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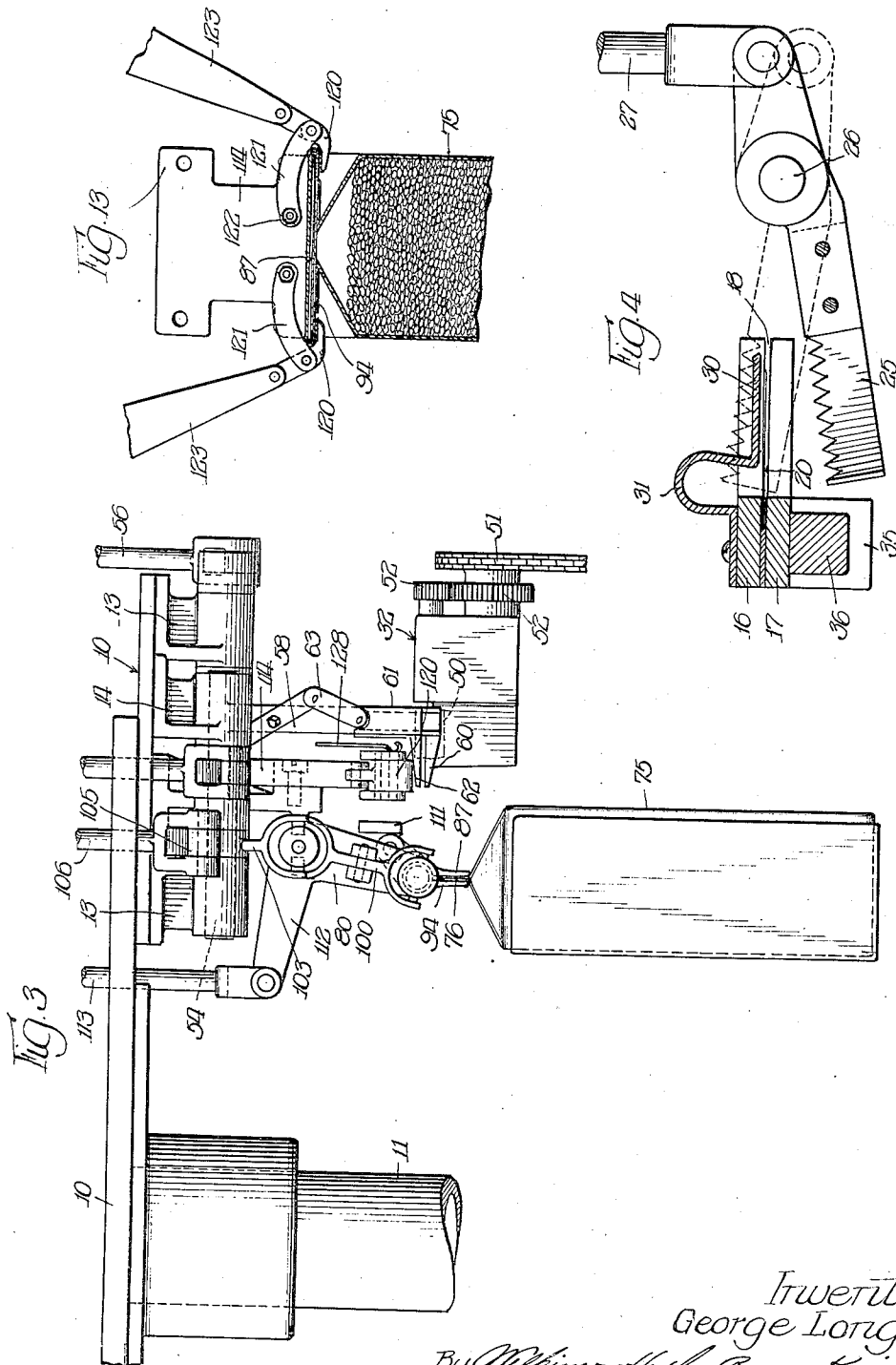
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2,138,111

BAG CLOSING AND FASTENING MECHANISM

Filed April 9, 1937

5 Sheets-Sheet 2



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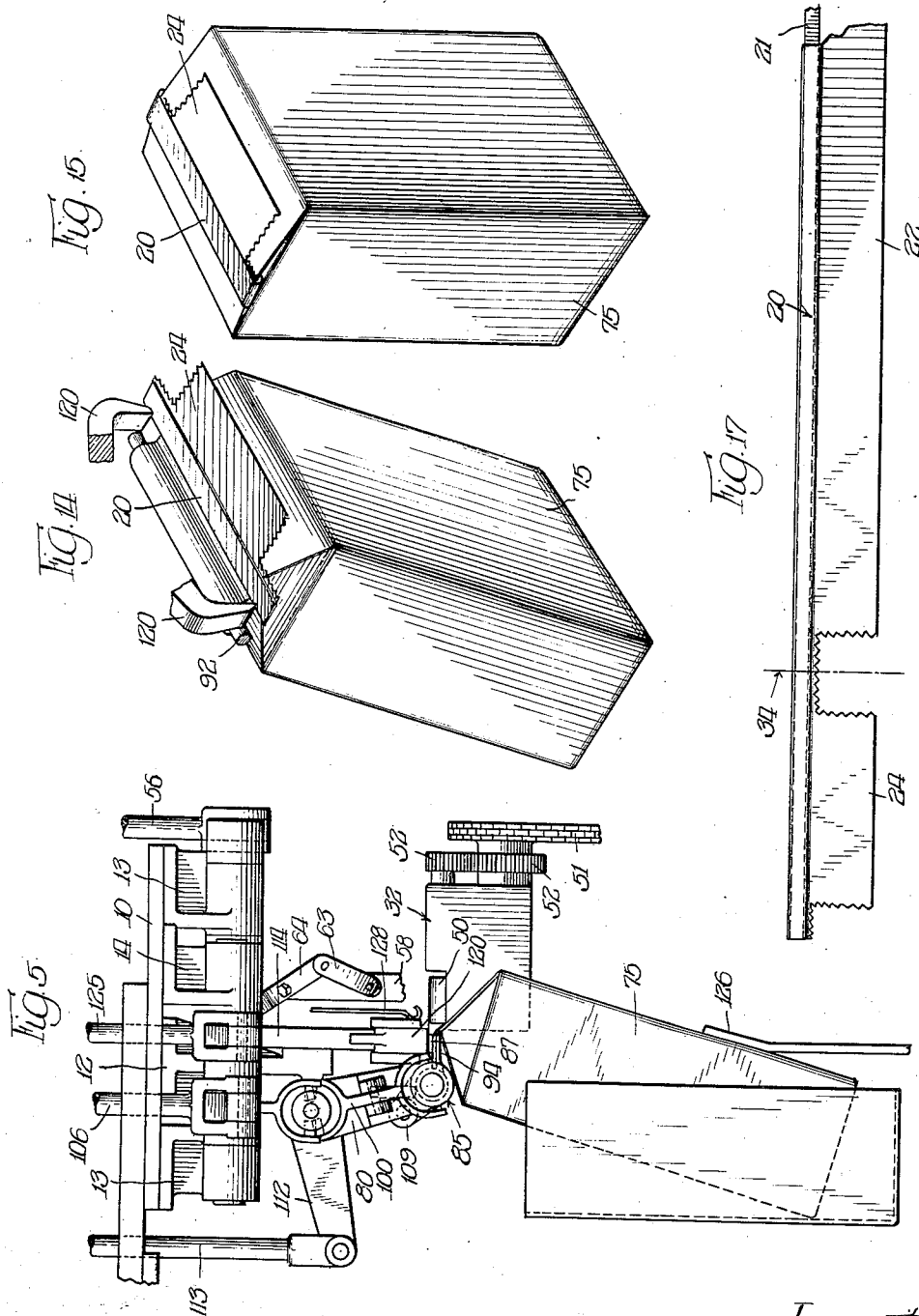
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BAG CLOSING AND FASTENING MECHANISM

