(No Model.) 5 Sheets—Sheet 1.

J. F. HEADY & J. H. PATTERSON.

CASH REGISTER AND INDICATOR.

No. 384,158. Patented June 5, 1888.

Fig. 2.

Fig. 9.

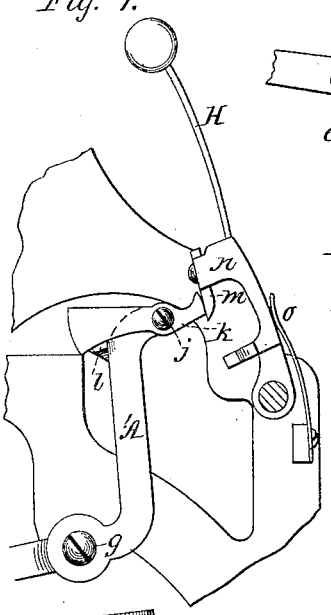
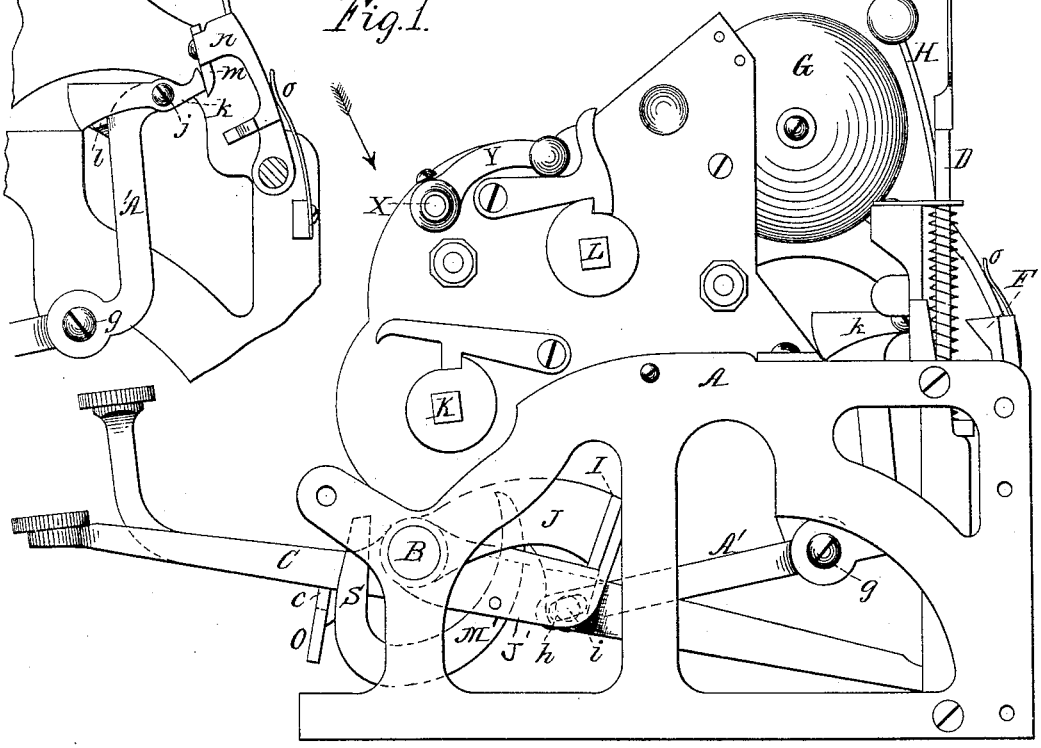


Fig. 1.



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(No Model.) 5 Sheets—Sheet 2.

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CASH REGISTER AND INDICATOR.

