June 18, 1940. B. W. FRY 2,205,192

MAGAZINE

Filed Aug. 23, 1938 3 Sheets-Sheet 1

FIG. 1.

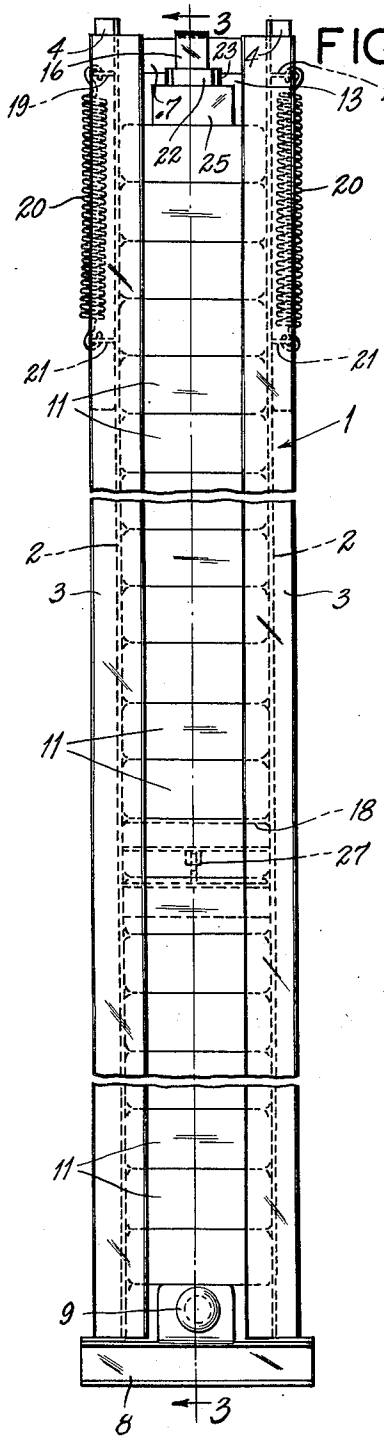

FIG. 2.

