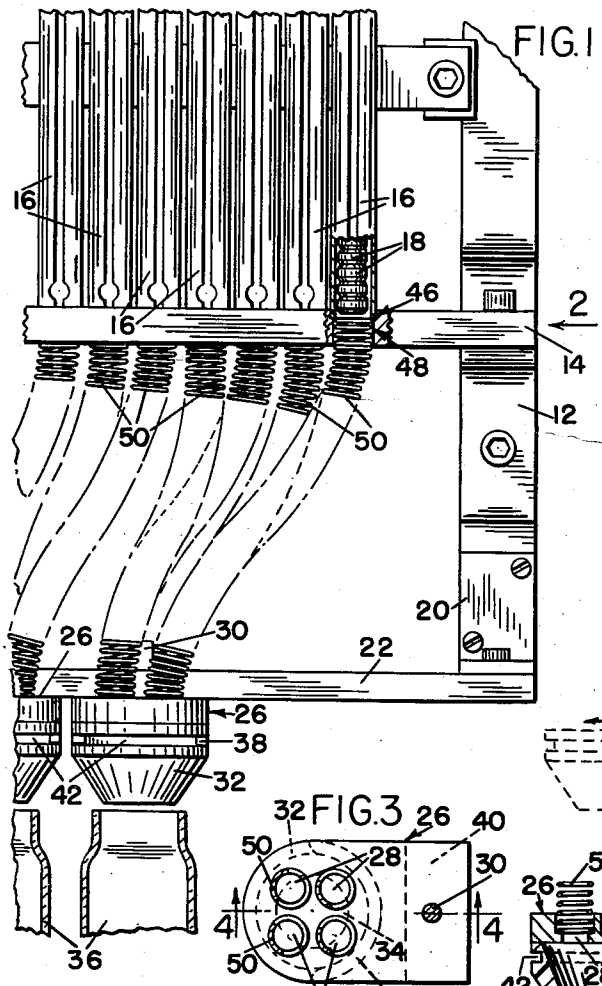
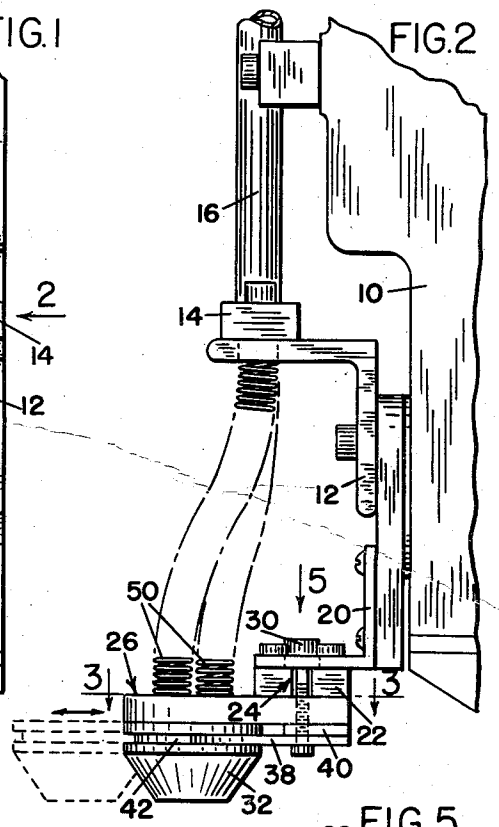
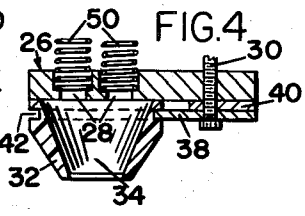
June 27, 1961 R. HENDRICKSON 2,990,047

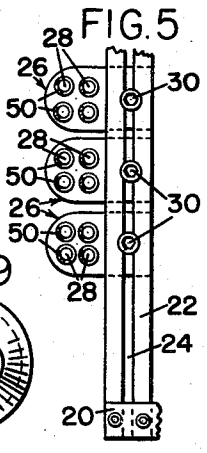
SPOUTS FOR TABLET COUNTING MACHINES

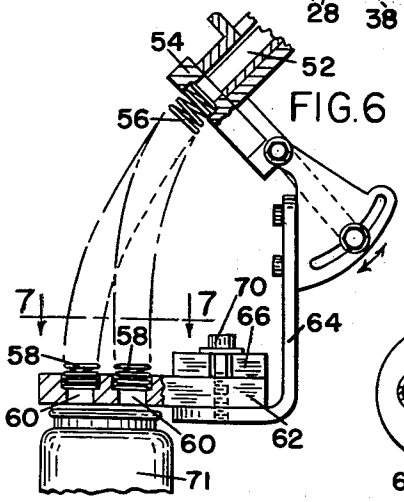
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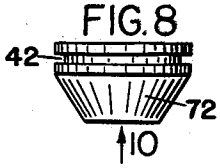




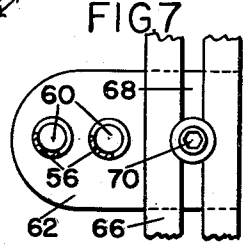












INVENTOR
RALPH HENDRICKSON

by Charles R. Fay

ATTORNEY

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SPOUTS FOR TABLET COUNTING MACHINES

Ralph Hendrickson, Gardner, Mass., assignor to The Lakso Company Incorporated, Fitchburg, Mass., a corporation of Massachusetts

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This invention relates to new and improved adjustable spouts particularly adapted for tablet counting machines, i.e., machines used for counting tablets, pills, etc. and depositing the same in individual bottles. One example of use of the machine is in placing correct counts of whole aspirin tablets into bottles, as for instance in fifties and hundreds.