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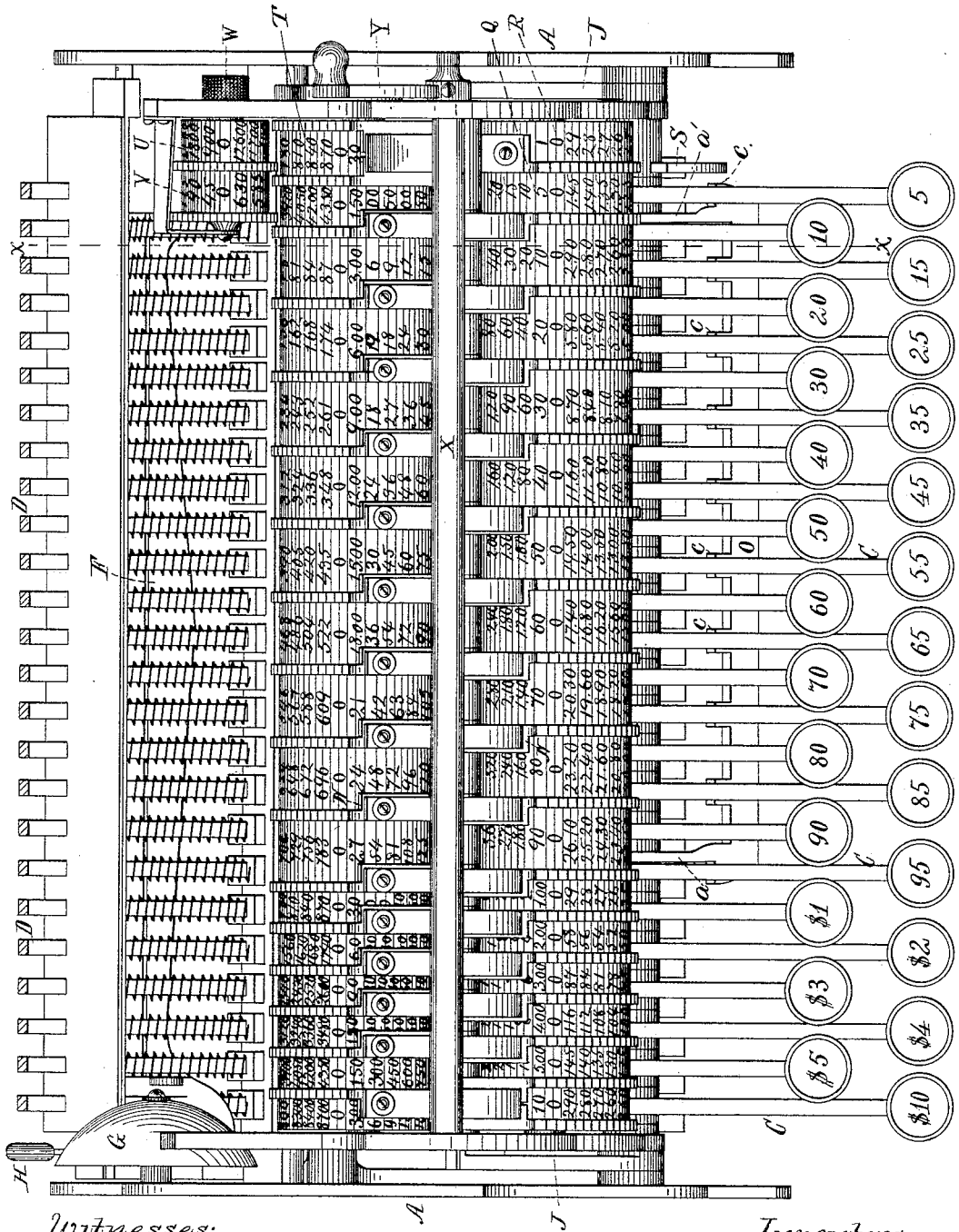

Fig. 3.

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CASH REGISTER AND INDICATOR.

