

March 31, 1942.

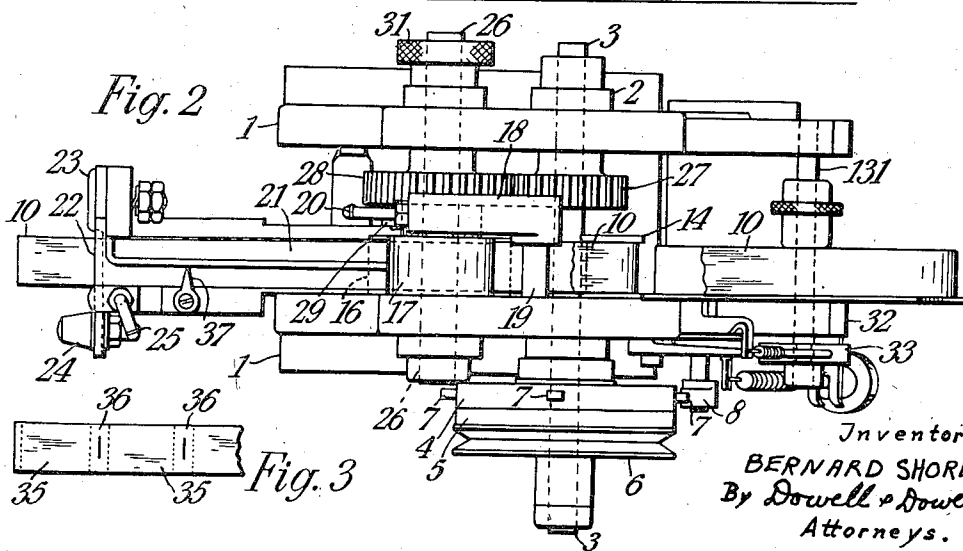
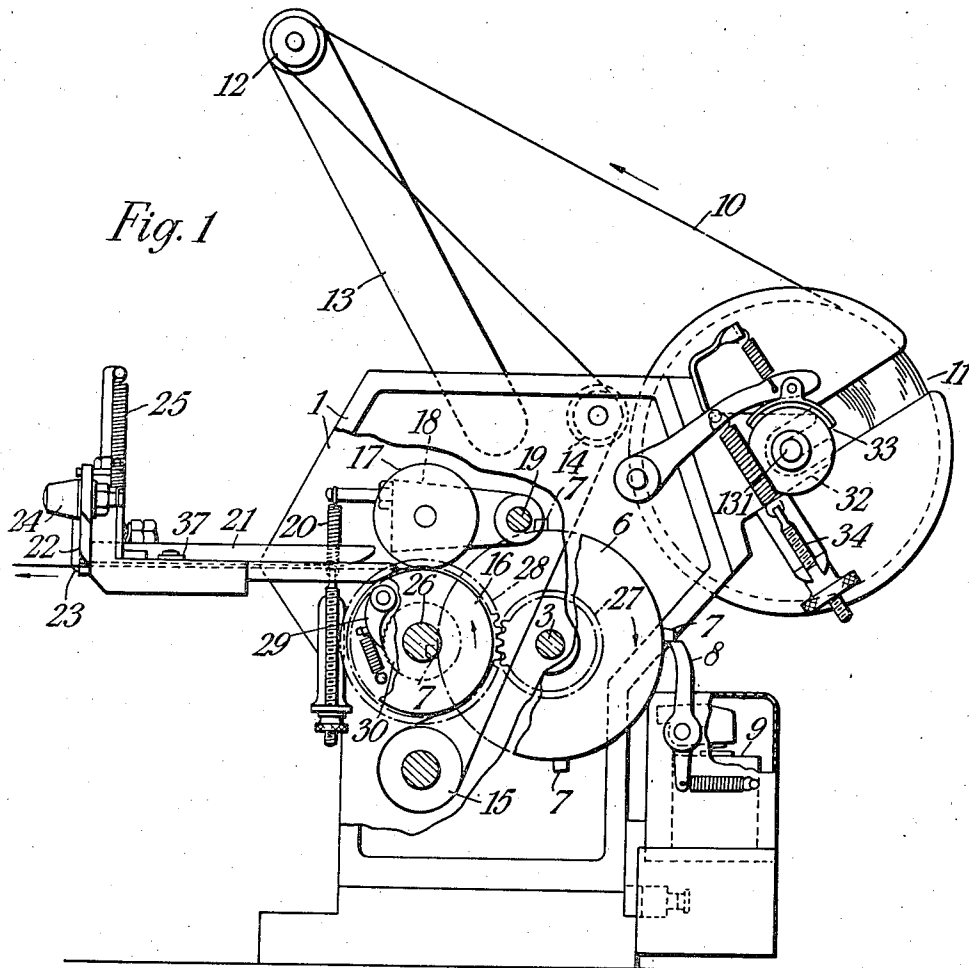
B. SHORES

