Oct. 11, 1932. H. A. MORRIS 1,881,845

MACHINE FOR INSERTING SLIPS INTO PACKAGES

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Fig- 1

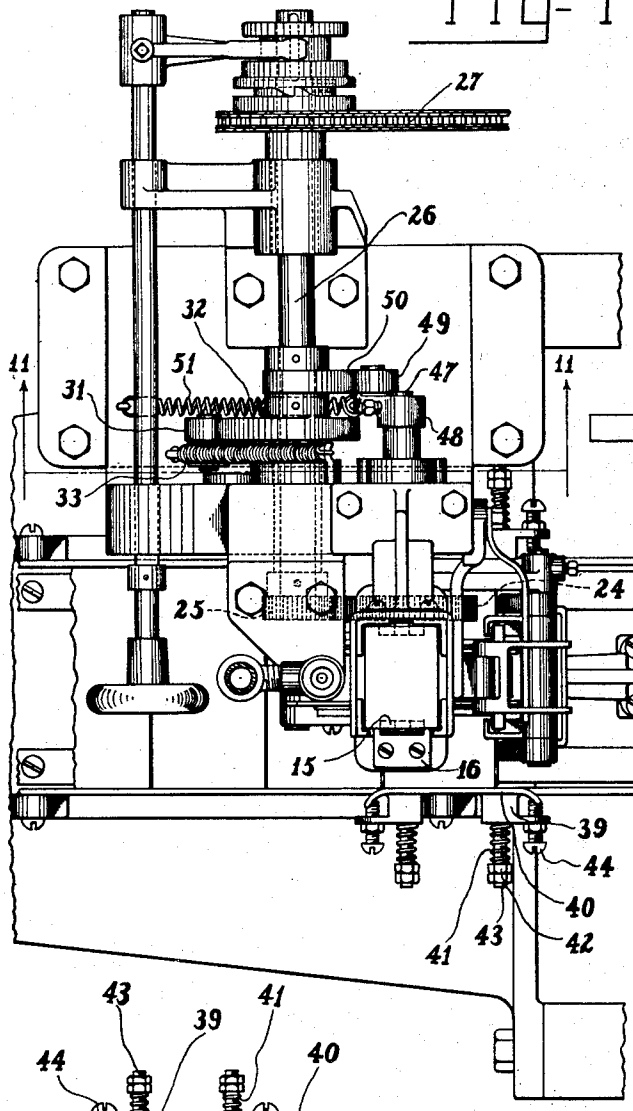


Fig- 11

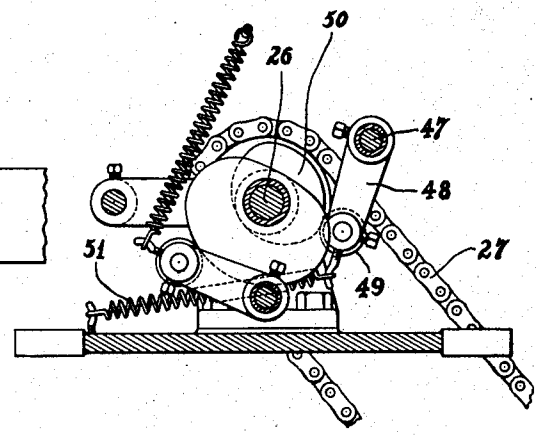
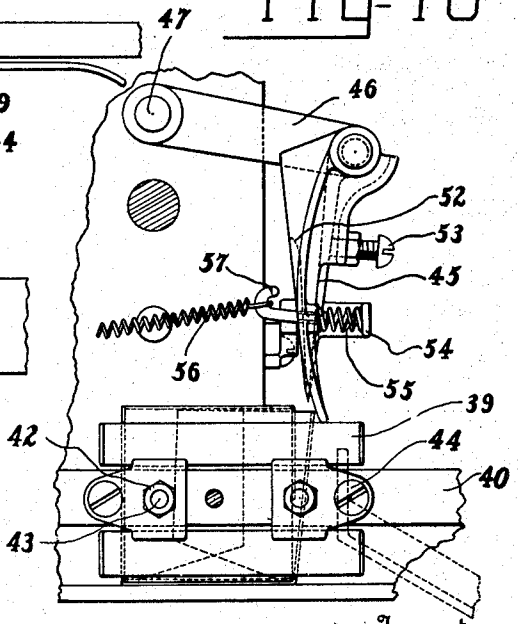


