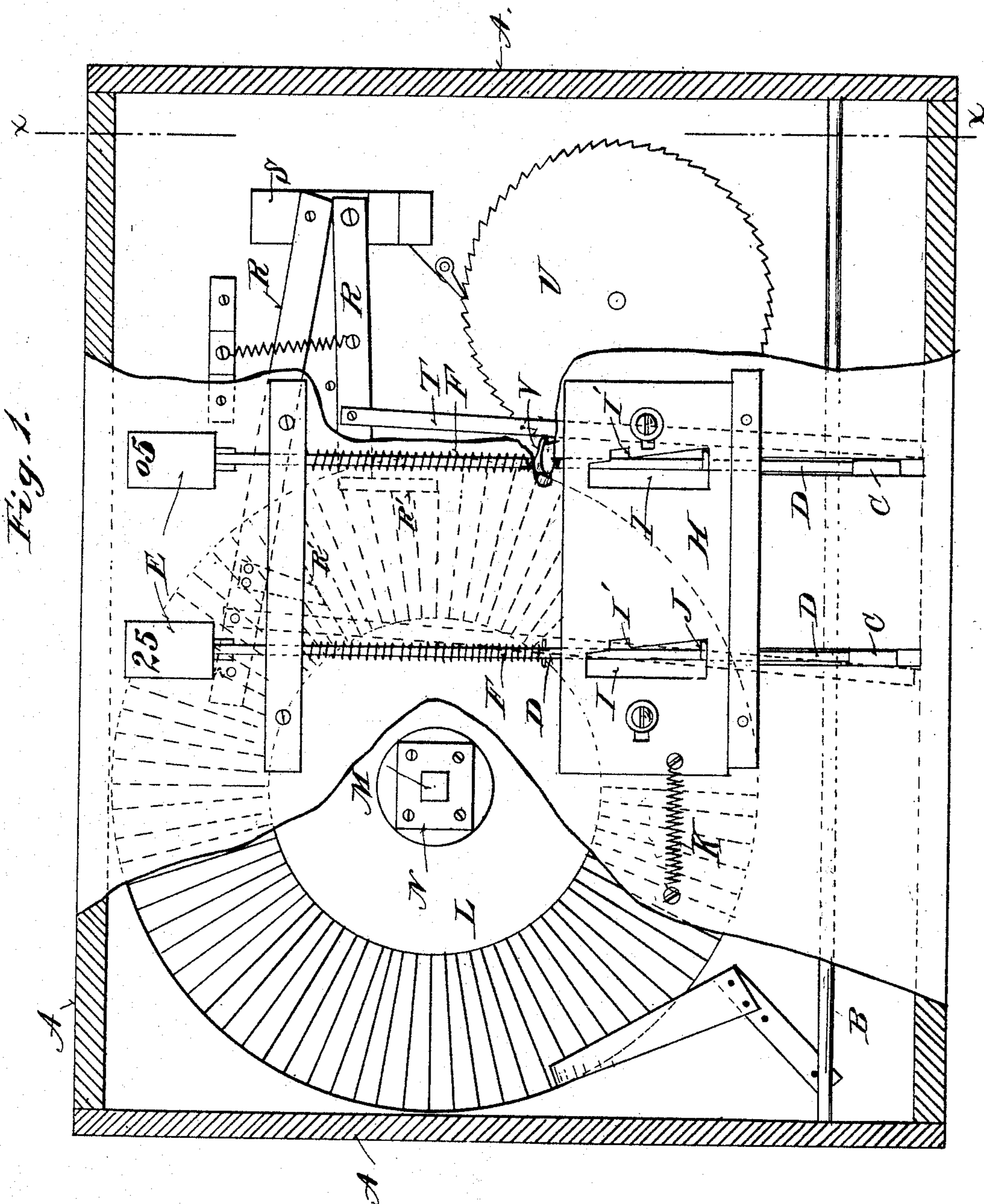
(No Model.)

6 Sheets—Sheet 1.

J. B. AUFULDISH.
CASH REGISTER AND INDICATOR.

No. 492,454.

Patented Feb. 28, 1893.



