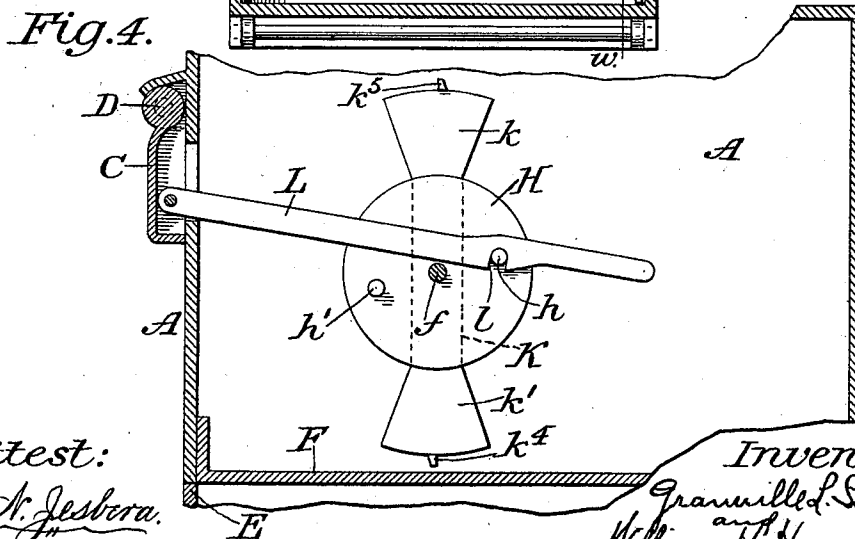
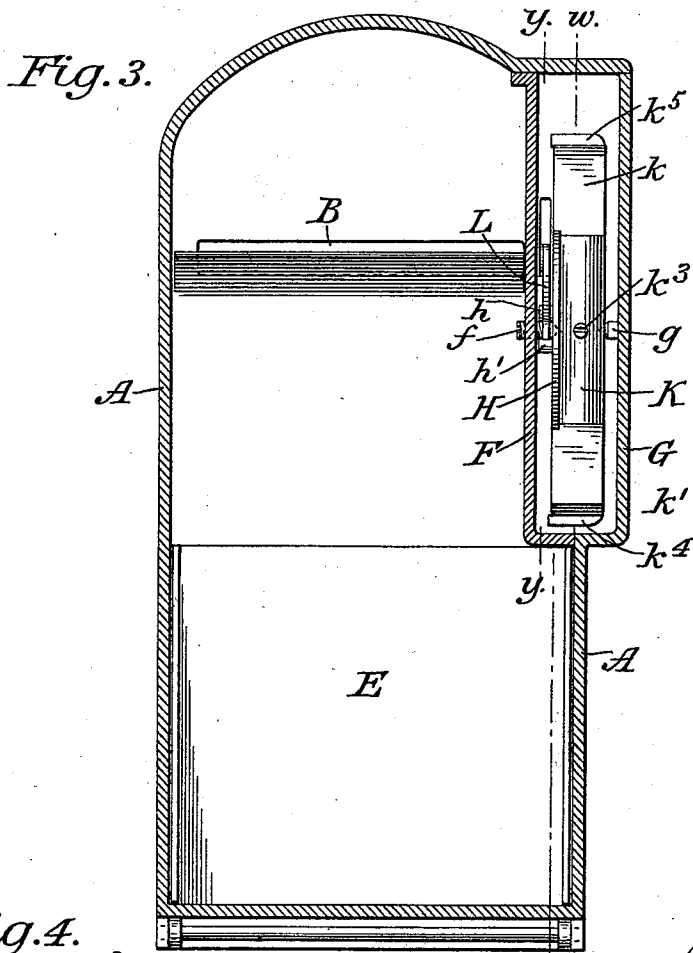


G. L. SAVAGE & W. H. HARRISON.
LETTER BOX.

No. 521,993.

Patented June 26, 1894.



Attest:
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UNITED STATES PATENT OFFICE.

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LETTER-BOX.

SPECIFICATION forming part of Letters Patent No. 521,993, dated June 26, 1894.

Application filed January 2, 1894. Serial No. 495,291. (No model.)

To all whom it may concern:

Be it known that we, GRANVILLE L. SAVAGE and WILLIAM H. HARRISON, citizens of the United States, and residents of New York, in the county and State of New York, have invented certain new and useful Improvements in Letter-Boxes, &c.; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Letter-boxes and other like receptacles are commonly provided with lids to close the receiving slot in order to protect the contents of the box from the access of rain, snow, insects and the like. These lids or covers are usually arranged to be held normally in position to close the receiving slot and must therefore be held open by one hand while the other hand is engaged in inserting the matter intended to be placed in the box. In many cases this is a great inconvenience and we have therefore sought to provide means whereby the lid or cover, when once opened, shall be held open for a proper length of time, say a few seconds, to permit the insertion of the matter through the slot and which shall then operate to close the lid or cover automatically.

