

C. A. LUNDGREN.

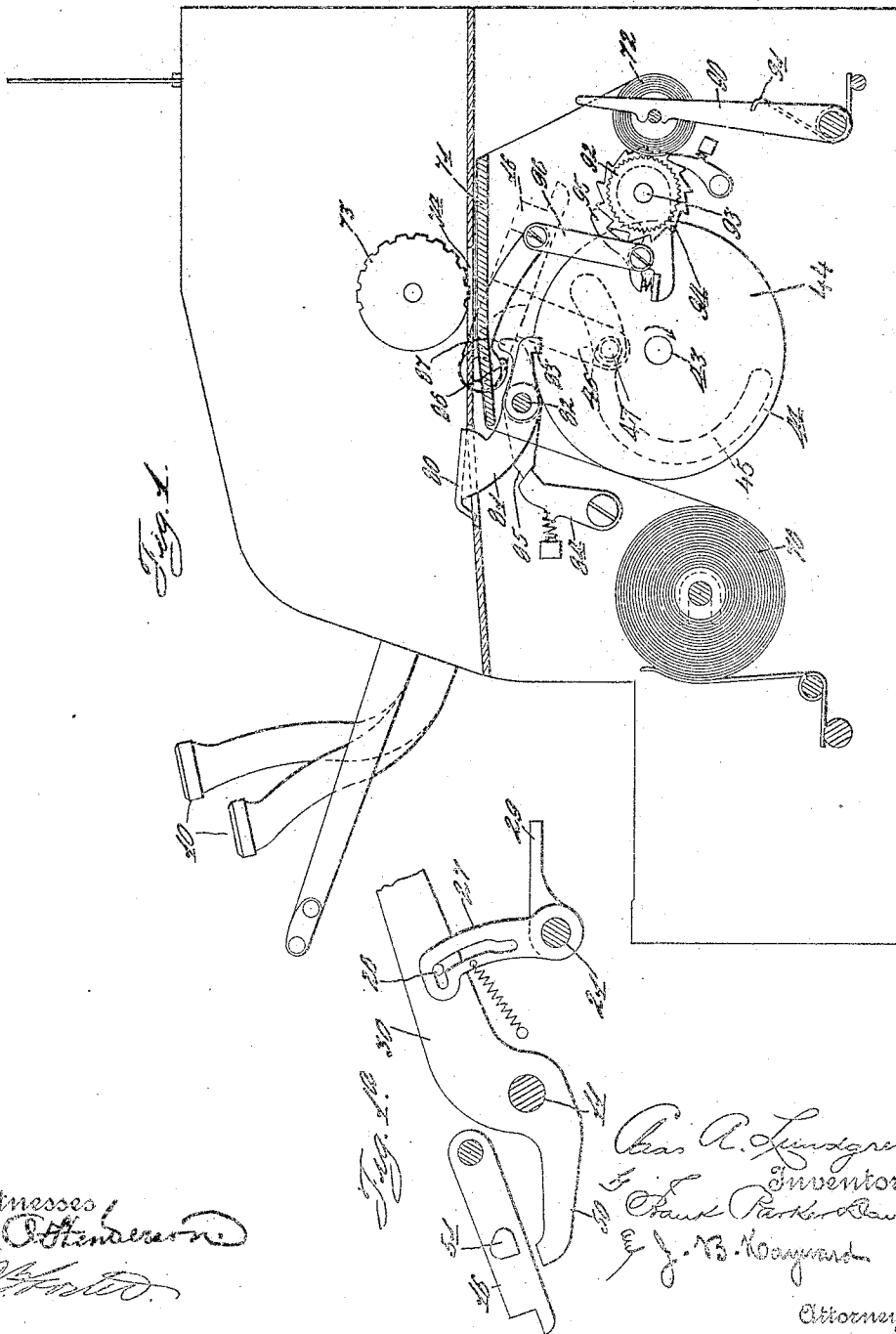
CASH REGISTER.

APPLICATION FILED NOV. 11, 1906.

961,871.

Patented June 21, 1910.

