

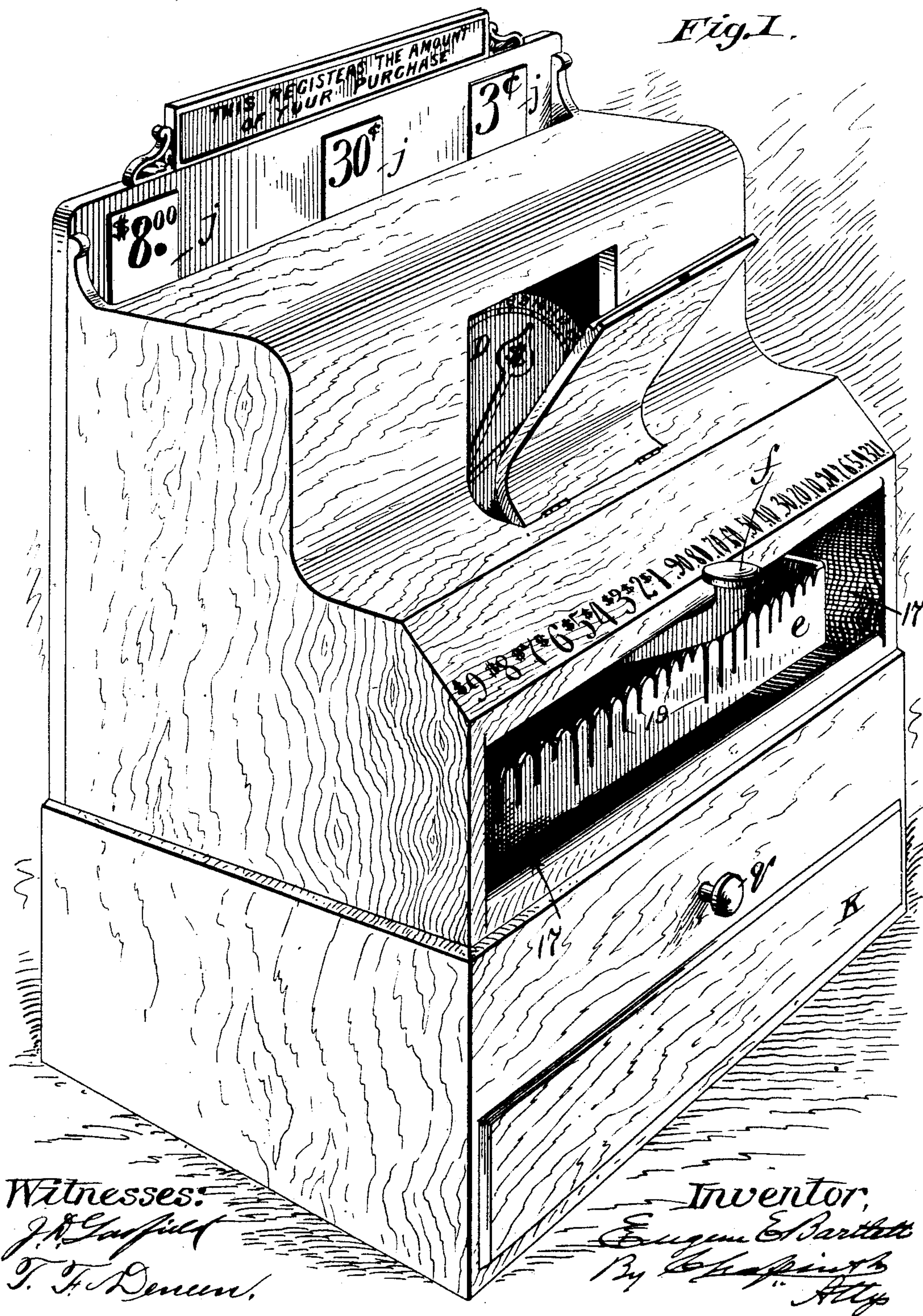
(No Model.)

5 Sheets—Sheet 1.

E. E. BARTLETT.
CASH REGISTER AND INDICATOR.

No. 470,463.

Patented Mar. 8, 1892.