Fig- 10



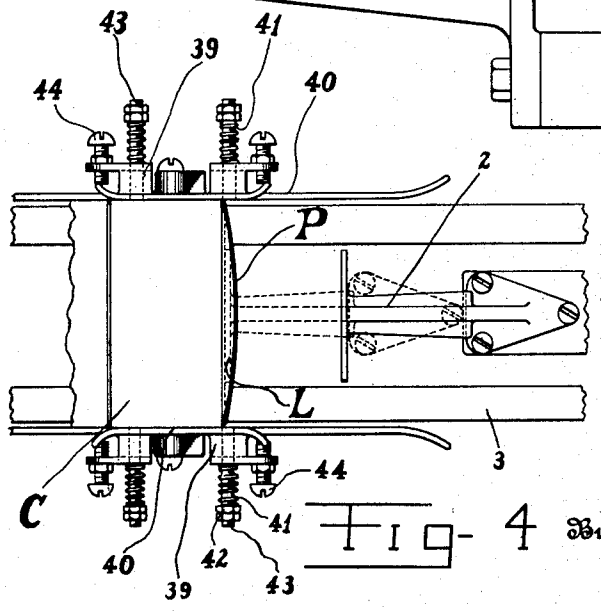


Fig- 4

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MACHINE FOR INSERTING SLIPS INTO PACKAGES

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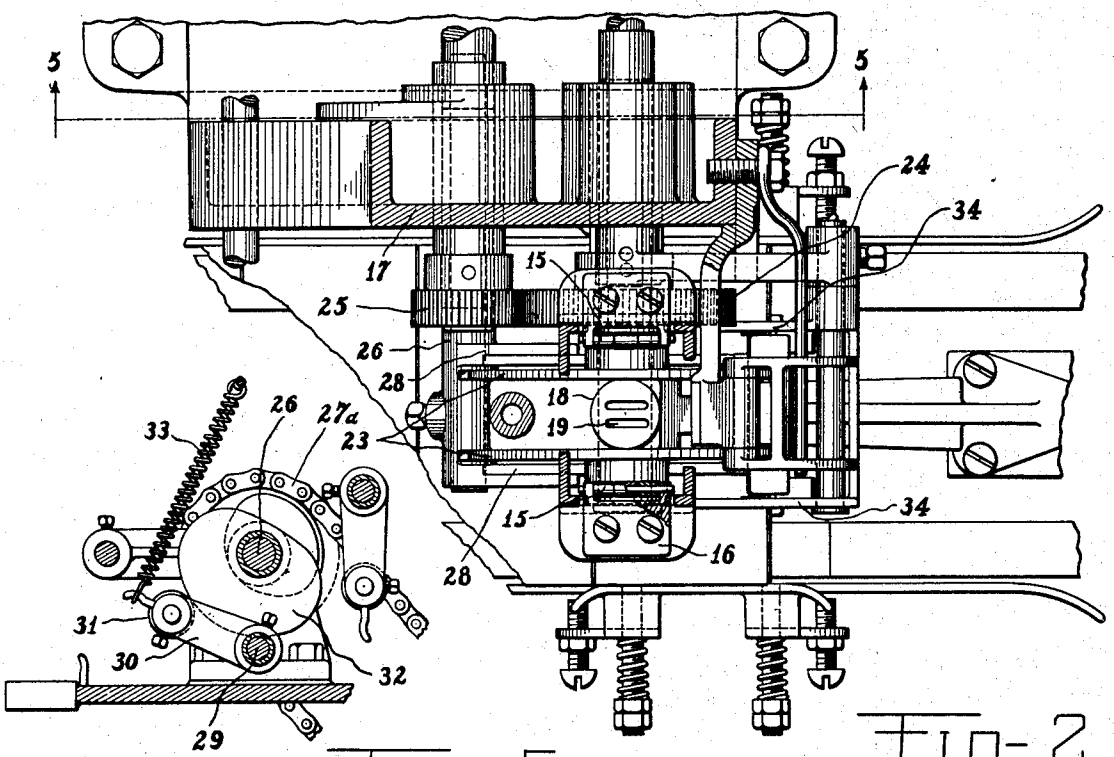