2,277,856

MEANS FOR AUTOMATICALLY INSERTING ITEMS OF PRINTED MATTER INTO PACKAGES

Filed March 11, 1939

2 Sheets-Sheet 1



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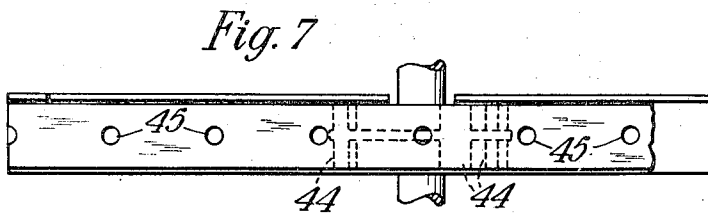
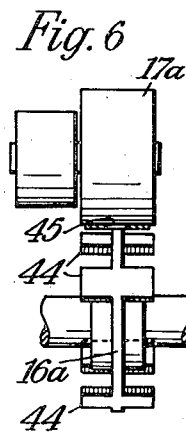
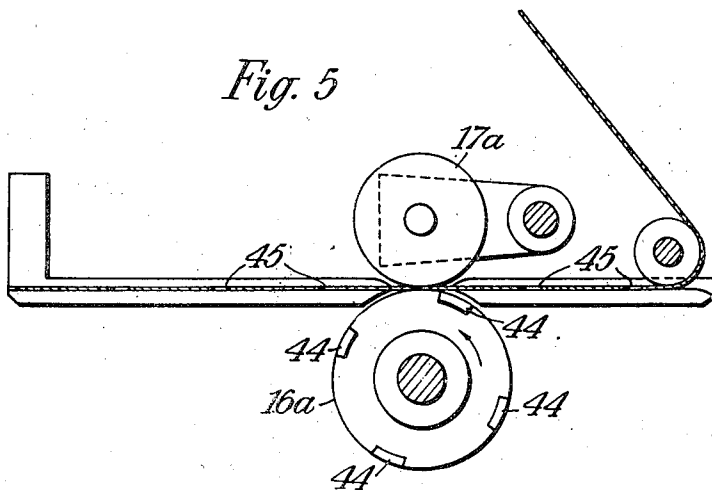
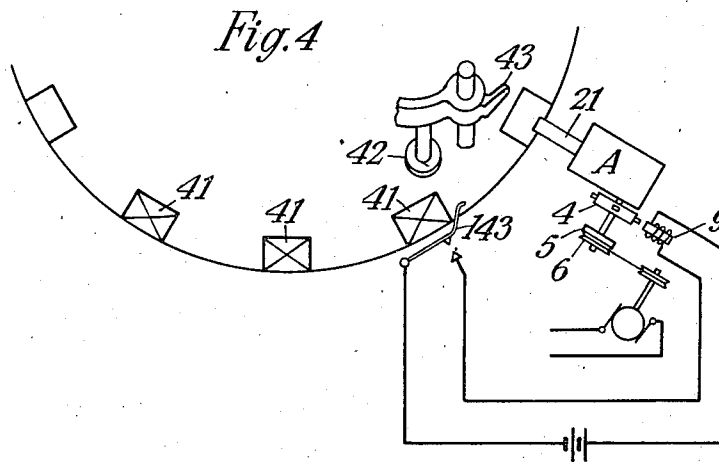
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UNITED STATES PATENT OFFICE

