

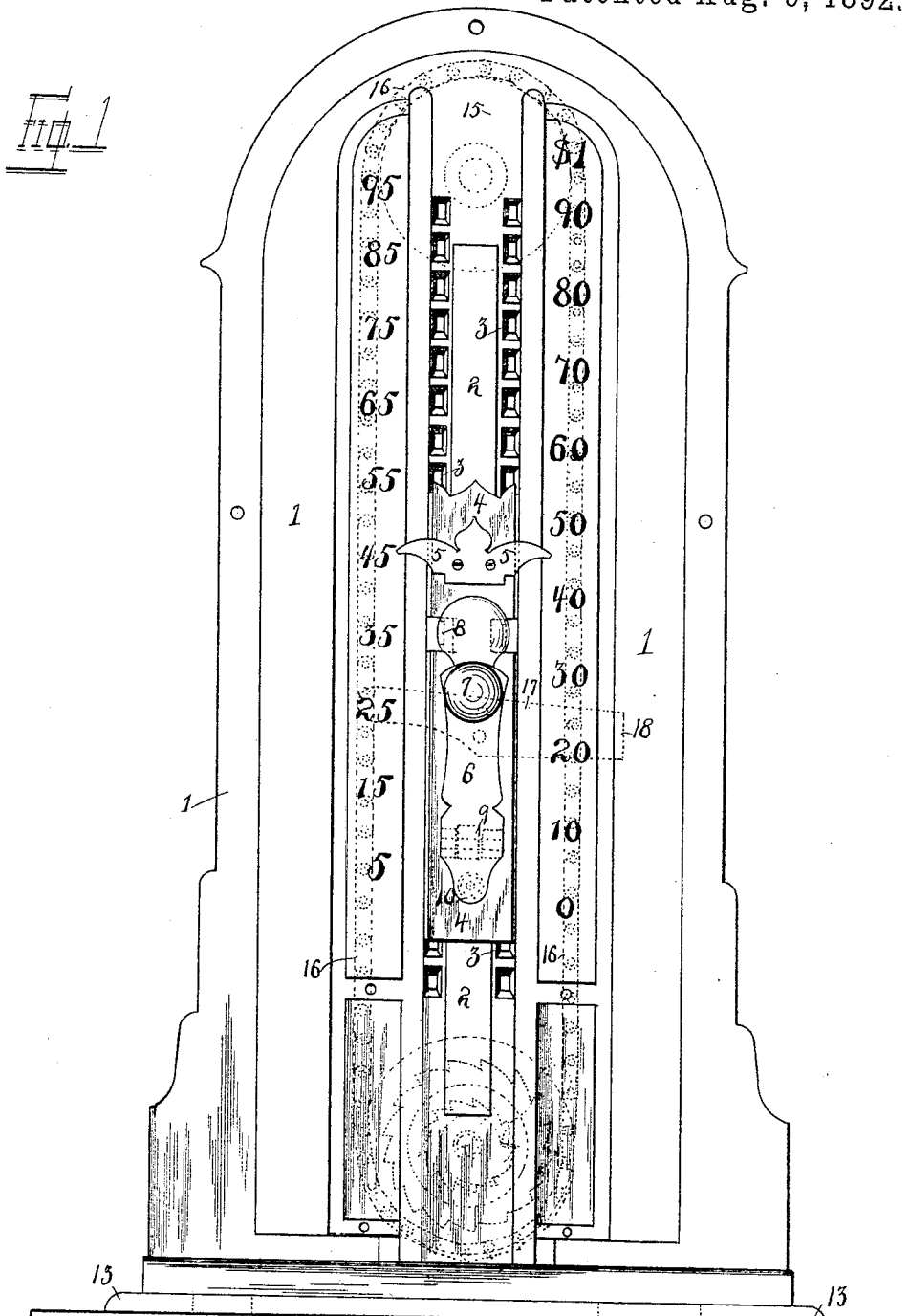
(No Model.)

4 Sheets—Sheet 1.

H. H. KOELLER.
CASH REGISTER.

No. 480,594.

Patented Aug. 9, 1892.