Fig- 2

Fig- 5

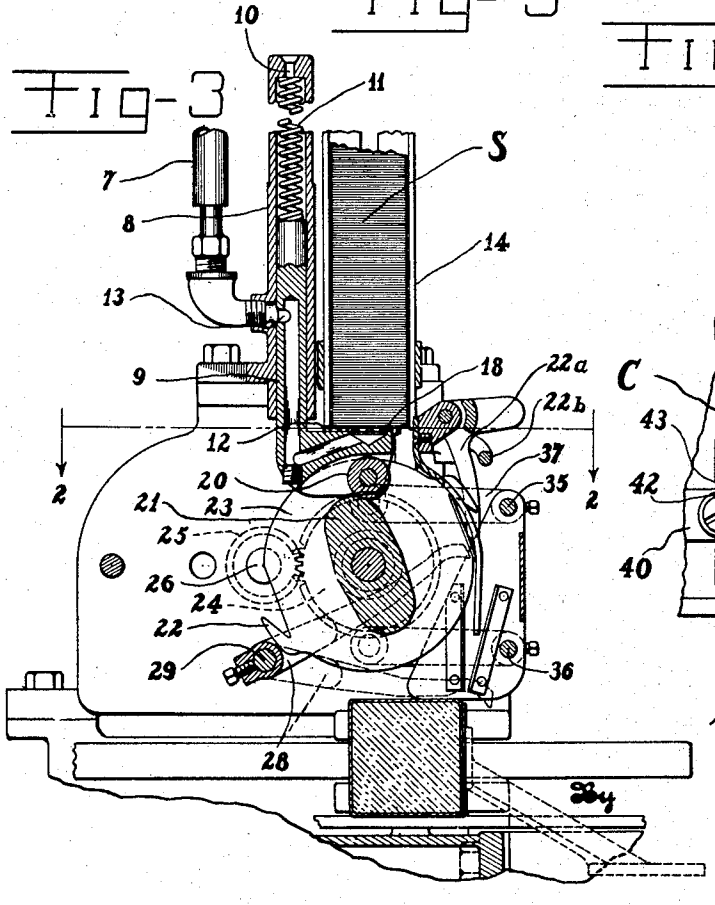
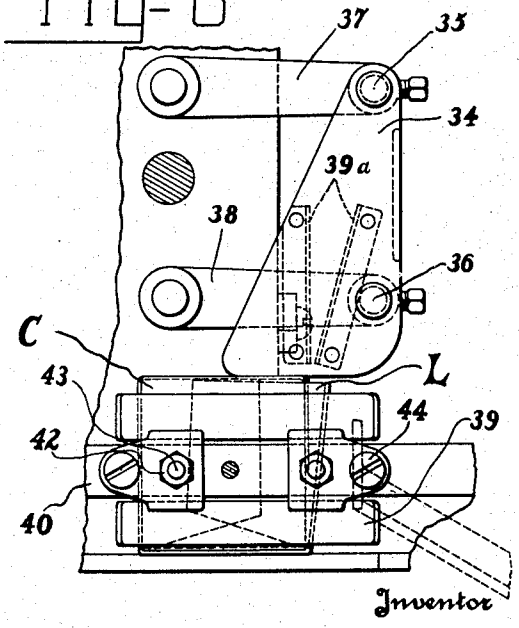