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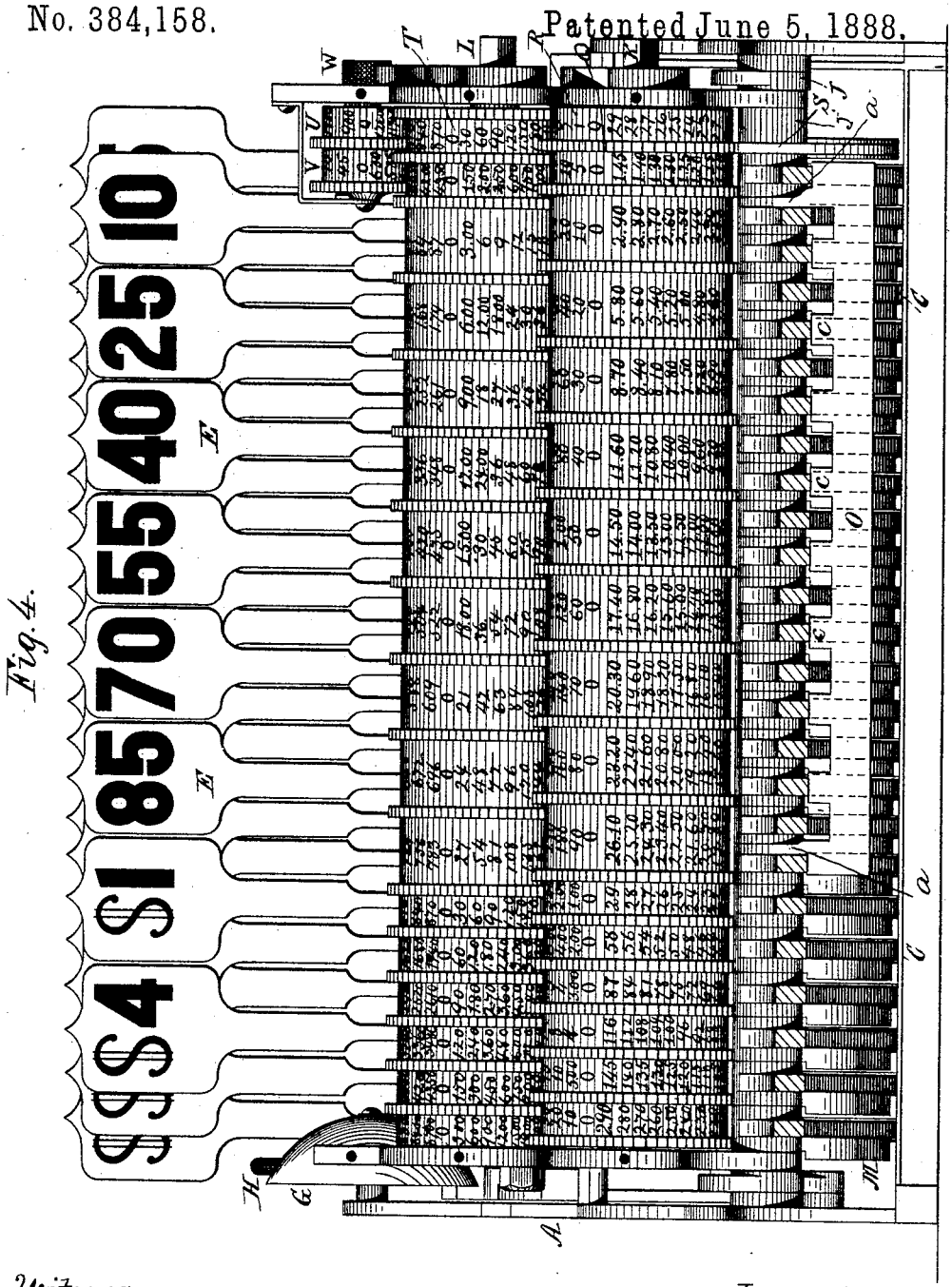

Fig. 4.

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(No Model.) 5 Sheets—Sheet 4.

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CASH REGISTER AND INDICATOR.

No. 384,158. Patented June 5, 1888.