Witnesses
A. A. Eick
E. E. Longan

34 Money Drawer

Inventor
Hermann H. Koeller
By his Attorneys
Higdon & Higdon

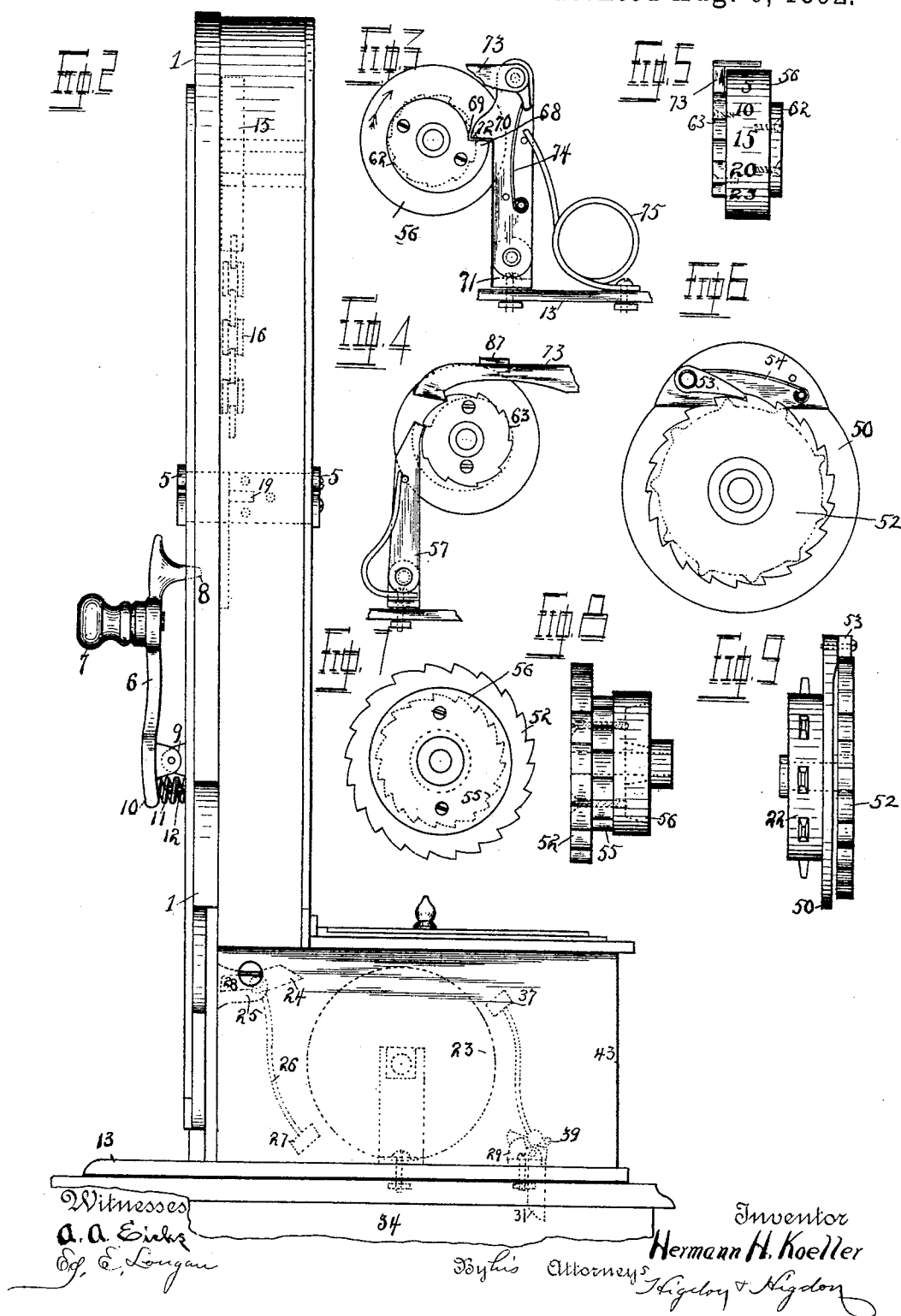
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4 Sheets—Sheet 2.