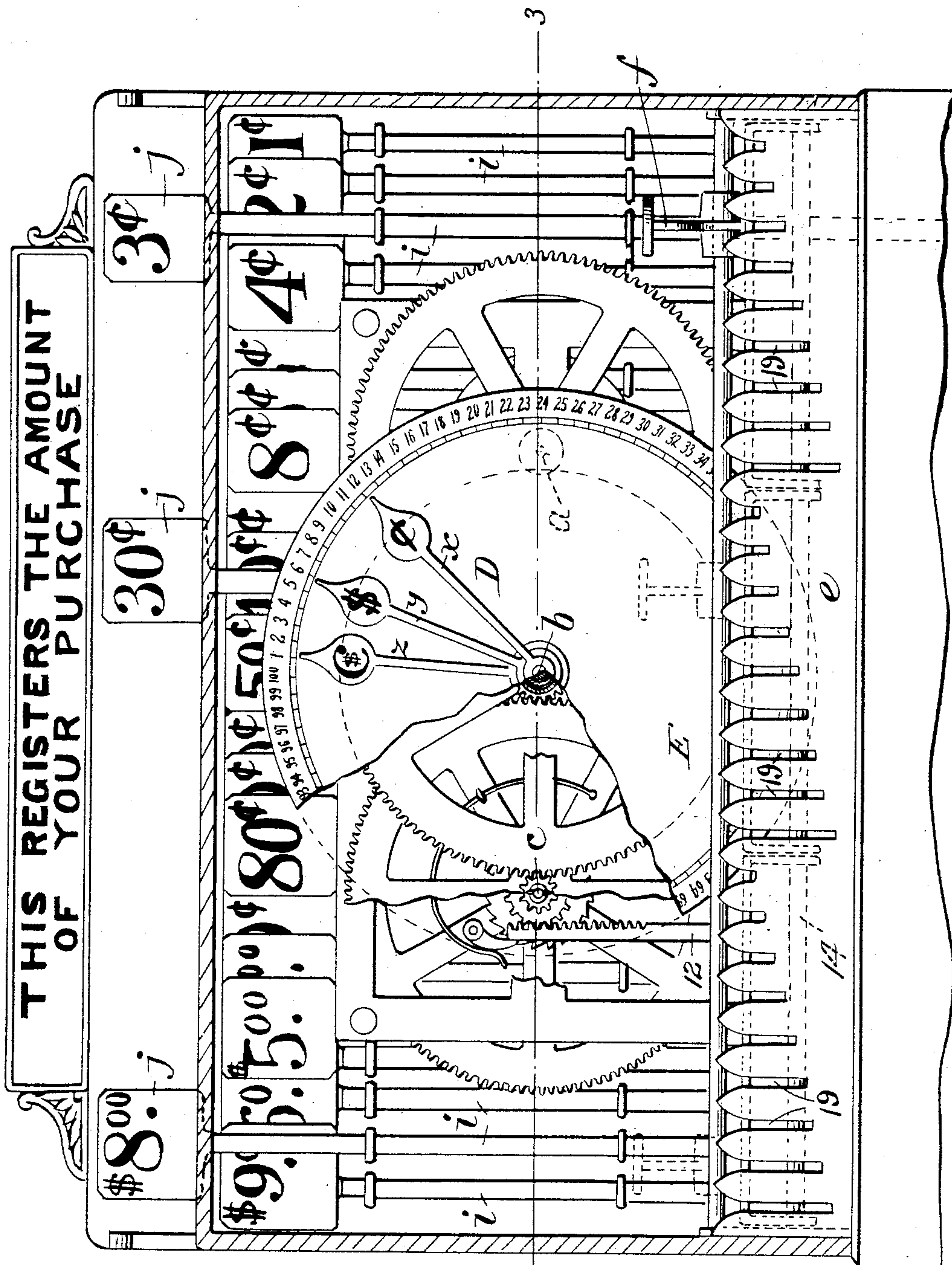
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E. E. BARTLETT.
CASH REGISTER AND INDICATOR.

No. 470,463.

Patented Mar. 8, 1892.



Witnesses:

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Fig. 2.