WITNESSES
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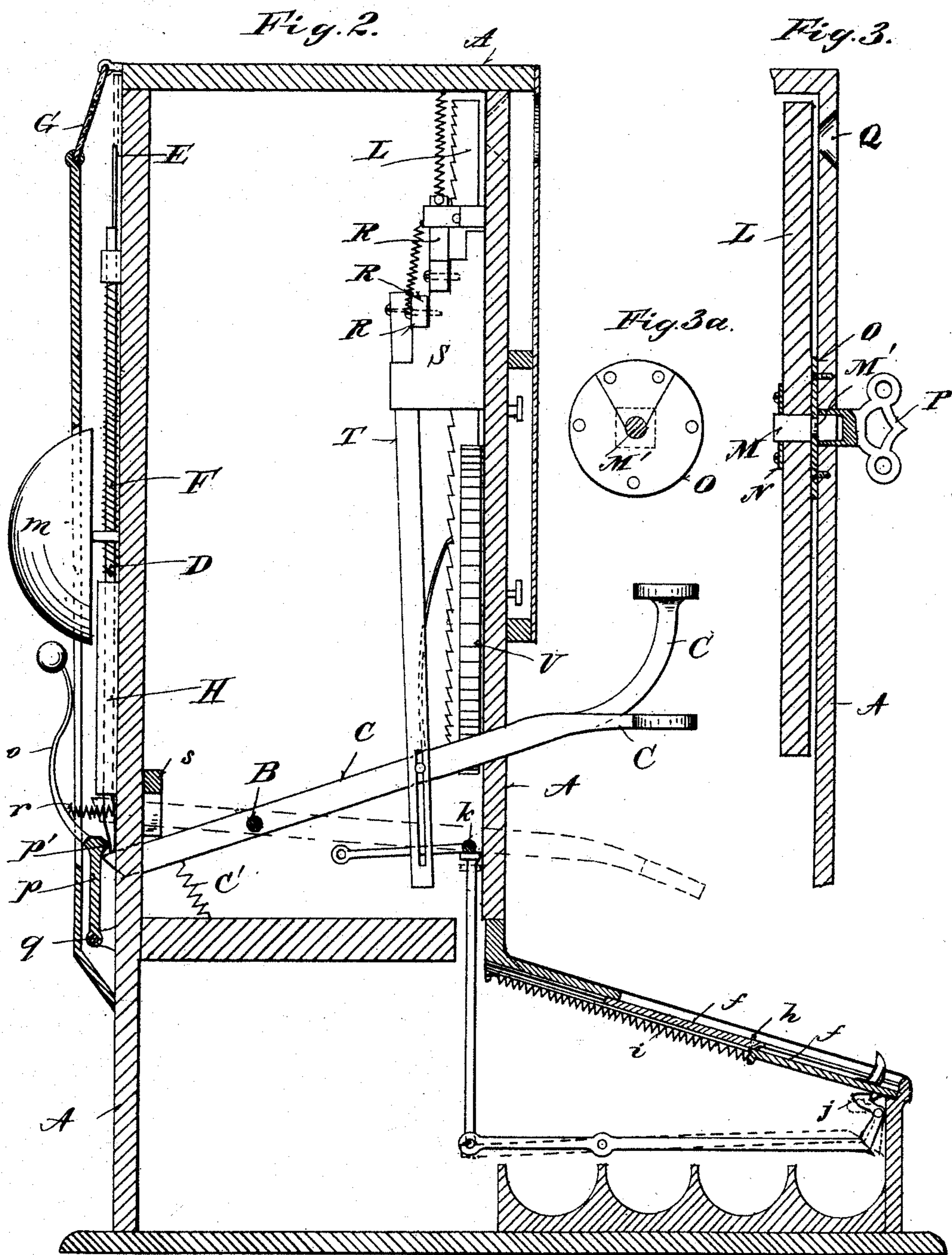
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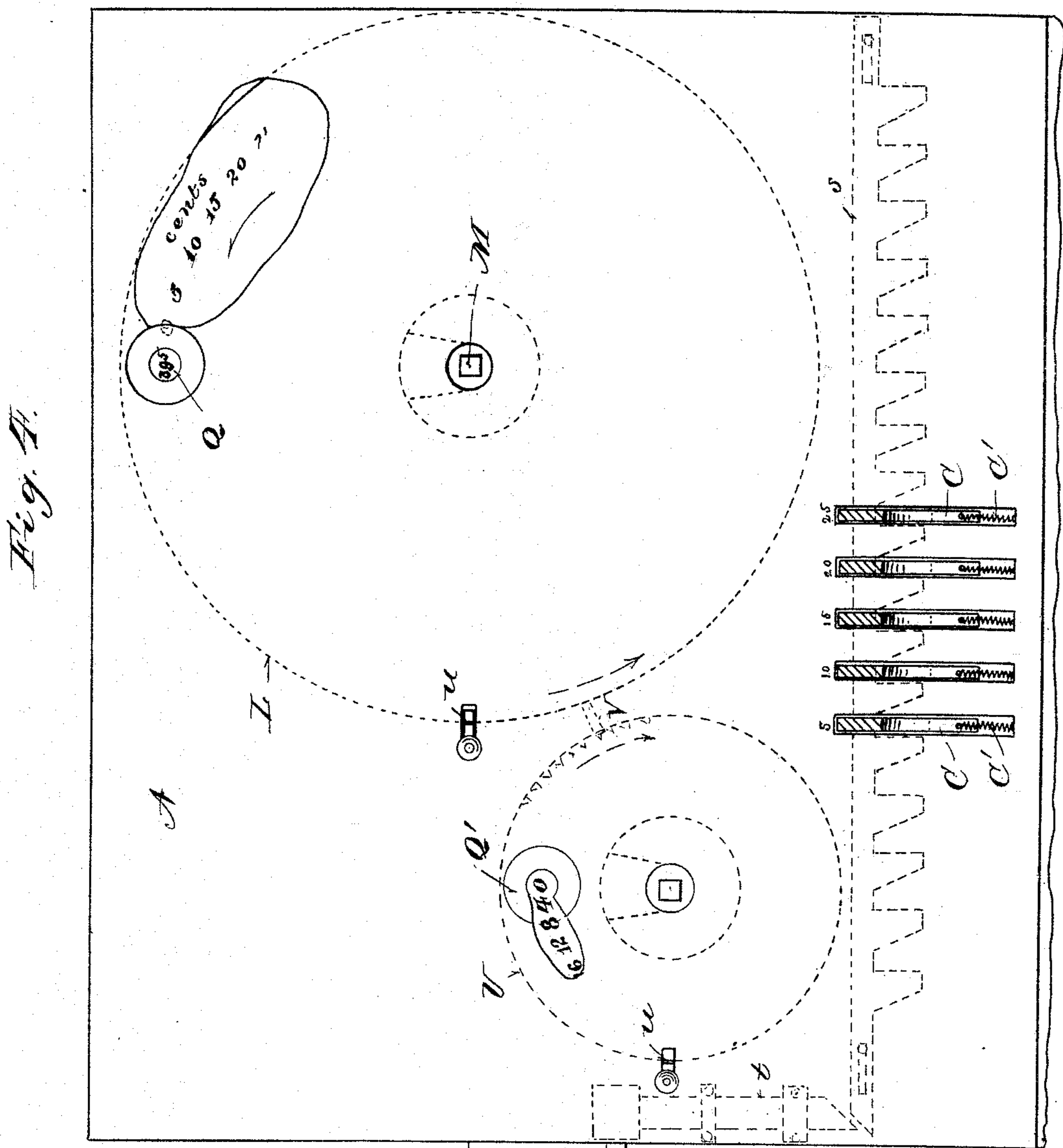
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Fig. 4a