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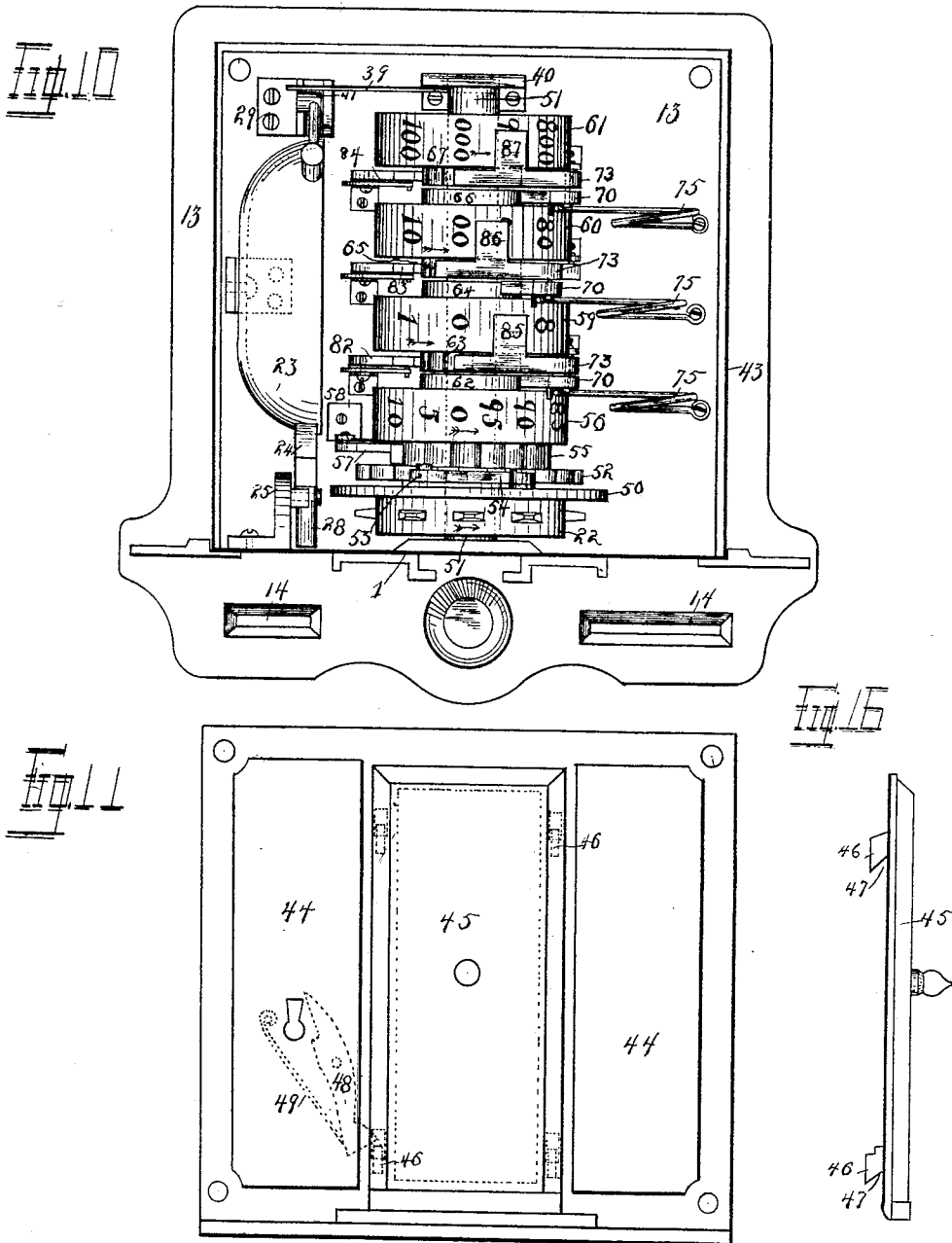
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4 Sheets—Sheet 3.

H. H. KOELLER.
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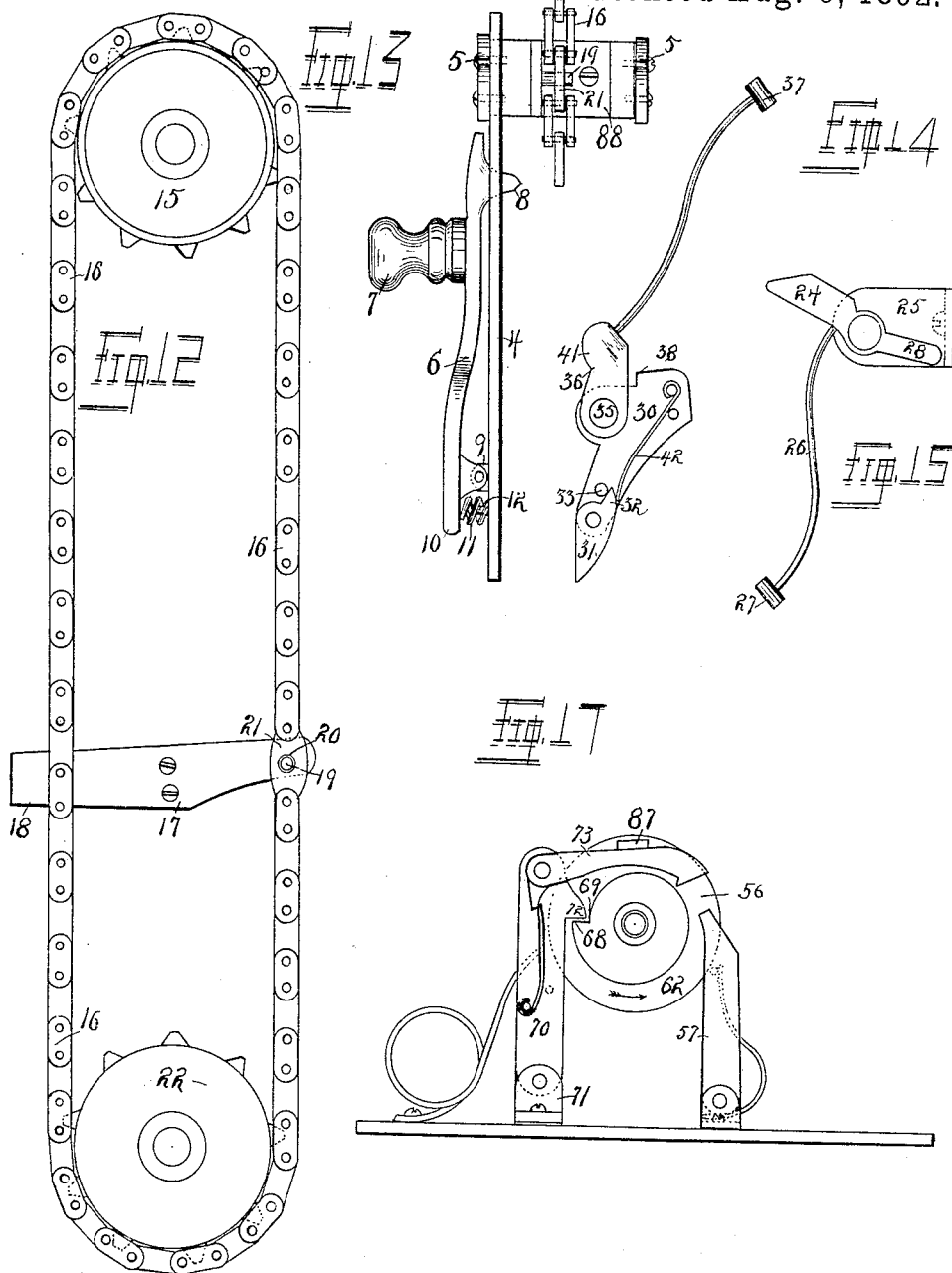
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UNITED STATES PATENT OFFICE.