2 SHEETS—SHEET 1.



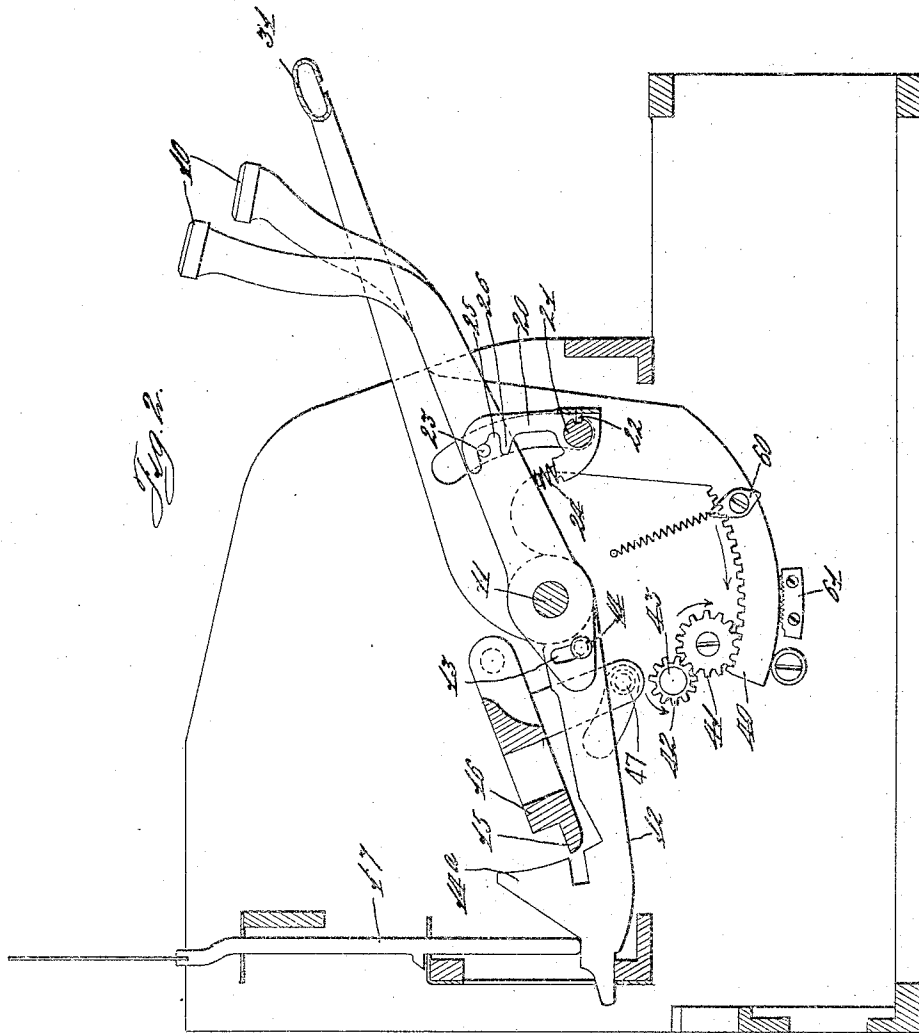
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UNITED STATES PATENT OFFICE.

CHARLES A. LUNDGREN, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF
OHIO, (INCORPORATED IN 1906.)

CASH-REGISTER.

961,871.

Specification of Letters Patent. Patented June 21, 1910.

Application filed November 11, 1905. Serial No. 286,854.

To all whom it may concern:

Be it known that I, CHARLES A. LUNDGREN, a citizen 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, of which I declare the following to be a full, clear, and exact description.

This invention relates to improvements in autographic or writing attachments for cash registers, and also embodies certain improvements in the operating mechanism of such machines.

Among the objects of the invention are to provide a device which will insure the writing of an entry upon the paper strip provided for that purpose; also to provide certain improved mechanisms to insure a paper feed of constant length; also to provide certain minor improvements in connection with the operating mechanism of the cash register and in the key mechanism as will presently be set forth more in detail. With these and incidental objects in view, the preferred form of embodiment of the invention for accomplishing these purposes will now be set forth with reference to the accompanying drawings which form part of this specification.

Of said drawings: Figure 1 represents a side elevation of the autographic attachment to the cash register; Fig. 1^a represents a detail view of part of the operating mechanism and part of the key release mechanism; Fig. 2 represents a sectional view through the register showing part of the operating mechanism, certain of the parts being omitted for the sake of clearness.