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By Chapman
Atty

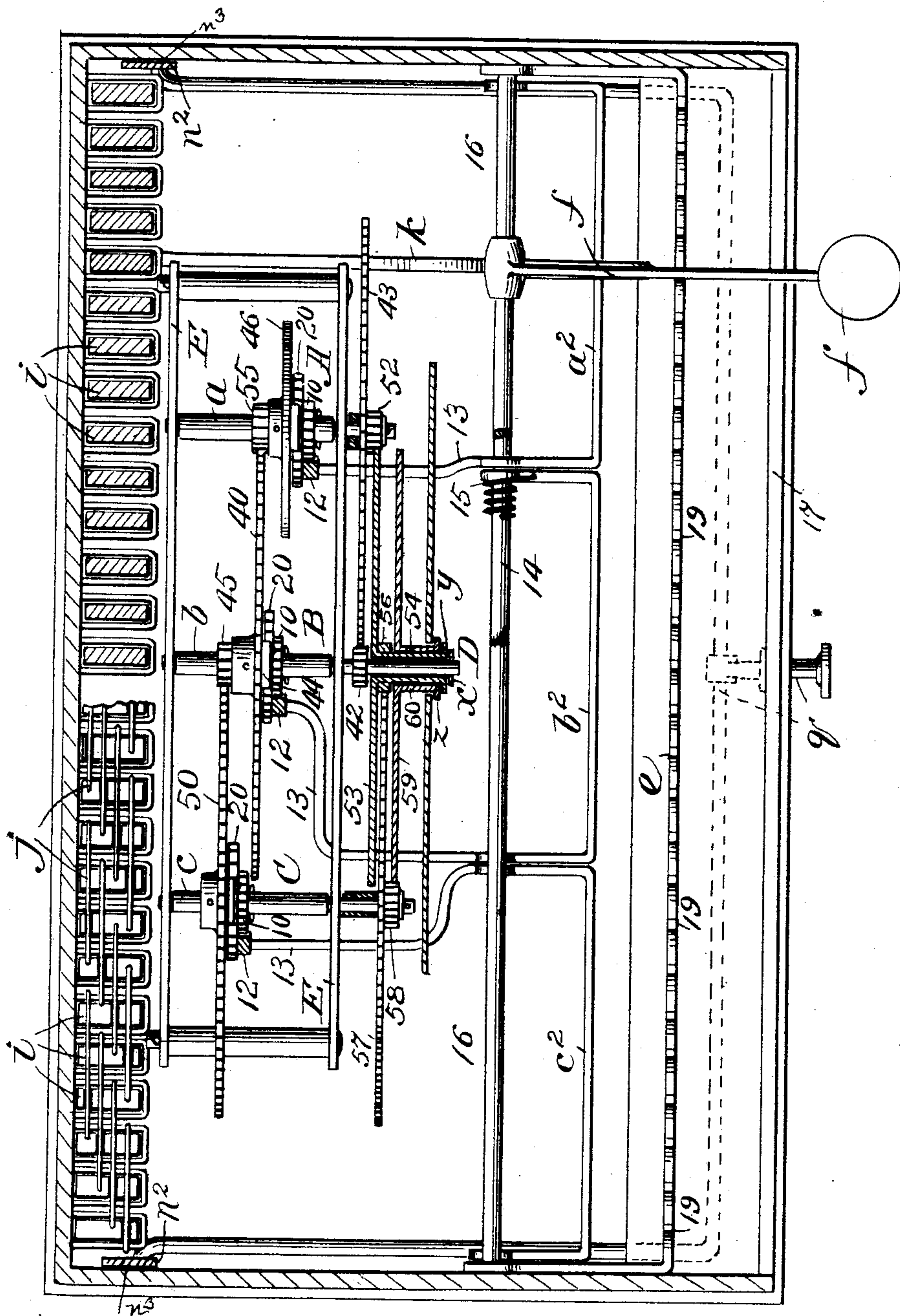
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E. E. BARTLETT.
CASH REGISTER AND INDICATOR.

No. 470,463.

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Fig. 3.

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(No Model.)

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Fig. 5.

