

A. B. HAYDEN.
CASH REGISTER AND INDICATOR.

No. 435,038.

Patented Aug. 26, 1890.

Fig. 1.

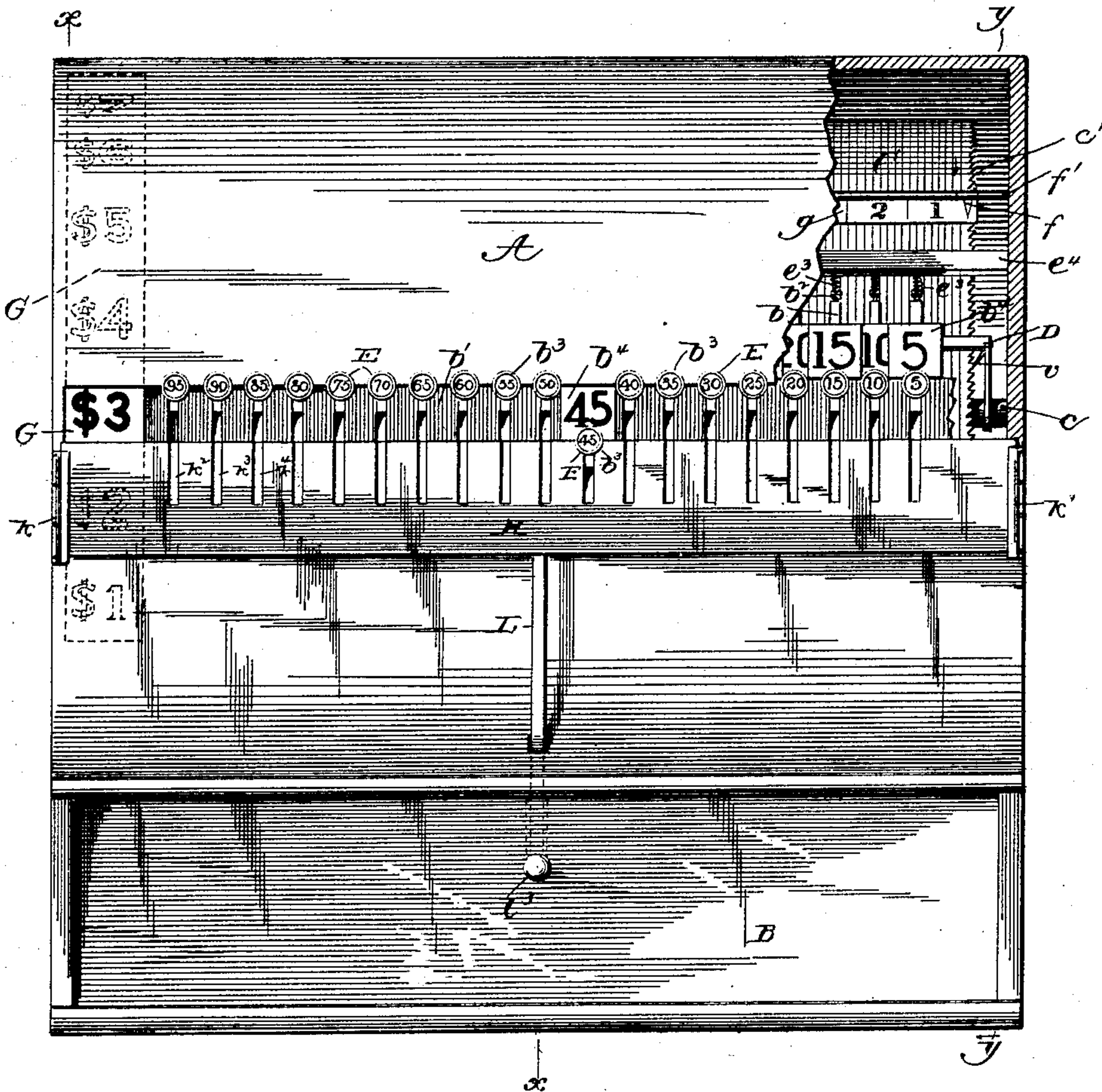


Fig. 8.

Attest:

H. H. Mortimer
H. Stanley Elmore.

Inventor:

A. B. Hayden

Chas. F. Dodge

Atty.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.
on line $x-x$

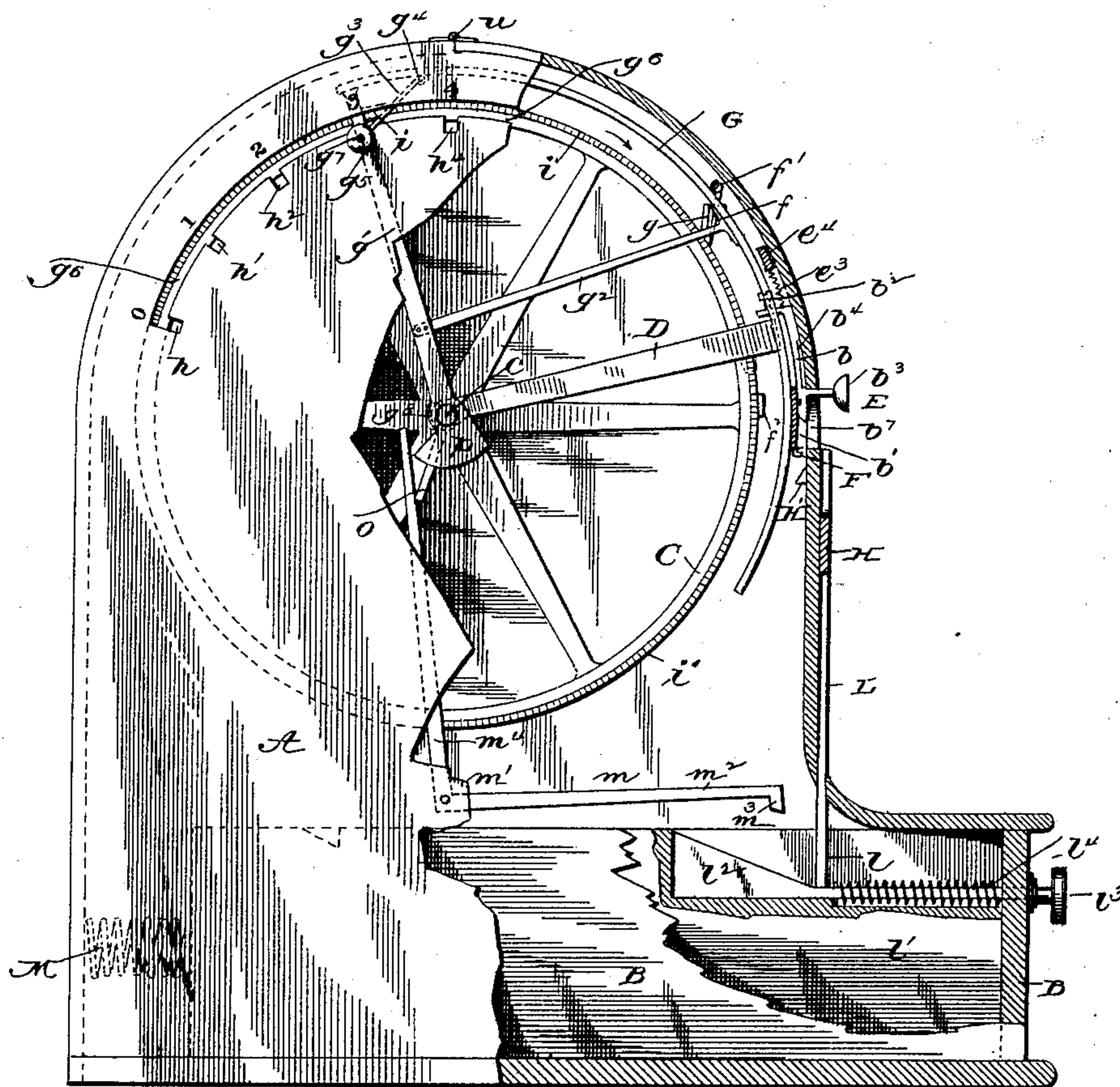
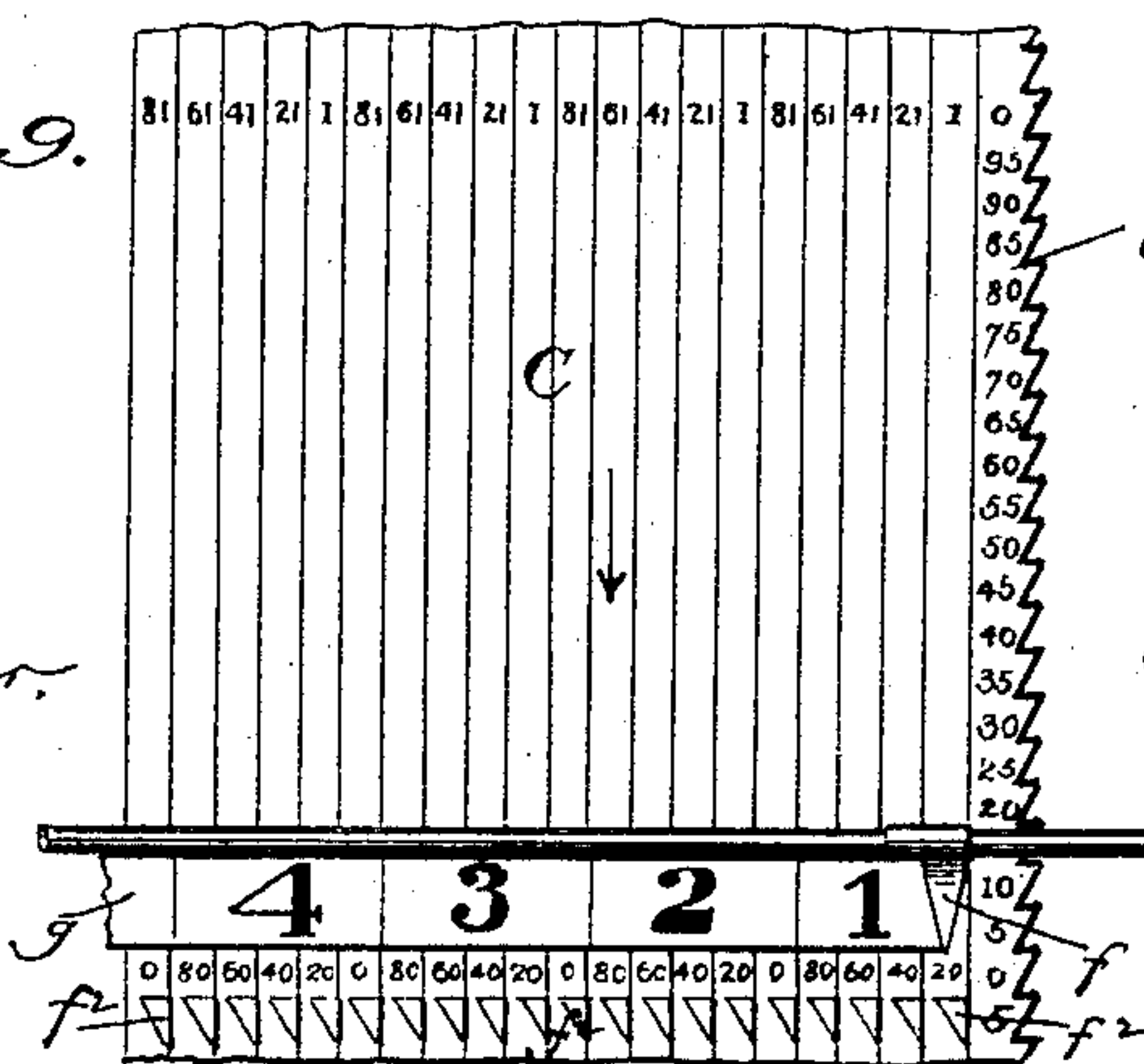


Fig. 9.

Attest:
W. K. Gardner.
J. J. Elmore.



Inventor:
A. B. Hayden
By P. T. Lodge
att'y.