2,277,856

MEANS FOR AUTOMATICALLY INSERT-
ING ITEMS OF PRINTED MATTER INTO
PACKAGES

Bernard Shores, London, England, assignor to
Allied Suppliers Limited and Bernard Shores,
both of London, England

Application March 11, 1939, Serial No. 261,376
In Great Britain July 15, 1938

8 Claims. (Cl. 226—2)

This invention relates to devices for inserting coupons or the like into bags or other containers under process of filling, having reference more particularly to such devices of an automatic character employed in conjunction with ordinary package filling and sealing machines.

It not infrequently happens that a package is desired to include, besides its principal contents, something in the form of printed matter, such as a coupon, identification ticket or instruction card. While in many instances the insertion of such an item automatically with the principal contents may present no difficulty, in other cases it has been necessary or usual to effect the insertion by hand, which means the employment of a much larger number of work people than would otherwise be necessary if the rate of production of automatically filled packages is not to be slowed down. For example, where tea is being put up in paper packets, making use of more or less elaborate machines working at high speed, it has not heretofore been considered feasible, without undue machine modification and complication, to insert an item after a predetermined quantity of the commodity has been filled into the packet, which has consequently been done by hand when required.

The main object of the present invention is to provide simple and reliable means, of wide application, whereby containers in the course of travel through a packaging machine can have automatically inserted therein any desired item such as referred to.

An important feature consists in so combining and arranging the parts of the improved means that they constitute a self-contained unit that can, if desired, be driven by an independent motor and may be applied to various machines for control by the latter.

Another important feature consists in providing for control of the insertion of items into packages by the packages themselves, whereby the absence of a package receptively to the insert in the regular course or cycle of filling progression, causes the item feeding means to be arrested and so to withhold discharge of the insert item until the next package in progression is brought into receptive relation thereto.

Although the invention is capable of wide application and can be variously carried into effect, it will be further briefly described with reference to the inclusion in a packet, after the packet has been filled with its regular contents, of a so-called coupon or stamp having a monetary or trading value to the purchaser, and the dis-

posal of which coupons, or stamps, consequently must be properly accounted for. For this purpose, according to the invention, the coupons are automatically severed from a roll length of strip, successively as the packets, ready for the reception thereof, reach an appropriate place in their successive progression. The strip of coupons is fed a definite distance at predetermined intervals along a guide from a reel, by roller means rotated intermittently. The rotation of said roller means may be effected through a friction clutch, one member of which is constantly driven, while the other, which is connected to the roller means, is capable of being temporarily arrested. This arrest may be effected as by electromagnetically controlled means embodying a pawl or the like member capable of being moved into and out of the path of stops upon the appropriate clutch member or some associated part.

In the accompanying illustrative drawings, Fig. 1 is a part sectional side elevation and Fig. 2 is a corresponding part sectional plan view of one embodiment according to the invention. Fig. 3 represents a portion of perforated strip for use therewith. Fig. 4 is a diagram indicating the means applied to a machine such as is used for filling packets with tea. Figs. 5, 6 and 7 are respectively a side elevation, an end elevation and a plan, mainly diagrammatic, of a modification of strip feeding roller means.