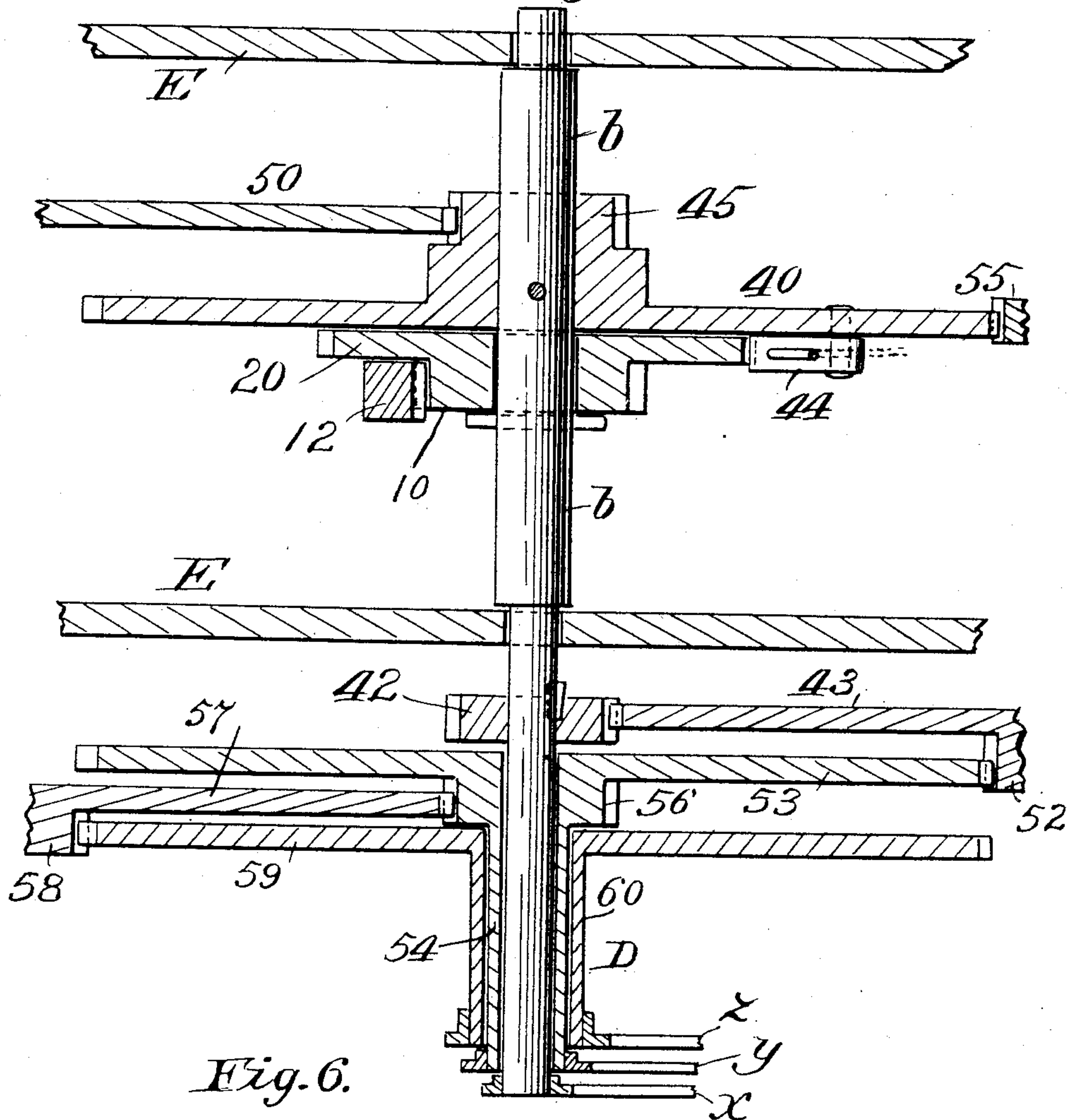
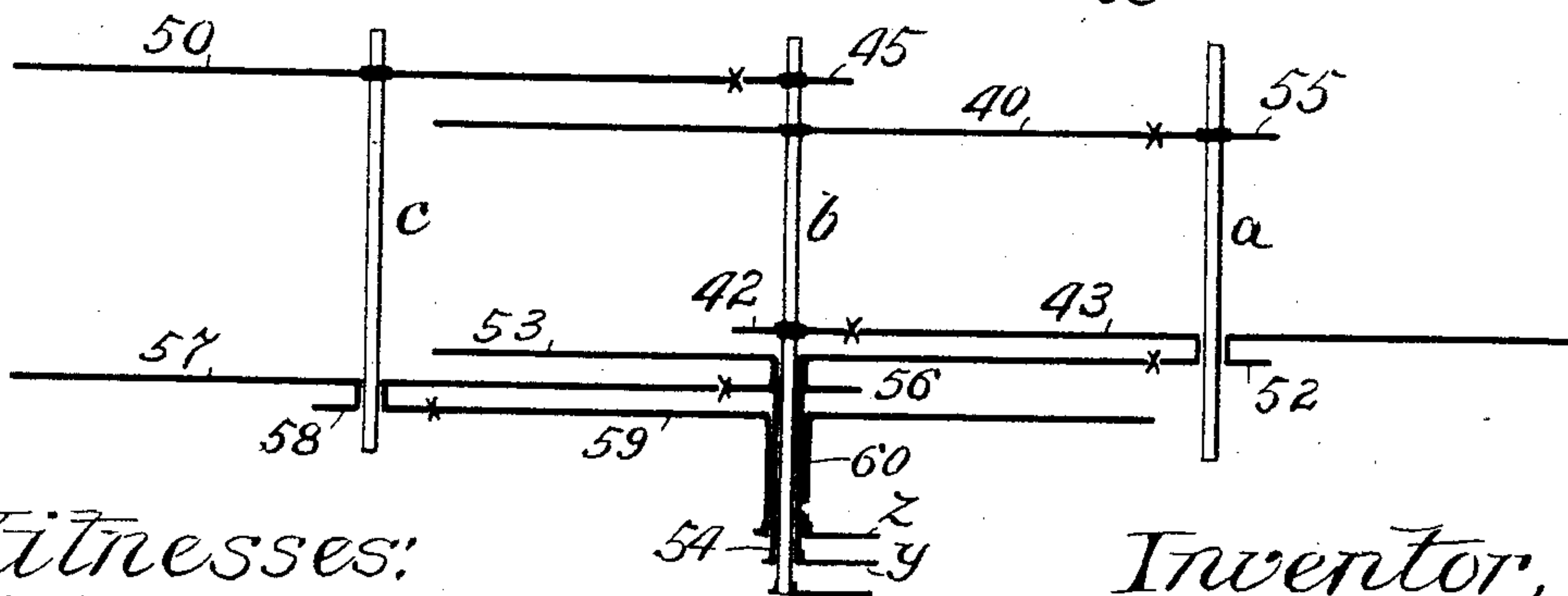