HERMANN H. KOELLER, OF QUINCY, ILLINOIS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 480,594, dated August 9, 1892.

Application filed October 6, 1891. Serial No. 407,863. (No model.)

To all whom it may concern:

Be it known that I, HERMANN H. KOELLER, of the city of Quincy, Adams county, and State of Illinois, have invented certain new and useful Improvements in Cash-Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improvement in "cash-registers;" and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a front elevation of my complete invention. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of one side of the cash-registering wheels—that is, the side of said wheel provided with a cam and also the mechanism actuated by said cam. Fig. 4 is a side elevation of the opposite side of said wheel, or especially the side provided with a ratchet-wheel and the mechanism used in connection with said ratchet-wheel. Fig. 5 is a detail view of one of the cash-registering wheels, showing the same provided with graduations, a cam, and a ratchet-wheel. Fig. 6 is a side elevation of the chain-wheel, a spring-pawl carried by the same, especially showing the manner in which said chain-wheel actuates or communicates motion to the ratchet-wheel secured to the first cash-registering wheel. Fig. 7 is a detail view, or more particularly a side elevation, of the ratchet-wheel actuated by the chain-wheel, the first cash-registering wheel, and the ratchet-wheel interposed between the same. Fig. 8 is a detail view of the first cash-registering wheel, the ratchet-wheel which communicates motion to the same, and a ratchet-wheel interposed between the same, all the said parts being secured together. Fig. 9 is a detail view of the chain-wheel and the ratchet-wheel actuated by the same. Fig. 10 is a top plan view of the cash-registering wheel, the alarm-bell, the chain-wheel, and other connected and operative mechanism used in connection with the same with the top casing removed. Fig. 11 is a top plan view of the casing which covers the mechanism described or illustrated in Fig. 10. Fig. 12 is a detail view of an endless chain and the chain-wheel on which the same is mounted and an alarm-pro-

ducing lever carried by said chain. Fig. 13 is a side elevation, or more especially an edge view, of a sliding pointer or pointers, a sliding plate on which the same are mounted, and a spring-retaining catch mounted on said sliding plate. Fig. 14 is a detail view of the mechanism to produce an alarm when the money-drawer is opened. Fig. 15 is a detail view of the mechanism which produces an alarm when the sliding plate which carries the pointers has reached the limit of its downward movement. Fig. 16 is an edge view of a removable lid which I employ in carrying out my invention; and Fig. 17 is an end view of the cash-registering mechanism, showing the pawls used in connection with the cash-registering wheels with one of the cash-registering wheels removed.

I will describe the object and operation of my invention in connection with the mechanical description thereof.

Referring to the drawings and especially to Fig. 1, 1 indicates a vertical plate, which is provided in the center with a vertical longitudinal slot or opening 2, for the purpose more fully hereinafter described, and with a series of holes 3, which are formed in said plate 1 on the opposite side of said slot 2 and adjacent to the edges thereof, for the purpose more fully hereinafter described. Said vertical plate 1 is provided on its front and rear faces and on the left-hand side of the slot 2 with the following graduations, to wit: "5," "15," "25," "35," "45," "55," "65," "75," "85," and "95," and is similarly provided on the right hand of the slot 2 with the following graduations: "0," "10," "20," "30," "40," "50," "60," "70," "80," "90," and "\$1," which, respectively, indicate five cents, ten cents, fifteen cents, twenty cents, and so on up to one dollar. It may be noted emphatically in this connection that both the front and rear faces of said plate 1 are provided with the same graduations, so that the amount to be registered can be read on either face of said plate—that is, can be read by the buyer and seller.