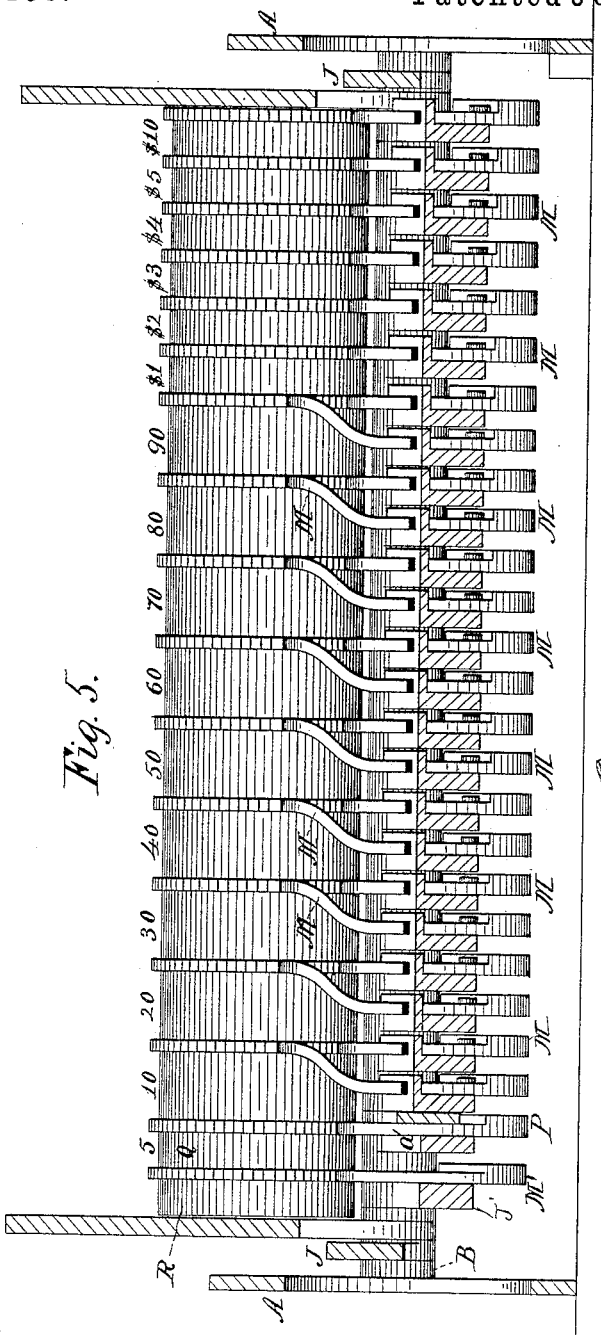

Fig. 5.

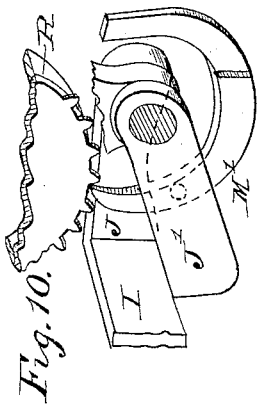

Fig. 10.

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(No Model.) 5 Sheets—Sheet 5.

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CASH REGISTER AND INDICATOR.

No. 384,158. Patented June 5, 1888.

Fig. 8.

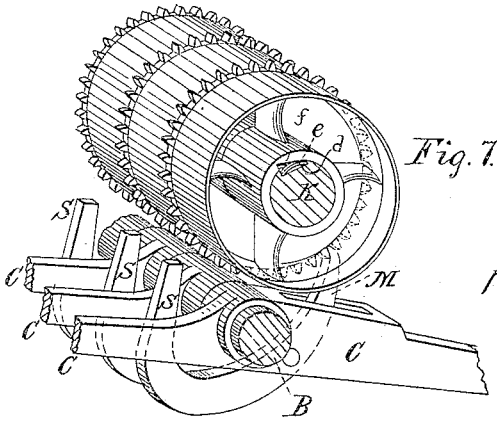


Fig. 7.

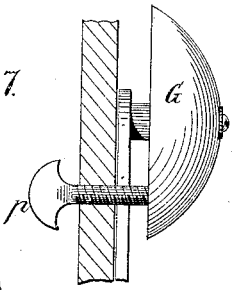


Fig. 6.

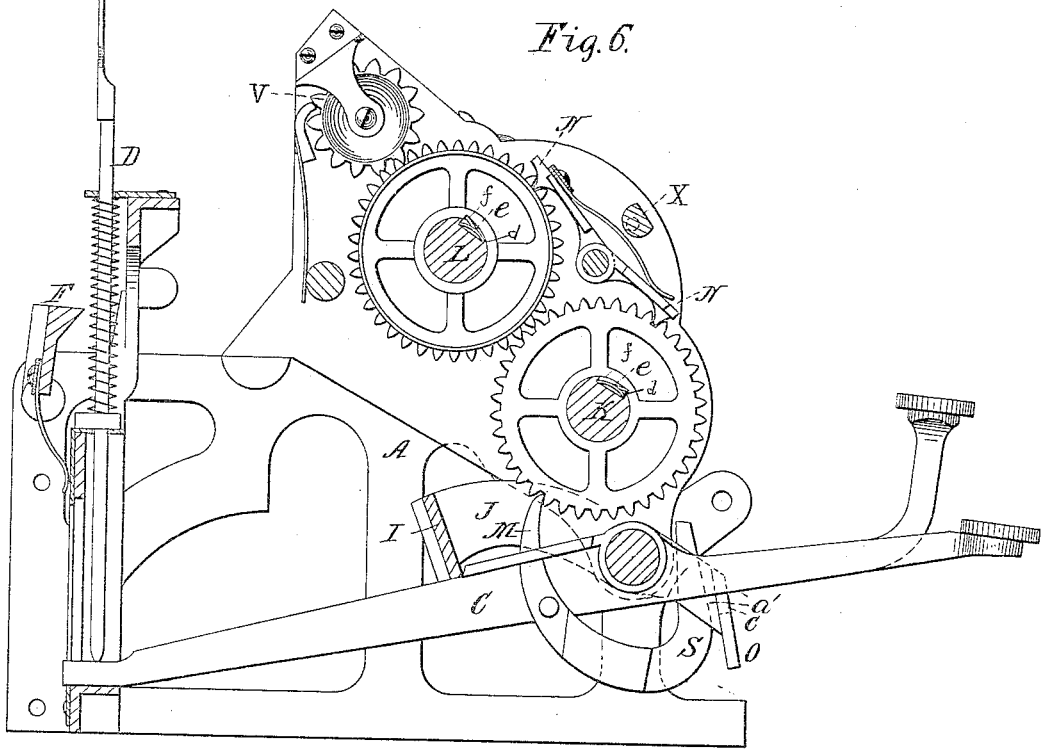
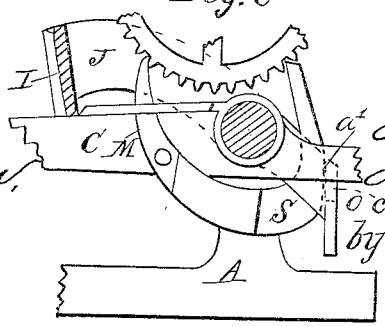