Filed April 9, 1937

5 Sheets-Sheet 3



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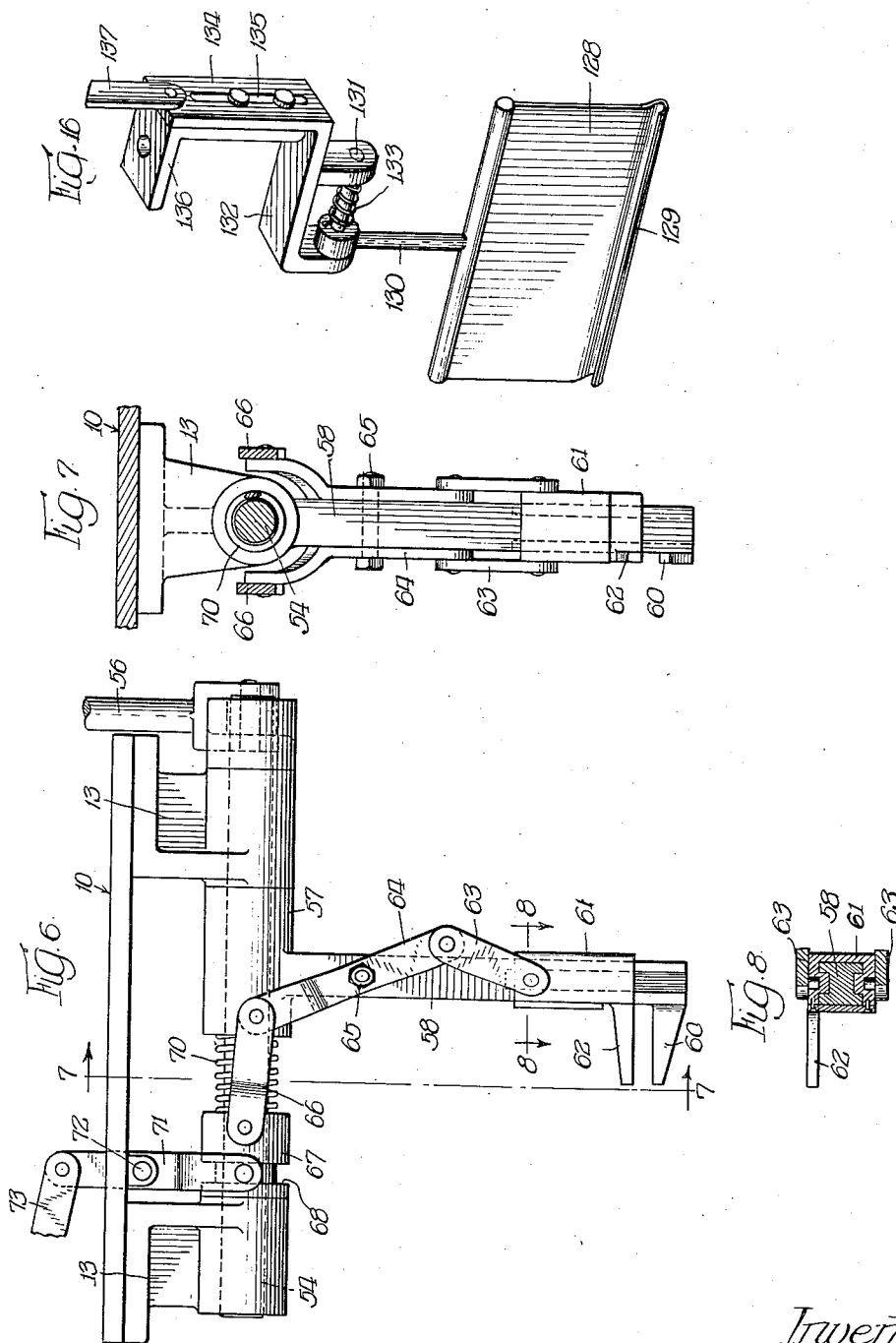
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BAG CLOSING AND FASTENING MECHANISM

Filed April 9, 1937

5 Sheets-Sheet 4



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BAG CLOSING AND FASTENING MECHANISM

Filed April 9, 1937

5 Sheets-Sheet 5

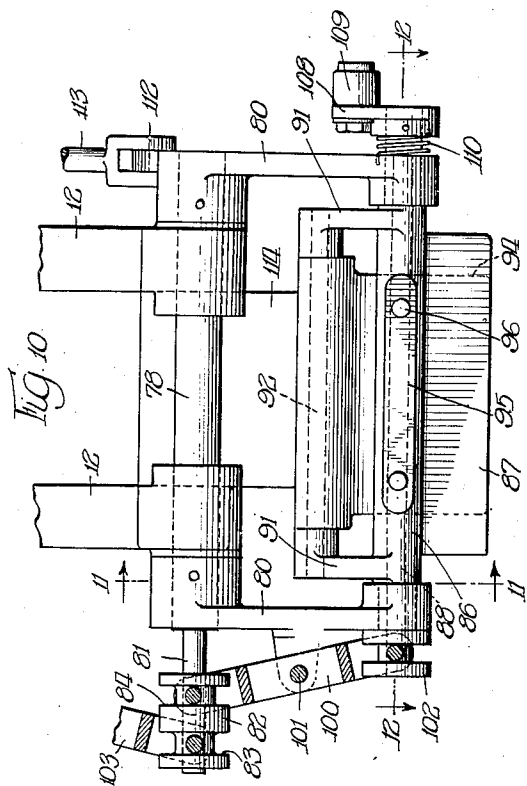


Fig. 10.