It is of course a prime consideration in present-day tablet counting and filling to provide for high speed accurate machines, and one way in which the speed of filling bottles may be increased is to provide a multiple series of tubes in which the tablets are held, counted and then released to slide down the tubes into the bottles, each tube having a spout, and providing for a plurality of these spouts to lead into a single bottle. Obviously if a plurality of spouts lead into a single bottle, even if the tubes are operated seriatum, the filling is faster than would be the case where single spouts are used. An example of the machine to which the present invention pertains is disclosed in my prior Patents Nos. 2,585,558, issued November 12, 1952 and 2,701,671 issued February 8, 1955 among others.

An object of the invention resides in the provision of a tablet counting and filling machine of the class described wherein the spouts are made flexible and thus can be adjusted to accommodate different sizes of bottles and different positions of a series of bottles as they pass under the spouts and are intermittently stopped for the filling operation; and the provision of spouts as above recited in which said spouts are made in the form of coil springs, so that they are flexible and adjustable and accurately and without damage lead the tablets into the bottle; and the provision of coil-spring spouts arranged in multiples as described, in combination with a special new and improved terminal fixture or nozzle to which the lower ends of the coil spring spouts are attached, said fixture having a single aperture for disposition of all of the tablets into a single bottle; and the provision of a nozzle as described which is replaceable by nozzles of different sizes of openings, etc. in order to provide for filling bottles of different sizes, neck openings, spacing, etc.

The invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly set forth in the appendable claims.

Reference is to be had to the accompanying drawings, in which

FIG. 1 is a view in front elevation, with parts broken away, illustrating the invention;

FIG. 2 is a view in side elevation thereof, looking in the direction of arrow 2 in FIG. 1;

FIG. 3 is a section on line 3—3 of FIG. 2;

FIG. 4 is a section on line 4—4 of FIG. 3;

FIG. 5 is a top plan view, looking in the direction of arrow 5 in FIG. 2, parts being in section;

FIG. 6 is an elevational view showing a modification;

FIG. 7 is a section on line 7—7 of FIG. 6;

FIG. 8 is a view in side elevation of the nozzle of FIGS. 2 and 4; and

FIG. 9 is a bottom plan view thereof, looking in the direction of arrow 10 in FIG. 8.

In disclosing the present invention, attention is directed to my prior patents illustrating feeds, stops, and counting mechanisms for tablet machines, since only so much of

the construction as is necessary to disclose the present invention is herein shown and dependence is made on the prior art to show devices which are parts of the machines of the present case but are not necessary to a full understanding of the particular invention involved herein.

Referring now to FIGS. 1 and 2, the reference character 10 refers to a portion of the side frame of a tablet counting machine according to the invention, and this framework also includes for instance brackets 12, supporting a longitudinal bar or the like 14, this bar being provided as a connector or support for a series of upright tubes 16 down through which the tablets 18 descend as for instance by gravity. In these tubes, there are provided various stop pins (not shown) which arrange for counting of the tablets 18 so that each container will receive the correct amount of tablets. At the lower part of frame 10, there may be provided brackets 20 or the like, which in turn support another longitudinal bar as at 22 beneath, parallel and spaced from the bar 14. Bar 22 is longitudinally slotted, as at 24, or is made out of two spaced bars held in the brackets 20 at the ends thereof, and this double bar arrangement is utilized to support a series of spout-and-nozzle holding brackets, each of which is generally indicated at 26.

In the case shown, each of these brackets is provided with four openings 28 and each opening is designed to receive tablets or pills from a single tube 16, so that four tubes 16, the latter being in a longitudinal row on bar 14, are to be aligned in such a way as to provide that all the tablets from each set of four of these tubes extend downwardly through a single spout-and-nozzle holding bracket at 26. These brackets may be held for instance in depending relation from the bars 22 as by screws or other type fasteners 30 in slot 24, and as shown in FIG. 4, each bracket 26 is provided with holding means for the funnel or nozzle 32. Nozzle 32 has a single opening as at 34 and leads the tablets from the plurality of tubes directly into the bottles which are indicated at 36.

These bottles are either automatically or manually moved along a line, so that a single bottle receives a series of pills or tablets from a series of four spouts. Obviously, the number of these spouts is easily changed, and shown in FIGS. 6 and 7 there is an arrangement for handling two spouts for each bottle, as will be described hereinafter.

