

G. A. SPRATT.
DISPENSING APPARATUS.
APPLICATION FILED JULY 11, 1911.

1,037,681.

Patented Sept. 3, 1912.

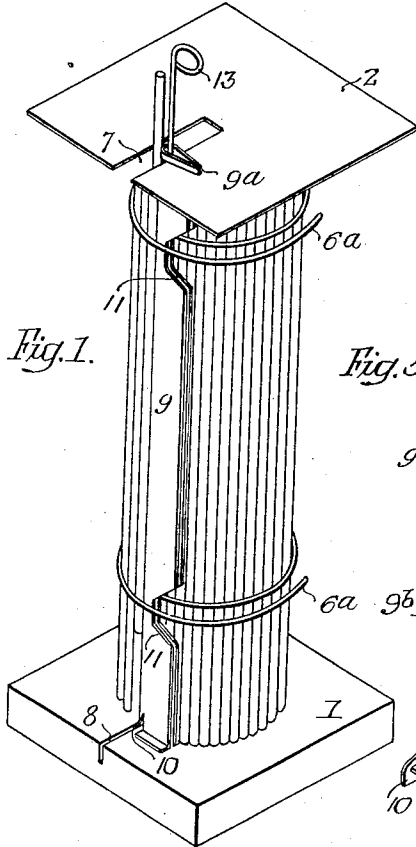


Fig. 5

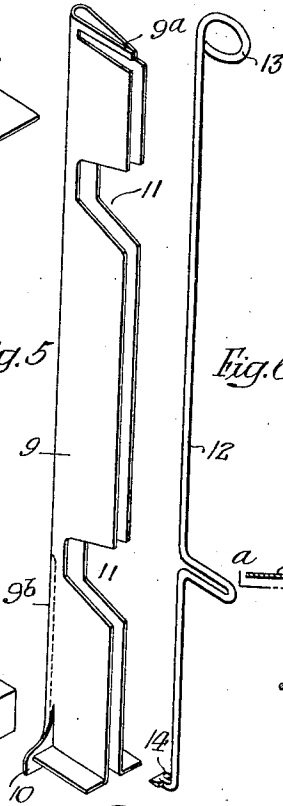


Fig. 6.

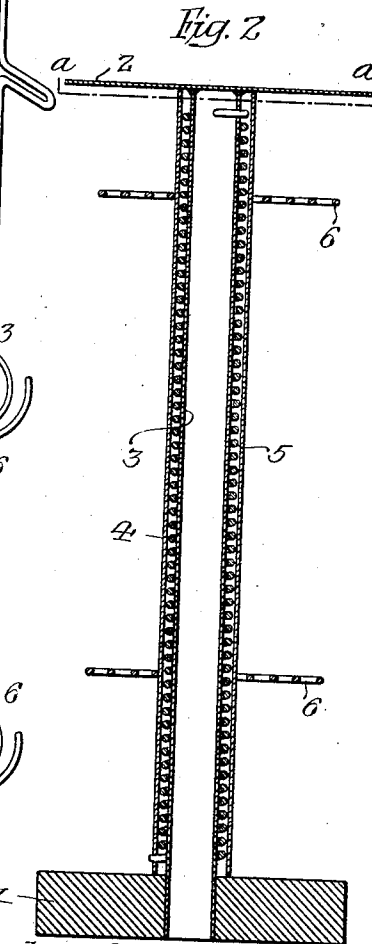


Fig. 3.

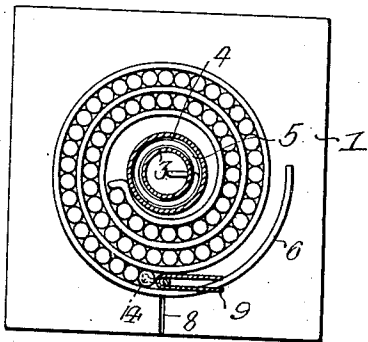
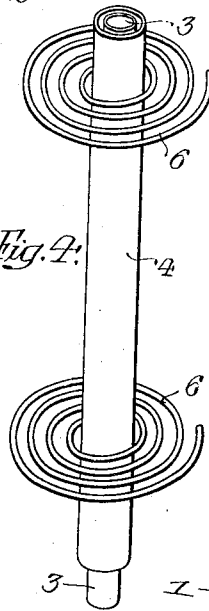


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE A. SPRATT, OF COATESVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
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DISPENSING APPARATUS.

1,037,681.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed July 11, 1911. Serial No. 637,899.

To all whom it may concern:

Be it known that I, GEORGE A. SPRATT, a citizen of the United States, and a resident of Coatesville, Chester county, Pennsylvania, have invented certain Improvements in Dispensing Apparatus, of which the following is a specification.

One object of my invention is to provide a vending device designed to hold and successively deliver elongated objects such as pencils, matches, straws, tooth picks, or the like; it being especially desired that the parts of such device shall be so arranged as to allow of the complete sanitary inclosure of the articles to be vended while permitting but a single one of them to be delivered at a time.