Fig. 6a



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UNITED STATES PATENT OFFICE.

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CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 384,158, dated June 5, 1888.

Application filed November 16, 1887. Serial No. 255,311. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. HEADY and JOHN H. PATTERSON, citizens 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 full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to improvements in the construction of this class of machines whereby they are simplified and rendered more efficient and complete in action. Its novelty will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, represents an end elevation of a machine embodying our invention. Fig. 2, Sheet 1, is a sectional detail to be referred to hereinafter. Fig. 3, Sheet 2, is a front elevation of a machine embodying our invention, looking at the same in the direction of the arrow shown in Fig. 1, and with the tablets removed. Fig. 4, Sheet 3, is a front elevation of the machine with the front ends of the keys cut off and the spring mechanism for the registering-wheels removed. Fig. 5, Sheet 4, is a rear elevation in section showing the lower bank of registering-wheels, their operating keys and dogs. Fig. 6, Sheet 5, is a sectional end elevation through the dotted line *x x* of Fig. 3, looking toward the right-hand end of the machine. Fig. 6ª, Sheet 5, is a detail sectional view, showing the position of a dog on the key, actuating a registering-wheel when the key is depressed. Fig. 7, Sheet 5, is a sectional detail to be referred to hereinafter. Fig. 8, Sheet 5, is a detail perspective showing the arrangement and application of a series of brake-dogs to the registering-wheels. Fig. 9, Sheet 1, is a detail view of the bell-sounding apparatus. Fig. 10, Sheet 4, is a detail perspective view, taken from the rear, showing the dog actuating the sales-registering wheel.

The same letters of reference are used to indicate identical parts in all the figures.

The general construction of this class of machines is so well known that it is sufficient to state here that A is the frame-work; B, the fulcrum-shaft for the keys C strung and vibrating thereon; D, the tablet-rods carrying the tablets E, resting each on its corresponding key, and held in an elevated position with its tablet exposed to view, whenever its key is operated, by means of the wing F and the shoulder on the tablet-rod.

G is the usual gong; H its hammer actuated through suitable connecting mechanism to strike the gong whenever any key is operated; I, the vibrating frame extending across the top of the keys in rear of the shaft B and hung thereon by side arms, J J′.

K L are the shafts journaled transversely across the frame, upon the former of which the lower bank of registering-wheels is strung, and upon the latter of which the upper bank is strung. The registering-wheels are of the usual construction and provided with teeth to engage with the actuating-dogs M, pivoted to the keys, and are provided with spring-pressed dogs N of the usual construction.

The first feature of our invention relates to the five-cent or odd-number carrying-bar, and is an improvement upon the construction shown and described in Patent No. 325,260, of September 1, 1885, to W. H. Maxwell. This five cent bar O, as seen in Figs. 3 and 4, is hung by side arms *a a′* upon the shaft B, and extends in front of the shaft B transversely under all of the keys which indicate less amounts than one dollar. The upper edge of this bar is provided with upward projections *c*, one under each key, bearing an odd multiple of five, in such manner that whenever any of said odd-numbered keys are depressed said bar is depressed with the key; but whenever any of the keys bearing even multiples of five are depressed they will pass between the projections on the bar and it will not be actuated.