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(No Model.)

6 Sheets—Sheet 4.

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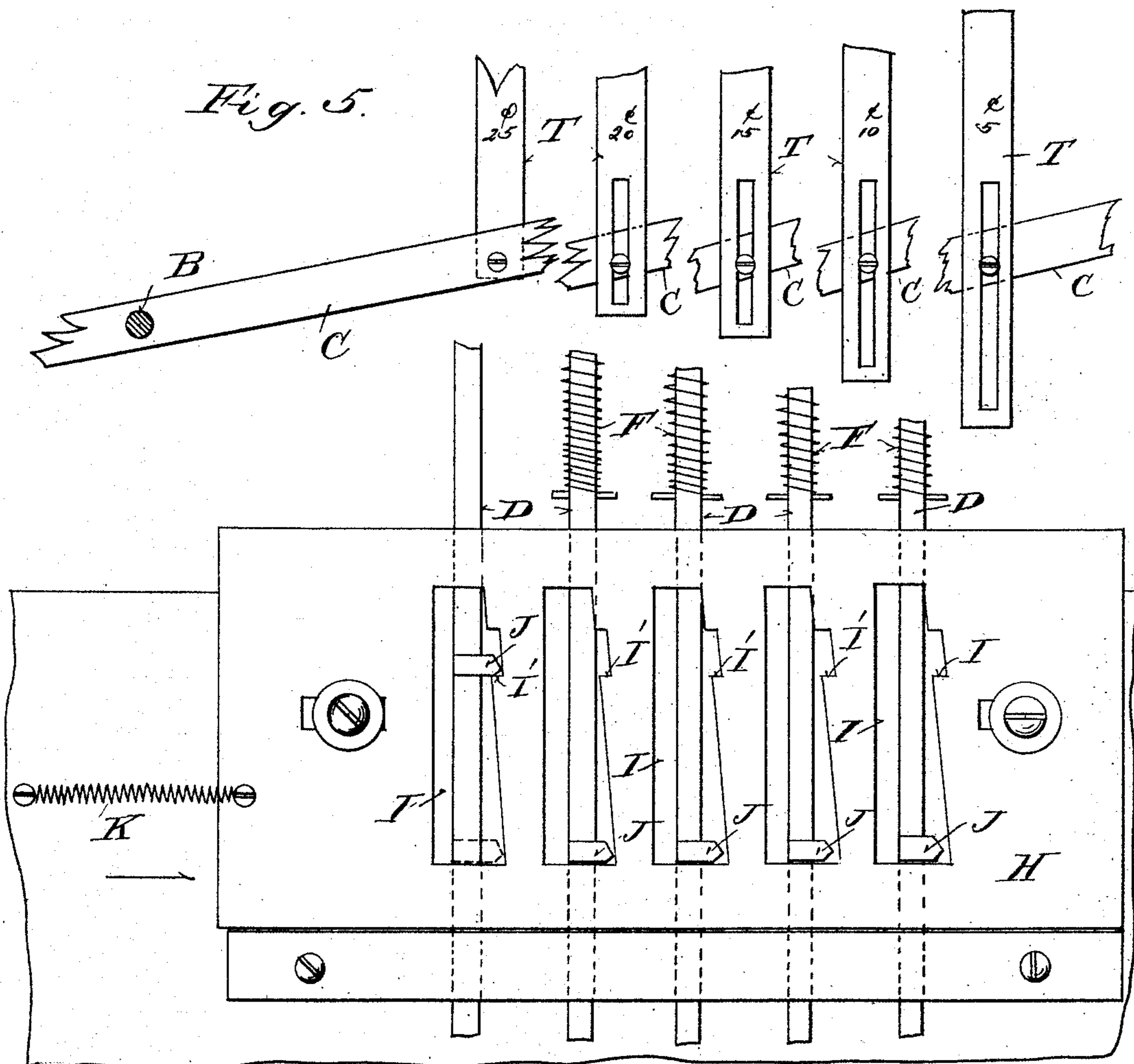


Fig. 6.