Fig- 3

Fig- 6



Inventor

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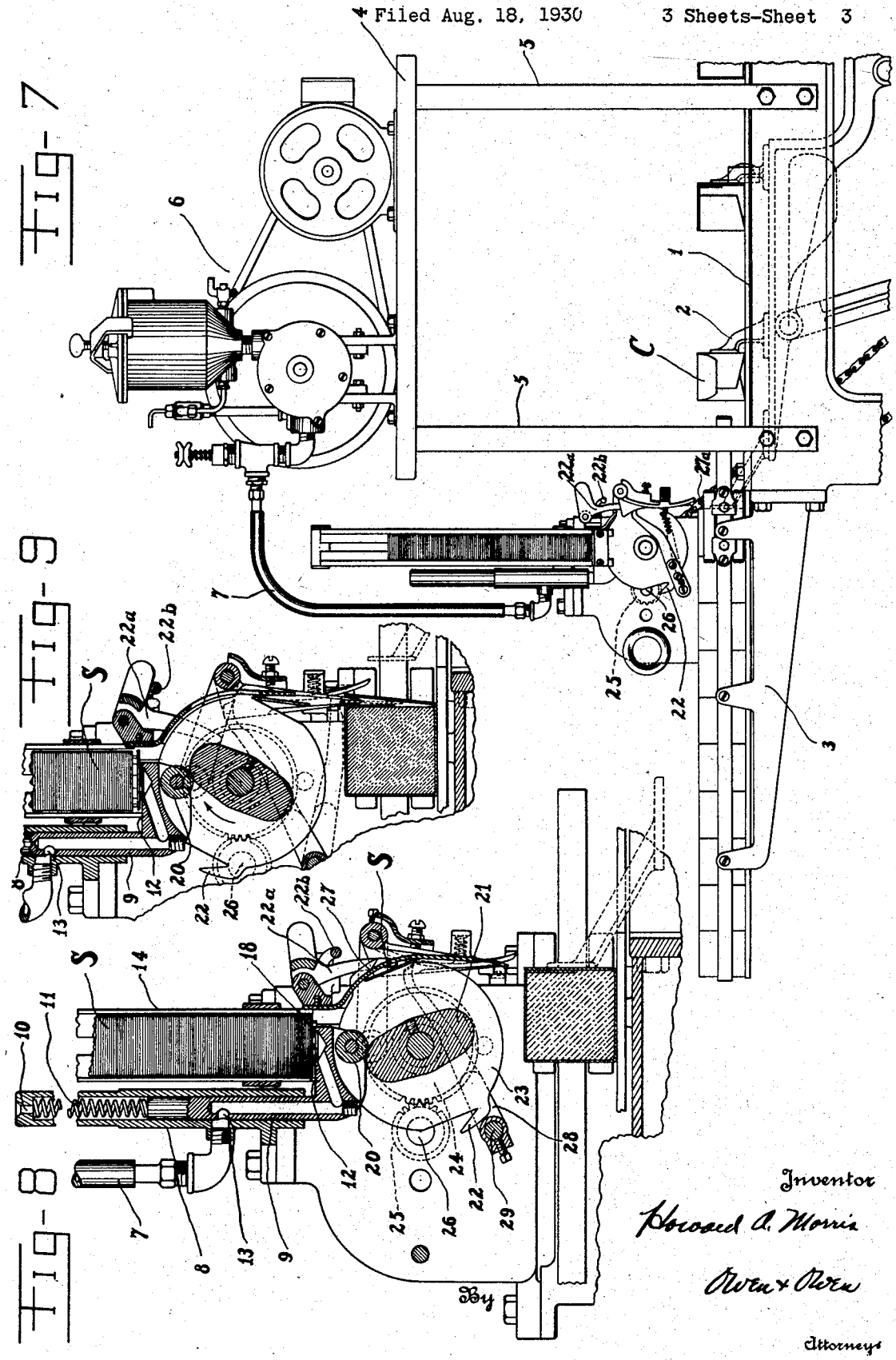
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MACHINE FOR INSERTING SLIPS INTO PACKAGES

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Patented Oct. 11, 1932 1,881,845

UNITED STATES PATENT OFFICE

HOWARD A. MORRIS, OF TOLEDO, OHIO, ASSIGNOR TO THE AUTOMAT MOLDING & FOLDING COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO

MACHINE FOR INSERTING SLIPS INTO PACKAGES

Application filed August 18, 1930. Serial No. 475,953.

This invention relates to mechanism for inserting slips into packages which have previously been wrapped and cartoned, and an object is to provide a simple and efficient machine for automatically inserting a predetermined number of slips into the package after the latter is completely closed.

Further objects of the invention consist in the construction and arrangement of elements, and their operation, and reside in the new and improved features hereinafter appearing.