Fig. 6.



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T. F. Deneen,

Inventor,
Eugene E. Bartlett
By *Chapman*
"Att'y"

UNITED STATES PATENT OFFICE.

EUGENE E. BARTLETT, OF SPRINGFIELD, MASSACHUSETTS.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 470,463, dated March 8, 1892.

Application filed October 19, 1891. Serial No. 409,183. (No model.)

To all whom it may concern:

Be it known that I, EUGENE E. BARTLETT, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Cash Registers and Indicators, of which the following is a specification.

The object of this invention is to improve the construction of cash registers and indicators, whereby the machine will be comparatively simple and at the same time have a capacity for recording any amounts, as desired, within a wide range.

It is the object, furthermore, to provide a construction of register whereby the aggregate of amounts which may have been indicated from time to time may be seen on a mere inspection and without requiring any computations.

This invention consists in the construction and combination of parts and devices, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a front view with the front wall of the casing removed and some of the internal parts shown as broken away for the purpose of clearness of illustration. Fig. 3 is a plan and horizontal sectional view on line 3 3 of Fig. 2, certain parts being shown in full lines. Fig. 4 is a cross-sectional elevation of the machine. Fig. 5 is a horizontal sectional view, on an enlarged scale, taken on line 5 5, Fig. 4. Fig. 6 is a representation by diagram of the gearing for the register.

In this machine there are three groups of mechanism A, B, and C, each of which is actuated by the movement of a key to indicate a greater or smaller sum, the actuation of one of the mechanisms indicating cents, the next tens of cents, and the next dollars.