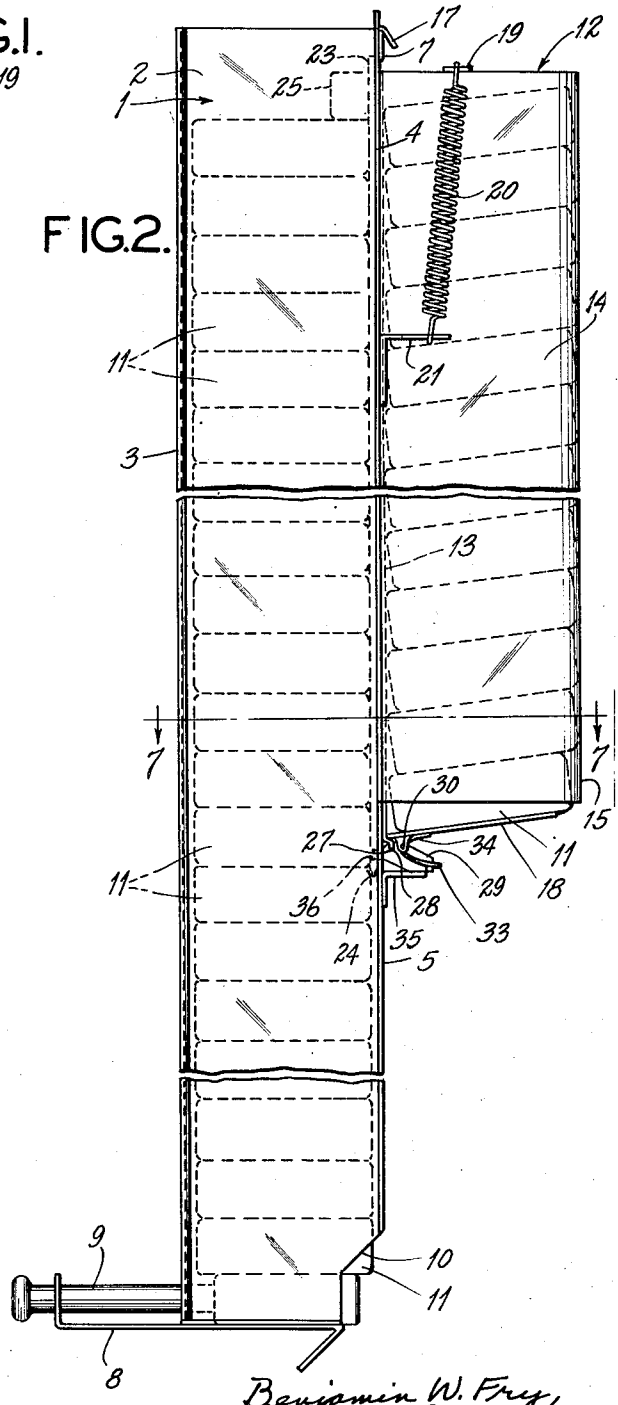

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FIG 4.

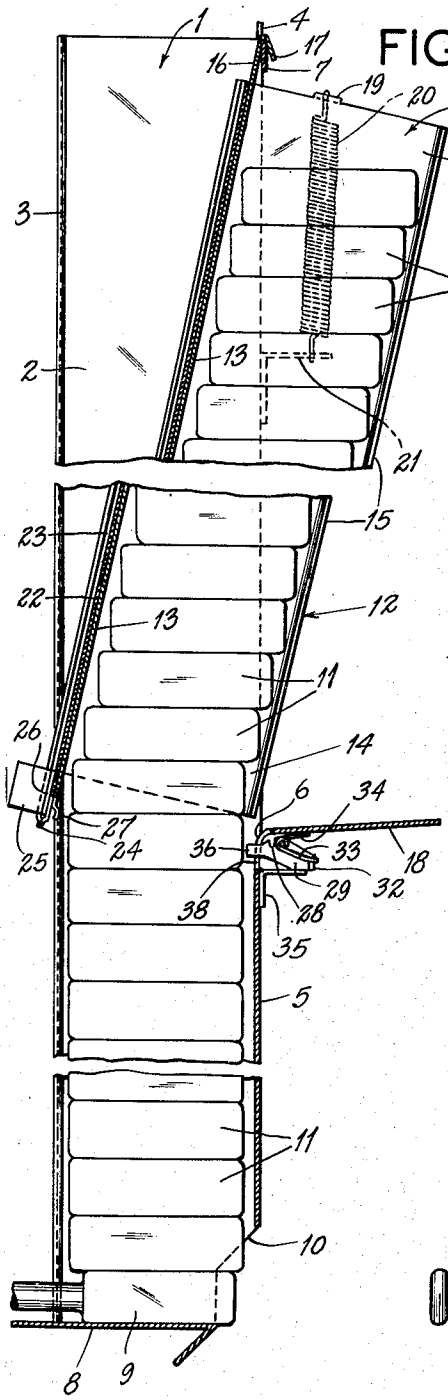

FIG 3.