With this special object in view, therefore, we have devised the mechanism hereinafter described which accomplishes the desired result in an efficient manner and is equally applicable wherever it is desired to have a detent which shall operate to release the body held by it at a predetermined time and shall require no manipulation.

In the accompanying drawings, wherein this embodiment of our invention is illustrated: Figure 1 is a longitudinal section of a letter-box equipped with our device, the section being taken on the plane indicated by the line $w-w$ of Fig. 3. Fig. 2 is a similar view but showing the parts in different positions. Fig. 3 is a transverse section looking toward the right of the box, on the plane indicated by the line $x-x$ of Fig. 1. Fig. 4 is a sectional detail view in elevation, from the opposite side presented in Fig. 1, of the escapement mechanism, the section being taken on line $y-y$ of Fig. 3.

The box or other structure to which our improvement is applied may be of any suitable shape and made in any suitable manner according to the uses to which it is to be put. We have indicated in the drawings a street letter-box A substantially of ordinary construction and having a receiving slot B in one end with a lid or cover C for the same hinged to the end of the box above the slot B, as at D. A door E is provided as usual to permit the removal of matter from the interior of the box. Within the box, and preferably forming a partition wall therein is fixed a plate F which supports the mechanism employed for effecting the desired purpose. If necessary the side of the box may be dished or bulged, as at G, in order to give the small amount of room required for our device without encroaching upon the interior space.

Within the space between the wall G and the plate F is mounted upon pivot points f, g , a carrier H which is preferably in the form of a disk and which is free to rotate or oscillate about its axis. The carrier supports upon one side two diametrically opposite pins h, h' , and upon the other side it has fixed thereto or formed therewith a closed tube K the ends of which project equally from the center and which rotates with the carrier H about the axis of the latter. The tube K may be varied in shape according to the necessities of its use and the limitations of the space in which it is mounted but is preferably made in somewhat the shape of an hour-glass, having two chambers k, k' , connected by a channel k^2 . One or more screws k^3 may be tapped through the walls of the channel as a convenient means for permitting the size of the channel to be varied when desired. The tube K is preferably filled with any ponderous substance which will run freely from one chamber k or k' to the other when the tube is overturned, mercury being the most available and most desirable material for this purpose. By varying the size of the connecting channel between the two chambers, in the manner above described, the time required to permit the ponderous substance to run from one chamber to the other may be regulated as desired.

To the door C is connected a rod L which extends rearwardly in the plane of the pins h ,

h' , and which has a notch l adapted to engage with the pins h , h' , in the manner hereinafter set forth, the carrier with its pins forming a detent for the rod or connector L.

5 It will be evident that if the carrier and tube are rotated to bring the loaded end of the tube uppermost, with the tube in an inclined position, as shown in Fig. 2, the tendency will be for the loaded end of the tube to swing
10 downward again and it is therefore desirable to provide means which shall insure the retention of the tube in such position for the time being, while permitting the tube to move in one direction at the proper time. Accordingly we secure at each end of the tube a
15 tongue or projection k^4 or k^5 which co-operates with a movable latch M supported in suitable position on the plate F. For the simple purpose just referred to this latch
20 might be of any ordinary construction but as we desire it to have an additional function, hereinafter referred to, we prefer to construct the latch as represented in the drawings, wherein the latch piece proper m is formed
25 as a bolt having its lower end beveled off and being itself supported by a lever m' to slide vertically to a limited extent in a guide-way formed by a plate m^2 . The other end of the lever m' supports a bolt m^3 which has a stop-
30 tongue m^4 inclined toward the end of the bolt m , as indicated in the drawings. The upward movement of the bolt m^3 , and consequently the downward movement of the bolt m , is limited by contact of the tongue m^4 with a pro-
35 jecting portion m^5 of the plate m^2 .