The register comprises a dial regularly graduated with a hundred divisional marks, with indicating-figures up to a hundred in a circle thereon, and there are three hands, one for indicating cents on the register, the other for indicating dollars up to hundreds, and the third for indicating by steps of hundreds of dollars up to ten thousand dollars. The mech-

anism A contributes to the operation of the one B, and likewise the one B to the one C, so that notifications of the registering capacity of a lower mechanism may be absorbed in a corresponding change of position for registering of the next higher mechanism. The actuation of each of the mechanisms operates the register (indicated at D) to record a corresponding sum to that indicated at such actuation, and the operation of each and any of the mechanisms for one or the other orders of cash-indication, as the case may be, while respectively having its due effect on the register, will be without effect on the indicating mechanism for a higher or lower order.

I will proceed to describe the machine more in detail. E represents a vertical supporting-frame within the casing, having mounted thereon three arbors *a*, *b*, and *c*. Each arbor has loosely thereon a pinion 10, with each of which respectively engages a vertically-movable rack-bar 12. Each rack-bar may be vertically moved to any extent to cause a rotational movement of the pinion which it engages to the extent of one or more of all of its teeth by means as follows: Each rack-bar rests upon the rear end of a lever 13, which is a rearwardly-extended part of one of the stirrup-frames *a*², *b*², or *c*². Each stirrup is mounted on the horizontal rod 14 and is normally held with its forward portion elevated (its rear being depressed) by the spiral spring 15.

f represents a key-lever, which has its hub adapted to slide freely on the horizontal rod 16 from end to end of the machine, the said key-lever being forwardly projected and extended through an aperture 17 in the front of the casing. The key-lever on being depressed will depress the one or the other of the said stirrup-frames over which it may be slid, and in order that the amount of key-depression, as desired, may be determined there is in front of all of the said stirrup-frames the horizontal bar *e*, which has slots 19 therein, which open to the top of the bar and which are arranged in three sets graduated as to depth, as particularly indicated in Fig. 2. If it is desired to rotate pinion on the arbor *a* to indicate five cents, the key is slid over the fifth slot from the right-hand end of bar *e* and then forced to the bottom of said slot, and so on.

There is provided at the rear of the machine

the series of rods *i*, which are to be vertically guided, each carrying at its upper end the indicating-tag *j*, and the key-lever has a downwardly and rearwardly extended arm *k*, which is adapted to come under the lower end of the indicator-rod, which corresponds to the amount to be indicated and recorded when the key-lever is brought to such position of engagement. Each of the rods *i* has a detent-spring *m*, as shown in Fig. 4, which as the rod is lifted is inwardly forced, permitting its passage by the top bar *n*, which is a horizontal member of a stirrup-like frame *G*, the said frame being by the vertical members *n*² thereof of intermediately pivotally hung, as indicated at *n*³, at the ends of the casing. The said frame is capable of a forward and backward swinging movement, being retained in its vertical position, as shown, by the spring *o*.

One, two, or three of the indicating-tags having been raised in succession to indicate the amount of a purchase (which may, for instance, be eight dollars and thirty-three cents, as shown in the drawings) and performed by depressing the key-lever at the eighth slot of the left-hand or dollar series in the bar *e*, then moving the key-lever for depression at the slot of third depth at the middle or dime series, and again at the third slot in the right-hand or cent series, and it is desired to restore them to the lower positions in readiness for the next operation, the frame *G* has its upper portion forwardly swung by means of the push-rod *q*, extended to the front of the casing, and then the said top bar *n* of the frame *G* will be removed from its position of support relative to the spring-detents *m* and the indicators will fall. Each arbor *a*, *b*, and *c* has, as an extended hub of the ten-tooth pinion 10, each of which is loose on the arbor, a ratchet-wheel 20. The arbor *b* is forwardly extended through the dial and carries at its outer end the hand *x* for showing cents on the register. There is fixed on this arbor *b*, back of the ratchet-wheel 20, a hundred-tooth spur-gear 40, and on the hub thereof a ten-tooth pinion 45. On the face of this spur-gear 40 there is provided a spring-pawl 44, which takes into the teeth of said ratchet on the arbor *b*. The arbor *b* also has toward its forward end and fixed thereon the ten-tooth pinion 42. The movement of the rack 12 upwardly will, owing to the engagement which it has with the pinion 10 and the medium of connection constituted by the ratchet-wheel 20, fixed to the pinion, and the pawl engagement between the said ratchet-wheel and the gear 40, cause a rotation of such gear and the shaft. As the rack descends the ratchet-wheel may turn around free with the pinion without effecting any rotational movement of the arbor, the ratchet-teeth then slipping past the pawl. A similar provision of ratchet 20, formed as one with the pinions on the other arbors *a* and *c*, is made, a spring-pressed pawl being respectively provided therefor. The pawl for operating on the