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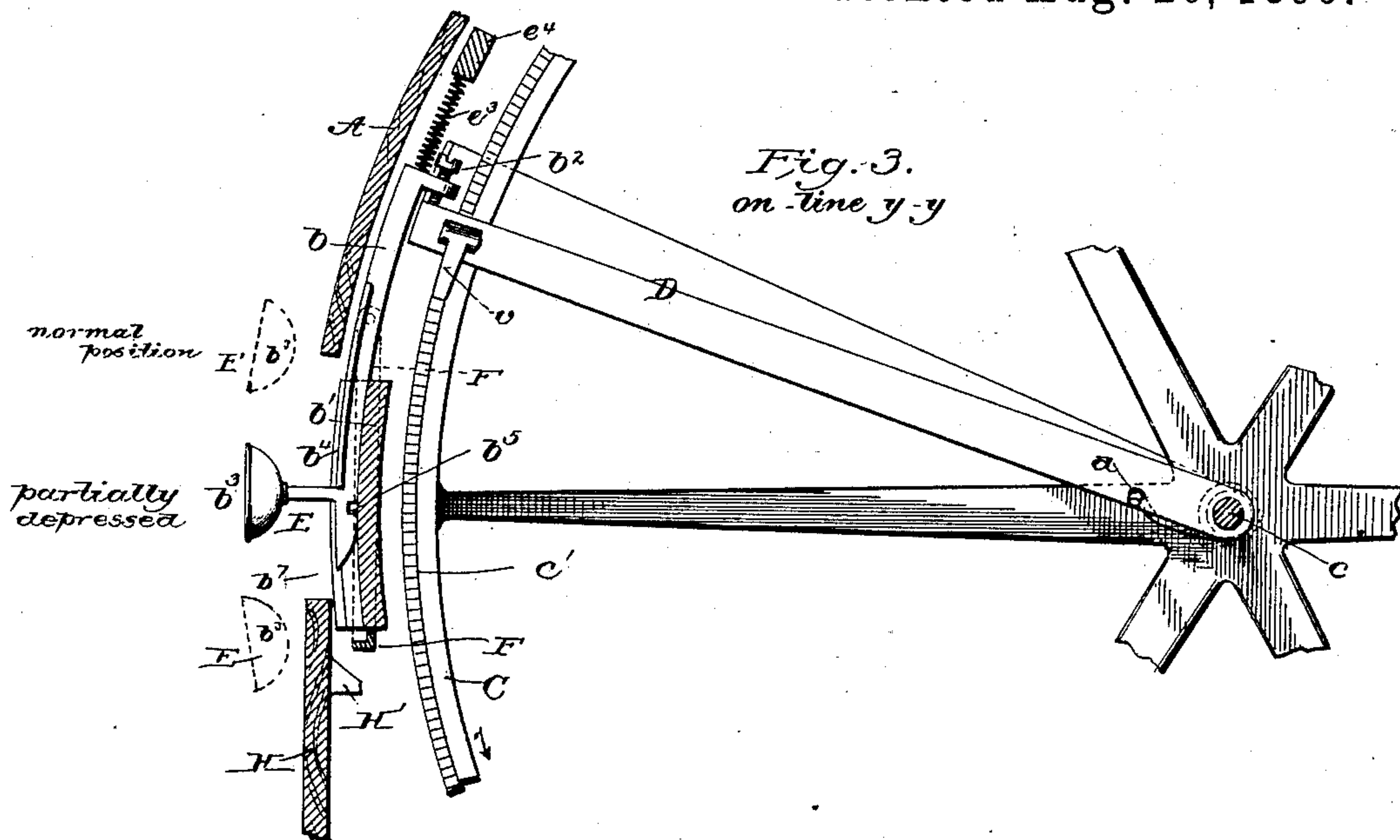


Fig. 5.

Fig. 4.

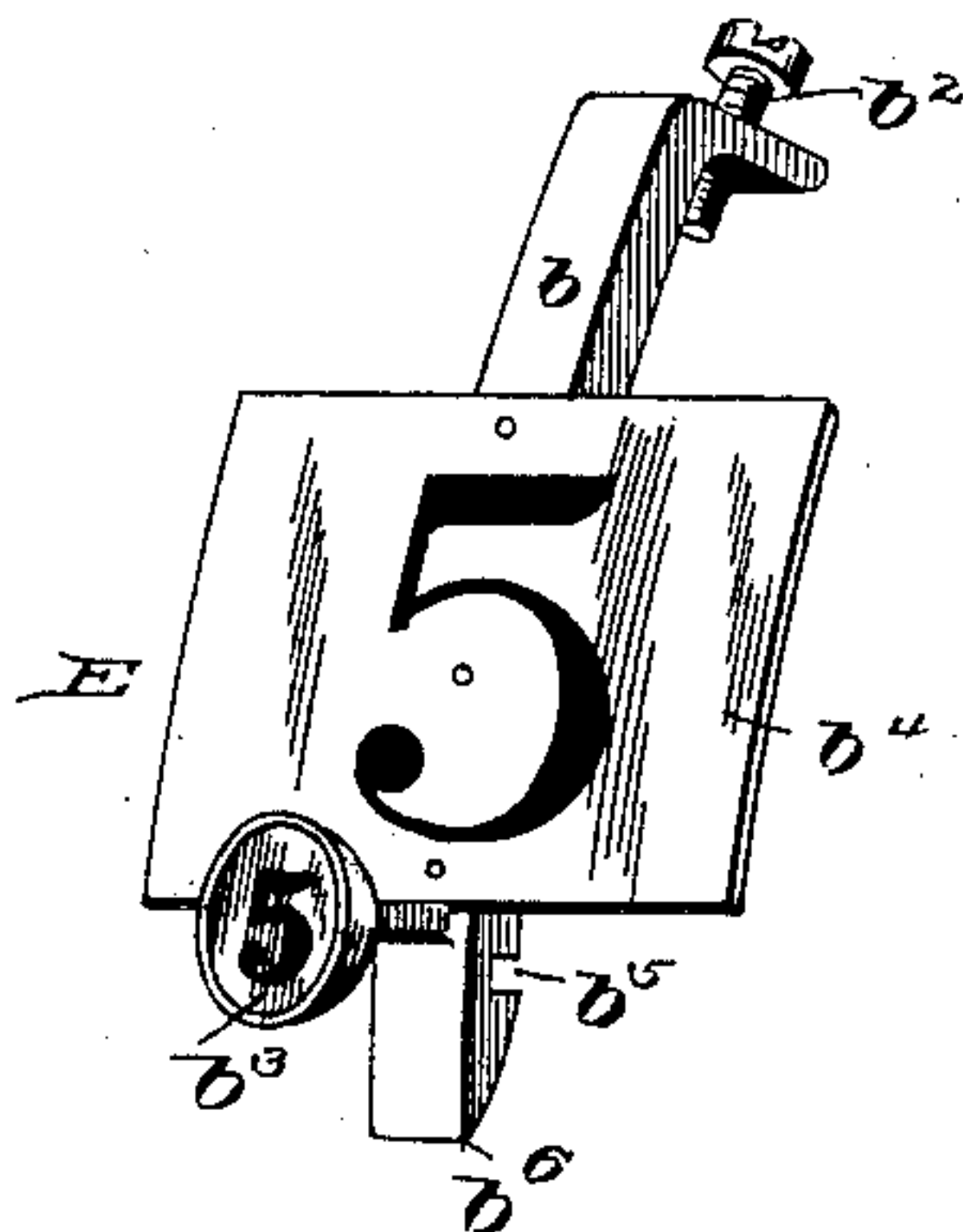
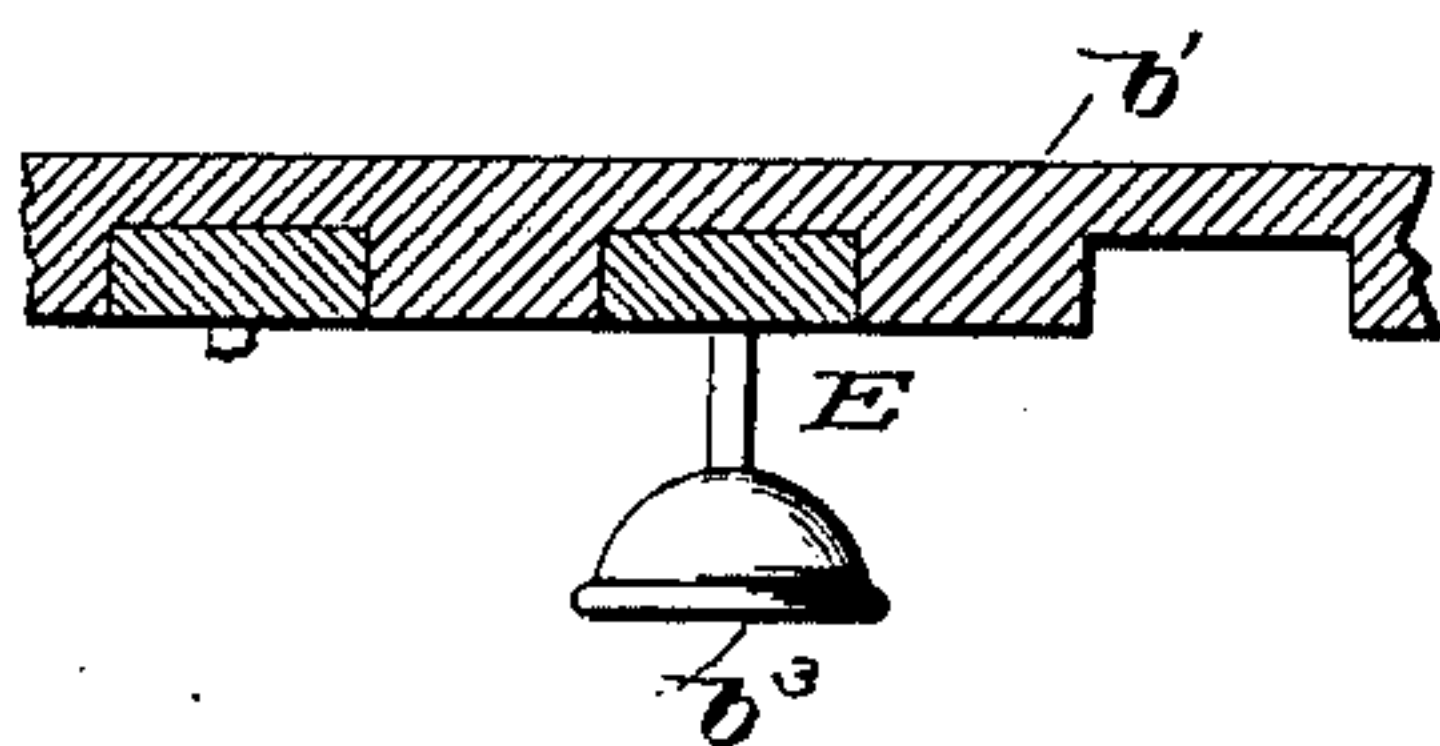


