

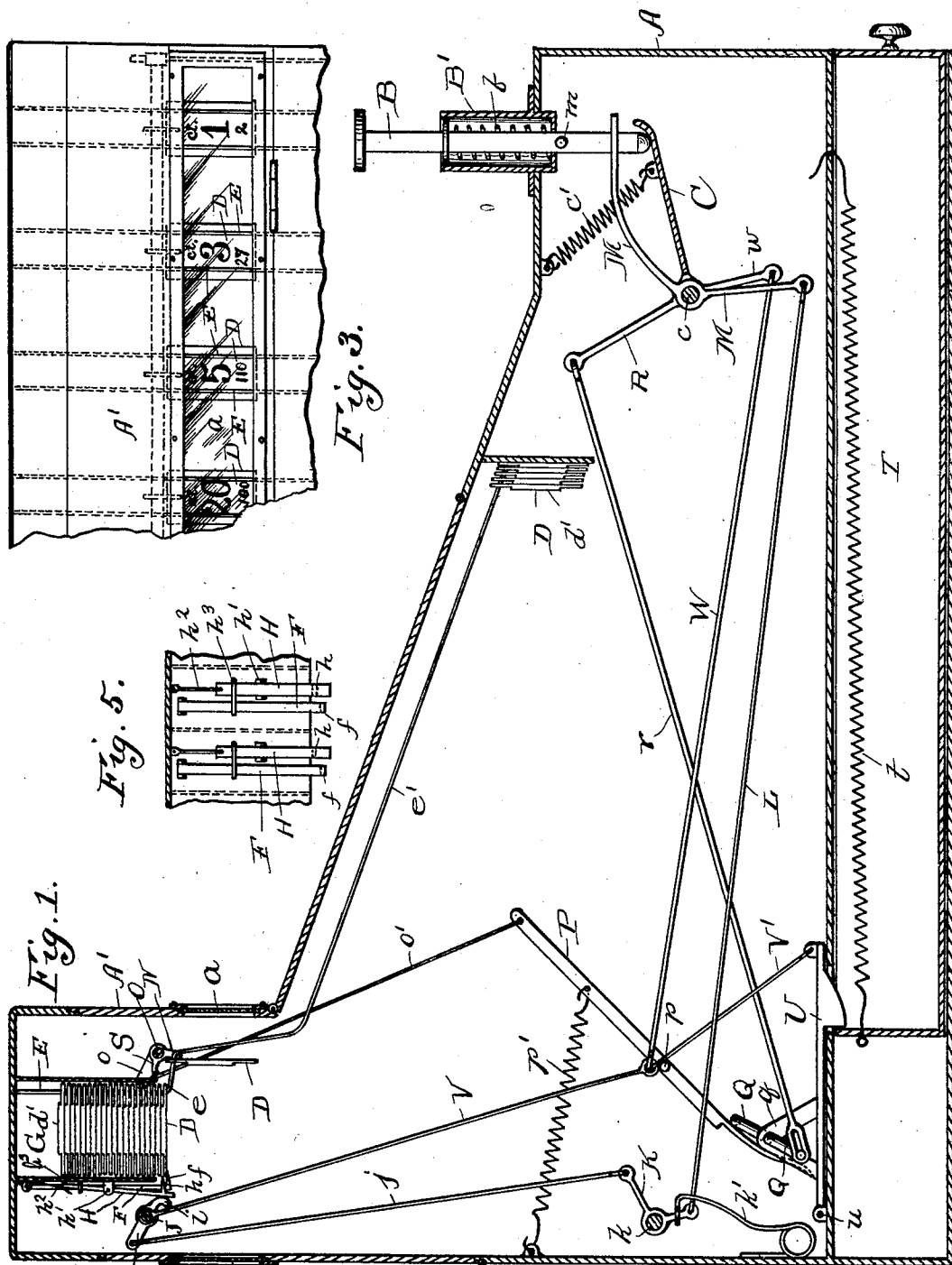
(No Model.)

2 Sheets—Sheet 1.

C. F. HAMILTON.
CASH REGISTER.

No. 507,120.

Patented Oct. 24, 1893.



Witnesses: 3
R. J. Jucker.
Sew. C. Curtis

Inventor:
Charles F. Hamilton
By Munday Evans & Adcock
Atty.