Referring first to Figs. 1 and 2, a substantial metal body or casing 1 has bearings 2 for a shaft 3, upon which is secured one member 4 of a friction clutch, the other or companion clutch member 5 being constantly driven by a pulley 6 mounted loosely on the shaft 3. The clutch member 4 is shown as fitted with four stops 7, whereby it can be arrested at every quarter of a revolution by a pawl or engaging member 8 released upon energisation of an electromagnet 9. The strip 10 to be fed is conducted from a reel 11 over a roller 12 at the top of an arm 13, over rollers 14 and 15 in the body 1, and over the lower roller 16 of a feed pair, the upper roller 17 of which pair is carried by an arm 18 pivoted at 19 and loaded by an adjustable spring 20. From between the rollers 16, 17 the strip 10 is conducted along a trough guide 21 past a knife or guillotine cutter 22, which knife is pivoted at 23 and adapted to be depressed by a knob 24 from its normal position determined by a spring 25. The aforesaid roller 16 is fixed on a spindle 26, driven from the shaft 3 through gears 27 and 28, the latter being loose on the spindle 26 and provided with a spring-urged pawl 29 engaging a ratchet

wheel 39 fixed to said roller 16. In this way, by means of a knob 31 on the spindle 26 the roller 16 can be adjusted or turned to feed the strip, while the gears 27 and 28 are stationary. The reel 11 is mounted on a spindle 131, fitted with a brake disc 32 so that by means of a spring loaded shoe 33 and adjusting screw 34 a drag can be imposed upon the reel variable at will to ensure proper feed of the strip.

In this example the real strip is assumed to be perforated as indicated in Fig. 3 so that coupons or stamps 35 are separated by a blank 36 which is severed by the aforementioned knife or guillotine cutter, it being advantageous to mark the blanks 36 each with a line intended to register with an indicating pointer 37 on the guide 21 so that an attendant may visually ascertain that the feed is proceeding properly and enabling any irregularity in this connection to be corrected. The spare blank parts 36 of the coupon or stamp can be torn off after removal of the same from a package.

Taking the case of the machine typified by Fig. 4, where packets 41 move in a circular path and the contents are compressed by a ram 42, the stamp feeding unit designated as a whole by A is arranged at a point where the outlet end of the guide 21 (bearing the knife 22) is located over the mouth of the filled or partly filled packet as the packet travels to the next packaging position in the well known way. At the said point the knife 22 associated with said end of the guide is operated in unison with the ram 42 through a tappet 43 acting upon the knob 24. Between the position of the ram 42 and the coupon feeding unit A is located a switch 143, operated by contact with successively fed packets, that normally interrupts the electric circuit of the magnet or solenoid 9 and thereby normally secures arrest of the clutch member 4 already referred to. After the ram has been retracted from a packet, the packet in moving to the next operative position of the packaging machine, opposite the feeding unit which it progressively passes, encounters the switch 143 and closes the same, thereby energizing the magnet or solenoid and allowing a coupon length of the reel strip to be fed forward ready to be severed upon the next reciprocation of the ram into a following packet. However, if no packet is presented to said switch 143, then of course the strip feeding unit A remains idle and continues so until another packet subsequently comes into contact with the switch.

A form of feed which involves less personal supervision than that described to secure regularity can be employed and may in some cases be preferred or necessary. Such an arrangement might be of the type shown in Figs. 5, 6 and 7, wherein a roller 17^a equivalent to the roller 17 of Fig. 1 cooperates with a roller 16^a replacing the roller 16 of Fig. 1, the said roller 16^a having circumferentially short peripheral segments 44 equal to or approaching the width of the coupon strip to be fed and extending from a circumferentially complete region or portion thereof which is narrower in width (see Fig. 6), between the segments 44, than the diameter of holes 45 punched in the strip. In such an arrangement, as is known, the strip is fed by the narrow circumferentially complete portion of the roller 16^a, between the segments 44, only while the strip is transversely complete at the line of contact with the roller 17^a. As soon as a hole in the strip reaches the line of contact between the two

rollers, which is thus transversely short, the feed is arrested and remains arrested until a wide segment 44 of the roller 16^a reaches the line of contact when the feed is re-established.

This arresting allows time for the knife action and the device is of course synchronized with the packet feeding apparatus; that is, with the progression of the packets to position where a severed coupon will be dropped thereinto.