I further desire to provide a device of the character above noted with novel means for holding and feeding the articles which it contains; the various parts of the apparatus being so designed and combined as to provide a vending device of a simple, substantial and inexpensive construction.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a perspective view illustrating a form of my invention especially designed to serve as a vending device for straws; Figs. 2 and 3 are respectively vertical and horizontal sections of the device shown in Fig. 1; Figs. 4, 5, and 6 are perspective views of various detail parts of the apparatus.

In the above drawings 1 represents a supporting base rigidly connected to a top piece 2 by means of a central and preferably tubular spindle 3. Substantially concentric with this spindle and of a length equal to or slightly less than the distance between the base and top, is a second and loose tube 4 of such diameter as to be capable of inclosing between it and the central spindle 3 a helical spring 5, one of whose ends is connected to said spindle, while its opposite end is connected to the tube 4. This latter, which is free to turn relatively to the spindle 3, has rigidly fixed to it, preferably adjacent its top and bottom portions, two spiral guides 6 whose convolutions are preferably formed of stiff wire or ribbon and spaced a distance apart slightly greater than the thickness of the articles to be vended.

It will be noted that the top 2 is provided with a radial slot 7 extending from its center to its periphery while the base has formed in it a slot 8 extending radially from a point adjacent the central spindle 3 to its outer edge. A piece 9 constituting a fixed abutment and formed preferably of a piece of sheet metal or other material of U-shaped or circular section, is mounted to extend between the base and top, its lower portion having a downwardly extending lug 10 designed to slidably fit into the slot 8 of the base, while its upper end is designed to enter the slot 7 of the top; being itself slotted to receive or extend over the edge part thereof. Said abutment piece fits between a pair of successive convolutions of the two spiral guides 6, being cut away as indicated at 11, to permit of the free passage of these parts. At the same time the abutment serves as a guide for a lifting or ejecting member 12 in the form of an elongated wire or rod whose upper end may be straight or, as in the case illustrated, provided with a handle 13 which extends above the top 2 of the apparatus. Its lower end is turned at right angles to form a foot or step piece 14 which rests under and serves to move upwardly the successive straws or other articles to be vended. This foot portion 14 is preferably relatively thin and normally rests upon the top surface of the base, while the lower portion of the abutment piece 9 is vertically slotted to permit of the lifting or ejecting member being moved or raised upwardly within it.

It is to be understood that the device as a whole may, if desired, be inclosed within a transparent or other casing (not shown) as this may in some instances be desirable as when the articles to be vended might be injured by exposure.

When it is desired to fill the apparatus with the articles to be vended, the abutment piece with its lifting rod is removed, and by means of any suitable hopper or feeding device, straws for example, are fed to the spiral guides 6, being delivered between the outer terminals 6^a and the next inner convolution of said guides. The said straws are pushed around the guides so that there are a succession of layers each having the thickness of a single straw, or what may be described as a spiral roll of straws, the successive layers being separated by a space

equal to the thickness of that of the wires of the guides 6. After said guides have been completely filled, they, with the straws, are turned around the central spindle 3 as an axis so as to wind up or place under compression, the spring 5 and when this has been wound to the desired extent as will be found by experiment, the abutment piece is put in place, being moved radially inward with its bottom lug 10 sliding in the slot 8 and its upper part 9^a sliding in the slot 7 of the top until it is in position to enter between the ends 6^a of the spiral guides and the next inner convolution thereof.

Owing to the tendency of the spring 5 to unwind, the endmost of the series of straws confined between the outer convolutions of the guides 6 is strongly pressed against the said abutment piece 9, and it will be noted that said endmost straw rests immediately over or upon the foot piece 14 of the lifting member 12. If now this be moved upwardly, said straw is likewise raised to an extent equal to the length of the slot 9^b in the abutment piece and thereafter the lifting member 12 is dropped, falling under the influence of gravity into its original position.

The straw, which projects as shown in Fig. 1 above the top 2, may now be grasped and withdrawn, and as soon as it is removed from between the abutment piece 9 and the next succeeding straw, the force of the spring 5, transmitted through the roll of straws, forces the said next straw into engagement with the abutment piece and immediately over the foot 14 thereof. By repetitions of this operation all of the straws may be removed from the apparatus, one after the other.

It is obvious that where the elongated articles to be vended are of slightly different thickness at their opposite ends, or as in the case of matches, have heads of a diameter different from their bodies, the distance between the convolutions of the upper and lower guides may be made different instead of the same as shown in Figs. 1 and 4, in order that such articles may be supported and successively delivered in the desired manner.