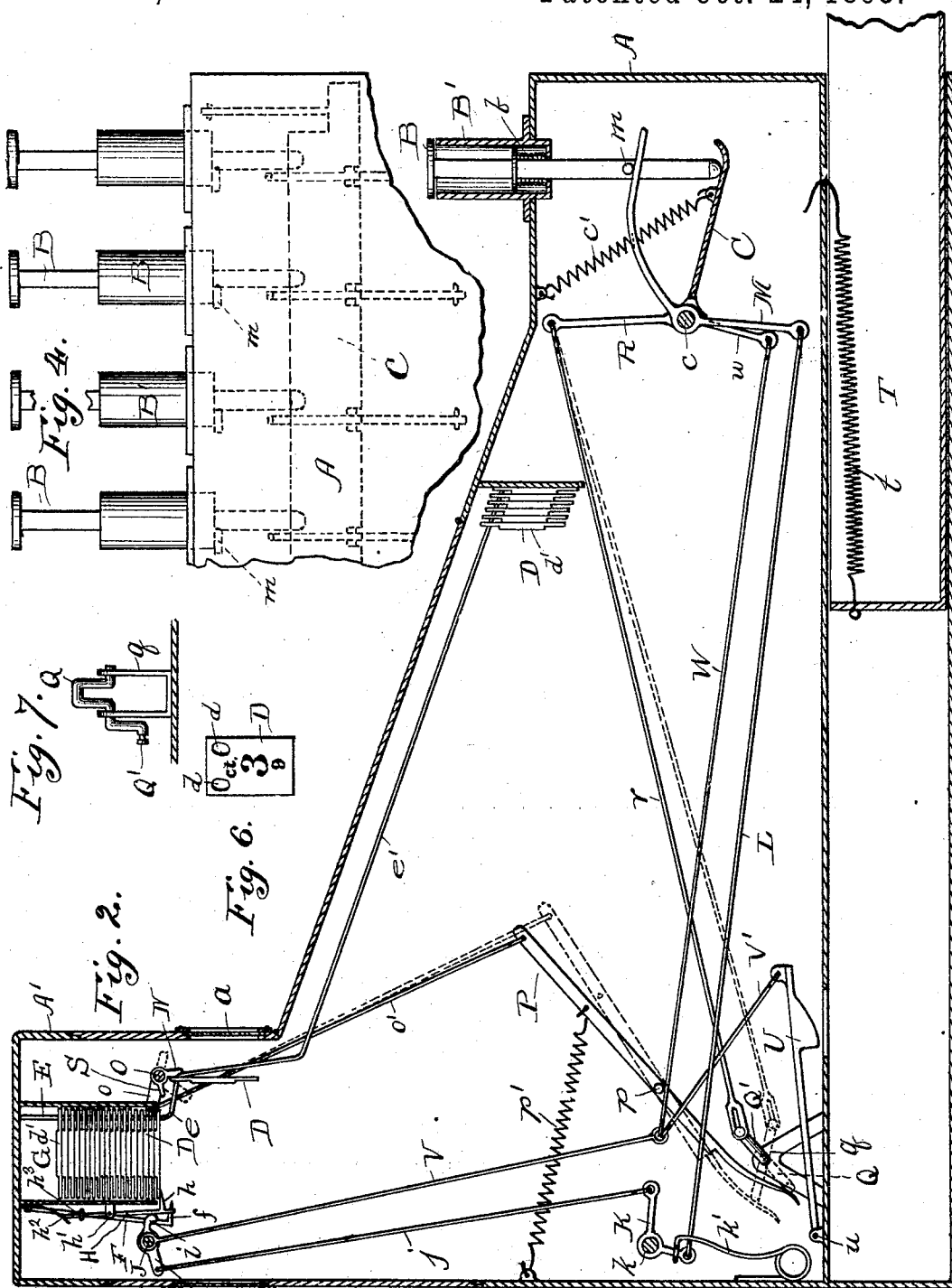
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UNITED STATES PATENT OFFICE.

CHARLES F. HAMILTON, OF CHAMPAIGN, ILLINOIS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 507,120, dated October 24, 1893.

Application filed April 1, 1893. Serial No. 468,634. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HAMILTON, a citizen of the United States, residing in Champaign, in the county of Champaign and State of Illinois, have invented a new and useful Improvement in Cash-Registers, of which the following is a specification.