Fig. 7.

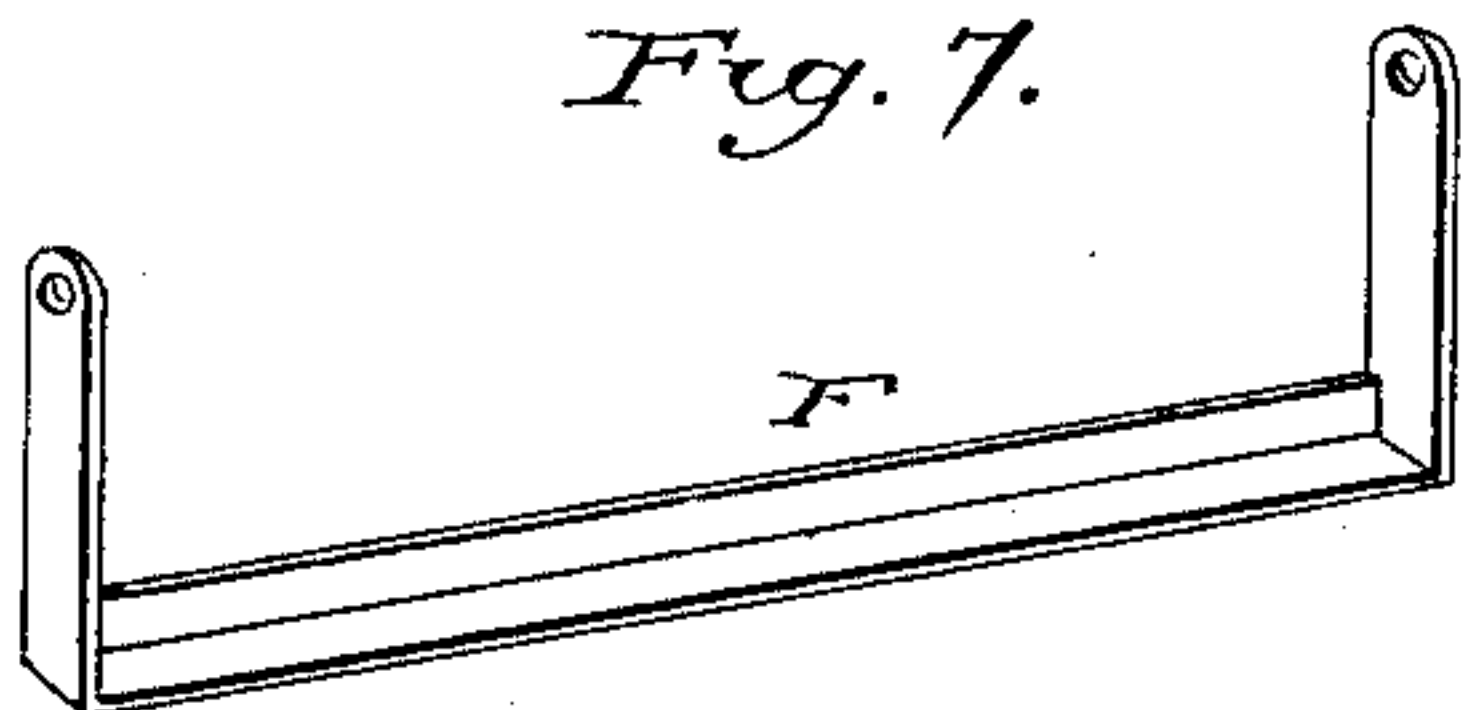


Fig. 6.