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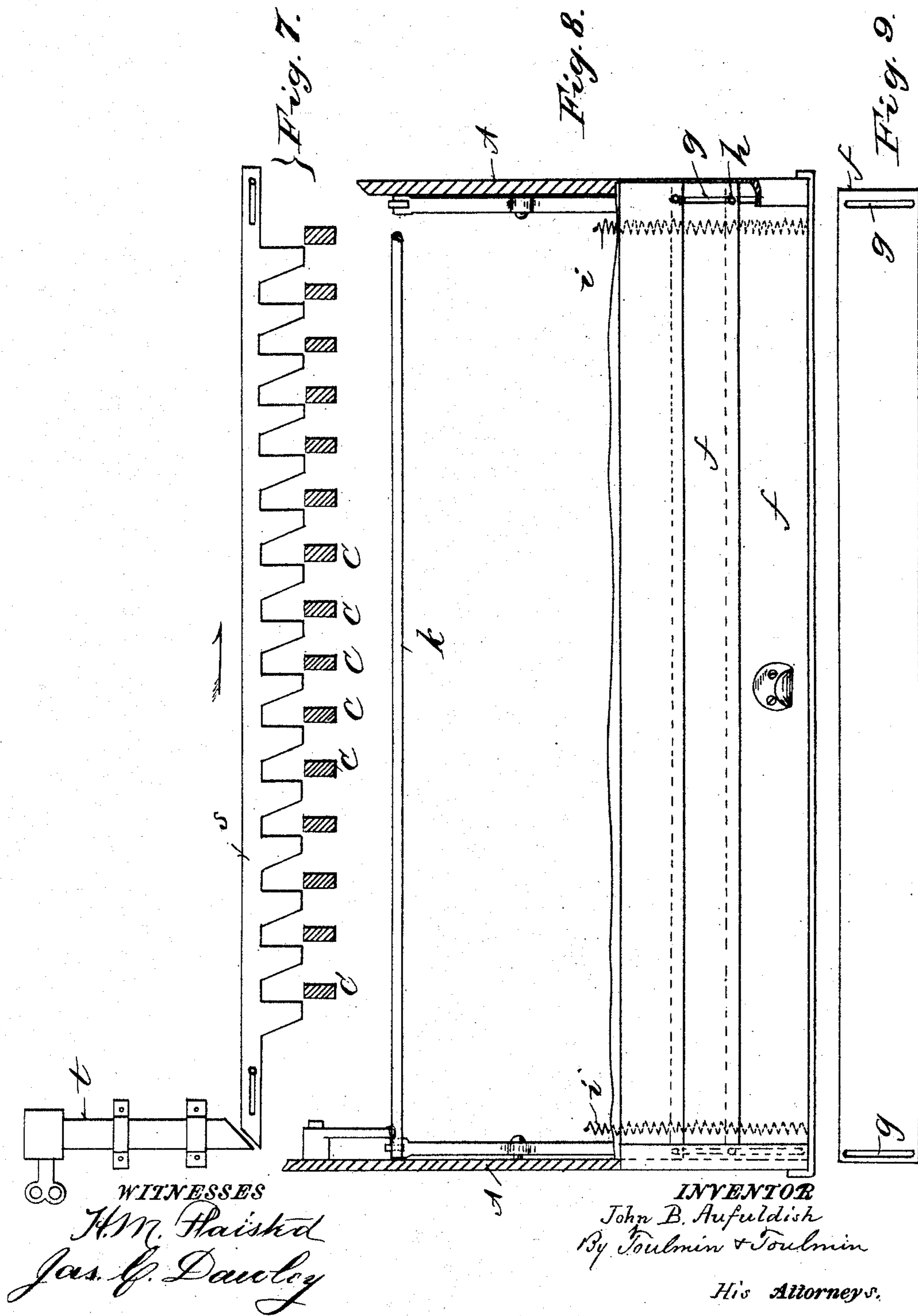
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(No Model.)

6 Sheets—Sheet 6.

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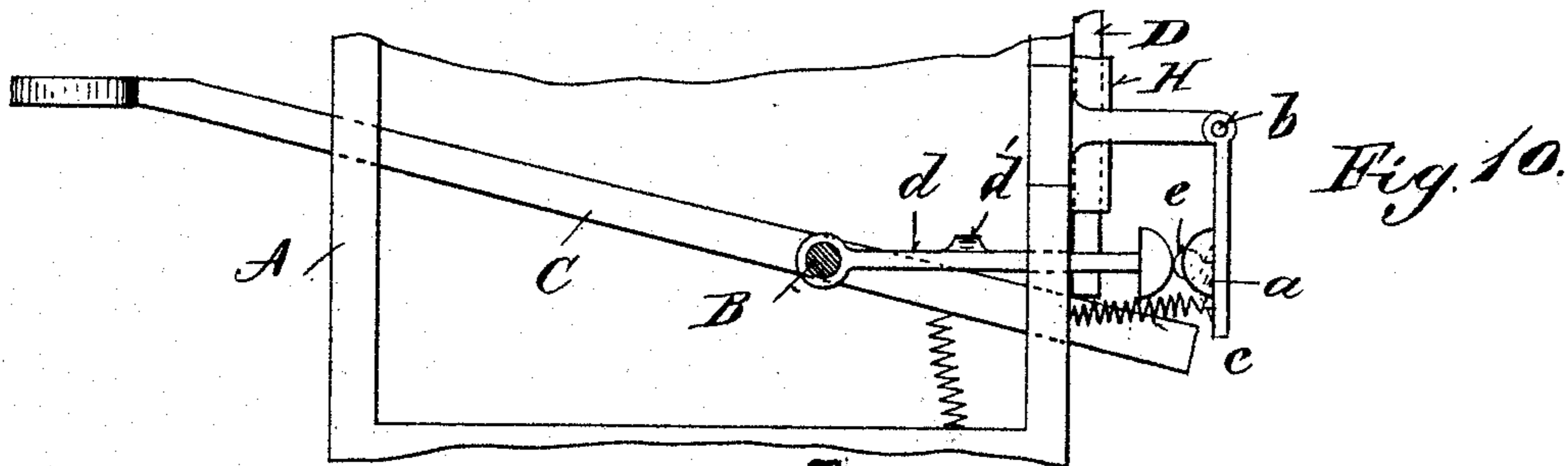