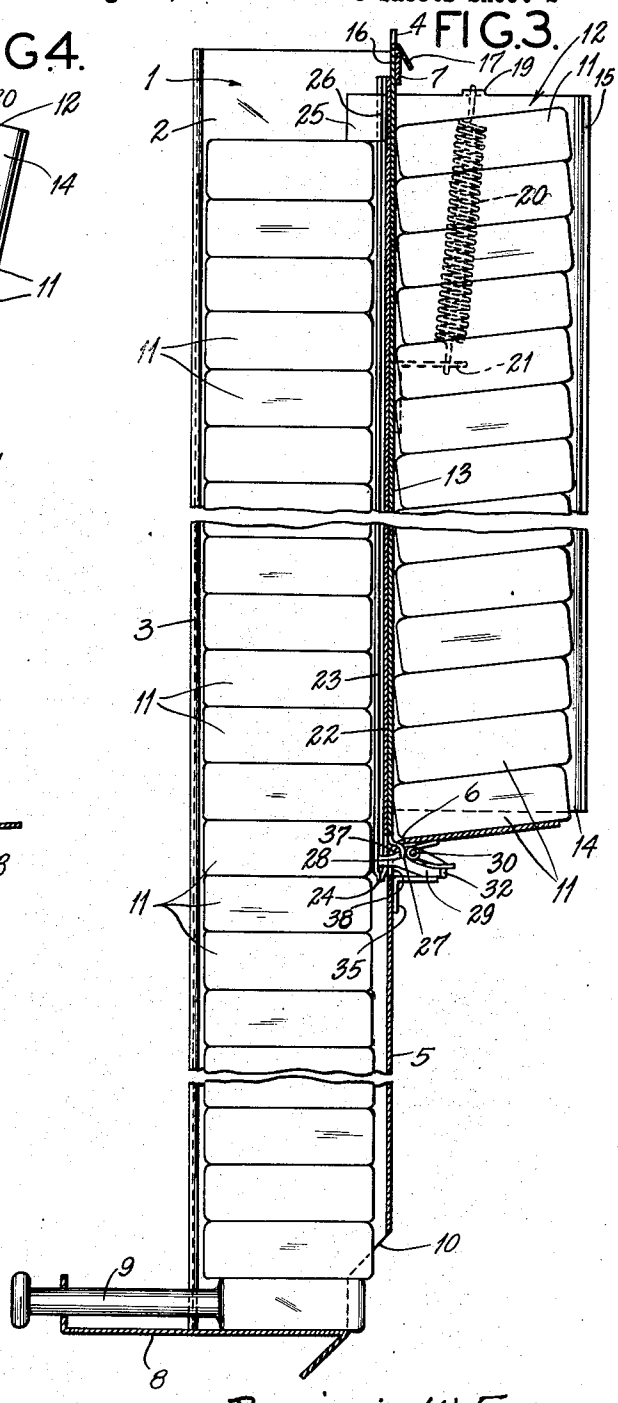

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FIG.5.

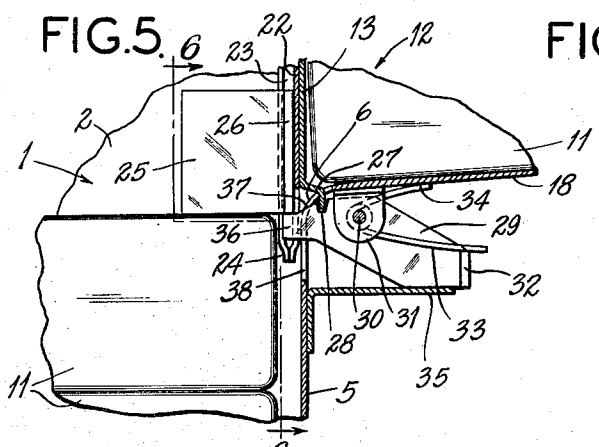


FIG.6.

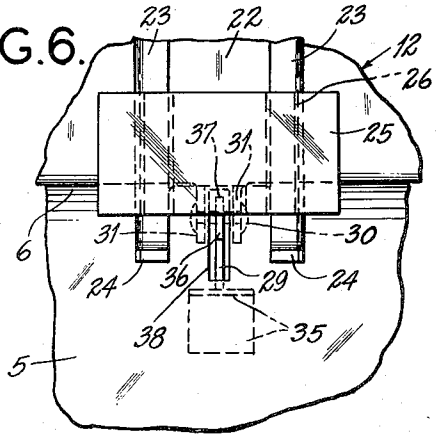


FIG.7.

