

June 12, 1928.

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W. M. INGRAM
PACKAGE CLOSER AND FASTENER

Filed Aug. 15, 1927

4 Sheets-Sheet 1

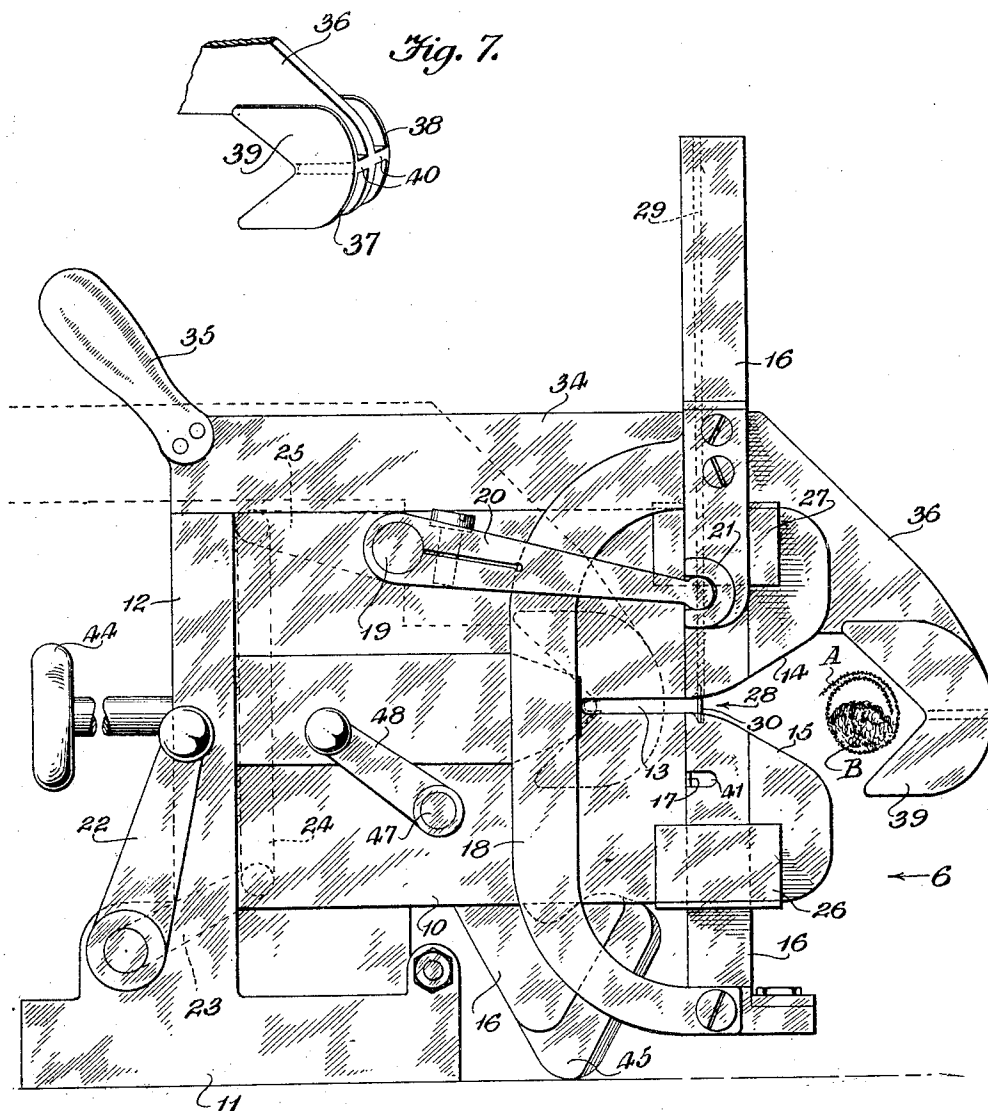


Fig. 1.

Inventor
Walter M. Ingram.