4 indicates a vertically-sliding plate, which moves upwardly and downwardly in a suitable guideway formed in the plate 1, and on said plate 4 pointers 5 are secured in any suitable and mechanical manner, it being noted in this connection that one of said pointers moves upwardly and downwardly on

the front face of said plate 1 and the other similarly moves on the rear face of said plate 1, and both of said pointers being carried by the sliding plate 4.

5 Pivotaly mounted on the sliding plate 4 is a catch 6, provided with a knob 7 and with a sharpened point 8, which is adapted to fit in the perforations 3. The object of said catch 6 is to hold the sliding plate 4, and consequently the pointers 5, in any desired adjustment—that is, so as to indicate the amount of money to be registered or recorded—that is, if forty-five cents would be registered the pointers 5 should stand in alignment with the forty-five cents graduation, and so on. 15 The spring-catch 6 is pivotaly mounted, as before stated, on a perforated lug or projection 9, cast integrally with said sliding plate 4. Mounted between the end 10 of said catch 6 and sliding plate 4 is a spiral spring 11. Said spring 11 is mounted upon a small spindle 12, which is secured in the sliding plate 4. The object of spring 11 is to automatically engage the point 8 of catch 6 with either of the perforations 3. When it is desired to disengage the point 8, the operator should take hold of the knob 7 and pull the catch 6 toward him. Whenever said disengagement has been effected, the sliding plate 4 and the parts carried by the same are free to move upwardly and downwardly.

13 indicates a base-plate, to which the vertical plate 1 is secured in any suitable and mechanical manner, and said base-plate 13 may be mounted upon any suitable support, such as a counter, a table, &c. Said base-plate 13 is provided with holes 14, through which money may be inserted into the money-drawer, which is located beneath the same. (See Figs. 1 and 10 for illustration, and also Fig. 2.)

Secured to the upper terminal portion of plate 1 and mounted on the side opposite to the spring-catch 6 is a chain-wheel 15. (See Fig. 12 for illustration.) Said chain-wheel 15 is revolubly mounted in the position, as before stated, in any suitable and mechanical manner, and the same adapted to operate an endless chain 16 of the construction as illustrated in Figs. 2 and 12. Rigidly secured to the sliding plate 4 in any suitable and mechanical manner is a bar 17, one end of which—that is, the end 18 projects beyond said chain, as illustrated in Fig. 12, for the purpose more fully hereinafter described, and the opposite end is provided with a stud 19, which loosely fits in a perforation 20, formed in link 21 of chain 16. It may be noted in this connection that the bar 17 moves upwardly and downwardly with the sliding plate 4, and said movement of said bar operates the chain 16 and the chain 16 rotates the chain-wheel 15, and also a similar chain-wheel 22, mounted as will be more fully hereinafter described.

23 indicates the alarm-bell, of any ordinary construction, which is secured in any suitable and mechanical manner to the base-plate 13,

and is adapted to be sounded whenever the sliding plate 4 and the bar 17 have reached the limit of their downward movement in the manner as I will now proceed to describe.

Referring to Figs. 2, 10, and 15 for illustration, 24 indicates a lever, which is pivotaly secured to a bracket 25, the latter of which is secured in any suitable and mechanical manner to the vertical plate 1.

Secured to the lever 24 in any suitable and mechanical manner is a curved rod 26, to the lower end of which a hammer 27 is secured in any suitable and mechanical manner.

28 indicates an arm of lever 24, which is adapted to be struck by the bar 17, or more particularly the end 18 of the same, just before it reaches the limit of its downward movement. Whenever the end 18 of the bar 17 strikes the arm 28 of lever 24, hammer 27 will be drawn upwardly and consequently strike the bell 23, and thus produce an alarm, which informs the operator that the sliding plate 4 and the bars 17 carried by the same have reached the limit of their downward movement. It may be noted in this connection that I can use the same bell 23 in producing an alarm whenever the money-drawer is opened or drawn out in a manner as I will now proceed to describe, referring to Figs. 2, 10, and 14 for illustration.

29 indicates a bracket which is secured in any suitable manner to the base-plate 13, and pivotaly secured to said bracket 29 is a lever 30. (See Fig. 14.) Said lever 30 projects downwardly through a suitable hole formed in the base-plate 13.

Pivotaly mounted on the lower end of the lever 30 is a small lever 31. (See Fig. 14 for illustration.) The arm 32 of lever 31 strikes a pin 33 whenever the money-drawer 34 is withdrawn or pulled out; but whenever the money-drawer is pushed in and strikes lever 31 or, more specifically, the lower arm of the same said lever yields and does not actuate the lever 30. Lever 30 is mounted on a stud 35, said stud 35 being secured to the bracket 29, and also mounted on the stud 35 and free to move thereon is a lever 36, carrying a hammer 37. The lever 36 is actuated by the lever 30—that is, by a shoulder 38 coming in contact with said lever 36. In other words, the lever 36, and consequently the hammer 37, is pushed away from the alarm-bell 23 by means of the lever 30, and the lever 30 is actuated by the lever 31, and said lever 31 is actuated by means of the money-drawer 34.

