

CASH DRAWER.

1,066,518.

Patented July 8, 1913.



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UNITED STATES PATENT OFFICE.

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CASH-DRAWER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FREDERICK C. NICKOL and MILTON C. STERN, 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-Drawers, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to cash drawers, and more particularly to cash drawers which open automatically when released.

The object of the invention is to provide a drawer of this character with actuating and controlling devices which will open the drawer quickly and will start and stop the same without appreciable jar, thereby overcoming the fault, common in drawers of this type, of stopping so suddenly that the cash in the drawer will be displaced.

It is also an object of the invention to provide means for regulating the controlling devices; and further, to construct the whole mechanism in such a simple durable manner that there will be small liability of its being broken or rendered inoperative.

In the accompanying drawings, Figure 1 is a horizontal, sectional view, taken through the casing of the drawer above the drawer itself; Fig. 2 is a longitudinal, sectional view, taken on the line *x x* of Fig. 1 and looking in the direction of the arrows; and Fig. 3 is a detail view of the regulating device for the controlling mechanism.

35 In these drawings we have illustrated one embodiment of our invention and have shown the same as applied to a cash drawer comprising a drawer frame 1 and a drawer proper 2 which is of a size somewhat smaller than the frame 1 and is divided into compartments. The frame carrying the drawer 2 is mounted in a suitable casing 3 which is here shown as a special casing built particularly for the drawer and adapted to have mounted upon it an autographic register, the whole to set upon a counter or other suitable support. It will be understood, however, that this particular form of drawer and casing are chosen for the purpose of illustration only and that the invention is applicable to various drawers and that these may be mounted in casings of various kinds whether built into a counter or independently thereof. The drawer is preferably
55 mounted in the casing in such a manner as

to reduce to a minimum the friction between the drawer and the casing and to cause the drawer to work as easily as possible. As here shown the drawer is provided on both sides with rollers 4 which travel on suitable tracks. These track are shown as comprising two metal bars 5 arranged one above the other and spaced apart to receive rollers, which preferably have annular grooves to receive the adjacent edges of the bars constituting the track. Preferably, there are two rollers on each side of the drawer, one arranged near the extreme rear end of the frame 1 and the other arranged near the rear end of the drawer proper 2. This arrangement permits the drawer to open to substantially its full depth and also resists any tendency of the drawer to tip when in its open position.

Outward movement may be imparted to the drawer in any suitable manner. Usually, however, this is accomplished by the use of one or more springs, and, in the present instance, we employ two springs for this purpose which are here shown as ordinary coiled springs 6 connected at their rear ends to hooks 7 extending upwardly from the rear portion of the drawer frame 1 and connected at their forward ends to hooks 8 secured to the front portion of the casing 3. A suitable catch is provided to retain the drawer in its closed position, which, as here shown, comprises a dog 9 having a tapered nose 10 adapted to extend in front of the rear portion of the drawer proper, which may be provided with a part cooperating with the nose, such as a metal plate 11. A spring 12 confined between the dog 9 and the top of the casing holds the dog normally in its lowermost position, causing the nose to engage the drawer and retain the same in its closed position. The drawer may be released in any suitable manner. In the particular type of mechanism here illustrated, however, we provide the dog with an arm 13 extending beyond the pivotal center thereof and provided with a rod 14 which extends through the top of the casing to enable the dog to be actuated from the exterior of the casing to release the drawer. When the dog has been thus actuated the springs will move the drawer into its foremost position, and, when the drawer is pushed to its closed position, the rear edge thereof will engage the beveled nose of the

dog and force the same upward against the tension of the spring 12 to permit that portion of the drawer carrying the plate 11 to pass beyond the same.

5 If permitted to operate under the influence of the springs 6 without controlling devices of some sort the drawer would stop so suddenly that the coins in the coin compartments would be thrown out of said
10 compartments. To eliminate this sudden stop and the accompanying jolt we provide an air-controlled device to regulate the outward movement of the drawer. As here shown this device comprises a pneumatic
15 cylinder 15 rigidly secured to the casing 3 above the drawer. Mounted within the cylinder is the usual piston 16 having a piston rod 17 which extends rearwardly beyond the end of the cylinder and is connected to the
20 rear portion of the drawer frame 1, this connection being formed in the present instance by providing the rear end of the piston rod with an eye or loop 18 to receive a pin 19 carried by a bracket 20 secured to
25 the drawer frame 1. Any suitable device, such as a cotter pin 21 may be employed to retain the loop upon the pin. The cylinder 15 is provided at its forward end with the usual relief port 22 and means are provided
30 for controlling the escape of the air from this port and thereby regulating the movement of the piston 16 and the speed at which the drawer opens. To this end a bushing 23 is mounted in the casing 3 in alinement with
35 the relief port 22 and has its central opening screw-threaded. The inner end of the bushing is provided with a transverse passage 24 communicating with the port 22 of the cylinder and connected at one end with
40 a longitudinal passage 25 extending to the outer end of the bushing. A pin 26 having a screw-threaded portion 27 is mounted in the bushing and has its inner end tapered to enter the port 22 and control the passage
45 of air through the same. By adjusting this pin relatively to the port the movement of the piston may be controlled. The outer end of the bushing is preferably closed by means of a plug or cap 28, and, in order that this
50 cap may not prevent the air from escaping from the passage 25, the bushing is provided with a notch 29 which enables the air to pass about the edge of the cap. It is necessary, however, that cash drawers and
55 drawers of a similar character should open with a fair degree of speed, and, if the port 22 of the air cylinder is so adjusted as to permit the drawer to open with a fair degree of speed, the drawer will stop with a
60 slight jolt, although this jolt will be much less than would be the case if the air-controlling mechanism were not used. In order to eliminate entirely the jolt at the end of the outward movement of the drawer we
65 have provided a supplemental cushioning

