

July 4, 1933.

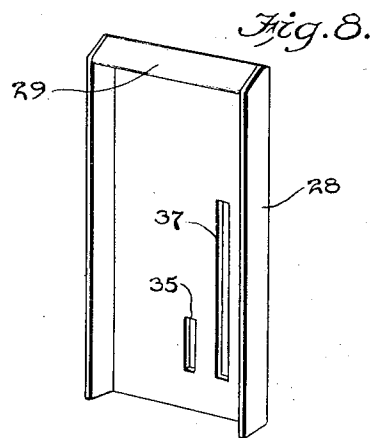
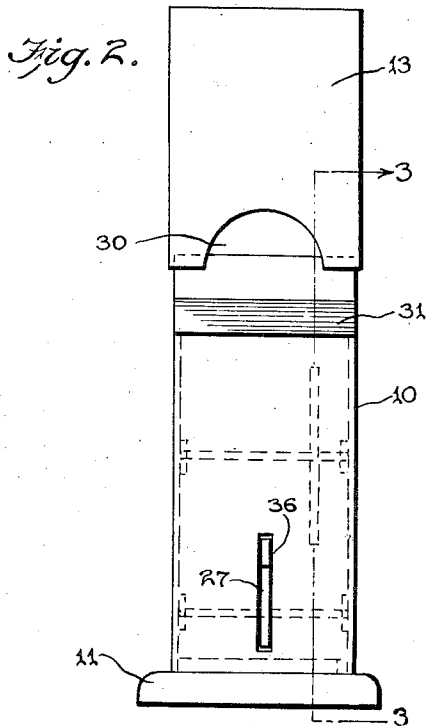
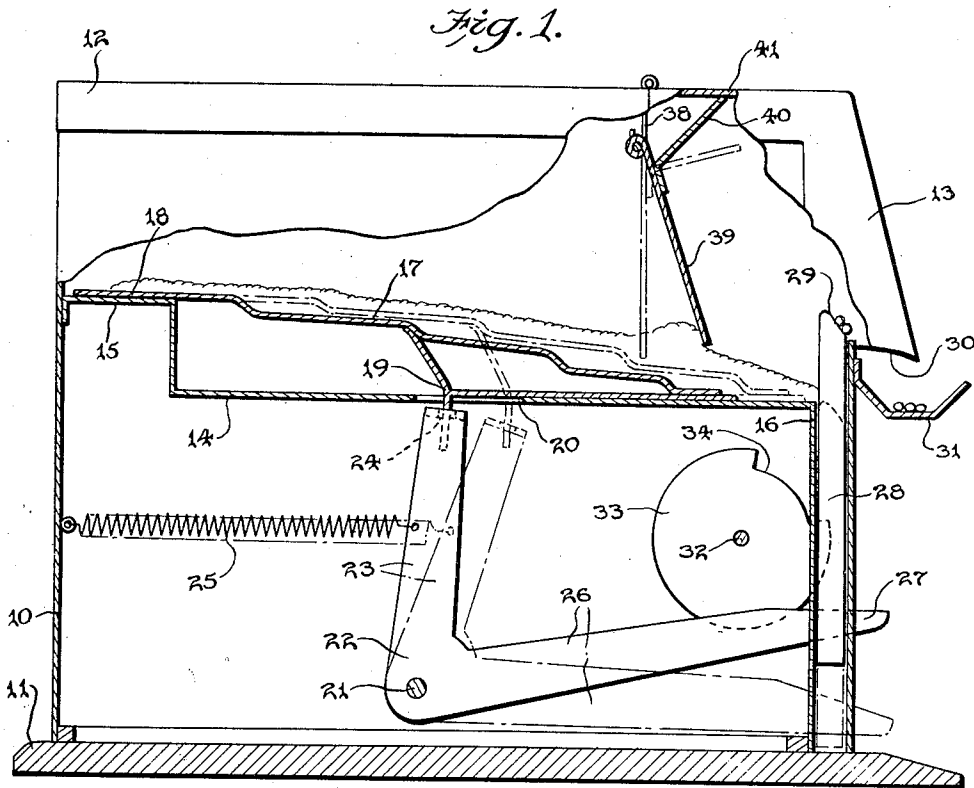
H. H. FULLER ET AL