Having described the manner in which the hammer 37 is thrown away from the alarm-bell 23 when the money-drawer is pulled outwardly or withdrawn, I will now proceed to describe the manner in which said hammer 37 is thrown against the alarm-bell 23. 39 indicates a straight spring, one end of which is secured rigidly to a standard 40 in any suitable and mechanical manner, and the opposite end of said spring 39 rests normally against the face 41 of the lever 36. It can be

deduced from this construction that when the hammer 37 has been thrown away from the alarm-bell 23, in the manner as hereinbefore described the spring 39, resting against the lever 36, will throw the hammer 37 against bell 23 and produce an alarm. It may be noted in this connection that the lever 31, as illustrated in Fig. 14, is retained in its normal position by a spring 42, mounted on the lever 30. 43 indicates a casing which is secured in any suitable and mechanical manner to the base-plate 13, and in said casing 43 the registering mechanism is contained. Said casing 43 is provided with a lid 44, as illustrated in Fig. 11, and said lid 44 is provided with a removable lid 45. Said lid 45 is provided with ears 46, the same being provided with dovetailed recesses 47, as illustrated in Fig. 16, and said ears 47 are adapted to pass through perforations formed in lid 44, and lid 45 may then be so located that the edges of the perforations formed in lid 44 will fit in the dovetailed recesses 47, formed in ears 46. The lid 45 may then be secured in said position by means of the pivoted latch 48, as shown in dotted lines in Fig. 11. The end of said latch 48 is adapted to fit in behind one of the ears 46, as illustrated in dotted lines in Fig. 11, in which position the lid 45 is locked or secured in lid 44. Said catch 48 may be operated by the web of an ordinary key. The end of catch 48 is held against the ear 46 by means of a spring 49, which normally rests against the catch 48.

The object of the removable lid 45 and means for securing and locking the same in lid 44 will be more fully hereinafter set forth.

I will now proceed to describe the recording or registering mechanism. The chain 16, as before stated, is mounted upon a chain-wheel 22. Said chain-wheel 22 is rigidly secured to a circular disk or wheel 50, the construction of which is illustrated in Figs. 6, 9, and 10. Said chain-wheel 22 and circular disk 50 is revolutely mounted upon shaft 51. One end of said shaft is secured in any suitable and mechanical manner in the vertical plate 1, (see Fig. 10,) and the opposite end of said shaft 51 is mounted or secured in the vertical standard 40. It may be noted in this connection that the shaft 51 does not rotate or turn in its bearings. The circular disk or wheel 50 imparts motion to a ratchet-wheel 52 only when said chain-wheel is turned toward the right in Fig. 10. Said motion is imparted, however, by means of a pawl 53, which is pivotally mounted on said wheel 50. Said pawl 53 is held in engagement with the teeth of the ratchet-wheel 52 by means of a flat spring 54, which is also secured to said wheel 50. Whenever the chain-wheel 22 is turned or rotated toward the left in Fig. 10, the pawl 54 will slip and slide over the teeth of the ratchet-wheel 52 and consequently will not rotate or turn the said ratchet-wheel 52. The ratchet-wheel 52 is rigidly secured to a smaller ratchet-wheel 55, and said ratchet-

wheel 55 is likewise secured to a cash-registering wheel 56, and the ratchet-wheel 52 55 and the cash-registering wheels 56 are free to rotate on the shaft 51.

The ratchet-wheel 55 is provided with twenty ratchet-teeth, and the cash-registering wheel 56 has twenty five-cent graduations engraved or printed thereon. Beginning with "0," the graduations on said wheel are as follows: "5c., 10c., 15c., 20c., 25c., 30c., 35c., 40c., 45c., 50c., 55c., 60c., 65c., 70c., 75c., 80c., 85c., 90c., 95c." In other words, the wheel 56 indicates the number of cents registered or recorded from five cents up to one dollar, corresponding with the graduations on the faces of the vertical plate 1.

When it is desired to begin recording or registering the money-receipts, the operator should set the wheel 56 as illustrated in Fig. 10—that is, with 0—and the pointers 5 should point to 0 on the graduated faces of the vertical plate 1, and then if he receives five cents he should elevate the pointer 5 until it points to the five-cent graduation on the plate 1. The elevation of pointer 5 will communicate motion to the chain 16, the chain 16 will communicate motion to the chain-wheel 22, and the chain-wheel 22 will communicate motion to the cash-registering wheel 56, and said wheel will be moved one five-cent space. This will indicate that five cents has been recorded. Of course if it is desired to record or register forty-five cents the same operation is gone through with, and the pointer 5 is elevated so that the same is in alignment with the forty-five cent graduations on the plate 1, and soon up to one dollar. Whenever the pointer 5 is elevated, so that it points to one dollar on the plate 1, the wheel 56 will have made one revolution and recorded or registered one dollar. It may be noted in this connection that the number of ratchet-teeth on the wheel 55 correspond to the number of five-cent graduations on the wheel 56.