The arm *a′*, as seen more particularly in Fig. 2, has a rearward extension, *a″*, to which is pivoted a dog, P, which engages with the teeth on the five-cent registering-wheel Q, so that whenever the five-cent bar is depressed by the operation of any of the keys bearing odd multiples of five the dog P is actuated to turn the five-cent wheel one notch. There is in this instance no dog pivoted to the five-cent key, as the dog P upon the five-cent bar takes its place, and whenever the five-cent key alone is operated the five-cent bar is depressed and its

dog P actuates the five-cent wheel. If desired, however, the five-cent key may have an independent dog engaging with the teeth on the five-cent wheel to actuate said wheel whenever said key is operated, in which event the five-cent bar need not extend under or engage with the five-cent key.

The inner end of the extension *a''* of the arm *a'* passes back under the vibrating frame I, so as to engage therewith, which frame, by its weight, serves to reset the five-cent bar after each of its operations, as well as to hold it up in its normal position of rest.

It will be observed that there are no registering-wheels bearing odd multiples of five, excepting the one five-cent wheel. Each of the operating-keys is provided with an actuating-dog, M. The dog M on each of the odd-numbered keys engages directly with the teeth of the registering-wheel bearing the next lower even multiple of five, while the dog on the key bearing said next lower even multiple of five is extended and bent to engage with the teeth of the same wheel. Thus the dogs on the ten and fifteen cent keys both engage with and actuate the ten-cent wheel. It will thus be seen that whenever the fifteen cent key is operated the ten-cent-registering wheel is turned one notch to register ten cents, and through the medium of the five cent bar, which is depressed by the operation of said key, the five-cent wheel is turned one notch to register five cents. In the same manner when the twenty-five-cent key is operated twenty cents is registered on the twenty-cent wheel and five cents on the five-cent wheel, and so on. It will be observed that there is an indicating-tablet for each key, so that whenever any key is operated, whether it bears an even or an odd number, its tablet bearing a corresponding number is exposed to view through the reading-opening.

Under the construction shown and described in the patent before referred to, whenever an odd-numbered key was operated to indicate and register an odd amount—for instance, twenty-five cents—three keys were depressed and two tablets exposed—namely, the twenty-five, twenty, and five cent keys, and the twenty and the five cent tablets—whereas under our improved construction only one key is depressed and only one tablet exposed, and those are the ones bearing the exact amount desired to be indicated and registered.

The next feature of our invention relates to mechanism for registering the number of operations of the machine; and it consists in an additional registering-wheel, R, strung upon the shaft K and actuated at each operation of the machine by means of the dog M', pivoted to the arm J' of the vibrating frame I, as seen in Fig. 1. Thus it will be seen that whenever any key is depressed the operation of the machine is registered upon the wheel R, which wheel we term the "sales-registering" wheel. The upper bank is similarly provided with an additional registering-wheel, T, which is turned one notch for every complete revolution of the wheel R by means of an engaging-tooth common to this class of registering-wheels.

As the wheel R and the five-cent-registering wheel will be the wheels most frequently actuated in the ordinary operation of the machine, we provide two additional wheels, U V, upon a shaft, W, suitably journaled to the frame-work, as seen in Figs. 3 and 4, the former to be actuated by the wheel T and the latter by the five-cent wheel of the upper bank.

The next feature of our invention consists in the application of a spring-compressing rock-shaft, X, in this instance eccentrically journaled in the frame transversely across all of the springs of the dogs N in such manner that by turning it in one position by means of the handle Y it will compress all of the springs uniformly and hold the dogs in more positive engagement with the teeth of the registering-wheels, while by turning it in the opposite direction the springs will be relieved and the dogs held in engagement by the normal pressure of the springs only. This shaft X is particularly useful when it is desired to turn all of the registering-wheels back to zero, for in such case, under the ordinary pressure of the springs, the dogs sometimes permit the wheels to be revolved past the zero-notch, which will not be the case when held in more positive engagement by the increased pressure given by the rock-shaft.

Instead of journaling the rock-shaft eccentrically, it might be eccentrically shaped in cross-section, or it might be of any suitable shape and provided with projections to engage with the springs.

The next feature of our invention relates to brake mechanism for the registering-wheels; and it consists in the employment of a novel brake-dog for each of the registering-wheels of the lower bank—in this instance in addition to the ordinary holding-dogs. One of these brake-dogs (lettered S) is shown in Fig. 1, and a series of them in Fig. 8. They are not shown in Figs. 3 and 4, excepting the one for the sales-registering wheel. They are formed by extending the actuating-dogs M forwardly and upwardly in such manner that whenever a key is operated the nose of its brake-dog will engage with the teeth upon the front side of the corresponding registering-wheel at the exact moment of the completion of the stroke of the key, so that even if the key is violently operated its registering-wheel cannot possibly turn but one notch, thus insuring complete accuracy in the registering operation of the machine.