What I claim is:

1. A device for automatically inserting coupons or the like into spaced packages carried on the conveyor of a machine for progressively advancing a series of partly filled packages and said machine having a vertically reciprocable member adapted to operate upon successive packages brought into position adjacent thereto, said device comprising, in a self-contained unit, a frame; a strip guide in said frame; a feeder reel for strip coupon material mounted in said frame; a pair of coacting pressure rolls journaled in the frame opposite one end of the guide; means for guiding the strip from the reel to the pressure rolls and strip guide; a friction clutch journaled in the frame; means for continuously rotating one clutch member; means on the other clutch member for rotating the pressure rolls; an annular series of spaced lugs on said other clutch member spaced in accordance with the individual coupon length; a pawl pivoted in the frame and normally yieldably extending into the path of said lugs to engage a lug and automatically interrupt rotation of said other clutch member after each advancing movement of the strip to coupon length; means adapted to be actuated by the vertically reciprocable member to sever the strip into individual coupons; and means adapted to be controlled by the progressively advancing packages to intermittently release said pawl so that successive intermittent rotations of the pressure rolls will follow.

2. In a device as set forth in claim 1, means for manually rotating the pressure rolls to advance the strip in the guide.

3. In combination with a device as set forth in claim 1, a shaft supporting said friction clutch members; a second shaft parallel with the first shaft on which one of said pressure rolls is fixedly mounted; means for manually rotating said shaft; a ratchet wheel on said roll; intermeshing gearing on said shafts, the gear on the roll shaft being loose thereon; and a spring pressed pawl on said roll shaft gear engaging said ratchet wheel, whereby manual rotation of the roll shaft will rotate the pressure rolls while the intermediate gears are stationary.

4. In a device as set forth in claim 1, said releasing means comprising an electric circuit including a source of electric energy, a switch therein adapted to be closed by the advancing packages, and electro-magnetic means therein for shifting said pawl when the circuit is closed.

5. A device for automatically inserting coupons or the like into spaced packages carried on the conveyor of a machine for progressively advancing a series of partly filled packages and said machine having a vertically reciprocable member adapted to operate upon successive packages brought into position adjacent thereto, said device comprising, in a self-contained unit, a frame; a strip guide mounted therein and extending beyond one side thereof; a feeder reel for strip coupon material mounted in said frame; a pair of coacting pressure rolls journaled in the frame opposite the inner end of the guide; means for

guiding the strip from the reel to the pressure rolls and strip guide; a friction clutch journaled in the frame; means for continuously rotating one clutch member; means on the other clutch member for rotating the pressure rolls; an annular series of spaced lugs on said other clutch member spaced in accordance with the individual coupon length; a pawl pivoted in the frame and normally yieldably extending into the path of said lugs to engage a lug and automatically interrupt rotation of said other clutch member after each advancing movement of the strip to coupon length; a knife pivotally mounted on the outer end of the strip guide adapted to be actuated by the vertically reciprocable member to sever the strip into individual coupons; and means adapted to be controlled by the progressively advancing packages to intermittently release said pawl so that successive intermittent rotations of the pressure rolls will follow.

6. In combination with a device as set forth in

claim 5, means for manually rotating the pressure rolls to advance the strip in the guide.

7. In combination with a device as set forth in claim 5, a shaft supporting said friction clutch members; a second shaft parallel with the first shaft on which one of said pressure rolls is fixedly mounted; a knob on said shaft; a ratchet wheel on said roll, intermeshing gearing on said shafts, the gear on the roll shaft being loose thereon; and a spring pressed pawl on said roll shaft gear engaging said ratchet wheel, whereby manual rotation of the knob will rotate the pressure rolls while the intermeshing gears are stationary.

8. In a device as set forth in claim 5, said releasing means comprising an electric circuit including a source of electric energy, a switch therein adapted to be closed by the advancing packages, and electro-magnetic means therein for shifting said pawl when the circuit is closed.

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