57 indicates a spring-pawl, which is adapted to engage with the teeth of wheel 55, and consequently prevent said wheel from rotating only to the right, as illustrated in Fig. 10, and in the direction of arrows. The spring-pawl 57 is pivotally mounted on the standard or bracket 58, (see Fig. 10, for illustration,) the same being secured in any suitable and mechanical manner to the base-plate 13.

59 indicates a similar cash-registering wheel; but the same is provided with ten one-dollar graduations, or is graduated from one to ten dollars. 60 indicates a cash-registering wheel, which is provided with ten ten-dollar graduations, or is graduated from ten dollars to one hundred dollars, and 61 indicates a similar cash-registering wheel, which is provided with ten one-hundred-dollar graduations, or is graduated from one hundred dollars to one thousand dollars. It may be noted in this connection that I employ in this application four cash-registering wheels—namely, 56, 59, 60, and 61—the first wheel being graduated from

five cents to one dollar, the second wheel being graduated from one dollar to ten dollars, the third wheel being graduated from ten dollars to one hundred dollars, and the fourth wheel being graduated from one hundred dollars to one thousand dollars; or, in other words, I can record amounts all the way from five cents to one thousand dollars; but by using more cash-registering wheels I can record any sums of money, according to the same principle of operation and construction.

Wheel 56 is provided with a cam 62. Wheel 59 is provided with a small ratchet-wheel 63 and cam 64, wheel 60 is provided with a small ratchet-wheel 65, and with a cam 66, and wheel 61 is provided with a ratchet-wheel 67. It may be noted in this connection that the cam 62 is rigidly secured to wheel 56, that the ratchet-wheel 63 and cam 64 are rigidly secured to the wheel 59, and the ratchet 65 and the cam 66 are rigidly secured to the wheel 60, and the ratchet 67 is rigidly secured to wheel 61.

In the operation of recording or registering any amount of money the operator should set the wheels 56, 59, 60, and 61, as illustrated in Fig. 10, so that the zeros coincide or are in alignment, as illustrated in said figure.

The forms of the cam-wheels 62, 64, and 66 are of the construction as illustrated in Fig. 3—that is, they are provided shoulders 68 and with depressions 69. It may be noted in this connection that each of said cams is provided with a spring-pawl 70. (See Fig. 3 for illustration.) Said pawls 70 are pivotally secured to standards 71, which standards are secured to the base-plate 13 in any suitable and mechanical manner.

The pawls 70 are provided with shoulders 72, which are adapted to engage with the shoulders 68 of the cam-wheels. Pivotaly mounted to the upper end of said pawls 70 are pawls 73, the same adapted to engage with the teeth of the ratchet-wheels 63, 65, and 67. Said pawls 73 are held in engagement with said teeth by means of springs 74, which are secured to said pawls 70, and the pawls 70 are held in engagement with the shoulders 69 of the cam-wheels by means of the springs 75. (See Fig. 3 for illustration.)

Having given a general description of the construction of the pawls which are used in connection with the cash-registering wheels, I will now refer to the respective arrangement thereof. The pawls 70 and 73, disposed between the first pair of registering-wheels, respectively engage the cam of the first wheel and the ratchet of the second wheel. The corresponding pawls between the second and third wheels engage the cam and ratchet thereof in a corresponding manner, and the pawls between the third and fourth registering-wheels in like manner respectively engage the cam and ratchet thereof, as will appear in Fig. 10. From this construction it can be readily deduced that when wheel 56 rotates the first pawl 70 will be gradually pushed toward the

right, as illustrated in Fig. 10, and said movement will move the pawl 73 carried thereby in the same direction, and the latter pawl will rotate the wheel 59 toward the right. Whenever the wheel 56 has made one revolution, the wheel 59 will have moved through one one-dollar space. Whenever the wheel 56 has made two revolutions, wheel 59 will have moved through two two-dollar spaces, and so on till the wheel 59 has moved through ten one-dollar spaces, and whenever the wheel 59 has moved through ten one-dollar spaces wheel 60 will move through one ten-dollar space, and whenever the wheel 60 has moved through ten ten-dollar spaces the wheel 61 will have moved through one one-hundred-dollar space, and so on. It may be noted in this connection that the ratchet-wheels 63, 65, and 67 are provided with spring-pawls 82, 83, and 84, similar to the spring-pawl 57, as hereinbefore described. The object of said pawls is to prevent the cash-indicating wheels 59, 60, and 61 from rotating only toward the right, as illustrated in Fig. 10.