The next feature of our invention relates to the resetting mechanism for the registering-wheels, and is illustrated in Fig. 2. It consists in forming a groove, *d*, in the periphery of the shafts K L their entire length, and inserting therein for each registering-wheel a split spring, *e*, which, in rotating the shaft to reset the wheels to zero, engages with a notch, *f*, cut in the bore of the hub of the registering-

wheel. One of these springs *e* is shown in perspective at the side of the wheel in Fig. 2.

While we preferably employ an individual spring for each wheel, each spring may be made long enough to extend through several wheels, if desired, and the number of springs thus diminished. It will be readily seen from this construction that the wheels of each bank can turn freely in one direction upon their shaft, but upon rotating the shaft in the same direction all of the wheels will be caught up by the engagement of the springs *e* with the notches *f*, and be rotated thereby to reset them to zero. In this manner the employment of dogs is obviated and the construction much simplified.

The remaining feature of our invention is illustrated in Figs. 1 and 9, and relates to the tripping mechanism for actuating the wing and gong-hammer simultaneously whenever any key is operated. It consists in a bell-crank lever, A′, pivoted, as at *g*, to the side of the frame, and having its forward end slotted, as at *h*, and connected by a screw or stud, *i*, to the vibrating frame I. The upper end of this bell-crank lever has pivoted to it, as at *j*, a dog, *k*, held normally in working position by a stop, *l*, upon the lever. The nose of this dog engages with an adjustable wiper-block, *m*, secured to the extension *n* of the wing, to which extension is also attached the gong-hammer H. The parts are so adjusted that by the depression of any key and the raising of the vibrating frame I the dog *k* presses back the wing and gong-hammer against the resistance of a spring, *o*, until, the key having reached its limit of depression, the dog becomes automatically released from the wiper-block, and the spring *o* causes the hammer to strike the gong and the wing to be reset. The release of the key resets the parts to their normal position.

In Fig. 7 is shown a damper for deadening the sound of the gong whenever desired. It consists, in this instance, of a wooden screw, *p*, inserted through a threaded opening in the side of the case of the machine in such position that when screwed in its inner end bears against the edge of the gong with more or less force to deaden its sound.

Having thus fully described our invention, we claim—

1. In a cash register and indicator, the combination, with the five-cent-registering wheel and a series of keys indicating odd multiples of five above the first power, of a five-cent bar independent of the five-cent key and actuated by said series of keys, and a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, substantially as and for the purpose described.

2. In a cash register and indicator, the combination, with a five cent-registering wheel, a series of wheels registering even multiples of five, and a series of keys indicating odd multiples of five above the first power, of a five-cent bar independent of the five-cent key and actuated by said series of keys, a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, and a dog pivoted to each of said odd-numbered keys and engaging with the teeth on the wheel registering the next lower even multiple of five, substantially as and for the purpose described.

3. In a cash register and indicator, the combination, with a five-cent-registering wheel, a series of wheels registering even multiples of five, and a series of keys indicating even and odd multiples of five above the first power, of a five-cent bar actuated by the odd-numbered keys, a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, a dog pivoted to each odd-numbered key and engaging with the teeth of the wheel registering the next lower even multiple of five, and a dog pivoted to each even-numbered key and engaging with the teeth of the wheel registering the multiple of five indicated by such key, substantially as described.

4. In a cash register and indicator, the combination, with a five-cent-registering wheel, a series of wheels registering even multiples of five, and a series of keys indicating five and the even and odd multiples thereof, of a five-cent bar independent of but arranged to be actuated by each of the odd-numbered keys, a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, a dog pivoted to each odd-numbered key excepting the five-cent key and engaging with the teeth of the wheel registering the next lower even multiple of five, and a dog pivoted to each even-numbered key and engaging with the teeth of the wheel registering the multiple of five indicated by said key, substantially as and for the purpose described.

5. In a cash register and indicator, the combination, with the five-cent-registering wheel, a series of keys indicating odd multiples of five above the first power, and a series of tablet-rods and indicating-tablets, one for each of said odd-numbered keys, of a five-cent bar independent of the five-cent key and actuated by said series of keys, and a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, substantially as and for the purpose described.