The type of register to which these improvements are applied is well known in the art and is described fully in a number of patents, such for example as the patent to Thomas Carney, No. 497,860, dated May 23, 1893, and patent to Joseph P. Cleal, No. 786,346, dated April 4, 1905. The key mechanism however is slightly different from that shown in said patents in that in the present case the exposed portions of the keys are given only a slight movement of depression which has the effect of raising slightly the rear end of a key lever mounted adjacent to the depressed key, this slight raising movement being sufficient to raise said rear-

ward key lever into the path of the key coupler. This mechanism is shown in Fig. 2. The depressible keys 10 are pivoted upon a transverse shaft 11, and mounted adjacent to each of the levers 10 is a rearwardly extending key lever 12, which is similar in shape to the rearward ends of the key levers described in the aforesaid patents. The depressible key 10 extends rearward to a slight extent beyond the shaft 11 and is formed with a slot 13 into which extends a pin 14 projecting from the side of the key lever 12. Thus upon the depression of the key 10 the rearward key lever 12 will be raised by means of the pin 14. The extent of depression of the key 10 is arranged to be just sufficient to lift the rearward nose 14^a of the key lever 12 into the path of the flange 15 on the key coupler 16. This coupler is subsequently reciprocated by a separate operating mechanism so as to carry it up with whatever key levers 12 have been initially raised by the initial depression of the finger keys 10. The slot 13 permits the continued raising movement of the rear key levers 12 by the key coupler independently of the finger keys 10. The key levers 12 raise suitable indicator standards 17, and they also have register and printer actuating devices connected therewith as set forth in said patents.

To latch the finger keys 10 in depressed position, and at the same time limit the downward extent of movement thereof, latch pawls 20 are provided. These pawls are pivoted loosely upon a transverse shaft 21, there being one pawl for each key. A pin 22 on the pawl extends into a notch in the shaft so as to permit a small extent of free play of the pawl. A pin 23 on the side of the key is engaged by the pawl and when the key is given the slight extent of depression necessary to raise the key lever 12 as above explained, the pawl 20 springs rearward under the compression of its spring 24 and the notch 25 in the pawl engages over the pin 23 and latches the key 10 in depressed position. In order to limit the downward extent of movement of the key 10 the pawl is formed with a projecting nose 26 which the pin 23 strikes against and thus limits the depression of the key.

In order to release the depressed keys 10 by the operation of the machine, the shaft

21 is rocked so that the upper wall of its notch bears against all of the pins 22 of the operated pawls and rocks the pawls forward to release the keys which have been latched
 5 down. This means of rocking the shaft 21 is shown in Fig. 1^a and comprises a plate 27 formed with a cam slot into which projects a pin 28 extending from the side of a main operating bail or yoke 30, which bail is de-
 10 pressed at each operation of the machine by the operator, and thereby the pin 28 rocks the plate 27 and the shaft 21 to which the plate is attached, thus releasing the depressed keys. A special release key 29 is
 15 provided which may be operated independently by the clerk to release any key in case a mistake has been made.

The main operating bail just referred to comprises two arms swung upon the shaft 11 at opposite ends of the machine and connected by a cross bar 31 which extends in front of all the keys and is pressed by a clerk to operate the machine after he has pressed the proper keys. This operating
 25 member has connections for raising the key coupler and performing other functions as will now be described. A suitable spring may be used to restore the bail to normal upward position after depression. Extending
 30 downward from one of the side arms of the bail is an arm formed with a curved rack 40 (Fig. 2) meshing with a pinion 41 which turns a pinion 42 fast on the shaft 43. This shaft 43 has fast on it a disk 44 (see
 35 Fig. 1) formed with a cam slot 45 into which projects an anti-friction roller 47 carried on an arm 46 extending downward from the key coupler. Thus when the operating bail is depressed the shaft 43 is revolved through
 40 about one-half revolution (in the direction of the arrow as shown in Figs. 1 and 2) so that the cam slot 45 lifts the key coupler to effect the raising of whatever keys have been coupled thereto. The shape of the cam slot
 45 45 is such that the key coupler will be completely raised before the operating bail is completely depressed, so that upon the continued depression of the bail the key coupler is still maintained in its elevated position,
 50 this certain free movement of the operating bail giving time enough to operate whatever printing platen or other mechanisms it may be desired to operate by the bail. This cam disk is shown as lifting the right hand end
 55 of the key coupler, and in order to prevent the other end of the key coupler from sagging, a supporting arm 50 extends from the left hand arm of the operating bail as shown in Fig. 1^a. As soon as the bail has been
 60 completely depressed, this supporting arm 50 has then been raised to such an extent that it will engage a lug 51 on the side of the key coupler 16 and thus make sure that
 65 that this other end of the key coupler is properly raised to its full extent.