By way of illustration, but not of limitation, the invention is shown on the accompanying drawings, in which:

Fig. 1 is a top plan view of a machine or mechanism for inserting slips into cartoned articles, a portion of the associated mechanism being indicated for a clear understanding of the invention;

Fig. 2 is a transverse, sectional elevation on the line 2—2 of Fig. 3;

Fig. 3 is a vertical, sectional elevation of the machine showing a carton of butter or similar material preparatory to receiving the slip;

Fig. 4 is a top plan view of mechanism for outwardly bending a side panel of the carton preparatory to receiving the slip;

Fig. 5 is a side elevation showing the cam mechanism for operating the pushing fingers for forcing the slip into the carton;

Fig. 6 is a side elevation showing the guide means for directing the slip into the carton;

Fig. 7 is a side elevation of the slip enclosing mechanism and associated parts, showing an alternate form of carton-open and slip-guiding means;

Fig. 8 is an enlarged side elevation of the slip removing device and slip advancing mechanism shown in Fig. 7;

Fig. 9 is a view similar to Fig. 8 showing the operation of the carton-opening device before the slip is inserted;

Fig. 10 is a side elevation of the carton-opening mechanism of the form shown in Figs. 7 to 9; and

Fig. 11 is a side elevation of the cam mechanism operatively arranged for actuating the slip-pushing fingers and carton opening device shown in Figs. 7 to 10.

In the packaging of some materials, it is desirable to insert a slip within the package. For example, in the packaging of oleomargerine, which must be packaged in its natural color, it is desirable to include within the package a slip containing coloring material so that the purchaser may, at his option, mix the coloring material into the oleomargarine. Oftentimes the producer desires to insert within the package a small slip containing advertising matter. In accordance with this invention, a simple and efficient machine has been produced which automatically inserts a predetermined number of slips within the package after the latter is completely closed.

Heretofore devices have been produced for inserting slips into packages during the packaging of the articles. Many of these have been found unsatisfactory due to the fact that the slip is not positively included in the package, and it not infrequently happens that after the package is completely formed, for one reason or another, the slip is not contained therein.

Referring to the drawings wherein the invention is illustrated, a guide 1 is provided, along with packages C are step-by-step advanced by paddles 2 from the cartoning mechanism. The cartons are of the usual type, being of card board with paneled sides and completely enclosing the article or articles disposed therein. The paddles 2 (as shown three are employed for completing the advancing movement of the packages from the carton wrapping mechanism) move the cartons to a supplemental guide 3, each carton coming to rest beneath the slip feeding mechanism hereinafter described.

As shown, a platform 4 rising from the guide 1, being supported by legs 5, supports a partial vacuum generating device generally indicated by the reference character 6. Leading from this apparatus is a tube 7, which connects at its lower end with a guide tube 8, in which a suction tube 9 is reciprocable, the upper end of this tube being closed except for a small air vent 10 and a coil spring 11 serving yieldingly to urge the tube 9 down-

wardly. Extending at substantially right angles from the tube 9 is a head 12 having a duct communicating with the inside of the tube 9. An opening 13 in the upper portion of the tube 9 is adapted to communicate with the opening of the suction tube 7.

Positioned adjacent the guide tube 8 is a receiver 14 adapted to receive a plurality of slips S. The slips S in this instance are substantially flat and rectangular in shape, and consist of two sheets of transparent paper adhesively connected around the edges to form a pocket to contain the coloring material in powdery form. The lowermost slip rests adjacent its outer edges on spaced rollers 15 (Fig. 2). The rollers 15 alone hold the stack of slips S and are carried by plates 16 secured to the machine frame 17.

Carried by the suction head 12 is a disc 18 having a pair of elongate slots 19. The arrangement is such that when the head 12 descends suction is momentarily imparted to the lowermost slip S, the tube 7 being in communication through the openings 13 with the tube 9, thereby causing the adjacent slip to adhere to the head 12, and as the edges of the slip pass over the rollers 15 the slip tends to buckle or bow downwardly, thereby preventing additional slips from passing over the rollers. It has been found that the rollers 15 are advantageous since they militate against becoming coated with adhesive material from the slips. It will be understood that the slips are often coated with paraffin, and should they pass continuously over the same surface, such surface will in time become coated with the paraffin from the slips, which interferes with the proper functioning of the apparatus.