6. In a cash register and indicator, the combination, with a five-cent-registering wheel, a series of wheels registering even multiples of five, a series of keys indicating both even and odd multiples of five above the first power, and a series of tablet-rods and indicating-tablets, one for each of said keys, of a five-cent bar actuated by the odd numbered keys, a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, a dog pivoted to each odd-numbered key and engaging with the teeth of the wheel registering the next lower even multiple of five, and a dog pivoted to each even-numbered key and engaging with the teeth of the wheel registering the multiple of five indicated by said key, substantially as and for the purpose described.

7. In a cash register and indicator, the combination, with a five-cent-registering wheel, a series of keys indicating five and the odd multiples thereof, and a series of tablet-rods and indicating-tablets, one for each key, of a five-cent bar independent of but arranged to be actuated by each of said keys, and a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, substantially as and for the purpose described.

8. In a cash register and indicator, the combination, with a five-cent-registering wheel, a series of wheels registering even multiples of five, a series of keys indicating five and the even and odd multiples thereof, and a series of tablet-rods and indicating-tablets, one for each key, of a five-cent bar independent of but arranged to be actuated by each of the odd-numbered keys, a dog pivoted to said five-cent bar and engaging with the teeth of the five-cent wheel, a dog pivoted to each odd-numbered key excepting the five-cent key and engaging with the teeth of the wheel registering the next lower even multiple of five, and a dog pivoted to each of the even numbered keys and engaging with the wheel registering the multiple of five indicated by said key, substantially as and for the purpose described.

9. In a cash register and indicator, the combination of a series of operating-keys representing the even multiples of five, another series of keys representing the odd multiples of five, registering mechanism operated by said keys, a bar actuated by the operation of any one of the keys of either series, a sales-registering wheel, and connecting mechanism between said vibrating bar and sales-registering wheel, whereby, upon the operation of any key of either series, said sales-registering wheel will be actuated to register the total number of times the machine has been operated, substantially as described.

10. In a cash register and indicator, the combination of a series of operating-keys representing the even multiples of five, another series of keys representing the odd multiples of five, registering mechanism operated by said keys, a vibrating bar actuated by the operation of any one of the keys of either series, a sales-registering wheel, and a dog pivoted to said vibrating bar and engaging with the teeth of said sales-registering wheel, substantially as described, and for the purpose specified.

11. In a cash register and indicator, the combination, with a series of registering-wheels, of a series of holding-dogs engaging therewith, a series of springs bearing with pressure on said dogs and tending to hold them in engagement with the wheels, and a rock-shaft extending transversely across the machine and operating, when turned in one position, to bear upon the springs and increase their pressure upon the dogs, and when turned in another position to leave said springs bearing with normal pressure only on said dogs, substantially as and for the purpose described.

12. In a cash register and indicator, the combination, with a series of registering-wheels, of a series of holding-dogs engaging therewith, a series of springs bearing with pressure on said dogs and tending to hold them in engagement with the wheels, and a rock-shaft eccentrically journaled in and extending transversely across the machine and operating, when turned in one position, to bear upon the springs and increase their pressure upon the dogs, and when turned in another position to leave said springs bearing with normal pressure only on said dogs, substantially as and for the purpose described.

13. In a cash register and indicator, the combination, with a series of registering-wheels, of a seres of keys pivoted on an axis parallel to the axis of the registering-wheels, and a series of substantially U-shaped dogs pivoted to the keys in rear of the axis of the latter and embracing said axis, one end of said dogs co-operating with the registering-wheels to propel them and the other end co-operating with said wheels to arrest them after being so propelled, substantially as described.

14. The combination, with the shaft K, provided with a longitudinal groove, *d*, and the registering-wheels strung upon said shaft and the bores of their hubs provided with notches *f*, of the interposed split springs *e*, confined in the groove *d* of the shaft, substantially as and for the purpose described.

15. In a cash register and indicator, the combination, with the tablet-rods and tablets, tablet-supporting wing, gong, gong-hammer and its extension, a series of keys, and a vibrating frame which is actuated whenever any key is operated, of the bell-crank lever A′, pivoted to the frame of the machine and to the vibrating frame, and carrying at its upper end a pivoted tripping-dog, *k*, which engages with a wiper-block upon the wing-extension, substantially in the manner and for the purpose described.

16. In a cash register and indicator, the combination, with the gong G, supported on the interior of the casing, of the thumb-screw *p*, screwed through the casing from the outside and impinging on the gong to form an adjustable damper therefor, substantially as described.

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