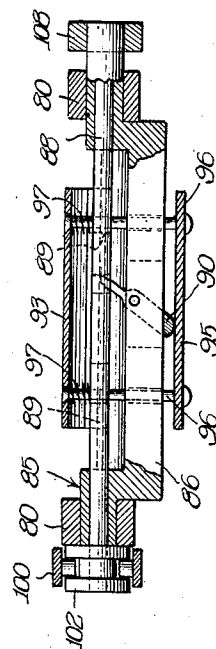
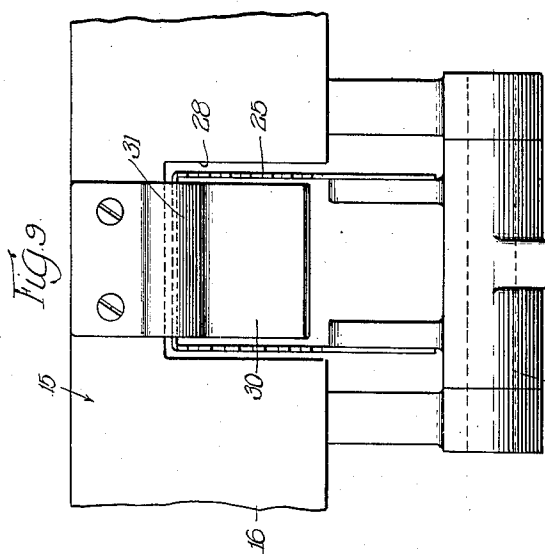
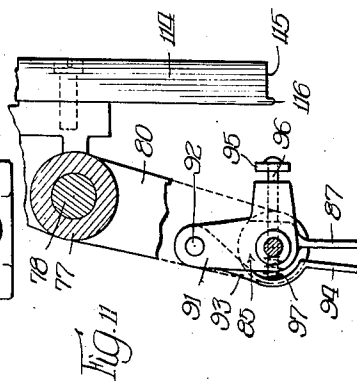


Fig. 11.

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UNITED STATES PATENT OFFICE

2,138,111

BAG CLOSING AND FASTENING MECHANISM

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Application April 9, 1937, Serial No. 135,826

30 Claims. (Cl. 93—6)

The invention relates to new and useful improvements in bag closing and fastening machines and has particular reference to mechanism for fastening the folded portion of a filled bag by means of a tin-tie strip.

The structure of the invention has application to bag closing machines of the semi-automatic type and also to fully automatic machines for filling and closing bags such as shown in the application of George Long and Elwell B. Larsen, Serial No. 87,972, filed June 29, 1936.

Machines of the above identified type employ conveyor mechanism for intermittently moving bags from station to station through a plurality of stations comprising the machine. In the semi-automatic machine the filled bag is first gauged as to height to bring the contents of the bag to a predetermined level. At subsequent stations the open end of the bag is collapsed, folded and then the folded portion is releasably fastened to the bag by tin-tie fastening means. The structure of the invention is adapted to accomplish this last operation in a new and improved manner. More particularly, the novel structure of the invention is characterized by means which lift the bag and hold the same at an angle so that the folded portion will assume a horizontal position and by members operating conjointly with said means for bending the projecting ends of the tin-tie strip to form the fastening elements described.

A more specific object of the present invention resides in the provision of improved mechanism for the purposes described, which will intermittently feed a continuous length of tin-tie tape to locate the forward leading end of the same over the folded portion of a filled bag and which will thereafter cut the tape to form individual tin-tie fastening strips, the cutting operation providing fastening strips of a length greater than that of the bag so that the projecting ends thereof may be subsequently bent around the folded portion of the bag, thus securely fastening the folded portion and preventing it from becoming unfolded.

Another object of the invention resides in the provision of bag closing and fastening mechanism having novel structure for feeding continuous tin-tie tape and which will automatically cut said tape into individual fastening strips after the same has been properly associated with the folded portion of a filled bag. In accordance with the invention the continuous tape has a width of paper secured thereto which is blanked out at intervals forming paper tabs between the

blanked out portions, a tab being centrally disposed with respect to each tin-tie fastening strip above described, and each tab being adhesively secured to the top of the bag as the last operation in the closing and fastening thereof.

Another object resides in the provision of mechanism for the purposes described which will operate in sequence to apply a tin-tie strip over the folded portion of a filled bag, to bend the ends of said strip around the folded portion of said bag to fasten the same in secure folded relation, and to adhesively secure the tab associated with the tin-tie strip to the top of the bag. This last operation of adhesively securing the paper tab to the bag results in making the tin-tie strip a part of the bag so that the strip is retained to the bag even though the bent ends are subsequently released from their fastening relation in order to permit removal of the contents of the bag.

Another object of the invention is to provide improved means for intermittently feeding the proper length of tin-tie tape in timed relation with other operations of the machine, for cutting out portions of the strip of paper secured to said continuous tape to form paper tabs and for severing said continuous tape at the end of each feeding operation, thereby providing individual tin-tie strips having a paper tab centrally located and secured thereto.

Another object of the invention is to provide an improved machine for applying a tin-tie strip to the folded portion of a filled bag and means operating conjointly therewith for bending the projecting ends of said strip to form releasable fastening means holding the folded portion to the top of the bag, which will be comparatively simple in its construction and arrangement, strong and durable, and which will be thoroughly efficient in use, automatic in operation and relatively inexpensive to manufacture.