The mode of operation of our device will now be readily understood. The parts are represented in Fig. 1 in their normal position with the lid C closed, the tube K standing in
40 a vertical position with all the mercury in the lower end, and the notch l of the rod or connector L in engagement with the pin h of the carrier H. When the lid C is opened, as indicated in Fig. 2, the rod L, by reason of its
45 engagement with the pin h to the carrier H, will rotate the carrier of the tube into the position thereof represented in Fig. 2, bringing the loaded end of the tube uppermost. As the tube is rotated its projection k^4 passes
50 under the end of the bolt m , lifting the same in its passage. As soon as the projection has passed the bolt m the latter falls again and therefore holds the tube in the position represented for the time being, the tendency of
55 the tube being to rotate backward as soon as the lifting force is removed from the lid C. As soon as the tube K is brought into or near the position represented the mercury, or whatever other shifting weight may be employed
60 for the purpose, runs gradually down into the empty chamber k which is now the lower one and when a sufficient portion has run from one chamber to the other to overweight the lower chamber and to bring the preponderance of weight on its side of the axis, the tube continues its forward movement until it
65 reaches once more its normal vertical po-

sition. While the tube remains in the inclined position represented in Fig. 2 and is there held by the latch M, the lid C will be
70 held open by reason of the continued engagement of the rod L with the pin h . As the tube swings forward from its inclined to its vertical position the pin h' will strike the rod L and will lift it out of engagement with the
75 pin h thereby permitting the rod to move back and the lid to close. As the tube and the lid come to rest the notch l of the rod L will engage the pin h' and the parts will therefore be in readiness for another opera-
80 tion. The rapidity of flow of the mercury or other substance from one chamber to the other may be regulated by adjusting the screw or screws k^3 and the time during which the lid is held open will be determined ac-
85 cordingly. It is obvious that if no means were provided to prevent, the loaded end of the tube might be thrown beyond the vertical end of the plane passing over the axis of the carrier by a quick movement of the lid
90 C, with the result that the tube and carrier would move through a complete rotation without holding the lid open. This action is impossible with the latch constructed as represented in the drawings, for, as the bolt m
95 is elevated by the passage under it of the projection k^4 or k^5 , the bolt m^3 is correspondingly depressed to bring its tongue m^4 into the path of the said projection k^4 or k^5 and so to check instantly the forward movement
100 of the end of the tube. The bolt m drops quickly enough after the passage of the projection beneath it to intercept it on the rebound.

The device for retaining the movable lid or
105 door, or whatever other form the part C may assume, for a definite time in its abnormal position is believed to be new of itself and it is not desired to limit its application to the lid of a letter-box as shown. Furthermore,
110 although many devices have been produced and are now in use for the purpose of effecting the easy and gradual closing of a door, it is believed to be broadly new to provide means which, without rewinding, resetting or any
115 other attention, will operate to hold open a door, lid or cover for a definite time and will automatically release such door, lid or cover at the expiration of such time. Accordingly the use in this description and in the claims
120 of specific terms is not to be considered as imposing specific restrictions upon the invention but as resorted to only for the sake of clearly disclosing the best means at present known for practicing the invention.
125

We claim as our invention—

1. The combination of a carrier mounted on an axis, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a device adapted to be moved
130 from its normal position and to be held temporarily in its new position, and a connector intermediate said device and said carrier and adapted to engage the latter whereby said de-

vice is held until the carrier moves, substantially as shown and described.

2. The combination of a carrier mounted on an axis, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a latch to prevent backward movement of said tube and carrier, a device adapted to be moved from its normal position and to be held temporarily in its new position, and a connector intermediate said device and said carrier and adapted to engage the latter whereby said device is held until the carrier moves, substantially as shown and described.

3. The combination of a door, a detent, means to shift said detent at a predetermined time after it has been set, and a connector intermediate said door and detent whereby the detent is set by the movement of the door in one direction and whereby the door is held from movement in the opposite direction until the detent is shifted, substantially as shown and described.

4. The combination of a tube mounted to swing on a transverse axis and containing a ponderous substance adapted to run from one end to the other, a door, and a connector between said door and tube adapted to engage a detent and hold said door in one position and to be disengaged from said detent by the movement of said tube, substantially as shown and described.

5. The combination of a carrier mounted on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a notched rod adapted to engage

one of said pins to be held thereby and adapted to be disengaged therefrom by another pin as the carrier is moved by the shifting weight, and a door connected to said rod, substantially as shown and described.

6. The combination of a carrier mounted on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, a latch to engage said tube and hold it from backward movement, a notched rod adapted to engage one of said pins to be held by said carrier and adapted to be disengaged therefrom by another pin as the carrier is moved by the shifting weight, and a door connected to said rod, substantially as shown and described.

7. The combination with a letter-box having a receiving slot and a lid to close the same, of a carrier mounted to rotate on an axis, pins supported by said carrier, a tube fixed to said carrier, a ponderous substance to run from one end to the other of said tube, and a notched rod connected to said lid and adapted to engage and be held by one of said pins and to be disengaged therefrom by the other of said pins as the carrier is moved by the shifting weight substantially as shown and described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GRANVILLE L. SAVAGE.
WILLIAM H. HARRISON.

Witnesses:

ED. BEESLEY,
H. POW.