1,916,974

MATCH DISPENSING APPARATUS

Filed Nov. 16, 1931

2 Sheets-Sheet 1



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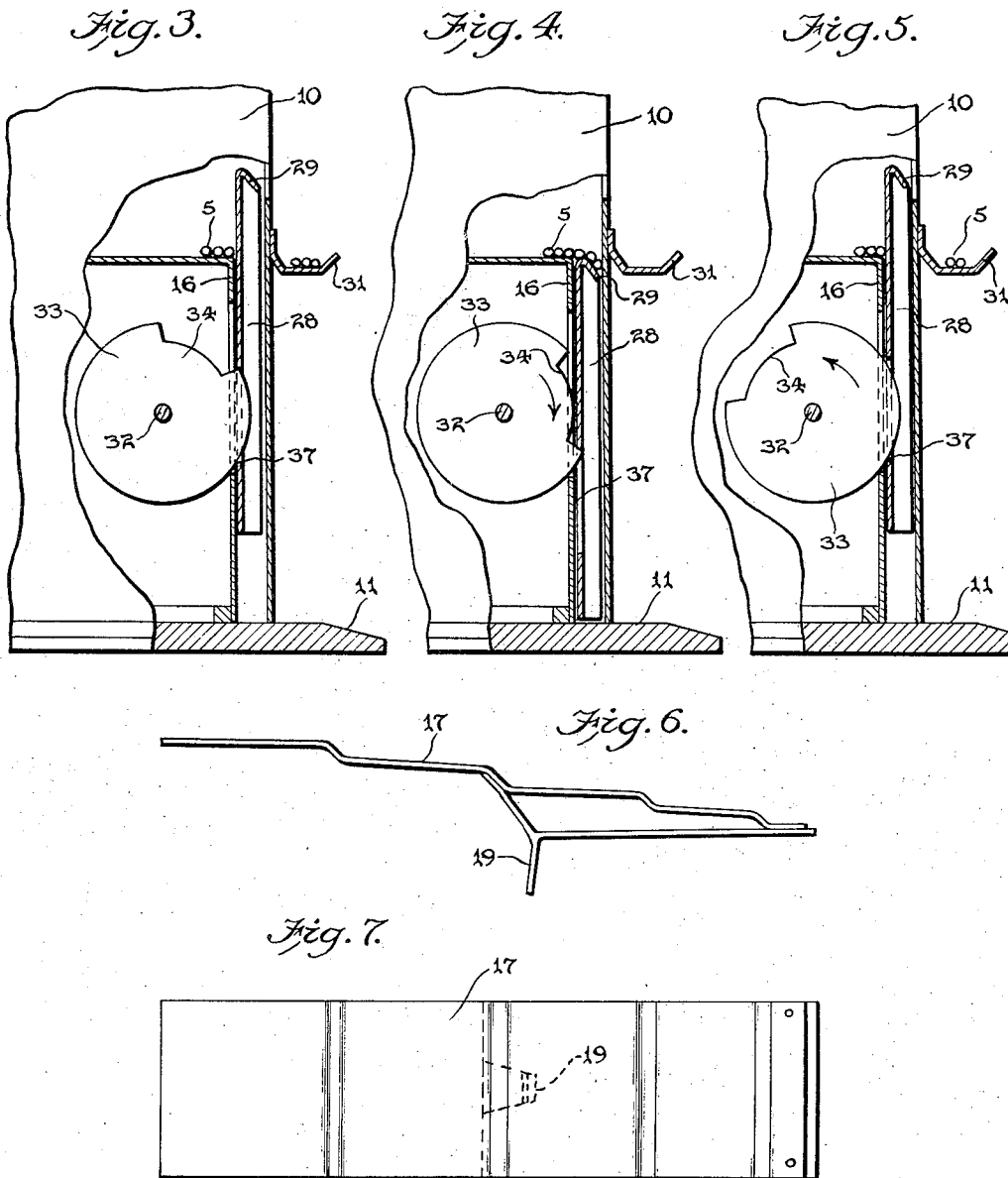
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UNITED STATES PATENT OFFICE

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MATCH DISPENSING APPARATUS

Application filed November 16, 1931. Serial No. 575,332.

This invention relates to a match dispensing apparatus and it has particular relation to a novel mechanism for dispensing matches a few at a time wherein means is provided whereby a predetermined minimum period of time must elapse between successive operations of the device.

It is well known that wherever free matches or similar articles are dispensed to the general public the person taking the articles is inclined, perhaps subconsciously, to take more than is necessary for immediate needs. The use of this device will eliminate this practice to a great extent as the person operating the device, upon securing a few of the articles through one operation of the device, must wait until the device is again in condition to operate before more of the articles can be obtained.