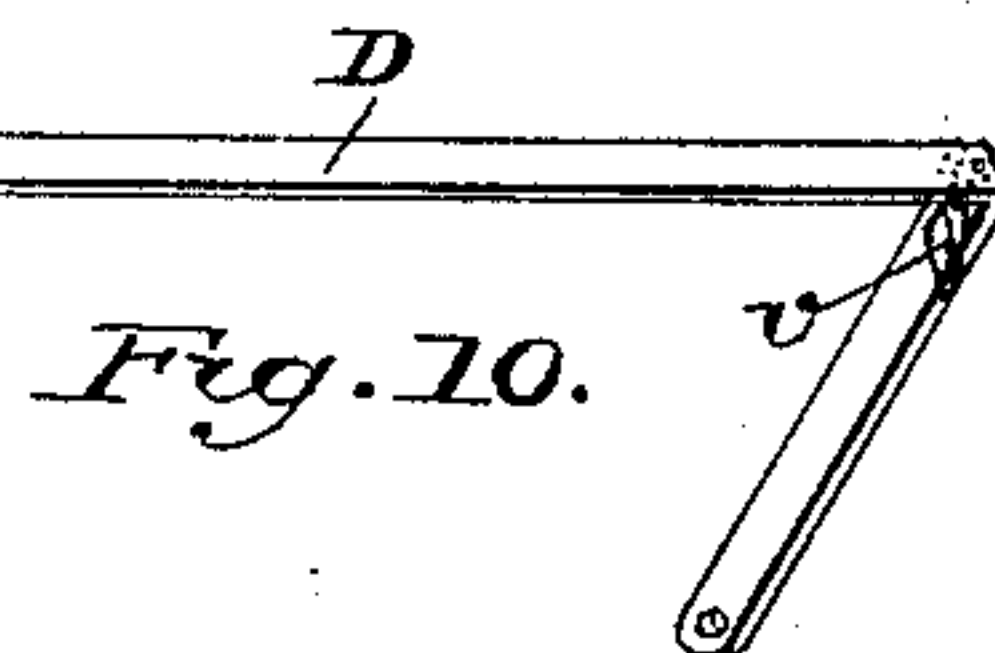
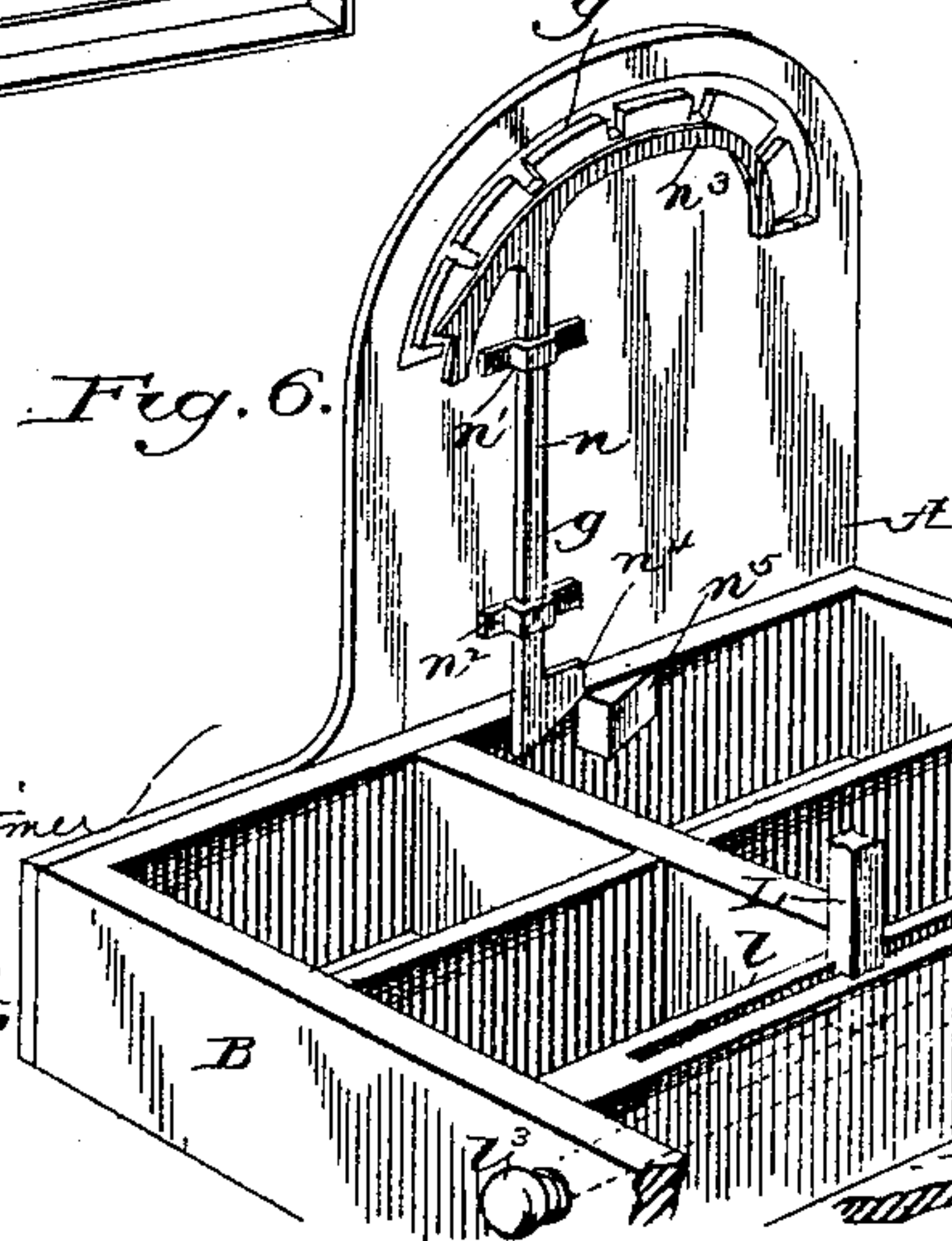


Fig. 10.

Attest:

N. H. Hayden
H. J. E. E. E.

Inventor:

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UNITED STATES PATENT OFFICE.

AUSTIN B. HAYDEN, OF AUBURN, NEW YORK, ASSIGNOR TO THE HAYDEN
ARTICULATING CASH REGISTER COMPANY, OF KANSAS CITY, MISSOURI.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 435,038, dated August 26, 1890.

Application filed August 3, 1889. Serial No. 319,667. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN B. HAYDEN, of Auburn, in the county of Cayuga and State of New York, have invented certain Improve-
5 ments in Cash Registering and Indicating Devices, of which the following is a specification.

My invention relates to that class of cash-
registers which indicate the total amount of
the individual sales which have been succes-
10 sively registered.