Fig. 10.

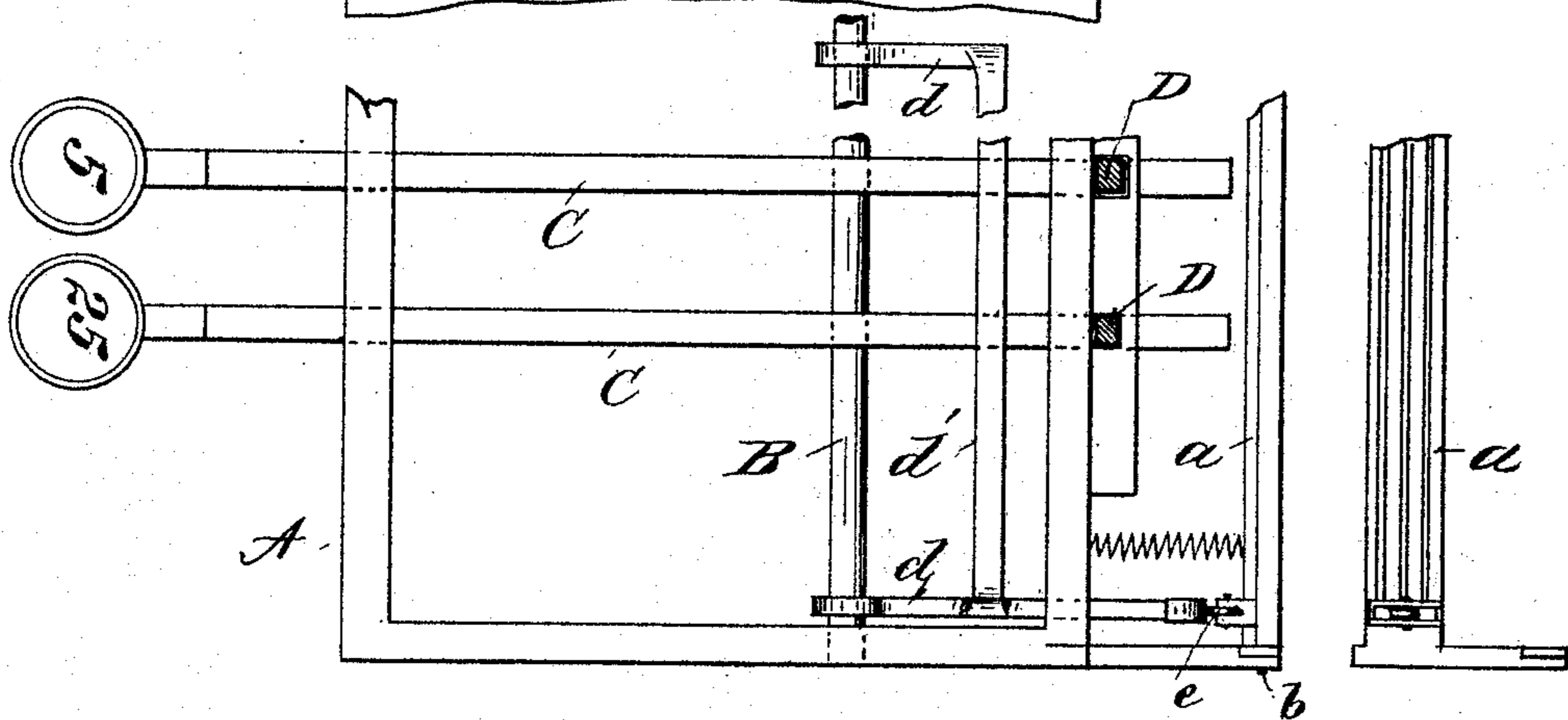


Fig. 11.

Fig. 12.