With these and various other objects in view the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings which illustrate an embodiment of the device and wherein like reference characters are used to designate like parts—

Figure 1 is a front elevational view of apparatus embodying the features of the present invention for releasably securing the folded portion of a filled bag by means of a tin-tie strip;

Figure 2 is a fragmentary perspective view showing the cutting mechanism located at the

end of the guide members for severing the continuous tape;

Figure 3 is a side elevational view of the mechanism of Figure 1 looking in a direction toward the right;

Figure 4 is a detail sectional view taken substantially along line 4—4 of Figure 1 and showing the cutting knife and associated structure for cutting out portions of the paper strip forming part of the continuous tape;

Figure 5 is a side elevational view similar to Figure 3 but showing the parts in a different position of operation wherein the folded portion of the bag is substantially horizontally disposed;

Figure 6 is a detail side elevational view showing the oscillating member and actuating mechanism therefor for intermittently feeding the continuous tape;

Figure 7 is a vertical sectional view taken substantially along line 7—7 of Figure 6;

Figure 8 is a horizontal sectional view taken substantially along line 8—8 of Figure 6;

Figure 9 is a plan view of the cutting knife and associated structure shown in Figure 4 for cutting out portions of the paper strip forming part of the continuous tape;

Figure 10 is a detail sectional view illustrating the construction and operation of the gripping members for gripping and bending the folded portion of the bag;

Figure 11 is a vertical sectional view taken substantially along line 11—11 of Figure 10;

Figure 12 is a horizontal detail view taken substantially along line 12—12 of Figure 10;

Figure 13 is an elevational view, parts being shown in section, of the fingers for bending the ends of the tin-tie strip and showing the position said fingers assume at the end of a bending operation;

Figure 14 is a perspective view illustrating the angle of inclination of the filled bag when said bending fingers begin operation;

Figure 15 is a perspective view showing the completed bag having the upper portion thereof releasably fastened by a tin-tie strip that has been applied and secured thereto in accordance with the present invention; and

Fig. 16 is a detail view showing mechanism for pressing the tin-tie tape against the bag top.

Figure 17 is a plan view showing the continuous tape and the manner of cutting out portions from the paper strip to form the individual tin-tie strips.

Referring to the drawings, particularly Figures 1 and 3, the structure of the invention is adapted to perform the last operation in the closing and fastening of a filled bag when said fastening is accomplished by a tin-tie strip and accordingly it will be understood that a complete machine, for example, of the semi-automatic type, will include means for gauging the height of the filled bag to bring the contents thereof to a predetermined level, means for collapsing the open end of the bag, and means for folding said collapsed end to form a folded portion which will project vertically from the top of the bag. Following the last folding operation the bag is then presented to the apparatus of the present invention, which preferably depends from an overhead member identified by numeral 10 supported from a plurality of uprights such as 11. Secured to the underside of the supporting member 10 are a plurality of brackets 12, 13 and 14, which brackets form means for journalling shafts to be presently described. Actuated by said shafts are instru-

mentalities of novel construction which perform the necessary operations to apply a tin-tie to the folded portion of the bag and bend the ends of the same into fastening position.

The guide 15, providing upper and lower members 16 and 17, respectively, having the groove 18 therebetween, is suitably supported from the overhead support 10 by the screw member 19. The continuous tape 20, Figure 17, comprising the metal strip 21 and the paper strip 22 secured thereto is adapted to fit within the groove 18 of the guide 15. Said tape prior to entering the groove may pass through straightening rollers 23, it being understood that said tape will most likely be supplied in the form of a large roll and therefore said straightening rollers will have the effect of substantially eliminating the curvature which would otherwise exist in the tape. The metal strip 21 of the tape is located in the base of the groove, as clearly shown in Figure 4, which thus makes possible the cutting out of portions of the paper strip 22 to form tabs 24. Cutting of the paper strip is effected by the rectangular knife member 25 pivotally supported at 26 and suitably actuated by rod 27. The knife 25 is adapted to operate within a substantially square space 28, Figure 9, formed in the guide 15, it being understood that the several edges of the knife will be approximately parallel to the adjacent edges of said space. Positioned centrally of said space is a backing member 30 suitably supported from the upper member 16 of the guide in a manner to permit yielding movement of the backing member. Said backing member is somewhat smaller than the knife and by reason of the bent portion 31 the said knife may travel in an upward direction some distance past said member. Oscillating movement is imparted to the knife 25 periodically by actuation of rod 27 and accordingly it will be understood that substantially square portions are cut out of the paper strip 22.

At the forward end of the guide 15 there is located means 32 for applying an adhesive such as glue to the undersurface of each tab 24. Also located to the forward end of the guide is mechanism 33, Figure 2, for severing the continuous tape along a line 34, Figure 17, which approximately coincides with the center of the cut out portions in the paper strip. This structure will now be described.

As shown in Figures 1, 2 and 4, the member 17 supports by means of brackets 35, a member 36 to the forward end of which is suitably secured the block 37, forming part of the cutting mechanism indicated in its entirety by numeral 33. At its rear end the member 36 is provided with a cam-shaped slot 38 having pin 39 fitting therein, which is secured to the upper projecting arm of the bell crank lever 40. The lower arm of said lever is provided with pin 41 adapted to contact the extending end 42 of the lever 43 suitably pivoted at 44 to means depending from the guide 15. The forward end 45 of said lever is operatively associated with the cutting knife 46 suitably secured to block 37 by means of the face plate 47. The knife 46 is adapted to operate with respect to a stationary cutting blade 48.

In operation of the structure above described, it will be assumed that a length of tape 20 has been fed from the forward end of the guide 15. This feeding of the tape forwardly will bring the paper tab 24 into contact with roller 50 of the gluing mechanism 32 suitably driven by the driving chain 51 through meshing gear 52. The rod 53 is then suitably actuated to cause rotation of

the bell crank lever 40 which will cause forward movement of member 36 by reason of the pin 39 riding in slot 38. The cutting mechanism is therefore located a short distance forwardly of the end of the guide 15. As the bell crank lever 40 nears the end of its oscillating movement, the pin 41 will strike the end of lever 43 to cause downward movement of knife 46, which actuation of the knife will sever the continuous tape 20.

As previously explained, the tape will be cut along a line substantially coinciding with the center of a cut-out portion of the paper strip.

The mechanism for intermittently feeding the continuous tape to locate a length of the same directly over the bag is shown in Figures 6, 7 and 8. Journalled in the depending brackets 13 is the shaft 54 having suitably fixed to one end thereof the arm 55 to the outer end of which is pivotally secured the actuating rod 56. The hub member 57 fixed to shaft 54 and located between the brackets 13 is formed with an integral depending leg 58 providing at its extreme lower end a gripping finger 60. Having reciprocating movement on leg 58 is a sleeve 61 which likewise provides a gripping finger 62 and which is actuated in a direction toward and from the lower finger 60 by means of a toggle joint formed by arms 63 and 64, the latter being pivotally secured to leg 58 at 65. To the upper free end of arms 64 is pivotally secured link 66 which joins said arms of the toggle to spool 67, provided with groove 68. Said spool is slidably mounted on shaft 54, being yieldingly forced in a direction toward the left by the coil spring 70 located on the shaft and positioned between hub 57 and said spool. Actuation of the spool in a direction toward the right, which will straighten the toggle and force finger 62 toward finger 60, is effected by the yoke 71 pivoted at 72 and having its bifurcated lower end operatively associated with the spool 67 by means of groove 68. Oscillating movement is imparted to the yoke by the lever 73, which movement is synchronized with the swinging movement of the leg 58 imparted thereto by the actuating rod 56.