By

L. M. Merrill
Attorney

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4 Sheets-Sheet 2

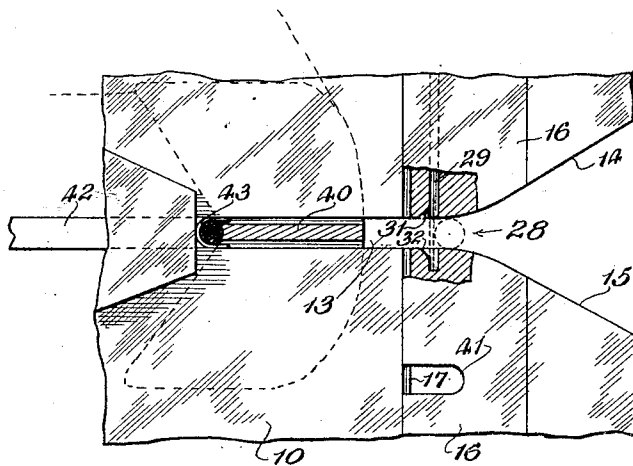


Fig. 2.

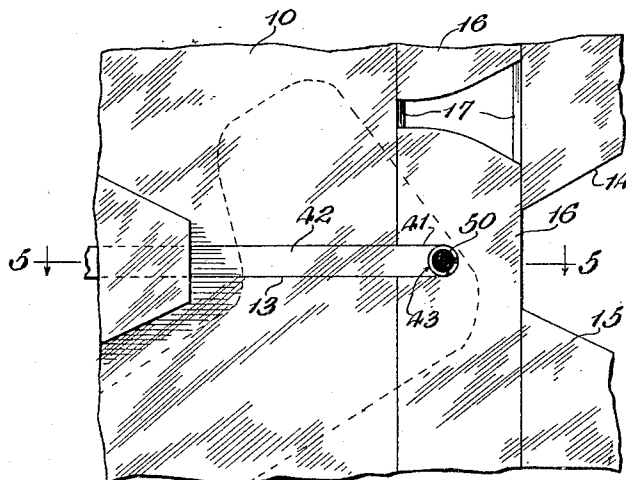


Fig. 4.

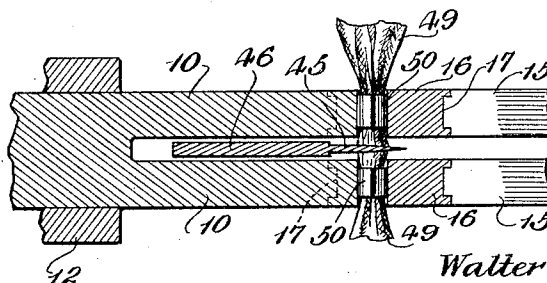


Fig. 5.

Inventor

Walter M. Ingram.

By

R. Morrill
Attorney

June 12, 1928.