ratchet which is mounted on the arbor *a* is carried on the disk 46, which is fixed on the arbor *a*, while the pawl for acting on the ratchet which is mounted on the arbor *c* is carried on the face of the hundred-tooth gear 50, which is fixed on the said arbor *c*. The arbor *a* has toward its rear end a fixed ten-tooth pinion 55 and also loosely mounted on its forward end the hundred-tooth spur-gear 43, which meshes with the pinion 42 on the arbor *b*, and the said gear-wheel 43 has as one therewith the ten-tooth pinion 52. The pinion 52 meshes with the gear-wheel 53, which is carried on a sleeve 54, which surrounds the arbor *b*. The sleeve 54 has thereon next to the spur-gear 53 the pinion 56, and this pinion meshes with a hundred-tooth gear 57, which is loosely mounted on the arbor *c*, and this latter gear has on its hub the ten-tooth pinion 58.

To show the registration by the hands on the register-dial of the amounts of each operation of the key-lever, which are separately shown by the indicator-tags *j*, it will be assumed that the key-lever *f* is carried into the fifth slot 19, counting from the right, when the five-tag will be thrown up and the pinion 10 on the arbor *a* will be rotated to the extent of five teeth, correspondingly turning the arbor *a* and the pinion 55. The pinion 55, gearing into the hundred-tooth spur-wheel 40, causes this to rotate to the extent of five teeth, or one-twentieth of a rotation, when the hand *x* for cents will be turned five points on the dial. Should it be desired to operate the machine to show fifty cents, the key-lever *f* is moved to the fifth slot in the middle series on the bar *e*, when on making the depression the rack and the mechanism *B* will rotate the pinion 10 to the extent of five teeth, correspondingly rotating the pinion 42, which is fixed on arbor *b*. This will insure the rotation of spur-wheel 43 to the extent of five teeth, or one-twentieth of a rotation, which twentieth rotational movement of the gear 43, working through the pinion integral therewith on the hundred-tooth spur-gear 53 of the sleeve 54, will cause said gear 53 to move to the extent of one-half of one of its teeth, and the hand *y*, which shows dollars on the register-dial, will move for a distance corresponding to half that of one of the hundredth divisions on the dial. The last operation repeated would indicate another fifty cents, and the balance of the hundredth division would be passed, showing, of course, a dollar-registry.

In the operation last described the arbor *b*, being rotated to the extent of half a turn, causes the cents-hand *x* thereon to be carried half-way round the dial, thereby positively pointing off to be readily seen the fifty cents. To show the registration by the pointer or hand *z* of a part of one of the hundredth divisional spaces on the dial, it will be assumed that the five-dollar sale has been made and indicated by moving the key-lever to the fifth slot in the left-hand series of the bar *e* and

depressed. This will insure a half a rotation of the arbor *c*. The spur-wheel 50 will be turned half around, causing five rotations of the pinion 45 and also pinion 42. Wheel 43 will be therefore caused half of a rotation, and with it pinion 52, which will cause wheel 53 and sleeve 54 one-twentieth of a rotation, the dollar-hand *y* therefore moving five points on the dial to positively register five dollars. This twentieth of a rotation of wheel 53 being communicated through pinion 56 to the spur-wheel 57 will cause the latter to rotate to the extent of one two-hundredth of a rotation and the spur-wheel 59 on the sleeve 60 by means of wheel 58 will have a one two-thousandth of a rotation, the hand *z* having a movement corresponding to one-twentieth of the distance of one of the hundredth divisional spaces on the dial, of which said hand indicates them as hundreds of dollars, and said one-twentieth of that divisional space will therefore correspond to the five dollars. In reading the registry at the dial each divisional space is to be counted which is at or next to the left of the point of the hand, and therefore if after the machine has been operated to make a number of sales, as, for a day's business, which may amount to seven hundred and ninety-four dollars and thirty-three cents, the pointer *z* will be to the right of the "7" on the dial and almost up to the "8." The hand *y* will be just past the "94," being about a third of the distance beyond the "94" mark toward the "95" mark, and the hand *x* will point to "33." The hands, as indicated in the enlarged horizontal sectional view, Fig. 5, have sleeves, which set the one on the arbor *b* and the others on the sleeves 54 and 60, respectively, therefor by friction, so that as said sleeves or the arbor are moved the hands will move therewith and yet on desiring to set all the hands at zero relative to the dial to commence a new period of registry the same may be readily turned back, as common with the hands of a clock. A cash-drawer *K* is provided and is held closed by the pivoted latch *s* on the lever-arm *k*. As the lever-arm is upwardly swung on the depression of the key *f* the latch is removed from its restraining engagement relative to the drawer, when the latter may be thrown forward by the spring *v*.