As will be clear from Figure 1, the gripping fingers have oscillating movement from the left hand side of the bag to the right hand side, which will properly locate said fingers with respect to the forward end of the continuous tape projecting from the guide 15. While the fingers are thus positioned with the tape therebetween actuation of yoke 71 takes place to cause straightening of the toggle which forces the upper finger 62 in a direction downwardly, thus gripping the said projecting end of the tape. The fingers are then oscillated in a direction toward the left, Figure 1, to thereby cause feeding of the tape and the locating of a length of said tape directly over the bag 75. In accordance with the invention the leading end of the continuous tape is positioned by the gripping fingers a short distance beyond the side of the bag, which centrally locates the paper tab 24 with respect to the top of the bag.

The next operation, which occurs substantially simultaneously with the feeding of the continuous tape, is performed by mechanism shown in Figures 5, 10, 11 and 12. The brackets 12, depending from the member 10, suitably journal at their lower ends the shaft 78, to the outer projecting ends of which are suitably fixed depending arms 80. The projecting end 81 of shaft 78 is reduced in diameter and slidably mounts the double spool 82 having grooves 83 and 84 formed therein. The depending arms 80 journal at their lower end the member 85 having an offset portion

86 located between the depending arms 80 and which portion provides the gripping member 87. Extending through the journalling ends of member 85 and projecting from the ends thereof, Figure 12, is a shaft 88 adapted to have axial movement and formed with spaced slots 89. The offset portion 86 of member 85 is also provided with a slot within which is pivotally supported for oscillating movement the pawl 90. The respective ends of the portion 86 are formed with upstanding journalling means 91 supporting therebetween the pivot rod 92 which pivotally supports member 93 having an arcuate shape centrally thereof and the depending lower end of which forms a gripping member 94. Movement of gripping member 94 toward and from member 87 is effected by the pawl 90, one end of which, as described, has connection with shaft 88 and the other end of which engages plate 95. The pins 96 fixed to said plate pass through portion 86, through slots 89, in shaft 88 and are fixedly secured at their opposite end to the arcuate portion of member 93, as shown in Figure 12. The coil springs 97, carried by the pins 96 and which are located between member 93 and shaft 88, serve to yieldingly bias the member in a direction outwardly, thus spacing gripping member 94 from member 87.

However, the gripping members are caused to close so as to grip the upstanding portion 76 of the bag, Figure 3, by axial movement of shaft 88 in a direction toward the left, Figure 12. This movement is caused by actuation of lever 100 pivoted at 101 and having operative connection at its lower end with spool 102 fixed to the end of shaft 88. The upper end of lever 100 is associated with spool 82, by means of slot 84 formed therein, and upon movement inwardly of said spool, which movement is caused by actuation of lever 103, the shaft 88 will be caused to travel in a direction toward the left. This will rotate the pawl 90 in the proper direction to cam plate 95, forcing the plate outwardly and thereby causing movement of gripping member 94 inwardly toward member 87. Lever 103 is fixed to shaft 104 journalled in bearing 14, Figure 1, as is also lever 105 to which is secured the actuating rod 106.

After the upstanding folded portion 76 of the bag has been gripped by members 87 and 94 said members are oscillated and simultaneously bodily rotated so as to locate the folded portion in a substantially horizontal position and adjacent the tin-tie strip. As shown in Figure 10, the end of member 85 opposite spool 102 has suitably secured thereto lever 108, carrying the roller 109. The coil spring 110, confined between said lever and the depending arm 80, yieldingly biases the member 85 in a direction whereby the gripping member 87 will be depending vertically downward. Yieldingly forcing the member 85 in this direction will cause the roller 109 to contact the stationary bar 111, Figure 3, which acts as a stop to control the rotary movement of member 85. However, the entire assembly has oscillation in a counter-clockwise direction, Figure 5, after the gripping members engage the upstanding folded portion of the bag. This oscillating movement is accomplished by means of a lever 112, Figure 10, suitably actuated by the rod 113, said lever having connection to an arm 80 whereby it will be understood that the assembly rotates about shaft 78 as a pivot. Movement of the crank lever first takes place in a downward direction, which will swing the entire assembly toward the stationary anvil 114, Figure 11. Said

anvil provides a flat surface 115 extending for the width of the bag and a shoulder 116 adapted to have contact with the metal strip 21 of the continuous tape to thus hold the tape properly aligned with respect to the anvil. As a result of the counter-clockwise oscillating movement of the assembly comprising the gripping members, the same is swung toward said anvil and simultaneously said gripping members are rotated. This rotation takes place against the tension of the coil spring 110 and results by reason of the fact that roller 109 is in contact with stop 111.

Following the above operation on the folded portion of the bag the continuous tape is cut by the knife blades 46 and 48 along line 34, the cutting mechanism immediately receding following the cutting operation and thereby leaving a portion of the tape projecting beyond the same and which will be readily gripped by the gripping fingers 60 and 62 at the start of the next operation of the machine. It will also be understood that cutting of the tab along line 34 will leave the rear end projecting beyond the side of the bag which together with the forward projecting end of the tin-tie will form the fastening means for releasably securing the folded portion to the top of the bag. As shown in Figures 5 and 13, the gripping members 87 and 94 hold the folded portion in a position horizontal and adjacent the tin-tie strip which is held in contact with the anvil 114. More particularly it will be observed that member 87 is located between the tin-tie strip and the folded portion of the bag.

The projecting ends of the tin-tie strip are bent into a fastening position by fingers 120, each having pivotally secured thereto a link 121 having a pivotal connection at 122 to the anvil 114. Pivotally secured to the upper end of each finger 120 is a lever 123 suitably fixed to shafts 104 journaled in bearings 14. Also fixed to each shaft 104 is an arm 124 having pivotal connection with the operating rod 125 which is actuated in synchronism with the other operations of the machine to oscillate levers 123 which will cause said fingers 120 to travel downwardly from the position shown in Figure 1 to the position shown in Figure 13, whereby the projecting ends of the tin-tie strip will be bent around the ends of the folded portion 76 and under the adjacent top side of the bag. In order to allow the bent projecting ends of the tin-tie strip to contact the underside of the top of the bag it will be observed, Figure 13, that the gripping member 94 has a width less than its companion member 87. The bending operation on the projecting ends of the tin-tie strip takes place while the folded portion of the bag is held in horizontal position by the gripping fingers 87 and 94. The next operation of the mechanism withdraws said gripping fingers by oscillating the entire gripping assembly in a clockwise direction, which is effected by upward travel of the lever 112, actuated by rod 113. Although the assembly is given oscillating movement the gripping fingers maintain a horizontal position while being withdrawn. This is permitted since member 85 is free to rotate in either direction, however, being biased by the coil spring 110 so that the gripping finger 87 will depend vertically. When the gripping fingers have been withdrawn to the extent where they leave the folded portion of the bag the operating rods 125 are again actuated to cause the fingers 120 to pinch the bent ends

of the strip, securely fastening the folded portion to the top of the bag.