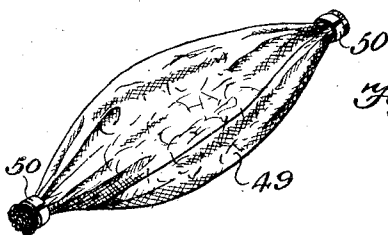
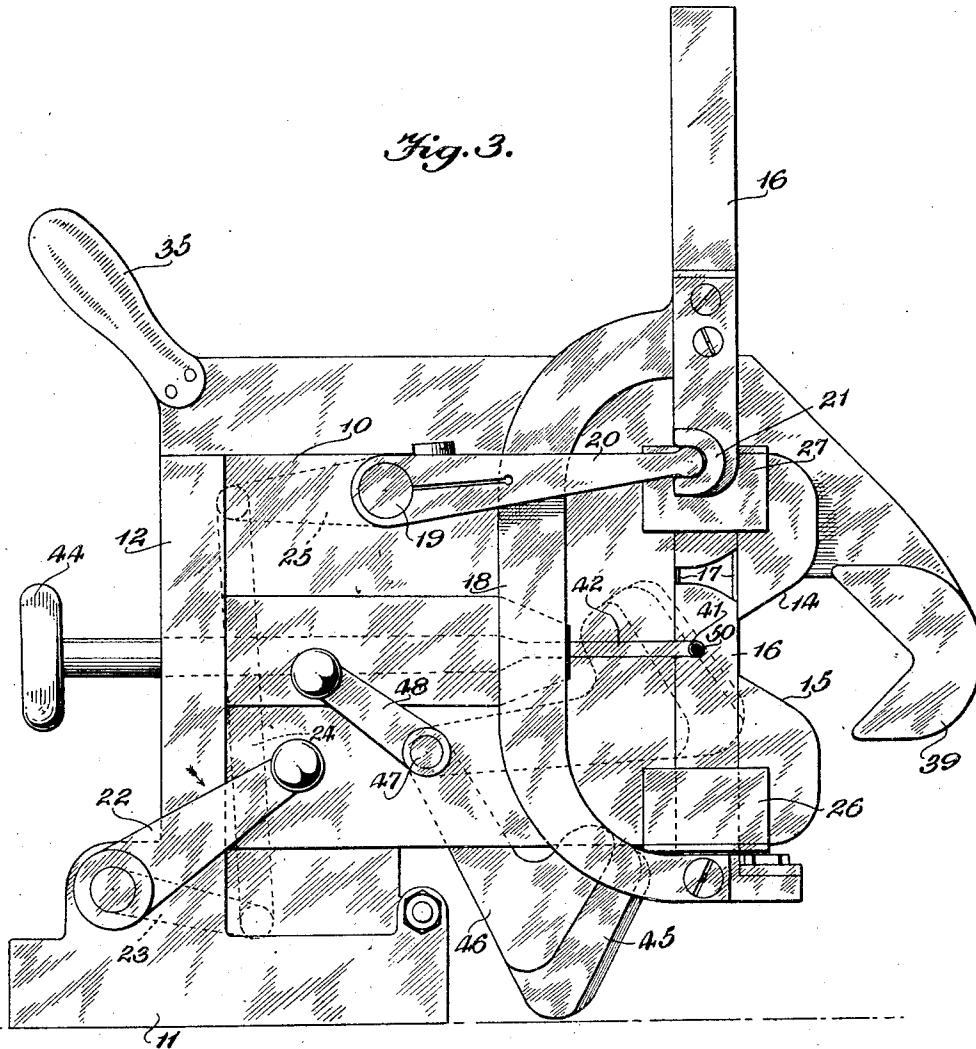
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W. M. INGRAM

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4 Sheets-Sheet 3



Inventor
Walter M. Ingram.

W. M. Morrill
Attorney

June 12, 1928.

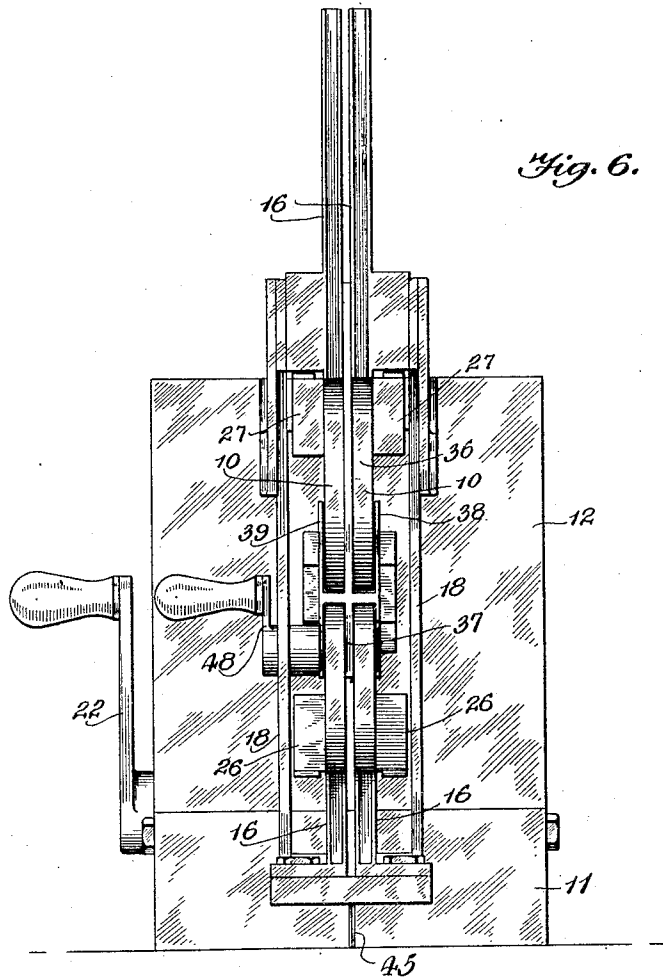
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W. M. INGRAM