The invention consists, first, in combining
with a rotary drum or cylinder having a series
of figures thereon representing progressive
amounts and adapted to be turned varying
15 distances by the actuation of finger-keys a
pointer arranged to be moved longitudinally
of the cylinder by the rotation of the latter
and designed to be read in connection with a
relatively-fixed scale of figures and the fig-
20 ures on the drum to indicate the total amount
of sales registered; secondly, in combining
with independent registering mechanism a
receiving-drawer locked in an open position
against the influence of a closing device by a
25 locking-bolt, the said bolt being common to
both registering mechanisms, the operation of
either of which will act on the bolt to unlock
the drawer and permit its closure; thirdly,
in a shield or cover adapted to be automati-
30 cally operated by the opening of the drawer
to cover the space through which the indi-
vidual amounts registered are viewed, and
also adapted by the closing of the drawer to
uncover the space to permit the inspection of
35 the registered amount, and, fourthly, in the
details of construction and combination of
parts hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is
a front elevation of my improved cash-regis-
40 tering device, a portion of the case being
broken away to expose the internal mechan-
ism to view. Fig. 2 is a vertical cross-section
of the same on the line *x x*. Fig. 3 is a ver-
tical cross-section in detail on the line *y y*.
45 Fig. 4 is a horizontal section through one of
the keys and its guides. Fig. 5 is a perspec-
tive view of one of the keys. Fig. 6 is a de-
tail perspective view of a portion of the case
on the inside and a portion of the receiving-
50 drawer, showing the mechanism for restoring

the "dollar-key" to its normal position. Figs.
7 and 8 are perspective views of details. Fig.
9 is an elevation of a portion of the rotary
cylinder with the figures thereon, the fixed
scale, and the moving pointer. Fig. 10 is a 55
modification.

Referring to the drawings, A represents a
case of a form adapted to contain the regis-
tering mechanism, and B represents a receiv-
ing-drawer mounted in the base of the case. 60

C represents a cylinder or drum, which is
mounted to turn loosely on a horizontal shaft
c, fixed at its ends, respectively, to the end
walls of the case and extending longitudi-
nally thereof. This drum has formed on its 65
end near its periphery a series of teeth *c'*,
extending therearound and adapted to be en-
gaged by a dog *r*, pivoted to the edge of a
bail D, which latter is mounted loosely on the
shaft *c*, so that its forward edge may be ele- 70
vated and depressed. The bail is common to
a series of independently-operating vertically-
moving finger-keys E, mounted in a vertically-
grooved horizontal plate *b'*, fixed to the end
walls of the case in front of the drum. The 75
keys are sustained by spiral springs *e*³, con-
nected thereto and to an overlying rail *e*⁴.
Each of the keys consists of a body portion *b*,
the upper end of which is provided with a
rearwardly-extending lip, through which 80
passes a vertical set-screw *b*², in position to
encounter the upper edge of the bail D when
the key is depressed. The lower end of the
body portion is provided with a knob *b*³, pro-
jecting outward through the front of the case, 85
and above this knob a plate *b*⁴ is fixed, both
the knob and plate bearing on their respect-
ive faces the number indicative of the prede-
termined amount designed to be registered
by the depression of the key. The position 90
of the plate *b*⁴ is such that on the depression
of the key the former will be brought oppo-
site a longitudinal opening *b*⁷ in the front of
the case, through which it may be viewed.
The set-screw *b*² may be adjusted to change 95
the relative movements of the bail and the
key and to compensate for the wear between
the parts. From the foregoing description it
will be seen that on the depression of any one
of the keys the set-screw in the upper end 100

thereof will encounter the upper edge of the bail and advance the same, and by means of the engagement of the dog with the teeth on the drum the latter will be turned on its axis. The bail is restored to its former position by a spiral spring *d*, attached thereto and to the shaft *c* and encircling the latter.

In order that the drum may be turned varying distances, according to the particular key operated and the amount to be registered, I form the bail *D* as shown in Fig. 8, in which it will be seen that the front portion is diminished in vertical extent from one end to the other, or, in other words, the upper edge is inclined from the horizontal, so that on the depression of the different keys they will engage the bail at varying points in their scope of movement, and consequently turn the drum varying distances, according to their position with relation to the edge of the bail, which is governed by the predetermined amounts designed to be registered by the keys. The depression of a key, therefore, located at the extreme right of the bail will move the drum but a slight distance, for the reason that it would not encounter it until the key had nearly completed its movement, and the depression of the key at the extreme left would act to move the drum a greater distance, for the reason that the key would encounter the bail on its outset and would advance it until the movement of the key was completed. In this way the keys may all be constructed of the same dimensions. The same relative action of the keys and drum may be attained by employing keys of varying lengths and a bail with a horizontal edge, as shown in Fig. 10, so that the keys will encounter the bail at the beginning of their movements or later, as the size of the key may be.

In order that the keys may be held in a depressed position to permit the inspection of the plate bearing the number denoting the amount registered, I provide a gravitating bail *F*, which has the ends of its parallel arms pivoted to the case and its edge in position to enter a notch *b*⁵, formed in the rear edge of each of the keys. The keys have their ends beveled or inclined, as at *b*⁶, so as to gradually push the bail back as they are depressed until the notch arrives opposite the bail, when the latter will enter therein and hold the key down.

To indicate at any time the total amount of individual sales which have been successively registered, I provide the laterally-moving pointer *f*, which is mounted on a horizontal stationary guide-rod *f*¹, extending in front of the drum. This pointer is adapted to slide freely on the guide, and is moved gradually in a lateral direction thereon uniform distances at regular times as the cylinder is rotated by means of the cams *f*², projecting from the face of the drum in position to engage the pointer.

The pointer is designed to be read in con-

nection with a fixed scale *g*, having figures thereon, and in connection with figures on the face of the drum, which are arranged in the following manner: The device in the present instance is adapted to register amounts from five upward, the said amounts increasing by five. The drum has on its face near its end a series of figures constituting the "cent-column," ranging from naught to ninety-five and repeated around the cylinder in the present case twenty times, the number of repetitions depending, of course, upon the diameter of the drum. The teeth on the end of the drum are opposite the figures in the cent-column and arranged so that each figure will have a tooth opposite it, the relative arrangement of the keys, the bail, and the pointer being such that the depression of a key will turn the drum a number of teeth equal to the amount designed to be registered by the key divided by five, and the total amount of cents registered less than one dollar will be indicated by the figure in the cent-column next below the pointer. The drum is also also divided into columns extending therearound, which are numbered, as shown, and which constitute the dollar-columns. The numbers in these columns are placed opposite the naught in the cent-column, and increase in value by one around the cylinder and by twenty across the cylinder until they reach one hundred. These figures, as before stated, are designed to be read in connection with the laterally-moving pointer *f*, which is advanced column by column as the drum is successively revolved, so that if the cylinder is turned on its axis once the pointer will have moved from the "one-dollar" column to the "twenty-dollar" column, the number indicating the total number of dollars less than one hundred being the number in the dollar-column next below and in line with the pointer. If the cylinder has been revolved twice, the pointer will have moved to the "forty-dollar" column, and so on.