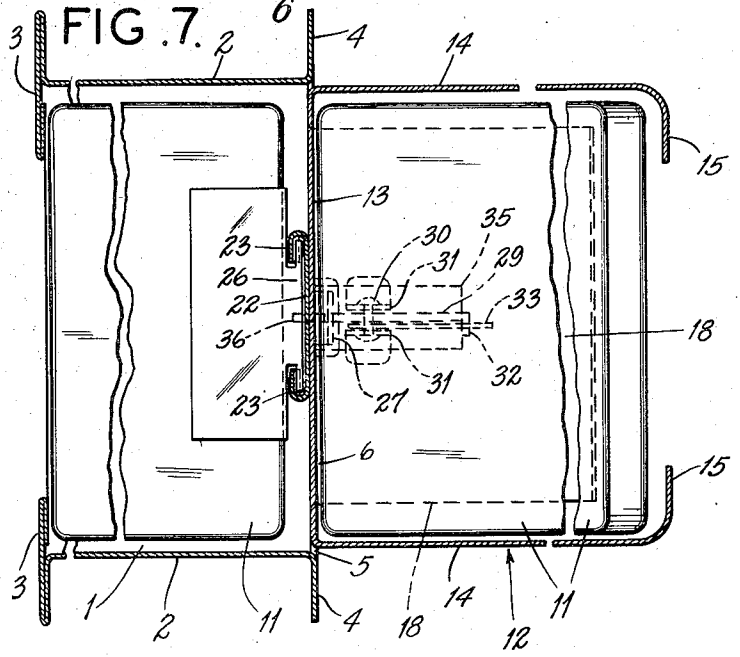
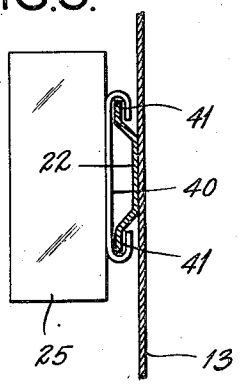


FIG.8.



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Patented June 18, 1940

2,205,192

UNITED STATES PATENT OFFICE

2,205,192

MAGAZINE

Benjamin W. Fry, University City, Mo.

Application August 23, 1938, Serial No. 226,334

2 Claims. (Cl. 312—42)

This invention relates to magazines, and with regard to certain more specific features, to magazines for dispensing machines.

Among the several objects of the invention may be noted the provision of a magazine arrangement for dispensing machines which has an immensely increased capacity for articles or packages to be dispensed, within a given vertical dimension; the provision of a magazine arrangement of the class described which includes, as a part thereof, an auxiliary magazine which automatically comes into operation as soon as a certain portion of a primary magazine has been emptied; the provision, in conjunction with a primary magazine of the class described, of a parallel auxiliary magazine, which is adapted to hold a second quantity of articles or packages to be dispensed, and which is adapted automatically to come into position to deliver said second quantity through the same outlet means as the primary magazine; and the provision of a magazine arrangement of the class described which is relatively simple and economical to construct and operate. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are illustrated several of various possible embodiments of the invention,

Fig. 1 is a front elevation of a magazine arrangement embodying the present invention;

Fig. 2 is a side elevation of the magazine arrangement of Fig. 1;

Fig. 3 is a vertical section taken substantially along line 3—3 of Fig. 1;

Fig. 4 is a vertical section similar to Fig. 3, showing another operative position of the apparatus;

Fig. 5 is an enlarged fragment of Fig. 3;

Fig. 6 is a cross section taken substantially along line 6—6 of Fig. 5;

Fig. 7 is an enlarged cross section taken substantially along line 7—7 of Fig. 2; and,

Fig. 8 is a diagrammatic cross section illustrating an alternative type of track.

Other objects will be in part obvious and in part pointed out hereinafter.

Many of the dispensing machines in use today are provided with vertical magazines for supporting the articles or packages to be dispensed. Such vertical magazines are quite advantageous, in that they permit the gravity feed of successive articles to ejecting or delivery means located at the bottom of the magazine. However, one disadvantage of such vertical magazines as heretofore provided is that their capacity is inherently limited to the number of articles or packages that can be stacked in the vertical height afforded by the magazine itself.

Such magazines, for example, are of particular utility in cigarette dispensing and vending machines. However, the prior type of vertical magazine was inherently limited in its capacity to a definite number of packages of cigarettes, and for certain brands, said number of packages is not as great as can profitably be handled from the machine in a single loading operation.