As is common in machines of this type, the key coupler may be provided with a full stroke device to compel its proper reciprocation, but since the operating bail has this
 certain free movement independently of the
 70 key coupler an auxiliary full stroke device is provided comprising a pawl 60 pivoted on the side of the rack arm 40 and engaging a full stroke rack 61. Thus after the key
 75 coupler has been completely lifted by the bail the full stroke pawl 60 is now brought into position to engage with its rack 61 and thus guard the bail with a full stroke device which is effective during this free movement
 80 of the bail independent of the key coupler.

The autographic attachment will now be described. The strip of paper upon which the entries are to be written is led from a
 storage roller 70 over a supporting tablet 71
 85 and is wound upon a winding roller 72. In order to identify the amount of the transaction and the clerk making the same, the usual type wheels 73 are provided which are
 90 set in a well known manner according to the keys of the machine which have been operated, and these type wheels print upon the strip the amount of the sale and also the
 initial of the clerk if desired. The paper
 95 strip is widened sufficiently to permit the clerk to make a written entry thereon side by side with the printed entry, the inclosing casing of the machine being suitably cut
 away to expose this writing line of the
 100 paper. Of course if desired the printing wheels may be done away with and a simple written entry be made for each transaction the paper being fed forward at each operation
 of the machine as will presently be described.
 105

In order to insure the writing of the entry on this paper, the operating mechanism of the machine stands normally locked and is unlocked by the depression of a hand rest
 situated in proximity to the writing line
 110 74. This hand rest comprises a bar 80 projecting slightly above the surface of the casing and carried by arms 81 pivoted on a transverse shaft 82. The situation of this
 115 bar 80 is such that when the clerk starts to write an entry upon the paper strip at the writing line, the clerk's hand will naturally rest upon the bar so as to depress the
 same a slight extent, this bar thus constituting a hand rest. Extending rearward
 120 from one of the arms 81 of this hand rest is a pawl 83 which engages a notch formed in the cam disk 44. When the hand rest is in normal upper position shown in Fig. 1 the
 125 disk 44 is locked by the pawl 83 and thus the main operating bail cannot be depressed to operate the machine until the clerk has first depressed this hand rest 80 which he
 naturally would do in the process of making
 the written entry, and thereby the locking
 130

of the machine will remind the clerk of the necessity for making the written entry on the autographic attachment.

A bevel nosed pawl 84 is spring pressed rearward to engage one side or the other of a double beveled arm 85 extending forward from the frame of the hand rest. Thus after the hand rest has been depressed, the pawl 84 will latch it in depressed position. Upon the operation of the machine and the raising of the key coupler, a cam 86 mounted upon the key coupler trunnion strikes a restoring arm 87 extending rearward from the frame of the hand rest and forces said arm downward to raise the hand rest 80 toward normal position. The pawl 83 now rests upon the periphery of the disk 44 and the pawl 84 just engages slightly below the under bevel of the arm 85, so that when the disk 44 is returned to home position with its notch opposite pawl 83, the spring pawl 84 will by pressing rearward lift on the arm 85 and restore the hand rest 80 automatically to normal upward position with the pawl 83 again engaging its locking notch to lock the machine.

The paper feed will now be described. The winding roller 72 is mounted in a movable frame comprising two side arms 90 swinging at their lower ends and actuated by springs 91 to carry the periphery of the paper contained on the winding roller, against a friction feed device. This friction feed device comprises a roughened wheel or ratchet wheel 92 mounted upon a spindle 93 upon one end of which is a feed ratchet wheel 94 engaged by a feed pawl 95 connected with a link 96 attached to the key coupler 16. Thus when the key coupler arises, the feed pawl 95 rides idly over the ratchet wheel 94, and when the coupler descends the pawl feeds the ratchet wheel a distance of one tooth and thereby rotates the friction feed wheel 92 a certain angular distance. Since this wheel bears against the periphery of the paper contained on the winding roller, this paper is thereby fed by friction a uniform extent at each operation of the machine, and the extent of this feed is of course always constant being not affected by the diameter of the roller of paper which has in this manner been wound up on the winding roller. The movable mounting of the winding roller of course always permits the roller to engage properly with this friction feeding device.