One object of the invention is the provision of mechanism for dispensing a predetermined number of matches or similar articles.

Another object of the invention is the provision of an automatic device for feeding and aligning articles into a position where they may be dispensed.

A further object of the invention is the provision of an automatic timing device for delaying successive operations of the apparatus.

For a better understanding of the invention, reference may now be had to the accompanying drawings, forming a part of this disclosure, wherein:

Figure 1 is a side elevational view, partly broken away, of a completely assembled device embodying the novel features of the invention;

Figure 2 is a front elevational view of the same;

Figures 3, 4 and 5 are detail views illustrating a timing mechanism and the manner of its coaction with an article ejecting plunger;

Figure 6 is a side view in detail of a part of a feeding mechanism;

Figure 7 is a top view of the same; and

Figure 8 is a perspective view of a plunger used in the apparatus.

The embodiment of the invention illustrated in the accompanying drawings com-

prises a housing 10 having a base 11, a hinged cover 12 and a forwardly projecting hood 13. A horizontally disposed partition 14 is centrally mounted within the housing and has a raised portion 15 at the rear end of the housing and a downwardly extending portion 16 near the front of the housing. A stepped feeding member 17 is slidably mounted upon the partition 14 and has its rear end resting upon the raised portion 15, as indicated at 18.

Centrally located upon the bottom of the feeding member 17 is a depending tongue 19 which passes through a slot 20 cut in the partition 14. Pivoted at or near the center of the housing, as shown at 21, is a bell crank lever 22 having an upwardly extending arm 23 which slidably engages the tongue 19, as indicated at 24.

A spring 25 connecting to the rear wall of the housing 10 and to the arm 23 serves normally to maintain the lever 22 in the position as shown in solid lines in Figure 1 and assures return of the lever to that position after each actuation of the device. The other arm 26 of the lever 22 extends forwardly to form an operating handle 27. Between the downwardly depending portion 16 and the front end of the housing 10 is slidably mounted for vertical reciprocation a plunger 28 formed of sheet material and suitably bent to form a tapering article engaging portion, as indicated at 29.

An opening 30 is provided between the hood 13 and the front wall of the housing 10 and a trough 31 is attached to the front wall directly below this opening for reception of the articles dispensed. Pivotally mounted near the front end of the housing, as indicated at 32, is a circular disk 33 having a segmental portion cut therefrom, as indicated at 34. The arm 26 passes through a suitable opening, not shown, in the depending portion 16, thence through a centrally disposed slot 35 in the lower end of the ejector 28 and thence through a slot 36 in the forward wall of the housing.

An elongated vertical slot 37 is also provided in the plunger 28 and is in registry with the disk 33. The disk 33 is also in registry with a slot, not shown, in the depending

portion 16. Depending into the top of the housing 10 is a pair of vertically disposed hooks 38 which have hinged thereto a detent 39 having an upwardly extending arm 40 for limiting the forward movement of the detent 39 by coming into contact with the hood 13, as indicated at 41.

In operating the device the handle 27 is pressed downwardly causing the arm 23; the feeding device 17 and the plunger 28 to take the positions shown in dotted lines in Figure 1. This will allow some of the matches or other similar articles 5 to fall by gravity upon the portion 29 of the plunger 28. The handle is then released and the spring 25 causes the return of the mechanism to its original position. By this means only those articles which rest upon the portion 29 will be carried upwardly, whereas the remainder will fall back upon the partition 14 by gravity. As soon as the plunger reaches its uppermost limit the articles carried upon the portion 29 will drop into the trough 31 as they are no longer held by the forward wall of the housing 10.

The stepped formation of the feeding member 17 will cause, through continued operation of the device, an alinement of the articles with one another. This alinement is aided by the pivoted detent 39 which rests upon the forwardly moving articles. A further purpose of this detent is to limit the quantity of articles passing between it and the feeder 17, as the arm 40 limits forward movement of the detent, as above stated. The hooks 38 permit a free upward movement of the detent 39 so that in the event that some of the matches become crossed the mechanism will not be clogged but the detent 39 will slide over the crossed matches and tend to straighten them into proper alinement.

The operation of the timing mechanism is best illustrated in Figures 3 to 5, wherein in Figure 3, the plunger and the disk are shown in position for operation as the disk 33 is at rest and has its segmental portion in registry with the slot 37 of the plunger 28.