It will be noticed that as the straws or other articles are successively discharged from the device as above described, the action of the spring causes the loose spindle and with it the spiral guideways to turn on the central spindle as an axis, with the result that the spiral convolutions of said guideways gradually draw in toward the spindle the abutment structure 9 as they become emptied of the articles as these latter are delivered. The abutment piece and with it the delivering rod 12 is thus always maintained in a position to receive the straws, etc., from the guideways at any portion thereof and since the slot 7 in the top or

cover is radially placed, it is possible to deliver the straws from the guideways regardless of whether they be completely filled or almost emptied. In any case the central spring 5 at all times maintains the endmost of the roll or coil of articles to be vended immediately adjacent to or in contact with the abutment piece 9 so that the mere lifting of the rod 12 causes such endmost article to be raised above the top 2 so that it may be conveniently grasped and removed.

While I preferably employ one or more guideways of convolute form whereby the straws or other articles to be vended are supported in a spiral coil having a number of convolutions, it will be understood that slight departures may be made from this form of storing or retaining device without departing from my invention, for it is obvious that said guideways are not necessarily of true spiral form.

While the lifting or delivering rod 12 and its associated abutment piece 9 permit of a straw or other article to be vended being moved part way out of the vending device, it is obvious that without departing from my invention the apparatus could be made to fully deliver such straw, etc., it being immaterial whether such full delivery actually occurs or whether the article is merely raised sufficiently to permit of it being grasped and thereafter removed independently of the part 12.

The form of my invention shown involves the provision of means for pressing the straws of the spiral roll against or toward the abutment, and it is to be understood that since said abutment may itself be movable so as to be pressed toward and maintained in engagement with the endmost straw of the roll in order to secure the same result, any arrangement of parts capable of obtaining this relative effect would properly fall within and may be provided without departing from my invention.

I claim:

1. The combination in a dispensing apparatus of a supporting structure; a bodily movable spiral guideway of fixed convolute form mounted thereon and formed to hold a number of layers of articles to be dispensed; means tending to turn said guideway; and means for delivering articles from the guideway.

2. The combination in a dispensing apparatus of a supporting structure; a bodily movable spiral guideway of fixed convolute form mounted thereon and formed to hold a number of layers of articles to be dispensed; a spring acting to maintain the endmost of said articles in a predetermined position; and means for delivering a succession of said articles from such a position.

3. The combination in a dispensing apparatus of a supporting structure; a spiral

guideway of stiff material for articles to be dispensed, bodily movable on said structure; a fixed abutment on the structure; means tending to move the guideway to press the articles and said abutment together; and means for delivering such articles successively from the guideway while they are under pressure.

4. The combination in a dispensing apparatus of a supporting structure; a continuous spiral guideway of stiff material for articles to be dispensed; means for bodily moving said guideway on the structure; an abutment for articles in the guideway; and means for successively delivering such articles from the guideway.

5. The combination in a dispensing apparatus of a supporting structure; a guideway of relatively stiff material for articles to be dispensed; means for bodily moving said guideway on the structure; an abutment for articles in the guideway; and means for successively delivering such articles from the guideway; with a second abutment free to move under the action of the guideway for pressing the articles toward the first abutment.

6. The combination in a dispensing apparatus of a supporting structure; a spiral guideway movably mounted thereon and containing the articles to be vended; an abutment movably mounted on the structure and engaged by the guideway; means for delivering articles successively from the guideway; with means tending to turn the guideway and maintain one of the articles to be vended in a position immediately adjacent the abutment.

7. The combination in a dispensing apparatus of a supporting structure; a spindle rotatably mounted thereon; a spiral guideway attached to the spindle; an abutment mounted on the supporting structure in position to be engaged between the convolutions of the guideway; a spring operative on the spindle to press articles in the guideway toward the abutment; and means for delivering such articles successively from the guideway.

8. The combination in a dispensing apparatus of a supporting structure; a fixed

abutment thereon; a bodily movable spiral guideway formed to hold articles to be dispensed in a plurality of layers and being of fixed convolute form; means for pressing the articles toward the abutment; and a device for delivering articles successively from the guideway.

9. The combination in a dispensing apparatus of a supporting structure; an abutment for holding articles to be dispensed; means including a bodily movable spiral guideway for pressing said articles toward the abutment; and a device for delivering articles successively from the guideway; said delivering device consisting of a hand operated reciprocable member mounted to positively engage and remove said articles from said guideway.

10. The combination in a dispensing apparatus of a supporting structure; a guideway mounted thereon for holding articles to be vended; an abutment mounted on the supporting structure and consisting of a hollow member; an ejecting rod vertically movable in said hollow member and having a projecting foot; with means for pressing articles in the guideway and the hollow member toward each other so that said articles may be engaged by the foot of said ejecting rod.

11. The combination in a dispensing apparatus of a supporting structure provided with a rotatable spindle and including a top and a bottom member each having a slot extending radially of said spindle; an abutment mounted to move radially in said slots; a plurality of spiral guide structures mounted on the spindle between the top and bottom members of the supporting structures; a spring tending to turn the spindle to force the articles in said guide structures toward the abutment; with a delivery member mounted to act on articles in the guide structures adjacent the abutment.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE A. SPRATT.

Witnesses:

THOS. SPACKMAN,
SARAH F. BRANSON.