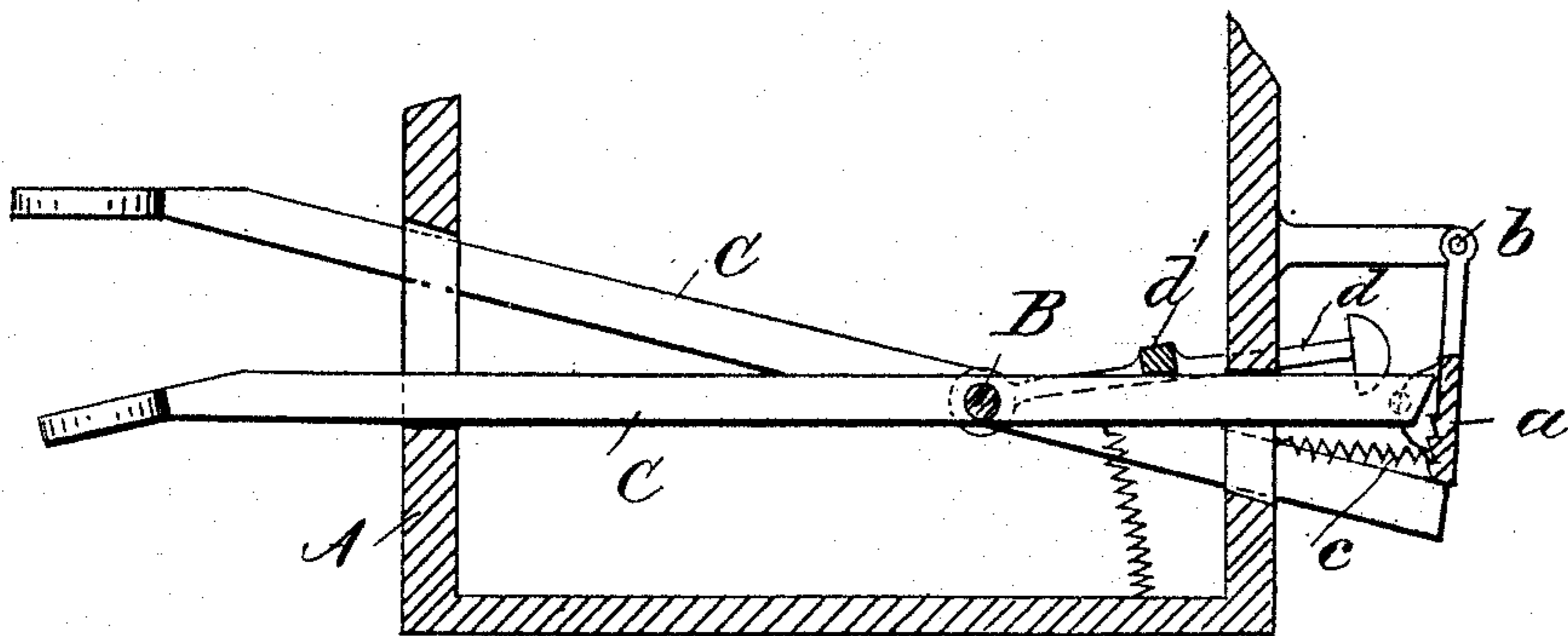


Fig. 13.

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UNITED STATES PATENT OFFICE.

JOHN B. AUFULDISH, OF DAYTON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE COLUMBIA CASH REGISTER COMPANY, OF MIAMISBURG, OHIO.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 492,454, dated February 28, 1893.

Application filed April 1, 1892. Serial No. 427,408. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. AUFULDISH, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Cash Registers and Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in cash registers and indicators.

My improvements have reference to a ratchet disk the teeth radiating from the center on the side face of the disk forming the primary wheel of a register apparatus; have reference to an operating lever and pitman connection with the key; have reference to adjusting said pitman to allow the same operation of each key, while effecting a different movement of the ratchet disk; have reference to a money box, and a spring-actuated multiple top therefor; have reference to a trip mechanism operated by the keys to expose said money box; have reference to a bell-sounding mechanism, and to other points hereinafter described and claimed.

In the accompanying drawings on which like reference letters indicate corresponding parts; Figure 1, represents a face view of a portion of the operative parts of my device, portions being broken away to show the construction and but two of the cam and lever devices shown. Fig. 2, a vertical sectional view of the machine on the line *x, x* of Fig. 1; Fig. 3, a sectional view through the center of the primary wheel; Fig. 3^a, a detached detail view of the supporting plate for said wheel; Fig. 4, a view of the machine on the side toward the operator; Fig. 4^a, a sectional view showing the locking slide or catch for the registering wheels; Fig. 5, detail views of a set of pitman connections with the keys showing the variation in length of the pitmen; Fig. 6, a front view of a sliding catch for the indicator posts, one of the posts being supported in its elevated position; Fig. 7, a detail side view of a locking bar for the keys; Fig. 8, a plan view of the sliding top of the money box and a portion of the trip mechanism; Fig. 9,

a detail of one slide; Fig. 10, a detail sectional view showing a side view of a key and the ratchet plate mechanism for locking the keys; Fig. 11, a plan view of the same; Fig. 12, an inside face view of a portion of the ratchet plate and one of its hangers; and Fig. 13, a similar view to Fig. 10, showing one key down and the ratchet plate engaging with the other keys to prevent their operation.

The letter A designates a case of rectangular or other suitable construction, provided with a cross bar B, on which is mounted a series of lever keys C, the outer ends of which are suitably numbered in any series as desired.

Fig. 1 shows but two of the cam slots, and adjunctive devices; this is to prevent complication in illustrating the mechanism, while in other figures, I have shown a larger number of such cam slots and devices operating therewith.