In Figure 4 the plunger is shown at its lowermost position wherein articles are being fed by gravity upon the portion 29 and the disk 33 has been turned from its position shown in Figure 3 in a clockwise direction by the plunger 28.

In Figure 5 the mechanism is shown in the position which it has immediately after the discharge of the articles from their position as shown in Figure 4. The disk 33 is here shown to have been rotated from its normal resting position by the upward movement of the plunger 28. It will be seen that the plunger 28 cannot again be moved downwardly until the disk 33 again comes to rest so that the segmental portion 34 will allow the downward passage of the plunger, for in this position an attempted downward move-

ment of the plunger would cause it to come into contact with the edge of the disk 33.

From the foregoing it will be understood that each downward stroke of the operating lever 27 moves the article ejecting element 28 down to a point where its receiving end 29 is approximately level with, or slightly below, the bottom of the hopper. The timing between the movement of the article ejector 28 and the slide bottom 17 is such that when the ejector is operated to its lowest point the slide bottom has reached the limit of its forward or charging stroke. The upward stroke of the ejector 28 raises the deposited articles to the exit point where they fall out of the hopper into the trough 31. Between each stroke of the operating lever 27 sufficient time must intervene in order to allow the rocking disk 33 to return by gravity to its normal or unlocked position.

Although but one form of the invention has been illustrated, and that form has been described in detail it will be apparent to those skilled in the art that the invention is not so limited but that various minor modifications may be made therein without departing from the spirit of the invention or the scope of the appended claims.

We claim:

1. A timing device for a dispensing apparatus consisting of a plunger having a vertical slot cut therein, and a circular disk pivoted at a point adjacent the plunger and adapted to register with the slot and having a segmental portion cut therefrom to allow vertical movement of the plunger when the disk is at rest.

2. An article dispensing device comprising, in combination: a casing; a vertically reciprocable ejector mounted in the casing and having a slot; a feed plate movable in the casing to move articles into the range of movement of the ejector; a bell crank pivoted in the casing; means to connect one arm of the bell crank to the feed plate; the remaining arm of the bell crank projecting through said slot and to the exterior of the casing for manual actuation; and spring means acting upon one of the movable parts to hold all of said parts at one limit of their movement.

3. An article dispensing device for elongated articles comprising, in combination: a casing; an ejector; a feed plate movably mounted in the casing to advance articles laterally to said ejector, comprising step and riser portions positioned parallel with the desired position of the articles; an angle plate pivoted in the casing upon an axis adjacent the angle thereof; one extremity of the plate movable by gravity to a position closely adjacent a step of said feed plate to position the articles and restrict the thickness of a layer thereof, the other extremity of the plate movable into contact with a wall of

the casing to limit swing of the plate; and means to actuate said feed plate and said ejector.

4. An article dispensing device comprising,
5 in combination: a vertically reciprocable plate carrying an ejector element and having a slot; a movable feed member for delivering articles to said ejector; a bell crank pivoted at its angle upon a horizontal axis; means to
10 connect one arm of the bell crank to the feed member; means to connect the remaining arm to said plate; an oscillative disk carrying a shoulder, pivoted adjacent said plate with a portion standing in the slot therein; said
15 disk balanced to oscillate when disturbed and to come to rest with said shoulder standing in the path of movement of an edge of said slot to disturb said balance when the ejector is actuated; said disk locking the plate from
20 movement during oscillation.

5. An article dispensing device comprising, in combination: a vertically reciprocable ejector having a vertical slot; means to actuate said ejector; a momentum device for timing
25 consecutive operations of the ejector pivoted on a horizontal axis adjacent the ejector

to have a single position of balance; said device carrying a shoulder standing in the path of movement of an end of said slot and a peripheral portion projecting into said slot; the diameter of said device reduced adjacent
70 said shoulder to permit movement of the ejector; whereby actuation of the ejector unbalances the device to cause oscillation thereof to lock the ejector until the shoulder returns to normal position.
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6. A timing device for a dispensing apparatus provided with a plunger having a portion projecting transversely of its path of movement; comprising a disk pivoted at a point adjacent the plunger and formed with
80 a peripheral portion of major diameter adapted to project into said path of movement, a shoulder adapted to normally underlie the projection portion of the plunger and a peripheral portion of less diameter to allow
85 vertical movement of the plunger when the disk is at rest.

In testimony whereof, we affix our signatures.

HOMER H. FULLER. 90
ELMER M. JONES.

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