The last operation in the closing and fastening of the bag is to cause the paper tab 24 to adhere to the top of the bag. As previously explained, an adhesive is applied to the underside of said tab during the feeding of the tape to locate a length of said tape over the bag. The structure above described has been designed so that the paper tape will be centrally positioned with respect to the bag and since an adhesive has been previously applied thereto, it is only necessary that said tape be forced into contact with the top of the bag. This is accomplished by the member 128, Figure 16, having a rounded portion 129 at the lower end thereof. The upper end of said member is suitably fixed to rod 130, pivotally supported by shaft 131, journaled in bracket 132. The coil spring 133, confined between rod 130 and one arm of said bracket yieldingly biases said member 128 in a direction inwardly, Figure 3, where said member will engage a stop, locating the same in a vertical position. Bracket 132 is provided with an upright portion 134 having formed therein an elongated slot 135. The support 136 is suitably secured to the underside of member 10 and it will therefore be seen that the bracket and member pivotally supported therefrom are mounted for vertical reciprocating movement, which is imparted thereto by actuation of lever 137.

While the folded portion of the bag is still held by fingers 120 the lever 137 is caused to move downwardly and accordingly similar movement will be given to the member 128. The rounded portion 129 of said member will be caused to contact and travel over the paper tab 124, it being understood that continued downward movement of member 28 will cause the same to travel outwardly, which travel is permitted by reason of the pivotal support of said member. The effect of this travel of the end 129 of the member over the paper tape is to roll said tape into contact with the top of the bag, which adhesively secures the tin-tie strip to the bag. The fingers 120 are then retracted through actuation of the rods 125 and the bag is released, whereby the same will slide downwardly on the upright 126, Figure 5, and will again assume an upright position.

The gripping members in bending the upstanding folded portion of the bag into a substantially horizontal position simultaneously locate the said folded portion adjacent to the tin-tie strip and also lift the bag and incline the same from the vertical. The upstanding portion of the bag is bent substantially 90° and the flat surface thereof is located in a plane substantially parallel with the flat side of the tin-tie strip. The lifting of the bag by the present apparatus, and wherein the bag is tilted with respect to the vertical, is responsible for a number of desirable features which are peculiar to the present method. In the first place, the bag is suspended by the gripping members 87 and 94 which engage and bend the folded portion so that the weight of the bag provides adequate clearance under the top sides of the bag for the fingers 120 which bend the ends of the tin-tie strip around said folded portion and under one top side of the bag. Secondly, the fact that the bag is suspended and tilted with respect to the vertical locates one side of the top approximately horizontal and in relatively close relation with the said bent folded portion. This makes it possible for the fingers

120 to readily bend the ends of the tin-tie tape under said top side of the bag, whereby the bent folded portion is releasably fastened to the top of the bag.

The following operations are performed while the bag is thus held by the gripping members. For example, the ends of the tin-tie strip are bent downwardly and inwardly around the ends of the folded portion and under the top of the bag, thereby releasably securing said folded portion of the bag and further, the paper tab is adhesively secured to the top of the bag, this latter operation only requiring travel of member 28 over the paper tab to force the same into contact with the bag since adhesive such as glue or the like was applied to the undersurface of said tab during the feeding movement of the said continuous tape.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings, as various other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. The method of releasably fastening the upright folded portion of a filled bag which comprises the steps of locating a tin-tie strip above said folded portion in a manner leaving projecting ends on each side of the bag, bending the upright folded portion of the bag into a position approximately horizontal and moving the same adjacent to and substantially into contact with the tin-tie strip, the said bending and moving of the folded portion simultaneously tilting the bag into a position inclined from the vertical, whereby one side of the top of the bag is also approximately horizontal and disposed adjacent the said bent portion, bending said projecting ends of the strip around the ends of the folded portion of the bag and under the said top side to releasably secure the folded portion to the top of the bag, and then adhesively securing the tin-tie strip to the top of the bag to thereby retain the strip to the bag independently of the bent fastening means.

2. The method of releasably fastening the upright folded portion of a filled bag which comprises the steps of feeding a tin-tie strip to locate a length thereof above the bag, bending said upright folded portion into a position substantially horizontal and simultaneously moving said portion adjacent to and substantially into contact with the tin-tie strip, and then bending the projecting ends of the strip around the ends of the folded portion and under the top of the bag to releasably secure the folded portion to the top of the bag.

3. The method of releasably fastening the upright folded portion of a filled bag which comprises the steps of feeding a tin-tie strip to locate a length thereof above the bag, while leaving projecting ends on each side of the bag, bending said upright folded portion into a position substantially horizontal and simultaneously moving said portion adjacent to and substantially into contact with the strip, bending the projecting ends of the strip around the ends of the folded portion and under the top of the bag to releasably secure the folded portion to the top of the bag, and then adhesively securing the tin-tie strip to the top of the bag to thereby retain the strip to the bag independently of the bent fastening means.

4. The method of releasably fastening the up-

right folded portion of a filled bag, which comprises the steps of feeding a continuous tin-tie strip to locate a length thereof above the bag with the forward end of the strip extending beyond the bag, bending said upright folded portion into a position substantially horizontal and simultaneously moving said portion adjacent to and substantially into contact with the strip, the said bending of the upright portion and the locating of the same adjacent the strip simultaneously tilting the bag into a position inclined from the vertical, whereby one side of the top of the bag is also approximately horizontal and disposed adjacent the said bent portion, severing said continuous strip to leave a rearwardly extending end, bending the projecting ends of the strip around the ends of the folded portion and under said top side of the bag to releasably secure the folded portion to said top side of the bag, and then adhesively securing the tin-tie strip to the top of the bag to thereby retain the strip to the bag independently of the bent fastening means.

5. The method of releasably fastening the upper folded portion of a filled bag by means of a tin-tie strip which comprises, intermittently feeding tin-tie tape to locate the forward end of the same above the bag, gripping the folded portion of the bag and bending said portion into a position adjacent the forward end of said tape and parallel to the flat surface thereof, the said bending of the folded portion and the locating of the same adjacent the tape in parallel to the flat surface thereof simultaneously tilting the bag into a position inclined from the vertical, whereby one side of the top of the bag is also approximately horizontal and disposed adjacent said bent portion, severing said tape to form said forward end into an individual tin-tie strip having the respective ends thereof projecting beyond the bag, bending said ends of the strip around the folded portion and under said top side of the bag to releasably fasten the folded portion to the bag, and adhesively securing said strip to the bag to retain said strip thereto independently of the bent fastening means.