I have shown five keys, designating them 5, 10, 15, 20 and 25 respectively, whereby said named purchases may be indicated and registered. The series may increase otherwise than as named, but five is a convenient number in a set and I have so illustrated it. Referring to Fig. 4, the keys are shown in close proximity, and I have therefore arranged the outer ends of the keys at various heights as indicated in Fig. 2 to avoid interference of the same in their operation. The outer ends of the lever keys engage with sliding posts D, on the upper ends of which are carried tablets or indicator cards E, numbered corresponding to the figures of the keys. A spring F, on each post, exerts a normal tendency downward upon the outer end of a key which raises the corresponding tablet to view through the sight opening G, Fig. 2. It is held exposed by means of a sliding catch H, having cam grooves I, and a shoulder or notch I', which latter engages with a lug J on the indicator post when opposite thereto, and supports the same. The lug J, is beveled, preferably, on both sides, to effect a ready sliding action against the inclined side of the groove I, constituting a cam surface. A spring K, or other means, effects a tendency of the slide to engage with the cams on the posts. The incli-

nation of the cam slot will cause the movement of the slide when one of the posts is raised by action of its key, the lug J, forcing the slide over till the height of the shoulder I' is reached, when the slide returns under the action of the spring K, and supports the post in its raised position, thereby keeping the tablet exposed, while the key returns to its normal position under action of a spring C'.
 10 The indicator is returned when the slide H is thrown back by the operation of another key which causes the lug on another post to act on the cam surface of the corresponding slot I, till it reaches its respective shoulder which supports it elevated. The previous post operated has meanwhile returned under the action of the spring F. The operation of any key thus returns the indicator previously shown, and exposes the present purchase.
 20 Thus in Fig. 6, the post on the left is shown supported by its shoulder, while the other posts are in their normal lower position. The double bevel of the lug J, allows the ready engagement of the shoulder with the lug, and facilitates a sliding of the latter on the inclined surface of the slot.

I now refer to the registering mechanism operated by the keys. This consists of a ratchet disk L, Figs. 1 and 2, mounted on the stud M, having a squared end engaged by a holding plate N, Fig. 1, secured to the face of the disk, and a divided plate O, fitting on the turned-down portion M' constitutes a bearing on which the disk rotates. The outer end of the stud is squared to receive a key P, by which it may be returned to zero. The back of the disk is provided with numbers Fig. 4, increasing in any required series, and exposed successively through a sight opening Q, as the disk is rotated. This disk constitutes the primary wheel of the registering mechanism. The face as seen from Fig. 1, is provided with a ratchet surface, the teeth diminishing in size toward the center. The distance between the teeth will thus be greater near the periphery of the disk. These teeth are engaged by operative levers R, fulcrumed on steps S, whereby they may be operated past each other without interference. A pitman T or other connection engages each lever with a corresponding key, the downward motion of which causes a projection or catch R' on said lever to rotate the disk or primary wheel a distance corresponding to the number of the key. Referring to Fig. 5, each pitman is shown slotted, having a pin moving in each slot a certain distance before acting to pull down a pitman and rotate the wheel. This adjustable connection compensates for the tapering teeth of the ratchet disk, as well as allowing a greater or less movement of the disk to be effected by a similar movement in each key. That is to say, each key is pushed down to the same distance, but operates the ratchet disk a distance corresponding to the number of said key. The indicators are thus operated uniformly, and the registering mech-

anism proportionately. I wish to lay claim broadly to this adjusted variable connection and proportionate movement of the primary wheel while the indicators are operated uniformly.

Each tooth of the primary disk may designate five cents; if eighty teeth be then carried by said wheel, the total capacity will be three hundred and ninety-five, as shown through the sight opening Q, in Fig. 4. To carry this higher without inconveniently enlarging the primary wheel, or diminishing the size (and increasing the number) of the ratchet teeth thereon, I provide a secondary wheel U, having teeth engaged by a pin V, from the primary wheel to move it one division or tooth, at every revolution of the primary wheel. A series of bars is carried by the sounder wheel and exposed successively through a sight slot Q', Fig. 4. As shown in the latter figure, \$3.95 have been registered on the first wheel; the addition of another nickle, will cause 0. to appear at Q, 4 at Q', registering \$4. As above divided, the secondary wheel will register \$4., \$8., \$12. &c. for the successive rotations of the primary wheel. Any other suitable series of divisions may be employed.

I wish to prevent the irregular operation of the keys. I have illustrated in Figs. 10 to 13 inclusive a temporary locking mechanism which locks other keys than the one operated.

This I do by means of a ratchet plate *a*, pivoted at *b*, and adapted by means of a spring *c*, or otherwise to be drawn toward the keys opposite to which it is mounted, when the stop pawl *d*, is operated. The ratchet plate may be otherwise than pivotally mounted. The stop pawl is conveniently pivoted on the fulcrum bar B, of the keys and a cross piece *d'* is engaged by each key when operated, and thus the outer end of the cord is raised to allow the spring *c*, to engage the ratchet plate, as shown in Fig. 13, with the keys. A roller *e*, facilitates the action of the pawl. The ratchet plate is forced outward on the return of the key operated, to the position shown in Fig. 10. When one key is pressed down, the other keys cannot be moved therefore till the return of the former key to its normal position.

The money box for my device is stationary, but provided with an automatically opened cover actuated by the operation of the keys. This cover is made in two or more parts and consists of slides *f*, lapping by each other as shown in Fig. 2. and mounted in grooves in the side of the case, or otherwise.