The pointer, as before stated, is also designed to be read in connection with the figures on the stationary scale *g*, which lies beneath the pointer. The figures on this scale are disposed with reference to the figures on the cylinder, and range from naught upward, representing "hundreds" of dollars, the space bearing each figure covering "five-dollar" columns, so that in order to indicate one hundred dollars the pointer must have moved a distance equal to the space covered by five dollar-columns, which movement of the pointer would be caused by revolving the drum five times, each revolution representing twenty dollars. It is to be understood, of course, that I do not confine myself herein to the employment of figures of the exact values and relative amounts shown and described. They may be varied, as desired, provided their arrangement is such that the total amount of sales registered may be indicated, as set forth.

To register individual sales of one dollar

and upward, I provide the independently-moving key G, which consists of the curved shield sustained beneath the front of the case at one side of the drum by an arm g' , which latter is rigidly attached to the shield and is mounted at its inner end to turn on the shaft c . The shield is further strengthened and braced by a rod g^2 , attached to its under side and to the arm g' . On the front of the shield a series of figures indicating "dollars" are placed, and ranging from "one" upward, which numbers are designed to be brought opposite the opening b^7 by the movement of the shield on its axis. This movement of the shield is performed by means of a lever g^3 , pivoted at g^4 to a projection on the under side of the shield, and provided with a pin g^5 , extending through a curved slot g^6 in the wall of the casing, where it is provided with a knob g^7 . A series of notches $h h' h^2$ are formed in the wall and communicate with the slot g^6 . These notches are numbered from one up, corresponding to the numbers on the shield, and are so arranged with relation to the pin on the lever and the figures on the shield that when a number on the latter is opposite the opening b^7 in the case the pin on the lever will be opposite the slot whose number corresponds to the exposed number on the shield, and the said pin may be shoved into the slot, and thus hold the shield. The shield is returned to its former position by means of a spiral spring g^8 , arranged like the springs for returning the bail D. In order that the movement of the dollar-key may turn the drum to indicate the amount registered, I provide the arm g' with a pivoted dog i , in position to engage teeth i' on the end of the cylinder and operating like the dog on the bail.

The operation of registering six dollars and seventy-five cents is as follows: The pin g^5 is moved along the slot g^6 until it arrives opposite the notch numbered 6, into which it is placed. The number "6" on the shield is then opposite the opening b^3 in the front of the case. This action, through the dog on the arm g' , will turn the cylinder on its axis a distance equal to the space covered by six of the series of numbers in the cent-column, the pointer remaining stationary and the number "6" in the dollar-column being below and in line with the pointer. The "seventy-five-cent" key is next depressed, which action permits the bail F to enter the notch therein, in which position the key is held. The depression of the key also turns the drum until the number "75" in the cent-column is next below the pointer, the number "6" in the dollar-column still being below and in line with the pointer, but at a greater distance therefrom. The total amount registered, therefore, would be found by taking the number next below and in line with the pointer, which would be the number of dollars and the number in the cent-column immediately below the pointer, which would be the number of cents, the said numbers being "6" and "75,"

respectively. Suppose that a total of one hundred and seventy-five dollars and sixty-five cents had been registered. The drum would have revolved five times and the pointer, by means of the cams on the drum, would have moved a distance on its guide equal to the space covered by five of the dollar-columns and would be opposite the space bearing the figure "1" on the fixed scale. The number in the dollar-column next below and in line with the pointer would be "75," showing that in addition to the five revolutions made by the drum it had made three revolutions, representing sixty dollars, and in addition had moved a distance equal to the space covered by fifteen of the series of numbers in the cent-column, indicating "\$15," and in addition still had moved such a distance that the number in the cent-column next below the pointer would be "65," indicating sixty-five cents, so that the total amount would be at once found by first glancing at the number on the space on the stationary scale within which the pointer stands, which would be "1," then at the number in the dollar-column next below and in line with the pointer, which would be "75," and finally at the number in the cent-column immediately below the pointer, which would be "65," thus making a total of \$175.65.

Referring now to the drawer-operating mechanism, the devices for restoring the registering mechanisms to their normal positions, and to the mechanism for causing the shield to temporarily cover the space b^7 in the case, H represents a vertically-moving plate mounted in guides $k k'$, fixed to the front of the case. This plate is slotted, as at $k^2 k^3$, &c., so that the keys will not interfere with its upward movement.

L represents a rod or bolt, which is attached to the lower edge of the plate H and extends therefrom downward through the case into a slot l , formed in a central block l' in the drawer. The end of the bolt rests upon a horizontally-movable wedge l^2 , mounted in the slot l , and the end of the wedge extends outward through the front of the drawer, and is provided on its end with a knob l^3 . The wedge is movable back and forth in the slot and has its end encircled by a spiral spring l^4 , which acts to restore it to its normal position after it has been drawn outward. By pulling the knob the wedge will be drawn beneath the end of the bolt L, which action will gradually elevate the same until it arrives at the highest point, when, in consequence of the forward movement of the drawer, caused by the wedge encountering the same, the drawer will pass thereunder and will hold the plate H up in front of the opening b^3 . The plate is returned to its former position automatically under the influence of its own weight by the closing of the drawer.

The drawer B is automatically closed by means of a spring M, secured thereto and to the case in rear of the drawer. It is locked in an open position against the influence of

the spring by means of a locking-lever m . The lever is pivoted at m' to the end wall of the case above the drawer, and is provided with a horizontal arm m^2 , having a lip m^3 , which is arranged to enter a notch in the edge of the drawer, and thus hold the same open. This lever is also provided with a vertical arm m^4 , by means of which the drawer is automatically unlocked on the depression of either of the independent registering mechanisms. To effect this automatic unlocking of the drawer, I provide the arm of the bail D which is next to the locking-lever with a short arm o , extending from the inner end thereof and arranged to encounter the vertical arm of the locking-lever when the bail is depressed and to rock the lever on its pivot, thereby raising the lip out of engagement with the drawer, which will be closed by the spring.

In order that the drawer may be also unlocked when the dollar-key is operated, I provide the arm g' at its inner end with a cam p , so formed that when the key is moved forward the cam will encounter the vertical arm of the locking-lever and release the drawer in a manner similar to that of the bail D. It will thus be seen that the locking-bolt is common to both registering mechanisms, the operation of either of which acts to unlock the drawer.

In order that the keys E may be restored by their returning-springs to their normal positions after the registering operation has been performed, I provide connections between the drawer and the registering mechanism through the intervention of which the said keys will be released from their locked depressed positions upon the opening of the drawer. This release of the keys is effected by means of a projection H' on the inner face of the plate H, which as the plate is elevated on the opening of the drawer will encounter the bail F and push the same out of the notch in the key, which latter will return to its normal position.