Carried by the underside of the head 12 is a roller 20 which is held yieldingly in engagement with a cam 21 by the spring 11. The cam 21 is so shaped that vertical reciprocatory motion is imparted to the head 12 recurrently so that individually slips are removed from the receiver 14. Soon after the head 12 starts its descending movement the partial vacuum is released and the slip S is caught by hooks 22 carried by spaced discs 23. Connected to drive the discs 23 is a gear 24, which is driven by a pinion 25. The pinion 25 is mounted on the shaft 26 to which power is applied through a sprocket and chain connection 27^a. As shown, each disc 23 is formed with two hook members 22, which are diametrically opposed.

When the head 12 is in its lowermost position a pair of hooks 22 engage the slips S and move them in a clockwise direction (Fig. 8) toward a depending curved guide 27. During the movement of the slips to the guide 27, a pair of weighted transversely spaced arms 22^a engage opposite side portions of each slip and tend to square and retard the same. The arms 22^a are pivoted and depend on the outer sides of the discs 23. A transversely disposed rod 22^d serves as a stop for the arms 22^a to hold them in the desired position. The guide 27 holds the slip from moving ahead, and after the slip has been moved a predetermined distance a pair of pushing fingers 28, the ends of which are slightly curved, engage the slip adjacent the opposite edges. The fingers 28 are mounted on a common shaft 29, to which rocking movement is recurrently imparted by an arm 30 carrying a roller 31 engaging a cam 32 mounted on the shaft 26. A coil spring 33 holds the roller 31 in engagement with the periphery of the cam 32.

The fingers 28 force the slip S through a guide which is positioned directly above a carton C. The guide consists of a pair of plates 34 which are mounted on transverse rods 35 and 36, which in turn are supported by horizontal arms 37 and 38 respectively. The latter are suitably connected to the machine frame 17. Disposed on the inner sides of the plates 34 are vertically inclined guide rails 39^a, which receive the side portions of the slip S, and conduct the same to the carton C disposed therebeneath.

As above explained, the filled carton C is advanced to the supplemental guide 3. On this guide is mounted a device for outwardly bowing one panel of the carton to provide a pocket into which a slip S is inserted. As clearly shown in Fig. 4, brackets 39 are secured to opposite sides of the guide 3 and pressure plates 40 engage the inner sides of the brackets 39. For yieldingly urging the plates inwardly toward each other coil springs 41 bear against the brackets 39 at one end and against nuts 42 mounted on rods 43 at the opposite end. The rods 43 are carried by the plates 40. Adjustable stop screws 44 are provided for the ends of the plates 40 for limiting their outer position. As shown in Fig. 4, the plates 40 cooperate to outwardly bow a panel P of the carton C and provide a pocket L into which the slip S is inserted. As shown in Fig. 6, the slip guide is positioned directly above the pocket L so that the pushing fingers 28 operate to positively force the slip S into the carton. As indicated by the dotted lines on Fig. 3, the fingers 28 move substantially into engagement with the carton, thereby to insure that the slip is forced directly into the carton. As the next succeeding carton C advances it engages the rear panel which has been bowed, and returns the same to normal position and moves this carton ahead.

In the alternate form of the slip guide shown in Figs. 7 to 10, inclusive, a depending wedge shaped finger 45, which is pointed at its lower end, is pivoted to an arm 46, which is fixed to a shaft 47. Carried by the shaft 47 is an arm 48 carrying a roller 49, which is held in engagement with a cam 50 on the shaft 46 by a coil spring 51. Adjacent the guide

finger 45 is a locating finger 52. The finger 52 is also pivoted to the arm 46 and is curved rearwardly in a direction opposite to the direction of movement of the cartons C. The lower end of the locating finger 52 extends beyond the pointed end of the guide finger 45 and is disposed slightly rearwardly thereof. A set screw 53 carried by the locating finger 52 engages the guide finger 45 and enables the two fingers to be adjusted initially relative to each other so as to bring their lower ends closer together or farther apart, as the requirements demand. Carried by the guide finger 45 is a bracket 54 which carries a spring 55 bearing against the locating finger, thereby yieldingly to hold the fingers in their proper position relative to each other. In order to return the fingers 45 and 52 to their normal position, a coil spring 56 engages a hook 57 at one end, the hook being mounted on the locating finger 52.