device which comes into play as the drawer approaches the outward limit of its movement and cushions the final movement of the drawer. In the present construction this supplemental cushioning device comprises
70 a relatively soft spring 30 mounted on a rod 31 rigidly secured to the rear wall of the casing near the bottom thereof, extending loosely through the rear portion of the
75 drawer frame and to a point near the forward limit of movement of said rear portion of the frame. The spring is preferably a coiled spring of ordinary construction and is held against outward movement
80 by a nut 32 screw-threaded onto the end of the rod 31. A washer 33 is loosely mounted on the rod in the rear of the spring and is thus interposed between the spring and the contacting part of the drawer frame. It
85 will be apparent, therefore, that when the drawer is released and moved forward by the action of the spring this movement will be controlled by the air cylinder and piston which will allow the drawer to move forward at a predetermined rate of speed only; 90
and it will further be apparent that as the drawer approaches the outward limit of its movement the supplemental cushioning spring will be engaged by the drawer frame and will serve to cushion the final movement
95 of the drawer and will absorb any jar incident to the stopping thereof. Further, it will be apparent that the device is of a very simple construction which will not readily become disarranged or broken, and, 100
after the relief port for the cylinder has once been adjusted, the device will require no attention whatever. It will also be noted that the piston is at all times within the cylinder and acts upon the drawer from
105 the very beginning of its movement to the end thereof. Consequently, the drawer does not start with a jerk but with a slow easy movement.

While we have shown and described one 110 form of our invention we wish it to be understood that this has been chosen for the purpose of illustration only and that we do not desire to be limited to the details of construction shown and described, for obvious 115 modifications will occur to a person skilled in the art.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:— 120

1. The combination, with a casing, a drawer slidably mounted therein, a spring to impart outward movement to said drawer, and means to retain said drawer in a closed position against the tension of 125 said spring and to release said drawer, of a fluid cylinder mounted within said casing, and a piston mounted in said cylinder, one of said parts being connected with said drawer and the other of said parts being 130

connected with said casing, whereby they will coöperate to resist the outward movement of said drawer.

- 5 2. The combination, with a casing, and a spring-actuated drawer mounted in said casing, of means to resist the outward movement of said drawer and to increase such resistance during a portion of such outward movement.
- 10 3. The combination, with a drawer, and means to move said drawer into its open position, of an air-controlled device to resist the movement of said drawer toward its open position, and a cushioning device co-
- 15 operating with said air-controlled device to gradually check the movement of said drawer.
4. The combination, with a casing, a drawer mounted in said casing, and means
- 20 to move said drawer toward its open position, of a cushioning device arranged to resist the outward movement of said drawer, and a supplemental cushioning device to co-
- 25 operate with the first-mentioned cushioning device as the drawer approaches the outward limit of its movement.
5. The combination, with a casing, and a spring-actuated drawer mounted in said casing, of an air cushion arranged to resist the
- 30 outward movement of said drawer, and a supplemental cushion arranged to coöperate with said air cushion as the drawer approaches the outward limit of its movement.
6. The combination, with a casing, a
- 35 drawer slidably mounted therein, a spring to impart outward movement to said drawer, and means to retain said drawer in a closed position against the tension of said spring
- 40 and to release said drawer, of a fluid cylinder secured to said casing, a piston mounted in said cylinder and connected with said drawer, and means to regulate the movement of said piston in said cylinder.
7. The combination, with a casing, a
- 45 drawer slidably mounted therein, a spring to impart outward movement to said drawer, and means to retain said drawer in a closed

position against the tension of said spring and to release said drawer, of a fluid cylinder mounted within said casing, a piston 50 mounted in said cylinder and connected with said drawer, said cylinder having a port, and means operable from the exterior of said casing to regulate the passage of fluid through said port.

8. The combination, with a casing, a drawer slidably mounted therein, and a spring to impart outward movement to said drawer, of a fluid cylinder secured to said casing, a piston mounted in said cylinder 60 and connected with said drawer, and a spring arranged to resist the movement of said drawer as the latter approaches its outermost position.

9. The combination, with a casing, a 65 drawer slidably mounted therein, and a spring to impart outward movement to said drawer, of a fluid cylinder secured to said casing, a piston mounted in said cylinder and connected with said drawer, a rod 70 mounted on the rear wall of said casing, extending forwardly therefrom, and a light spring carried by the forward portion of said rod and adapted to be engaged by a part carried by said drawer when the lat- 75 ter approaches the outer limit of its movement.

10. The combination, with a casing, a spring-actuated drawer mounted within said casing, a catch to retain said drawer in its 80 closed position, and means to release said catch, of an air cushion to control the outward movement of said drawer, and a supplemental cushioning spring arranged to be engaged by a part carried by said drawer 85 when the latter approaches its outermost position.

In testimony whereof, we affix our signatures in presence of two witnesses.

FREDERICK C. NICKOL.
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Witnesses:

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LEO MADDEN.