The mechanism for effecting the release of the dollar-key consists of the vertically-sliding bolt n , mounted in guides n' n^2 on the end of the case and provided at its top with the curved head n^3 , lying beneath the slot g^5 , through which the lateral pin on the lever g^2 extends. The lower end of the bolt is formed with the inclined or beveled edge n^4 in position to encounter a projection n^5 on the drawer, so that when the drawer is opened the projection n^5 will encounter the bolt and will elevate the same, thereby raising the lateral pin out of the notch in the case, whereupon the key will be restored to its normal position by its returning-spring. In order that on the closing of the drawer the bolt n will not encounter the projection n^5 to retard the movement of the drawer, I form the lower end of the said bolt of spring metal, so that it will yield laterally, and to effect this lateral yielding of the bolt I bevel the side of the projec-

tion from the front. In this way the projection will push the bolt to the side when the drawer is closed, and will pass beyond the same, when the end of the bolt will spring back to its proper position.

When a sale has been made and it is desired to register and deposit the same, the wedge l' is first drawn outward to open the drawer. This action, through the intervention of the parts described, will restore to their normal positions the keys operated to register the preceding sale, the plate H at the same time rising in front of the opening b^7 in the front of the case. When the drawer has been opened to its full extent, the locking-lever engages the same and holds it open, the money is deposited, and the amount is registered. The registering action releases the drawer, which is automatically closed, and permits the plate to fall from in front of the opening b^7 , and the amount registered is exposed to view therethrough.

The case is divided longitudinally at u , and is hinged so that its front portion may be raised for the inspection of the indicating mechanism.

Having thus described my invention, what I claim is—

1. In a cash-register, the combination of the operating-keys, the locking device for holding them in a depressed position, the automatically-closing receiving-drawer, the locking device for holding it open, and connections, substantially as described, between the drawer and the key-locking device and between the drawer-locking device and the operating-keys, arranged and constructed to cause the release of the keys when the drawer is opened and to cause the release of the drawer when the operating-keys are actuated.

2. The series of spring-sustained vertically-moving operating-keys provided with the notch, in combination with the pivoted bail arranged to enter the notch and hold the key in a depressed position, the receiving-drawer, and connections, substantially as shown, between the receiving-drawer and the bail, adapted to be operated by the opening of the former and constructed to push the bail out of the notch in the key, substantially as described.

3. In a cash-register, the spring-sustained vertically-moving operating-keys, the locking mechanism for holding them in a depressed position, the independent vertically-moving spring-sustained operating-key G, its independent locking mechanism, and the drawer, in combination with the independent connecting devices between the said locking mechanism and the drawer, both of said connecting devices being common to the drawer and adapted to be operated thereby to release the keys, substantially as described.

4. In a registering mechanism, the inclosing-case provided with the opening through which the amount of sale registered is viewed, in combination with the movable plate, the

drawer, and connections, substantially as shown, between the plate and the drawer for causing the former to cover the said opening on the movement of the drawer, substantially as described.

5 5. In a cash-register, the combination of a rotary drum, a series of independently-moving operating-keys, an intermediate drum-actuating device common to said keys and
10 arranged to be operated thereby to advance the drum varying distances, and a key G, independent of the first-named keys and arranged to engage and move the drum independently of the intermediate drum-actuating device,
15 substantially as described.

6. In a cash-register, the combination of the rotary drum, its sustaining-shaft, the drum-operating lever or bail pivoted on said shaft, the series of operating-keys arranged to move
20 the said lever, the automatically-closing receiving-drawer beneath the drum, and the bolt for holding the drawer open, said bolt having one end formed to engage the drawer and its opposite end extending in the path of the
25 drum-operating lever and arranged to be moved when the said lever is actuated by the operation of the keys.

7. In a cash register and indicator, the combination of the rotary drum having the
30 series of figures increasing in value by uniform amounts encircling the drum and repeated therearound, and the second series of figures extending at intervals in lines transverse to the first-named figures and increasing in value around the drum by amounts
35 equal to the sum of one of the series of the first-named figures and across the drum by amounts equal to the sum total of all the first-named figures, the laterally-moving pointer
40 adapted to be read in connection with the figures on the drum, and suitable connections for causing the said pointer to advance laterally as the drum is rotated on its axis.

8. In a cash register and indicator, the
45 combination of the rotary drum having the series of figures encircling the same and repeated therearound, and the second series of figures extending at intervals in lines transverse to the first-named figures, the fixed
50 figured scale, and the laterally-moving pointer adapted to be read in connection with the second series of figures on the drum and the figured scale, the said figured scale being graduated with reference to the second series of
55 figures on the drum.

9. The combination of the rotary cylinder having the figures thereon and provided with the teeth, the pivoted bails, the dog thereon adapted to engage the teeth, the series of independently-operating keys arranged to engage the bail and through the same to move the cylinder, and the indicating-pointer adapted

to be read in connection with the figures on the drum, substantially as described.

10. The horizontal rotary cylinder having 65 the figures thereon, the pivoted bail constructed to engage and move the cylinder as it is depressed, but to be disengaged therefrom as the bail is elevated, in combination with the series of independently-operating keys 70 arranged to engage the said bail at varying points in its length, said points of engagement being located at varying distances from a horizontal line parallel with the axis of the cylinder, whereby the depression of the different 75 keys will turn the cylinder different distances.

11. In a cash-register, the rotary cylinder, its actuating mechanism, and the key adapted to operate said mechanism, in combination with the adjusting device located between the key 80 and the cylinder-actuating mechanism and constructed to vary the relative movements of the two and to compensate for wear between them.

12. In a cash-register, the combination of a 85 rotary drum, a series of independently-moving operating-keys, an intermediate drum-actuating device common to said keys, a key G, independent of the first-named keys and arranged to engage and move the drum inde- 90 pendently of the intermediate drum-actuating device, a spring-actuated receiving-drawer, and a drawer-locking device in position to be operated independently by the intermediate drum-actuating device and by the independ- 95 ent key G, substantially as described.

13. The drum for a cash-indicator of the type herein described, provided on its peripheral surface with a series of figures encircling the same in a line at right angles to the axis of 100 the drum, and further provided on its peripheral surface with figures extending at intervals in lines parallel to the axis of the drum.

14. In a cash-register, the combination of the inclosing-case having the opening through 105 which the amount registered is viewed, the operating-keys having the numbers arranged to be brought opposite the said opening when the keys are depressed, the locking device for holding the said keys in a depressed position, 110 the movable plate, the receiving-drawer, and connections between the drawer and movable plate and between the latter and the key-locking device for causing the said plate to cover the opening when the drawer is opened 115 and at the same time to release the keys from their depressed position.

In testimony whereof I hereunto set my hand, this 21st day of June, 1889, in the presence of two attesting witnesses.

AUSTIN B. HAYDEN.

Witnesses:

H. W. HART, Jr.,
A. D. LEECH.