PACKAGE CLOSER AND FASTENER

Filed Aug. 15, 1927

4 Sheets-Sheet 4



Inventor
Walter M. Ingram.

By

R. D. Morrill
Attorney

UNITED STATES PATENT OFFICE.

WALTER M. INGRAM, OF SUDBROOK PARK, MARYLAND, ASSIGNOR TO HENRY L. BLUM,
OF BALTIMORE, MARYLAND.

PACKAGE CLOSER AND FASTENER.

Application filed August 15, 1927. Serial No. 213,167.

This invention relates to package closers and fasteners and has for an object to provide a unitary organization intended to form a part of a complete mechanism for automatically weighing and bagging commodities but is confined in the present application to a single unit for closing and fastening the package.

A further object of the invention is to provide a unitary organization through which will moved in any approved manner a roll of fabric or the like containing at spaced intervals a commodity to be packaged with improved means for contracting the roll and placing a fastener around the contracted part of the roll.

A further object of the invention is to provide an organization adapted to contract a roll of fabric, placing spaced binding members about the contracted part of the roll and severing the contracted part intermediate the binding members, thereby severing the roll into sections.

A further object of the invention is to provide a unit adapted to contract a roll of fabric and to place about said contracted part spaced metallic rings or their equivalents and to sever the contracted part intermediate such rings.

With these and other objects in view, the invention comprises certain novel elements, parts, units, mechanical movements and functions as disclosed in the drawings together with mechanical and functional equivalents thereof as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a view of the unit in side elevation shown in the position initiating the operation.

Figure 2 is a sectional view showing the first move of the several parts from the initial position.

Figure 3 is a view of the unit in side elevation showing the parts in the position of an intermediate step.

Figure 4 is an enlarged view in side elevation of the parts in the same position as at Figure 3.

Figure 5 is a sectional view taken on a plane corresponding substantially with the plane indicated by line 5—5 of Figure 4 but with the parts in a different position showing the knife severing the packages intermediate the binding rings.

Figure 6 is a view of the unit in end elevation as indicated by arrow 6 at Figure 1.

Figure 7 is a perspective view of the gathering hand.

Figure 8 is a perspective view of a completed package.

Like characters of reference indicate corresponding parts throughout the several views.

The unit which forms the subject matter of the present application comprises cheek plates 10 spaced apart as indicated more particularly at Figures 5 and 6 and supported in any approved manner as by a base 11. A back plate 12 is also preferably provided as part of the supporting structure and may be and preferably will be formed integral with the base 11 as indicated more particularly at Figures 1 and 3.

The cheek plates 10 are provided at some part, preferably substantially intermediate the top and the bottom, with corresponding slots 13 and at the outer ends said slots are continued by tapered shoulders 14 and 15.