While the form of mechanism here shown and described is admirably adapted to fulfil the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

Having thus described my invention what

I claim as new and desire to secure by Letters Patent is:

1. In a cash register, the combination with printing type carriers, and devices for feeding a record strip past said type carriers, of a writing table over which said strip is led, actuating devices including a key coupler, connections whereby said coupler may, on its return stroke, operate said feeding devices, and a hand rest adjacent said writing table and having connections for locking said actuating devices.

2. In a cash register, the combination with printing type carriers, and devices for feeding a record and autographic strip past said carriers, of a writing table on which said strip is led, an actuating device, connections whereby said actuating device may, on its return stroke, operate said feeding devices, and a hand rest having a connection normally locking said actuating device.

3. In a cash register the combination with an autographic attachment including means for feeding a paper strip past a writing line, of a hand rest mounted in proximity to said writing line; an operating mechanism for the register; a locking disk connected with the operating mechanism; and means connected with the hand rest to engage said locking disk and lock the operating mechanism so long as the hand rest remains raised.

4. In a cash register the combination with an autographic attachment including means for feeding a paper strip past a writing line, of a hand rest mounted in proximity to said writing line; an operating mechanism for the register; a locking disk connected with the operating mechanism; means connected with the hand rest to engage said locking disk and lock the operating mechanism so long as the hand rest remains raised; and a spring member for retaining the hand rest in either its raised or depressed position.

5. In a cash register the combination with a series of keys, of an oscillating main operating member therefor; an operating disk connected with said operating member and formed with a cam slot; a key coupler; and means connecting said key coupler with said slot whereby the movement of said disk will raise and lower said key coupler.

6. In a cash register the combination with a series of keys, of an oscillating main operating member therefor; an operating disk connected with said operating member and formed with a cam slot; a key coupler; means connecting said key coupler with said slot whereby the movement of said disk will raise and lower said key coupler; an autographic attachment for the register including means for feeding a paper strip past the writing line; a hand rest mounted in proximity to said writing line; and an extension connected with said hand rest and engaging

said disk to lock the operating mechanism until the hand rest has been depressed.

7. In a cash register the combination with a series of keys, of a series of latch pawls for
5 latching said keys in depressed position, said latch pawls being formed with projections for limiting the extent of the depression of said keys; and means for withdrawing said
10 latch pawls from latching position either upon an operation of the machine or independent of such an operation.

8. In a cash register the combination with a series of keys, of a key coupler; a main operating mechanism; means connected with
15 said operating mechanism for lifting one end of the key coupler; and means independently connected with the operating mechanism for supporting the other end of the key coupler after the former end has
20 been lifted.

9. In a cash register the combination with a series of keys, of a key coupler; a main operating mechanism; means connected with
25 said main operating mechanism for raising one end of said key coupler; said means being constructed to permit a certain free movement of the operating mechanism after the key coupler has been raised; and means
30 also connected with the operating mechanism to engage and support the other end of the key coupler when such point of free movement of the operating mechanism is reached.

10. In a cash register the combination
35 with a series of keys, of a key coupler; an oscillating operating member; a cam disk connected with said oscillating member and engaging an extension of the key coupler to lift one end thereof; and a supporting arm
40 also connected with said oscillating member and positioned to engage a lug on the other end of said key coupler to support the latter in conjunction with the lifting cam after the cam has performed its lifting function.

11. In a cash register, the combination 45 with a plurality of keys, and a key coupler for operating said keys, of mechanism for actuating said coupler arranged to have a certain movement after said coupler has
50 ceased to move, and a full stroke device compelling the completion of said free movement.

12. In a cash register, the combination with a series of keys having latching projections, of latch pawls for latching said keys 55 in depressed position, said latch pawls having projections extending across the path of travel of the latching projections on the keys; and means for withdrawing said latch
60 pawls from latching position either upon an operation of the machine or independent of such an operation.

13. In a cash register, the combination with printing type carriers, and devices for feeding a record and autographic strip past 65 said carriers, of a writing table over which said strip is led, hand operated devices having connections to actuate said type carriers and said feeding devices and a hand rest adjacent said writing table having a device 70 controlled thereby normally locking said hand operated devices.

14. In a cash register, the combination with printing type carriers and means for feeding a record and autographic strip past 75 said carriers, of a casing around said strip cut away to provide an opening for writing on said strip, hand operated devices for positioning said type carriers and connections whereby said hand devices may, on their re- 80 turn stroke, operate said feeding means.

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

CHARLES A. LUNDGREN.

Witnesses:

WM. O. HENDERSON,
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