The pawls 73 are provided, respectively, with flat projections 85, 86, and 87, which project, respectively, over the wheels 59, 60, and 61, so as to facilitate in reading the recorded or registered money that has been received. It may be stated in this connection that in using my invention the first thing for the operator to do is to set the wheels 56, 59, 60, and 61 so that the zeros engraved or printed thereon coincide or are in alignment, which can be readily perceived by removing the lid 45, and the register is ready for recording money. The recording is effected by simply operating the pointers 5, which is effected by taking hold of the knob 7 of the spring-catch 6, and when it is desired to read the amount recorded the number of hundred dollars is read off from wheel 61, the numbers of tens on wheel 60, the number of one-dollars on wheel 59, and the number of cents on wheel 56. Of course during the operation of recording the lid 45 should be securely fastened in lid 44, so as to prevent any one from manipulating or turning the cash-registering wheel.

The manner of placing and locking lid 45 in lid 44 and also the manner of unlocking and removing the same therefrom has been heretofore described, and requires no further elucidation in this connection. It may not be inopportune in this connection to give a more elaborate description of the manner by which one revolution of the wheel 56 will cause the wheel 59 to rotate or revolve through one one-dollar space. When the zeros printed or engraved upon the wheels 56, 59, 60 and 61 coincide or are in alignment, the shoulders 68 of the cams 62, 64, and 66 are also substantially in alignment. The height of the shoulders 68, the length of the ratchet-teeth formed on the ratchet-wheels 63, 65, and 67, and the distances between the graduations on the cash-registering wheel are substantially

equal. In other words, when the wheel 56 rotates toward the right, as illustrated in Fig. 10, the pawl 76 will be pushed toward the right to a distance equal to the height of the shoulders 68, and consequently the first pawl 73 will move a tooth on wheel 59 through a distance equal to the height of shoulders 68, and this distance corresponds substantially to the distances apart of the graduation.

When the shoulder 72 of the pawl 70 has dropped down into the depression 69, the pawl 73 will be pushed toward the left and will engage with a back or rear tooth of the ratchet-wheels.

It has been stated in the previous description that the pointer 5, which is secured to the sliding plate 4, and that is on the same side of the vertical plate 1 that the catch 6 is located, moves upwardly and downwardly with said sliding plate by the operator taking hold of the knob 7 and moving the same upwardly and downwardly. It may be noted again in this connection that I employ another pointer 5, located on the opposite face of the vertical plate 1. Said last-mentioned pointer 5 is secured in any suitable and mechanical manner to a short bar 88, which is secured to the vertically-sliding plate 4 in any suitable and mechanical manner. (See Fig. 13 for illustration.) Said bar 88 is adapted to move upwardly and downwardly in the vertical slot 2, formed in the vertical plate 1. It may be noted in this connection that the operation of the sliding plate 4, and consequently the pointer 5, upwardly and downwardly in a vertical direction records or registers the amount of cash from five cents up to one thousand dollars.

Having fully described my invention, what I claim is—

1. In a cash-register, the combination, with registering mechanism, an indicator-plate, a bell adapted to be sounded when the latter is operated, and a sliding drawer, of auxiliary alarm mechanism comprising a lever 30, projecting into said drawer and provided with a shoulder 38, a lever 36, actuated by said shoulder and carrying a hammer 37, a spring-held lever 31, pivotally mounted on the lever 30, a

stop-pin 33, and a spring 39, located behind lever 36 and adapted to throw the hammer 37 toward the bell, substantially as and for the purpose set forth.

2. In a cash-register, an alarm mechanism adapted to be sounded when the money-drawer is opened, comprising an alarm-bell 23, secured to the base-plate of said register, a lever 30, provided with a shoulder 38 and carrying a spring 42, said lever being pivotally mounted on said base-plate and projecting downwardly through a perforation formed in the same, a lever 36, actuated by the shoulder of said lever 30 and carrying a hammer 37, a pin 33, projecting from lever 30, a lever 31, pivotally mounted on lever 30 and adapted to engage pin 33 to actuate the lever 30 when lever 31 is struck by the drawer as the same is pulled outwardly or withdrawn, and a spring 39, located behind lever 36, for throwing the same, and consequently hammer 37, toward bell 23, and causing the latter to strike the same, substantially as set forth.

3. In a cash-register, the combination, with the registering mechanism, a vertically-moving indicator-plate carrying a horizontal bar 17, and with an alarm-bell, of a lever 24, provided with a weighted end carrying a hammer 27, and an arm 28 at the opposite side of the lever-fulcrum and in the path of the bar 17, substantially as and for the purpose set forth.

4. In a cash-register, the combination, with a series of registering-wheels provided upon their periphery with graduations, of a plate projecting over the periphery of each registering-wheel except the units-wheel and normally concealing the uppermost graduation, and means for actuating said plates to expose the concealed graduation when the preceding wheel has completed one revolution, substantially as and for the purpose set forth.

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

HERMANN H. KOELLER.

Witnesses:

ED E. LONGAN,
BENJ. J. KLENE.