This invention relates to cash registers, and some features of it to that class of such machines which are self adding of the several denominations.

My object in the invention has been to cheapen, simplify and render more durable machines of this class.

In my improved register are embodied several series of checks, one series for each denomination, and each series is threaded upon guide wires and adapted to be thrown down into view one at a time by appropriate mechanism operated by the keys. These checks are marked with the figures of the denomination which they represent and are also preferably arranged in serial order, and they may also be marked or printed each with the amount in dollars and cents of the sum of all checks in the denomination to which they belong which have been rung down. Thus for instance the first check in the pile of dime checks will note its own amount, viz: ten cents, the next one will note the sum of its own amount plus that of the previous check, viz: twenty cents, the third one will note thirty cents, that being the sum of the first, second and third checks, and so on throughout the series, so that at the end of a day's business the user can tell by a glance at the last check dropped from the series how much the ten cent sales figure up. By this notation of the sums of the several checks upon the checks themselves, the register becomes self adding without the addition to it of any special mechanism or parts for the purpose. There is also present in the machine a device operated upon the striking of any key whereby any of the checks then hanging in view will be thrown out of sight, leaving in view however the check dropped by that key. There may also be in the machine a till adapted to be automatically thrown open upon the striking of any key, and if desired a bell may also be sounded at the same time.

The invention consists in the novel construction of its several parts and the novel combinations of parts hereinafter more fully described and set out in the claims.

In the accompanying drawings Figure 1 is a vertical section of the machine showing the normal position of the parts. Fig. 2 is a similar section showing the parts in the position to which they are moved by the striking of a key. Figs. 3 and 4 are front elevations of different portions of the machine. Fig. 5 is a partial vertical section showing the rear of the check compartments. Fig. 6 is a detail view of one of the checks. Fig. 7 is an elevation of one of the moving parts of the machine.

In said drawings A represents the inclosing case of the machine, having a key board at front, and a narrow raised portion A' extending across the back. In the front and rear walls of this raised portion and in the same plane are windows *a* through which both the cashier and the purchaser may see the checks as they are thrown down by the striking of the keys, and be enabled thereby to know whether the correct amount is registered.

B B are the keys, of which there is one for each denomination employed in the machine. They work vertically in guide tubes or casings B', and are each surrounded by a retracting spring *b* confined within the guide tube.

Below the series of keys, and in such position that it will be depressed by all of them severally, is a swinging lever C, rigidly secured to a shaft *c* extending from end to end of the key board. It is provided with one or more lifting springs *c'* adapted to return it after an operation. The lever C is desirably made of sheet metal of sufficient rigidity and stamped into form. Through the operating of this lever I set in operation mechanism for releasing the checks so they may swing into view one by one, and mechanism for throwing down and out of view any previously exposed check or checks. The till is also automatically released by the same means. Before describing these mechanisms, I will set forth the construction of the denominational checks employed and devices for supporting them.

The checks are shown at D, and as already

stated, there is a separate series of them for each denomination of which the machine takes cognizance. Each series is threaded upon a guide preferably consisting of a pair of parallel guide wires E by means of the openings *d*, whereby they are always kept in the same relative order and in line with each other. The checks bear upon their flat sides figures indicating the amount they represent, which figures become visible, preferably to both the purchaser and cashier, when they are dropped down into position between the windows *a*. At the beginning of the day's business all the checks are arranged horizontally in piles, each series by itself, in the upper part A' of the machine, and they are sustained in this position partly by the offset *e* in the guide wires, and partly by the foot *f* of a movable support F. I prefer to form in the part A' of the case bottomless compartments G, one for each of the several series. The support F is withdrawn upon the striking of a key, and the bottom check is thereby permitted to swing into a vertical position between the windows *a*, as shown at Fig. 1, the checks above the bottom one being temporarily sustained during the time support F is withdrawn by a separating device, described later on. While thus suspended between the windows, the check hangs upon the offset *e* of the wires E, and it remains in this position until another operation of the lever C is caused by the striking of one of the keys, and it is then pushed or thrown down upon the slanting portion *e'* of wires E where all the checks which have been used collect, as clearly indicated at Figs. 1 and 2. These checks all bear large figures indicating the amount of their denomination or series, and they may be either numbered serially, so that the number of sales of each denomination may be readily arrived at by noting the number of the last one used, and the sum of sales ascertained by multiplying the amount of the denomination by the number of sales, or instead of this they may be arranged in regular order, and have noted upon the sides which are presented to the cashier, the sum of the sale represented by them plus all previous sales in the same denomination. Thus in the case of the twenty cent check illustrated at Fig. 3, it will be noticed that it contains the figures 100 in addition to its denominational indicia. These show that said check is the fifth check in that series, and that the sale represented by it added to the four previous sales in the same denomination amount to one dollar. The next previous check in this series is provided with the figures 80, while the next following one has noted upon it 120, and so on through the entire series. In either of these ways the machine is rendered substantially self adding as to the several denominations. Each of the checks is thickened at the center *d'*, so that when they are piled horizontally an open space will be left between each adjacent pair of checks into