Each bracket 26 is provided with a holding means which comprises a generally U-shaped plate best seen in FIG. 3 and indicated at 38, the same being held in spaced relation from the under surface of bracket 26 by means of a spacer bar 40. The nozzle or funnel 32 is provided with an annular groove 42 which is received by the edge of plate 38 in the U-shaped or concave portion thereof, thus holding the nozzle in position, and the parts are made to fit with reasonable accuracy, so that there is no vibration between the nozzle and the plate.

In any event, it will be clear that the nozzle 32 is easily removable and can be replaced by a different nozzle, i.e., one having an opening of a different shape or size as circumstances may require in the filling of different sizes and shapes of bottles.

Returning now to consideration of the bar 14, it will be seen that the same is apertured at intervals and receives the lower ends of tubes 16 in countersunk recesses 46. Also, these apertures which are indicated at 48 are used for anchoring the upper end of a series of flexible coil springs 50. These coil springs are made of relatively fine wire, so that regardless of how they are distorted from a vertical to a sidewise position, as for instance shown in FIGS. 1 and 2, the same provide a relatively smooth passageway for the tablets and pills and will not chip or injure the same in any way.

The coil springs 50 depend from bar 14 to be inserted

at their lower ends in corresponding countersinks in holes **28** in the brackets **26** as clearly shown in FIG. 4, and thus of course it is seen that the brackets **26** may be adjusted along the bars **22** and also they may be swiveled, and secured in any position desired, depending upon the thickness or spacing of the individual bottles **36** which are to be filled. No adjustment of the springs themselves is necessary inasmuch as they conform to and follow the adjustment of the brackets **26** at all times, and therefore it will be seen that the adjustment of these parts is extremely simple and quick, and the machine may be quickly varied to accommodate different types of bottles.

A variation of the above-disclosed construction is shown in FIGS. 6 and 7 and in this case the tablets descend through inclined tubes or the like **52** which of course are in series as above described and each of which terminates or rests upon a bar **54** having an aperture therein for the reception of the upper ends of coiled springs **56**.

The lower ends of springs **56** as at **58** rest and are held in countersunk openings **60** in a bracket or plate **62** which may be mounted as for instance on a bracket **64**, for adjustment similar to that as above described on a bar **66** having a central groove in it at **68** with a fastener **70** holding the bracket **62** in position.

In this case, it will be seen that there are but two holes **60** and two springs **56**, and that the springs **56** are connected with the undercut portions of these holes for the purpose of leading the pills or tablets into the bottles **71**. This again shows that there can easily be a variation in size and in number of flexible spring-like spouts **50** and **56**, and the details of construction of the supports therefor and the spouts and spout brackets depends upon the kind of tablets, the size and type of bottle to be filled, etc.

As shown in FIG. 6, there is no nozzle or funnel member **32** utilized although this could be arranged to be mounted on the under side of the bracket **62** if desired. Also, as shown in FIGS. 8 and 9, the nozzle or funnel **72** which is similar to that at **32** may be provided with a different shaped opening **74**, and other variations and modifications may be made coming within the scope of the invention.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A tablet counting machine comprising a framework, a series of tubes mounted therein for passage of tablets therealong, a spout for each tube, each spout comprising a flexible coil spring, a spout-holding bracket, a bar on the framework mounting said bracket, a plurality of said spring spouts being attached to said bracket, said bracket including multiple apertures for receiving the tablets from each spout therethrough separately, a nozzle having a single opening aligned with all of the apertures, said apertures and nozzle opening being arranged for disposition of the tablets from said plurality of spouts into a single container arranged temporarily below the spout bracket, and means mounting said spout bracket in longitudinally adjustable relation on said bar.

2. The device as recited in claim 1 including means mounting the spout bracket for pivotal adjustment on said bar.

3. A tablet counting and filling machine comprising a framework, a plurality of tubular tablet feeding members thereon, a flexible coil spring for each tube arranged at the lower end thereof for continuing the travel of the tablets from the tubes to the ends of the springs, a spout bracket, a series of apertures therein, each aperture receiving and holding the lower end of one of said flexible coil springs, means mounting each spout bracket in adjustable relationship on said framework, the lower ends of said springs following the adjusted position of said spout bracket and the coil springs accommodating themselves to such adjustable motion, a detachable nozzle having a single opening, and means supporting the nozzle beneath and closely adjacent the respective spout bracket in a position causing the single opening of the nozzle to coincide with the series of apertures in the bracket so that the tablets from each set of coil springs falls through the single opening into a container positioned temporarily beneath the same.

4. The machine of claim 3 wherein the nozzle supporting means includes a plate mounted in spaced relation at the under side of said spout bracket, each nozzle being provided with an annular groove exteriorly thereof fitting in and received by said plate, said plate having a generally semi-circular portion for reception in said groove, thereby supporting said nozzle detachably in position thereon.

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