Slidable vertically in the cheek plates 10 are bars 16 moving in guideways 17 and formed into unitary rigid structure by means of D-shaped braces 18 so that, while the upper and lower ends of the bars 16 are in fact separate pieces of material, they are in alignment and operate as a unit. In the completed machine it is intended that all movable parts shall be operated mechanically in timed relation but means is herein shown for moving the bars 16 merely for the purpose of illustrating means for controlling, which comprises a stub shaft 19 with an arm 20 engaging a socket member 21 on each side of the unit and controlled by a manual crank arm 22 through any convenient transmitting mechanism, here shown only in dotted lines as a lever 23, link 24 and lever 25, the latter being rigidly connected with the stub shaft 19 so that as the manual crank arm 22 is actuated, the bars 16 will slide from the position shown at Figure 1 to the position shown at Figure 3 and the reverse. The cheek plates are provided with guides 26 and 27 for guiding said bars.

It has been heretofore noted that the upper and lower sections of the bars 16 are in fact separate pieces of material, and such separation forms a Y-shaped slot 28 registering at one end with the slot 13 and at its opposite end with the tapered abutments

14 and 15, as shown at Figures 1 and 2 when the device is in the initial position.

The upper section of the bars 16 is also provided with conduits 29 through which are fed sections of metal ribbon of a sufficient length to form a closure for the package, one of said sections being shown at 30 in its initial position, the position it occupies when dropped through the conduits 29. At the position of the section 30, the conduit 29 is provided with a rounded shoulder 31, as shown at Figure 2, and a similar rounded shoulder 32 is formed in the lower section of the bar 16 registering therewith so that the metal section dropped through the conduit 29 will occupy the position shown at 33 in Figure 2. Mounted to slide preferably in horizontal manner upon the structure is a bar 34, a handle 35 being shown in the drawings for manipulating this bar. The bar 34 is provided with an angular offset 36 which slides between the cheek plates 14 and 15. At its lower end the offset 36 is provided with a hooked portion 37 and spaced upon opposite sides of this offset 36 and hooked portion 37 are plates 38 and 39 corresponding substantially to the shape of the offset 36 continued by the hook 37 and all held in a rigid unitary structure by a partition 40, so that the parts 36 and 37, 38, 39 and 40 form a hand, the plates 38 and 39 being properly spaced to pass backwardly upon the remote sides of the cheek plates 14 and 15, while the part 37 passes between the cheek plates and the partition 40 passes into the slot 13, as shown more particularly at Figure 2.

The bars 16 are also provided with U-shaped sockets 41 so positioned as to register with the slot 13 when the bars 16 are moved to their upper limit, as shown at Figures 3 and 4.

Plungers 42 are mounted to slide in the cheek plates 10 and in the slots 13, as shown more particularly at Figures 3 and 4, and are provided with concaved ends 43. Some means is provided for sliding the plungers 42, here shown as the head 44 for the application of manual power.

A severing knife 45 is also carried upon an arm 46 fulcrumed at 47 and some means of actuation is provided represented by the manual crank arm 48. The severing knife 45 upon its arm 46 is adapted to swing from inoperative position, shown at full lines in Figures 1 and 3, to the dotted line or severing position shown in said figures and also in Figure 5, whereby the package 49 is severed between the rings 50 from its next adjacent package.

In operation, the unit is initially positioned with its several parts as shown at Figure 1, and the roll of fabric indicated at A in said figure with the commodity indicated at B preferably positioned at spaced

intervals is fed through the opening formed by the hand and tapered abutments 14 and 15. At a proper time, the hand is drawn inwardly to the dotted line position shown at Figure 1 whereby the fabric A is contracted by the tapered fingers of the hand and the abutments 14 and 15 to enter the slot 13 through the slot 28 of the bars 16. The metal sections 30 being positioned as shown at Figure 1, the fabric being forced into the slot 13 will be forced against the metal section and by reason of the formation of the shoulders 31 and 32 (see Figure 2) the section will be bent and carried with the contracted fabric to the position shown in dotted lines at Figure 1 and in full lines at Figure 2. The hand is then returned to normal position with the contracted fabric held in the U-shaped metal closure and the bar 16 is moved upwardly until the sockets 41 register with the slots 13, such position being indicated at Figures 3 and 4.