6. In a machine of the character described adapted to operate on filled bags having an upstanding folded portion, the combination with means supplying tin-tie tape in a continuous length, feeding means locating the forward end of said tap above said bag, means having operation to grip said folded portion and bend the same into a horizontal position while simultaneously locating the portion adjacent the forward end of said tin-tie tape and parallel thereto, cutting means having operation to sever said tape forming said forward end into an individual tin-tie strip, and bending means for bending the respective ends of the strip around the folded portion and under the top of the bag to releasably fasten the folded portion to the top of the bag.

7. In a machine of the character described adapted to operate on filled bags having an upstanding folded portion, the combination with means supplying tin-tie tape in a continuous length, guide means for said tape, feeding means at the forward end of said guide means for intermittently feeding said tape to locate the forward end thereof over said bag, means having operation to grip said folded portion and bend the same into a horizontal position while simultaneously locating the portion adjacent the forward end of said tin-tie tape and parallel thereto, cutting means having operation to sever said tape forming said forward end into an individual

tin-tie strip, and bending means for bending the respective ends of the strip around the folded portion and under the top of the bag to releasably fasten the folded portion to the top of the bag.

8. In a machine of the character described adapted to operate on filled bags having an upstanding folded portion, the combination with means supplying tin-tie tape in a continuous length, said tape having a strip of paper secured thereto, means for cutting out portions of said paper strip to form paper tabs, feeding means for the continuous tape for locating the forward end thereof over the bag, means having operation to grip said folded portion and bend the same into a horizontal position while simultaneously locating the portion adjacent the forward end of said tin-tie tape, cutting means for severing the tape forming the forward end into an individual tin-tie strip having a paper tab, means bending the respective ends of the strip to releasably fasten the folded portion to the top of the bag, and other means for adhesively securing the paper tab to the bag whereby said tin-tie strip is retained to the bag independently of the bent fastening means.

9. In a machine of the character described adapted to operate on filled bags having an upstanding folded portion, the combination with means supplying tin-tie tape in a continuous length, said tape having a strip of paper secured thereto, guide means for said tape, said guide means having a cutting knife associated therewith for cutting out portions of said paper strip to form paper tabs, oscillating feeding means for locating the forward end of the tape over the bag, means operating to grip the folded portion of the bag to locate the same adjacent the forward end of said tape, whereby said portion will be horizontally disposed and parallel with the tape, cutting means for severing the tape forming the forward end into an individual tin-tie strip having a paper tab, means bending the respective ends of the strip to releasably fasten the folded portion to the top of the bag, and other means for adhesively securing the paper tab to the bag.

10. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, of means feeding said tin-tie strip from a continuous supply to locate a portion thereof over the bag, means for gripping the upstanding folded portion of a bag and having oscillating movement and rotary motion simultaneously therewith to bend said portion into a horizontal position and locate the same adjacent the folded portion of the tin-tie strip, means severing said portion from said continuous supply to form an individual tin-tie strip, and other means for bending the ends of said strip to releasably fasten the folded portion to the bag.

11. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, the combination with means locating a tin-tie strip over the bag with the ends of said strip extending beyond the sides of the bag, of means for gripping the folded portion of the bag and having operation to bend said portion into a horizontal position adjacent to and parallel with the tin-tie strip, said means being mounted for oscillating movement and capable of rotary motion during said oscillating movement, and other means for bending the ends of said strip around the ends of the folded portion of the bag and

under the top of the bag to releasably fasten said folded portion to the top of the bag.

12. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, the combination with means locating a tin-tie strip over said bag with the ends thereof extending beyond the sides of the bag, of means having operation to grip said upstanding folded portion of the bag, said means comprising gripping members adapted to have oscillating movement and rotary motion simultaneously therewith when moved in one direction, actuating means therefor whereby said gripping members bend said folded portion into a horizontal position and simultaneously locate the same adjacent the tin-tie strip, and other means for bending the ends of said tin-tie strip around the ends of said folded portion and under the top of the bag to releasably fasten said portion to the top of the bag.

13. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, in combination, means for gripping the folded portion of the bag and having operation to bend said portion into a horizontal position adjacent to and parallel with a tin-tie strip, the said bending of the folded portion simultaneously tilting the bag into a position inclined from the vertical, whereby one side of the top of the bag is also approximately horizontal and disposed adjacent the said bent portion and other means for bending the ends of the tin-tie strip around the ends of the folded portion of the bag and under the said top side to releasably fasten the folded portion to the top of the bag.

14. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, in combination, means for gripping the folded portion of the bag, said means having oscillating movement and also having rotary motion when oscillated in one direction to bend said folded portion substantially 90° and to simultaneously locate the portion adjacent a tin-tie strip, and fingers having operation to bend the ends of the tin-tie strip around the ends of the folded portion of the bag to releasably fasten the folded portion to the bag, said fingers having bodily movement in a substantially vertical plane and also having rotation simultaneously therewith.

15. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, in combination, gripping members for gripping the folded portion of the bag, oscillating means supporting said gripping members in a manner permitting rotation thereof, stop means for causing rotation of the members when said means is oscillated in one direction, whereby the folded portion of the bag may be bent and simultaneously located adjacent the tin-tie strip, and means for bending the ends of the tin-tie strip around the ends of the folded portion of the bag while said folded portion is held in said bent position adjacent the tin-tie strip.

16. In a machine of the character described adapted to releasably fasten the upstanding folded portion of a filled bag by means of a tin-tie strip, in combination, gripping members for gripping the folded portion of the bag, depending supporting means adapted to have oscillating movement, said means rotatably mounting said

gripping members at the lower end thereof, stop means for causing rotation of the members upon oscillating movement of said supporting means in one direction, whereby the folded portion of the bag may be bent and simultaneously located adjacent a tin-tie strip, and means having operation to bend the ends of the tin-tie strip around the ends of the folded portion of the bag while said folded portion is held in said bent position adjacent the tin-tie strip.

17. In a bag closing and fastening machine, in combination, means having operation to locate a tin-tie strip over the bag, said strip having a paper tab centrally secured thereto and having its respective ends projecting beyond the sides of the bag, means for gripping the folded portion of a bag and having operation to bend said portion and simultaneously locate the same adjacent said tin-tie strip and in a plane substantially parallel with said strip, fingers for bending the ends of the strip around the ends of the folded portion of the bag to releasably fasten said folded portion, and means for adhesively securing said paper tab to the top of the bag.