Fig. 9, shows a detail of one slide, the slots *g*, which, are engaged by pins *h*, in the next lower slide, so that when the lower slide is drawn down to close the box, the other slides will be drawn to their closing position. A spring *i*, at each end of the box acts to open the slides when they are freed from a trip catch *j*, engaging with the lower slide as in Fig. 2, which is released by lever mechanism operated by a cross-bar *k*, extending across the machine and pivotally or otherwise sup-

ported adjacent to the keys. Any key when operated to the dotted position, Fig. 2, will strike the bar and operate the catch *j*. I wish to claim broadly this automatically opened money box cover, whatever the number of parts it may be composed of.

A bell *m*, Fig. 2, is struck by a clapper *o*, mounted on a cross-plate *p*, pivoted at *q*, and drawn in by a spring *r*, after being thrown outward by the passage of the end of the key operated, past the projection *p'* of said plate. The key passing the projection *p'* twice at each operation, will strike the bell once.

In Fig. 7, I have shown a locking bar *s*, consisting of a serrated plate or piece, the teeth of which are adapted to be moved into the line of operation of the key *C*, in the direction of the arrow to prevent the operation thereof. A key-operated slide *t*, effects this movement as illustrated. As shown in Fig. 2 the locking bar *s*, is directly over the inner ends of the key and a movement laterally would lock all the keys at once. I also provide a locking catch *u*, Fig. 4^a, which may be engaged with the wheels of the register mechanism, as in Fig. 4, to lock them also. These catches may be inclosed by the side of the case as in Fig. 2, or otherwise protected.

I therefore do not limit myself to the exact form and construction herein shown and described.

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

1. In a cash register and indicator, the combination with a casing, of a rotatable disk mounted therein, having radially extending ratchet teeth, catches engaging with said teeth at different distances from the center, keys mounted in said case, variably slit pitman connections between said keys and said catches, to operate the latter different distances according to their distance from the center of the disk, and corresponding with the numbers represented by said keys.

2. In a cash register and indicator, the combination with a casing and a primary wheel, having ratchet teeth radially formed on the side face thereof, lever catches engaging with said teeth at different distances from the center, keys mounted in said casing and variably connected to said lever catches, according to the numbers on said keys, and the distance from the center of the disk, and a secondary wheel operatively connected to said primary wheel, adapted to carry the register to a higher figure.

3. In a cash register and indicator, the combination with a casing, of a disk mounted therein provided with ratchet teeth tapering toward the center, lever catches adapted to engage with said teeth at various distances from the center, and keys operatively connected to said lever catches, to rotate said disk.

4. In a cash register and indicator, the combination with a casing and series of lever keys,

and a cross bar on which said keys are fulcrumed, of a round-end pawl, also fulcrumed on said bar, and having a cross portion extending along adjacent to said keys to be operated by any key and thus actuate said pawl, a spring-actuated movable ratchet plate also adjacent to said keys, and an anti-friction roller on said plate engaged by said pawl, to hold the plate away from the keys.

5. In a cash register and indicator, the combination with a casing, of a wheel having ratchet teeth, levers engaging with said teeth, a stepped support for said levers to prevent their interfering with each other, and means to operate them.

6. In a cash register and indicator, the combination with a casing, keys mounted therein and a money box in said casing, of a movable cover for said box, consisting of a plurality of overlapping pieces, a spring to open said cover by sliding the pieces one beneath the other, and a trip mechanism to maintain it closed till operated by the action of one of said keys, the trip mechanism being located adjacent to said keys to allow of said independent tripping by any key.

7. In a cash register and indicator, the combination with a casing, and rows of lever keys fulcrumed therein, and a cross bar adjacent to said keys, of trip mechanism actuated through said cross-bar and key, a money box within said casing, a slidable cover consisting of a plurality of slotted overlapping pieces mounted in inclined guides in said casing, and provided with pins engaging with the slots, to limit the movement of the overlapping pieces, and means to effect the automatic opening of the cover when the trip mechanism is actuated by said keys.

8. In a cash register and indicator, the combination with a casing having a money box, of a sliding cover therefor, constituted by a plurality of overlapping pieces, a trip mechanism to hold the covers closed and a spring to effect the opening thereof.

9. In a cash register, the hereindescribed ratchet disk, the same consisting of a rotatable disk, having radially formed ratchet teeth on the side face thereof, extending outward from the axis of said disk, whereby a long tooth adapted for ratchet connection at a greater or less distance from the center, is provided, substantially as shown and described.

10. In a cash register, the hereindescribed rotatable piece, the same consisting of a disk or wheel, having on its side face, outwardly extending teeth or projections uniformly disposed at the same distance from the center for each portion of every corresponding tooth or projection, and operating connections adapted to engage with said teeth or projections at different distances from the axis of rotation, for the purpose described.

11. In a cash register, the combination with a series of keys, and a ratchet-faced disk substantially as shown and described, of a series

of variably connected operating pieces between said keys and said disk, whereby each key will operate the same distance at its outer end, a horizontally sliding piece mounted adjacent to the outer ends of said keys and having a series of openings, one side being inclined to the vertical and ending with a sharp shoulder at the top, a corresponding series of indicator posts connected to the outer ends of said keys, and having cam lugs projecting horizontally into the corresponding openings in said sliding piece, and rounded or beveled on the lower side of each lug, whereby each post

and cam lug will be raised the same distance vertically, and the rounded or beveled lug thereon will engage with the inclined face and sharp shoulder of the said matching opening in the sliding piece, substantially as and for the purpose described. 15

In testimony whereof I affix my signature in presence of two witnesses. 20

JOHN B. AUFULDISH.

Witnesses:

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