In operation, the fingers 45 and 52 move downwardly together by means of the cam 50 above described, and the lower end of the locating finger 52 engages the upper rear edge of the carton C disposed therebeneath. The finger 52 rides over this edge and properly positions the guide finger 45 relative to the pocket L and permits the guide finger to extend into the pocket. When the guide finger 45 is in this position the pushing fingers 28 above described descend and positively force the slip S inside of the carton. In this form it is not necessary that the ends of the carton be squeezed to form the pocket L, since the fingers 45 and 52 cooperate to open the carton panel sufficient to receive the slip S.

It is to be understood that the above description is given by way of illustration and not of limitation, and numerous changes in details of construction, arrangement of parts, and of operation, may be effected without departing from the spirit of the invention, especially as defined in the appended claims.

What is claimed:

1. In a machine of the class described, a guide along which packaged articles are advanced, such articles being completely enclosed within a carton, a slip container, mechanism for removing a predetermined number of slips from said container, and additional mechanism for inserting such slip or slips within a packaged article, said additional mechanism including means for opening a portion of said carton to receive one or more slips.

2. In a machine of the class described, a guide along which packaged articles are advanced, such articles being completely enclosed within a carton, a slip container, mechanism for removing a predetermined number of slips from said container, means to cause a panel of the carton to extend slightly outwardly from the article, and means to deposit such slip or slips within the outwardly extending portion of the carton.

3. In a machine of the class described, a guide along which closed cartons are advanced, slip feeding mechanism for delivering slips to and inserting same in cartons, said mechanism comprising a container for a supply of slips, a feeder for removing a predetermined number of slips from said container, a guide, an advancer for advancing slips from said feeder to said guide, and a pusher for moving said slips from said guide into the cartons.

4. In a machine of the class described, a guide over which closed cartons are advanced, means engageable with each carton for causing one portion thereof to bow outwardly to form a pocket, a container adapted to receive a supply of slips, and mechanism automatically operable to insert positively a predetermined number of slips from said container into said pocket.

5. In a machine of the class described, a guide over which closed cartons are advanced, means to advance cartons step by step over said guide, a device to engage opposite ends of a carton and impart pressure to bow one side thereof outwardly, a container for a supply of slips, and mechanism including a suction feeder to remove slips from said container, for inserting a predetermined number of slips into the outwardly bowed sides of the carton.

6. In a machine of the class described, a guide, means to advance cartons over said guide, means engageable with a carton for outwardly bowing a side thereof to provide a pocket, a container for a supply of slips, means to draw a predetermined number of slips from said container, a slip guide arranged adjacent said bowing means, and mechanism to advance slips drawn from said container to said guide and positively force the same therethrough into the pocket in the carton.

7. In a machine of the class described, mechanism for inserting slips into closed cartons, said mechanism including a curved locating finger, a guide finger movable with said locating finger and adapted to guide slips into a carton, a resilient connection between said fingers, and means to move said fingers toward a carton whereupon the locating finger rides over the carton to position said guide finger for insertion into the carton.

8. In a machine of the class described, mechanism for inserting slips into closed cartons, said mechanism including a pair of fingers, a resilient connection between said fingers, a carton support, means to move said fingers toward and from said support, curved surface on one finger adapted to ride over an edge of a carton for positioning the other finger properly for insertion into the carton,

and means to positively insert slips into the carton when said other finger is disposed within the carton.

9. In a machine of the class described, a receiver adapted to contain one or more slips, a guide along which packaged articles are advanced, each article being enclosed in a wrapper, means operable automatically for positively removing a slip from said receiver and inserting same into a package on said guide, and means adapted to engage a package on said guide and open a portion of the wrapper thereof to receive a slip.

In testimony whereof I have hereunto signed my name to this specification.

HOWARD A. MORRIS.