I claim—

1. In a cash-register, the combination, with an arbor which forms part of a registering mechanism and having loose thereon the united ratchet-wheel and pinion and having fixed thereon a part which supports a pawl that engages the said ratchet-wheel, of a rack-bar in engagement with the said pinion, an operating key or lever and a support therefor, whereby the lever may bodily slide and also have a swinging motion, a swinging frame having a portion extended to a connection with the rack-bar and another portion to be engaged and swung by the key-lever, and means for gaging the extent of

swinging movement of the key-lever, substantially as described.

2. In a cash-register, the combination, with an arbor forming part of or connected to the registering mechanism and having loose thereon the united ratchet-wheel and pinion and a pawl for engaging the ratchet-wheel, of a rack-bar in engagement with the said pinion, and a swinging frame having a portion in engagement with the rack-bar, the key-lever and a support on which the same is mounted to swing and also to slide, which key-lever engages said swinging frame, and a plate or bar *e*, having slots or notches therein of graduated depths, substantially as and for the purposes set forth.

3. In a cash register and indicator, the combination, with an arbor forming part of a registering mechanism and having the united ratchet-wheel and pinion free thereon and a pawl for engaging the ratchet-wheel, of a rack-bar in engagement with the said pinion and a swinging frame having a portion in engagement with the rack-bar, a series of indicators, substantially as described, a key-lever mounted for a swinging movement and also the bodily-sliding movement, and a member movable therewith to engage different ones of the indicators, according to the position of the key-lever, means for gaging the extent of the key-lever movement, and a medium of connection between the lever and said rack-bar, whereby the rack-bar will have an extent of movement proportionate to the movement of the key-lever, substantially as described.

4. In a cash-register, the combination, with the series of arbors, each having loosely thereon the united pinion and ratchet-wheel and pawls for respectively engaging said ratchets, of a register-dial having indicating-graduations, &c., thereon, and hands mounted to turn on the dial and supports therefor, and gearing applied on and relative to said arbors and hand-supports for imparting movements to the hands, rack-bars for engaging said pinions, and means for imparting to said rack-bars independent movements which are variable as to extent, all substantially as and for the purposes set forth.

5. The combination of a series of indicators separately vertically movable, and an arbor, and a register with which the arbor is connected, the pinion and ratchet-wheel loose on the arbor, and the pawl for engaging the ratchet-wheel, the bar *e*, having the graduated series of notches or slots 19, the slide-rod 16, and the key-lever *f*, mounted thereon and having the arm *k* rearwardly extended, the stirrup-frame pivotally mounted on a horizontal axis and spring-supported to lie under and support the said key-lever and having an extension, and a rack-bar in engagement with said extension and with the said pinion, substantially as described.

6. In a cash-register, the combination of

a dial and an arbor extended into proximity thereto and having thereon a hand, sleeves surrounding said arbor and also having thereon hands and gear-wheels, a ratchet-wheel
5 and united pinion loosely mounted on the said arbor, and a pawl for engaging the said ratchet-wheel, other arbors similarly provided with ratchet-wheels, pinions and pawls therefor, and all of said arbors being provided with
10 gear-wheels, certain of which are in engagement with each other and others with the gears of the sleeves, rack-bars for respect-

ively engaging the said pinions, and means for respectively insuring determinate extents of movements thereof, all whereby individual
15 amounts corresponding to the movements of the rack-bars may be registered and the aggregates of the amounts which correspond to all of the movements of all of the rack-bars may be recorded, as set forth.

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