which the separating device may enter and thus be enabled at each operation to separate the bottom check from those above it.

The mechanisms for controlling the movements of the checks will now be described: The support F, already mentioned is pivoted at its upper end to the back wall of the check compartment (or other stationary part of the machine) and its normal position is that given at Fig. 1, with its foot under the pile of checks. Adjacent to support F is the separating device H having a foot *h* located in a higher plane than the foot *f*, and thus adapted to enter the open space between the lowermost check and its next neighbor. The separator is pivoted near its center in ears *h'*, and a spring *h²* bears upon its upper end and normally retains it in the position shown at Fig. 1. A cross bar or brace *h³* rigidly connects the support F and separator H above the pivot of the latter, so that the two move simultaneously, or practically so, whenever power is exerted upon the separator. This power is caused by the following devices: A cam *i* adapted to bear against the lower end of the separator and overcome spring *h²* is loosely mounted upon the stationary shaft J extending across the machine in the rear of the check compartments, and operated by a link *j* attached to an arm *i'* extending from the cam and to one arm of the elbow lever K mounted upon the stationary shaft *k* and furnished with a returning spring *k'*. Another link L connects the other arm of lever K with one arm of an elbow lever M located at the front of the machine and loosely supported upon the shaft *c*. The other arm of elbow M is so located as to encounter a lateral stud *m* standing out from the stem of the key, when the key has partially completed its stroke. This train of mechanism acts, when the key is depressed and operates the elbow M, to bring the cam against the lower end of the separator and force it into operating position shown at Fig. 2 between the two lower checks, and at the same time the movement thus given the separator, causes the withdrawal of support F from its acting position to that given at Fig. 2. This change being effected, the lowermost check swings down from the horizontal position to the vertical and visible one in front of the window, and the remaining checks in the pile are sustained by the separator, which remains in its acting position until the return of the support F into service. I thus accomplish the separation of one of the checks from its associate check and the one so separated remains hanging on the offset *e* of the guide wires until the next operation. When the check falls to the position last described, it is prevented from sliding beyond the offset by the stop arm N upon the rocking shaft O extended across the machine in front of the check compartments. The shaft O is rocked at each striking of a key as follows:—Upon the end of said shaft is a crank *o*, which is connected by a link *o'* to a lever P pivoted at *p*. This

lower end of this lever is lifted each time a key is struck by the crank Q rotating in bearings *g*, so that a rocking is imparted to shaft O, and this movement of the crank is due to the actuation of the lever C by the key, the lever shaft *c* having an upwardly extended and rigidly attached arm R connected by a link *r* to the crank Q' formed in one piece with crank Q. A retracting spring *p*' attached to lever P serves to bring the parts back to their normal positions after each operation. The shaft O carries also an arm S which I denominate the throw off, because it operates when that shaft is rocked to throw the checks off from the offsets *e* and down upon the slanting portion *e*'. The same movement of the shaft which causes this throwing down or discharge of the checks also moves the stop N back and out of the way of the check, so that it does not interfere with the operation.

I have described the devices for supporting and controlling only one series of the checks, but it will be understood that those devices except such thereof as are common to all the several series of checks are duplicated in the case of each series.