The plungers 42 are now manipulated to force the contracted fabric and U-shaped closure along the slot 13 and into the socket 41, which by reason of its curved extremity serves to close the extremities of the closure into a band or ring and the continued pressure upon the plunger 42 serves to tighten this ring into retaining relation. The knife 45 is now swung up to the position shown in dotted lines at Figures 3 and 4 and in full lines at Figure 5, severing that section of the fabric intermediate the rings 50. The sections now being severed are free to release themselves from the bars 16, the plungers 42 being returned to initial position and the bars 16 following likewise into such initial position whereupon the unit is in readiness to repeat its now completed function.

What I claim to be new is:

1. A package closing and fastening unit comprising a member having a slot formed therein, means to guide a fastening member to a position transverse of the slot, a gathering hand adjacent the end of the slot and having prongs to contract a fabric roll and force it into the slot, carrying therewith a fastener, and means to force the contracted fabric and fastener out of the slot and close the fastener about the roll.

2. A package closing and fastening unit comprising spaced plates having corresponding slots therein, means to guide fastening members to positions transverse of the slots, a hand adjacent the ends of the slots and having prongs to gather a fabric roll and force it in contracted condition into the slots carrying therewith the fastening members, means to force the contracted fabric and fastening members out of the slots and complete the closure of the fastening members, and means to sever the fabric intermediate the fastening members.

3. A package closing and fastening unit

comprising spaced cheek plates having corresponding slots formed therein, a member sliding in the cheek plates transversely of the slot, said member comprising a guide to properly position a fastening member transversely of the slot, a bar mounted to slide relative to the cheek plates and provided with a hand normally spaced away from the entrance to the slot and having prongs to contract a fabric roll and force the contracted part through the sliding member into the slots, means to move the sliding member, a plunger sliding in the cheek plates to force the contracted fabric out of the slot against the sliding member to complete the closure of the fastening member, and means to release the fastened fabric from the slot.

4. A package closing and fastening unit comprising spaced cheek plates provided with registering slots, spaced bars mounted to slide in the cheek plates transversely relative to the slots and provided each with an opening at times registering with its slot, said sliding bars forming a guide for the introduction of fastening members and to position said fastening members transversely across the slots, a hand positioned to gather a fabric roll and to force the roll through the openings in the sliding bars and into the slots carrying therewith the fastening members, means to move the sliding bars to bring into registration with the slots closing sockets, plungers positioned to force the contracted fabric and fastening members out of the slots into the sockets and to close the fastening members, and a severing member operating between the cheek plates and bars to sever the fabric intermediate the closed fastening members.

5. A package closing and fastening unit

comprising spaced cheek plates having corresponding slots formed therein, plungers mounted to slide in the slots and provided with concaved extremities, bars mounted to slide in the cheek plates transversely relative to the slots and provided each with an opening positioned to register at times with its slot, said sliding bars also providing guides for the introduction and positioning of fastening members transversely across the slots, a gathering hand comprising one part sliding between the cheek plates and remote parts sliding upon the remote sides of the cheek plates and contoured to gather a fabric roll and force the fabric through the openings in the bars to the slots, means to move the bars to bring into registration with the slots sockets having concaved extremities, means to apply power to the plunger to force the contracted fabric and fastening member out of the slots into the sockets and to complete the closure of the fastening members, a knife fulcrumed to swing between the cheek plates and the plunger sections and sever the fabric intermediate the closed fastening members, and means to apply power to actuate the knife.

6. A package closing and fastening unit comprising a slot, a guide properly contoured to position a fastening strip transversely of the slot, means to contract and force a fabric roll into engagement with the fastening strip and with the fastener strip into the slot, a closing instrumentality and means to provide return movement of the fabric and fastener strip into engagement with the closing instrumentality.

In testimony whereof I affix my signature.

WALTER M. INGRAM.