The present invention maintains all of the advantageous features of the vertical magazine, but, through the provision of automatic auxiliary magazine means, greatly increases the capacity of the magazine in terms of the number of packages of cigarettes or other articles it will hold when full.

Referring now more particularly to the drawings, numeral 1 indicates the primary vertical magazine of the present invention. The magazine 1 comprises side walls 2, which are preferably made from sheet metal. At their front edges, the side walls 2 are folded to form T-flanges indicated by numeral 3. At their rearward edges, the side walls 2 are folded outwardly to form flanges 4, parallel to the front flanges 3. Toward the bottom of the primary magazine 1, a sheet metal back wall 5, which may be welded or otherwise affixed to the flanges 4, is provided. This back wall 5, however, terminates at its upper end, which is but a small fraction of the total vertical height of the magazine, at a bend indicated by numeral 6.

In order to space apart the side walls 2 at the top of the magazine, a sheet metal strip 7 is fixed across between the flanges 4. Between the strip 7 and the top edge 6 of back wall 5, the back of the magazine 1 is entirely open, from side wall 2 to side wall 2.

Suitable means, such as brackets, are provided for mounting the magazine 1 on a base indicated at numeral 8. The base 8 includes a plunger or similar device 9, by which packages are pressed, to be ejected through a rearward opening 10 in the magazine.

The shape and size of the primary magazine 1, in cross section, are proper for the loose recep-

tion of stacked packages, or articles to be vended, such as the cigarette packages indicated diagrammatically at numeral 11.

Numeral 12 indicates an auxiliary magazine that, operating in conjunction with the primary magazine 1, constitutes one of the principal features of the present invention. The auxiliary magazine 12 is preferably formed from sheet metal, and includes a front 13, parallel sides 14, and an incomplete back represented by edges 15. The size and shape, in cross section, of the auxiliary magazine 12 are likewise proper for the loose reception of the packages to be vended, such as the cigarette packages 11, in stacked relation. However, in the auxiliary magazine 12, the side walls 14 are spaced enough closer together so that said auxiliary magazine 12 can be slipped or telescoped into the primary magazine 2, in the manner indicated in Fig. 4.

In length, the auxiliary magazine 12 is substantially equal to the length of the primary magazine 1 above the edge 6 of back wall 5 thereof.

Extending from the top edge of the front wall 13 of the auxiliary magazine 12 is a tab 16, which is bent over to form a hook 17 that catches on the top edge of the cross strip 7, to support the auxiliary magazine 12 pivotally with relation to the primary magazine 1.

The auxiliary magazine 12 is open, and free from obstructions, at both its bottom and its top. However, an extension 18 of rear wall 5 is bent backwardly, along fold line 6, at an angle to the horizontal to form a floor for the packages 11 within the auxiliary magazine 12. The floor 18, it will be seen, is stationary with respect to the primary magazine 1, and does not move with the auxiliary magazine 12.

Extending outwardly from the top edges of the side walls 14 of the auxiliary magazine 12, at a position intermediate the ends of said edges, is a pair of tabs 19, into which are hooked the ends of a pair of tension springs 20. The other ends of the springs 20 are hooked into brackets 21 mounted on the rear flanges 4 of primary magazine 1. When the auxiliary magazine 12 is in its extended position, as shown in Fig. 3, so that it is parallel to the primary magazine 1, the springs 20 are under tension, and they thus tend at all times to rotate the magazine 12 on pivoting hook 17 so that the lower end of the auxiliary magazine telescopes or slides into the primary magazine 1, to the position shown in Fig. 4, its pivoting motion being stopped by engagement of the front wall 13 with the T-shaped flanges 3 fronting the primary magazine 1.

Extending vertically down the center of the front of front wall 13 of the auxiliary magazine 12 is a strip 22 which has each of its longitudinal edges bent over to form channels or tracks 23. Said channels or tracks 23 extend somewhat below the lower edge of said front portion 13, as indicated in Fig. 5, and the two portions of each channel or track 23 are, at their lower extremities, crimped or bent together, as indicated at numeral 24.