If an automatically opening till is desired, I have shown a desirable construction therefor. It is shown at T and is provided with a retracting spring *t*. A weighted dog U pivoted at *u* serves to lock the till, and is automatically released therefrom as follows:—Two wires V and V' are joined together by interlocking edges at their meeting ends, and the former is secured at its upper end to a stationary part of the machine, such for instance as the shaft J, while the other is joined to the free end of the dog U. The wires V V' form a toggle, which is shortened sufficiently to lift the dog out of action, by the link W joined to the wires at or near their junction with each other, and also joined to an arm *w* rigidly connected to shaft *c*. From this construction it will be readily seen that whenever a key is struck, the swinging of lever C and rocking shaft *c* will cause the raising of the dog and the freeing of the till so its spring will throw it open. The forward face of the dog is beveled so it may lift and ride over the back board of the till when the latter is closed.

I claim—

1. The cash register, the indicating devices whereof consist of several series of denominational checks adapted to be brought into view singly, each series being strung by itself upon a guide, which is adapted to suspend them vertically at the point of view substantially as specified.

2. The cash register wherein are combined several series of denominational indicator checks, means for supporting each of said series separately, said supporting means being also adapted when actuated to bring the checks singly to a vertical position at the point of view and a series of keys each of which is connected to and adapted to actuate

the supporting means of one of said series of checks, substantially as specified.

3. The cash register wherein are combined several series of denominational indicator checks, each series being strung upon a guide, and means for supporting and controlling the same so the checks may be brought one at a time to a vertical position where they may be read, substantially as specified.

4. In a cash register, the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e*, substantially as specified.

5. The cash register having a case with a window *a*, a series of checks and a guide upon which the checks are strung, said guide having an offset opposite said window, substantially as specified.

6. In a cash register the combination of the series of checks with a guide upon which the same are strung, said guide having an offset, *e*, supporting one end of the pile of checks, and a removable support for the other end thereof, substantially as specified.

7. In a cash register, the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e* supporting one end of the pile of checks, a movable support setting under the bottom of the pile, and a temporarily acting support adapted to enter the pile between the two lowermost checks and sustain all except the bottom one, substantially as specified.

8. In a cash register, the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e* supporting one end of the pile of checks, a movable support setting under the bottom of the pile, and a separator adapted to separate the bottom check from those above it, substantially as specified.

9. In a cash register the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e* and a throw off for pushing the hanging checks off from the offset, substantially as specified.

10. In a cash register the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e*, and a movable stop adapted to detain the checks upon the offset, substantially as specified.

11. In a cash register, the combination of the series of checks with a guide upon which the same are strung, said guide having an offset *e*, a movable stop adapted to detain the checks upon the offset, and a throw off for discharging them therefrom, substantially as specified.

12. The combination with the series of piled checks all strung at one end upon a guide, of a normally acting support and a temporarily acting support for the other end of the checks, and means for moving said supports, substantially as specified.

13. The combination with the series of piled checks all strung at one end upon a guide, of

a normally acting support and a temporarily acting support for the other end of the checks, said temporarily acting support serving also to separate the lower check from the pile, and means for moving said supports, substantially as specified.

14. The combination with the series of piled checks, of the normally acting support F pivoted at its upper end, the temporarily acting support and separator H pivoted centrally and having a spring acting upon its upper end, and the cross bar uniting the two supports, substantially as specified.

15. The combination with the series of piled checks, of the normally acting support F pivoted at its upper end, the temporarily acting support and separator H pivoted centrally and having a spring acting upon its upper end, the cross bar uniting the two supports, and means for moving the separator support, substantially as specified.

16. The combination of the checks arranged in several denominational series, with each series strung upon a guide adapted to sustain one end of the checks when piled horizontally, said guides, and normally acting supports and separator supports sustaining the other end of the piled checks, with the operating keys, and mechanical connections from the keys to said supports, substantially as set forth.

17. The combination with the series of piled checks, of the offset guide upon which the checks are strung, the movable supporting devices F and H, the throw off, the key and connections from the key to said supports and throw off whereby the latter are actuated by the depressing of the key, substantially as specified.

18. The cash register consisting of a case having a front window, a series of denominational keys, a series of checks for each denomination, and means for supporting the several series of checks, said supporting means being also adapted when actuated by the keys, to bring the checks to a vertical position before said window one at a time, substantially as specified.

19. The cash register consisting of a case having a front window, a series of denominational keys, a series of checks for each denomination strung upon a guide wire having an offset in proximity to said window, and means for supporting said checks and bringing them to a vertical position before said window one at a time, said means being actuated by the keys, substantially as set forth.

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Witnesses:

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N. R. GREEN.