Numeral 25 indicates a follower or weight member, which is provided with a T-shaped head 26, the projections whereof fit into the tracks 23 and slide loosely therein. The follower 25 is thus slidable up and down the track 23, for the length of said track, although movement of the follower 25 off the lower end of the track is prevented by engagement of the T-head 26 with the crimped portions 24 of said track 23.

Bent backwardly from the central portion of the lower edge of front panel 13 is a hook 27 (see Fig. 5). The hook 27 is positioned to engage a notch 28 in a latch lever 29 pivoted on a pin 30, which is supported between ears 31 struck downwardly from the floor 18. At its rear end, the latch lever 29 is provided with a projection 32, against which rests one end of a coil spring 33, the other end 34 of which coil spring bears against the under side of floor 18. The coil spring 33 is preferably wound around the pin 30, and urges the latch lever 29 always to rotate in a clockwise manner. Such rotation of the lever 29 under the influence of the spring 33, however, is stopped at a predetermined position by a bracket 35 mounted on the back 5, which is positioned to engage a bottom edge of said lever 29 at the desired stopping position.

In front of the notch 28, the lever 29 extends forwardly as a projection 36. The projection 36 is provided, on its top edge, with a camming or sloping portion 37 leading up to the notch 28. A suitable hole or opening 38 is provided in the back wall 5, and the floor 18, in order to permit the latch mechanism to extend therethrough.

By engaging the hook 27 in the notch 28 of latch lever 29, the auxiliary magazine 12 may be held, against the pivoting tendency of springs 20, in a position parallel to the primary magazine 1. However, if the latch 29 is tripped to disengage hook 27 from notch 28, then the auxiliary magazine 12 is freed to pivot, under the influence of springs 20, and to seek the position shown in Fig. 4.

The operation of the magazine as thus constructed is as follows:

Assuming that both the primary magazine 1 and the auxiliary magazine 12 are emptied of packages 11, and that said auxiliary magazine 12 is initially in its telescoped, Fig. 4 position, the operator's first step is to manually push the auxiliary magazine 12 backwardly, into the Fig. 3 position, where it is parallel to the primary magazine 1. As said auxiliary magazine 12 reaches its said parallel position, the hook 27 engages the sloping camming face 37 of lever 29, and automatically rotates said lever in a counterclockwise direction an amount sufficient to permit said hook 27 to pass up the edge 37 and ultimately into notch 28. As the hook 27 drops into notch 28, the spring 33 urges the latch lever 29 to rotate back in a clockwise direction to catch said hook in position. As long as said hook is in position in the notch 28, the auxiliary magazine 12 will be maintained parallel to the primary magazine 1, or in the position shown in Figures 2 and 3.

Meanwhile the follower 25 is manually raised along its track 23, and preferably removed entirely from the apparatus.

Both the primary and the auxiliary magazines 1 and 12, respectively, are then loaded with the articles to be dispensed, such as the cigarette packages 11. The stacked packages 11 in the primary magazine 1 rest on the ejecting mechanism 9, while the stacked packages 11 in the auxiliary magazine 12 rest on the stationary floor 18. While the packages in the primary magazine 1 are in truly horizontal position, the packages in auxiliary magazine 12 are somewhat tilted, due to the tilt of the floor 18.

The follower 25 is now placed in position, with its T-head 26 in the track 23. Said follower 25 rests upon the top package 11 in the primary magazine 1.

The apparatus is now in condition to be op-

erated to dispense the packages 11. The dispensing part of the mechanism forms no part of the present invention, so it is not described in detail herein. However, the plunger 9 operates to eject successive packages 11 from the bottom of the primary magazine 1, and each time that said plunger 9 is retracted, the entire stack of packages 11 in the magazine 1 drops a distance equal to the thickness of one package. As the stack thus diminishes in height, the follower 25 rides down its track 23, remaining at all times in contact with the upper surface of the top package 11.

This operation continues until finally the stack of packages 11 remaining in primary magazine 1 is only a bit higher than the upper edge 6 of back wall 5. Then, the next time a package is ejected, the follower 25 comes to bear against the projection 36 of latch lever 29. The inertia of said follower 25 is sufficient so that it will rotate the latch lever 29 in a counterclockwise manner upon such engagement, and such rotation instantly releases the hook 27 from the notch 28. The springs 20 then immediately swing the auxiliary magazine 12, and its contained packages 11, into the Fig. 4 position. The packages 11 in the auxiliary magazine 12 at once rearrange themselves, and settle down on the top remaining package in the primary magazine 1, and become in effect a continuous stack with said remaining packages 11. In this way the magazine is in effect automatically recharged with the number of packages that had previously been loaded into the auxiliary magazine 12.

As the auxiliary magazine 12 pivots forwardly, it carries with it the follower 25, and because of the engagement of the T-head 26 thereof with the crimped end 24 of track 23, said follower 25 is retained at the bottom of the track, and does not fall off.

It will clearly be seen that the weight of the packages 11 loaded into the auxiliary magazine 12 does not hinder, but in fact aids the pivoting movement of said auxiliary magazine 12 as it is released to swing into its operative position. This is because of the location of the hook 17, upon which the auxiliary magazine 12 pivots, at the front edge of said auxiliary magazine, with the consequence that the weight of all of the packages 11 in the auxiliary magazine 12 tends, in reaching a stable position, to rotate said auxiliary magazine in the same direction provided for by the springs 20.

Dispensing then proceeds, package by package, the stack in the auxiliary magazine, as now connected to deliver into the primary magazine 1, gradually diminishing. When the final package 11 has been dispensed from the apparatus, the apparatus must be reloaded, in the manner heretofore indicated.

Fig. 8 illustrates a variation of the track and follower means that may be employed with equal success. In Fig. 8, the doubly-channeled member, now indicated by numeral 40, is fastened to the rear face of the follower 25, while the edges of strip 22, now indicated by numerals 41, are bent away from the wall 13 in order to form the tracks along which the doubly-channeled member 40 slides. In effect, this constitutes a reversal of parts with respect to the previous embodiment.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all manner contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A magazine arrangement for dispensing devices including a primary magazine comprising a vertical rectangular frame adapted to receive, in stacked relationship, articles to be dispensed, an auxiliary magazine likewise comprising a vertical rectangular frame adapted to receive, in stacked relationship, articles to be dispensed, means pivoting the auxiliary magazine at its upper end, in close proximity to the back of said primary magazine, said primary magazine being open along the back thereof to permit the lower end of the auxiliary magazine to swing therein, means normally urging said lower end of said auxiliary magazine to swing into said primary magazine, said auxiliary magazine having a front wall which also effectively closes and forms a back wall for said primary magazine when said auxiliary magazine is withdrawn from said primary magazine, means normally securing the lower end of the auxiliary magazine out of the primary magazine in said withdrawn position, and releasing means rendering the last-named means ineffective upon the emptying of a predetermined number of packages from said primary magazine, said securing means comprising a latch supported on said primary magazine and engageable with the lower end of the said front wall of the auxiliary magazine to hold said auxiliary magazine in its said withdrawn position, said latch having a projection extending into said primary magazine, said releasing means comprising substantially vertical guide means mounted on and extending to the lower end of said front wall, and a weight member slidable in said guide means, said weight member being adapted to drop to engage said projection to release said latch and thereby permit said auxiliary magazine to swing into said primary magazine, said vertical guide means terminating downwardly as means for retaining said weight member on said front wall while said auxiliary magazine swings into said primary magazine, after said weight member has released said latch.

2. A magazine arrangement as set forth in claim 1, in which the weight member comprises a follower adapted to rest on the top package of the stack in said primary magazine, said follower being arranged to engage the latch-releasing projection in the manner set forth in claim 1 when said predetermined number of packages has been emptied from said primary magazine.

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