18. In a bag fastening and closing machine adapted to fasten a bag having an upstanding portion by means of a tin-tie strip, in combination, means adapted to grip the folded portion of the bag and bend the same to locate said folded portion into substantially flat contact with one side of the top of the bag and to also provide clearance under the top edges of the bag, said gripping means having translating and also having rotating motion simultaneously therewith, and means for bending the projecting ends of the tin-tie strip around the ends of the folded portion and under the top edges of the bag to releasably fasten said folded portion to the top of the bag, said bending means having translating motion and also having rotary motion simultaneously therewith.

19. In a bag fastening and closing machine adapted to fasten a bag having an upstanding portion by means of a tin-tie strip, in combination, means adapted to grip the folded portion of the bag and bend the same to locate said folded portion into substantially flat contact with one side of the top of the bag and to also provide clearance under the top edges of the bag, the said bending of the folded portion simultaneously tilting the bag into a position inclined from the vertical, and means for bending the projecting ends of the tin-tie strip around the ends of the folded portion and under the top edges of the bag to releasably fasten the folded portion to the top of the bag.

20. In a bag fastening and closing machine adapted to fasten a bag having an upstanding portion by means of a tin-tie strip, in combination, means adapted to grip the folded portion of the bag and bend the same to locate said folded portion into substantially flat contact with one side of the top of the bag and to also provide clearance under the top edges of the bag, said gripping means having translating and also having rotating motion simultaneously therewith, the said bending of the folded portion simultaneously tilting the bag into a position inclined from the vertical, and means for bending the projecting ends of the tin-tie strip around the ends of the folded portion and under the top edges of the bag to releasably fasten the folded portion to the top of the bag, said bending means comprising fingers having translating motion and also having rotary motion simultaneously therewith.

21. In a bag fastening and closing machine adapted to releasably fasten the folded portion of a bag by means of a tin-tie strip, the combination with means supplying tin-tie tape in a continuous length, of oscillating means carrying gripping fingers at the lower end thereof, means for imparting oscillating movement to said oscillating means and simultaneously actuating said gripping fingers to cause said fingers to grip the end of said tin-tie tape and locate a length thereof over said bag, and means for severing said tin-tie tape to form the length located over the bag into an individual tin-tie strip.

22. In a bag fastening and closing machine, adapted to releasably fasten the folded portion of a bag by means of a tin-tie strip, in combination, means supplying tin-tie tape in a continuous length, including guiding means for said tape, oscillating means carrying gripping fingers at the lower end thereof, means for imparting oscillating movement to said oscillating means and simultaneously actuating said gripping fingers to cause said fingers to grip the end of said tin-tie tape and locate a length thereof over said bag, and severing means located at the forward end of said guiding means for severing said tin-tie tape to form the length located over the bag into an individual tin-tie tape.

23. In a bag fastening and closing machine, adapted to releasably fasten the folded portion of a bag by means of a tin-tie strip, in combination, means supplying tin-tie tape in a continuous length, including guiding means for said tape, oscillating means carrying gripping fingers at the lower end thereof, means for imparting oscillating movement to said oscillating means and simultaneously actuating said gripping fingers to cause said fingers to grip the end of said tin-tie tape and locate a length thereof over said bag, and severing means located at the forward end of the guiding means for severing said tin-tie tape to form the length located over the bag into an individual tin-tie strip, said severing means having operation to sever the continuous tape at a distance forwardly of the end of the guiding means.

24. In a bag fastening and closing machine adapted to releasably fasten the folded portion of a bag by means of a tin-tie strip, in combination, means supplying tin-tie tape having a width of paper secured thereto, oscillating means carrying gripping fingers at the lower end thereof, means for imparting oscillating movement to said means and simultaneously actuating said gripping fingers to cause said fingers to grip the end of the tin-tie tape and locate a length thereof over said bag, cutting means for cutting out portions of said paper width to form paper tabs, the said oscillating means locating a length of said tin-tie tape over the bag with the paper tab centrally located with respect to the bag, and means for severing said tin-tie tape to form the length located over the bag into an individual tin-tie strip.

25. The method of releasably fastening the folded portion of a bag by means of a tin-tie strip which comprises gripping the folded portion of the bag and bending the same to locate said folded portion in substantially flat contact with one side of the top of the bag and to also provide clearance under the top edges of the bag, the said bending of the folded portion simultaneously tilting the bag into a position inclined from the vertical, and bending the projecting ends of the tin-tie strip around the ends of the folded portion and under the said top edges of the bag to

thereby releasably fasten the folded portion to the top of the bag.

26. The method of releasably fastening the upright folded portion of a filled bag, which comprises the steps of feeding a continuous tin-tie strip to locate a length thereof above the bag with the forward end of the strip projecting beyond the bag, bending said upright folded portion into a horizontal position and simultaneously moving the same adjacent to and substantially into contact with the tin-tie strip, the said bending and moving of the upright portion adjacent the tin-tie strip tilting the bag into a position inclined from the vertical, whereby one side of the top of the bag is also approximately horizontal and disposed adjacent the said bent portion, severing said continuous strip to leave a rear end projecting beyond the bag, and finally bending the said projecting ends of the strip around the ends of the folded portion and under said top side of the bag to releasably secure the folded portion to the top of the bag.

27. The method of releasably fastening the upright folded portion of a filled bag, which comprises the steps of feeding a tin-tie strip to locate a length thereof over the bag but out of alignment therewith, bending said upright folded portion into a position substantially horizontal by moving the same adjacent to and substantially into contact with the tin-tie strip, whereby said bag is suspended in a tilted position so that one side of the top of the bag is also approximately horizontally disposed and located adjacent the said bent portion, bending both projecting ends of the strip around the ends of the folded portion and under the said top side to releasably secure the folded portion to the top of the bag.

28. In a machine of the character described, adapted to releasably fasten the upright folded portion of a closed bag by means of a tin-tie strip, the combination with means supplying tin-tie tape in a continuous length, guide means therefor, and cutting means for severing said tape to form individual tin-tie strips, means having operation to bend the upright folded portion of the bag and simultaneously move the same adjacent to and into substantial contact with the tin-tie tape prior to the severing of the tape into a tin-tie strip, and other means having operation following the severing of the tape to bend the respective ends of the individual strip to releasably fasten the folded portion to the top of

the bag, and a support mounting said cutting means for reciprocating movement in a direction parallel with the length of the tape, said severing operation on the tape occurring after the cutting means has moved in a forward direction.

29. In a machine of the character described, adapted to releasably fasten the upright folded portion of a closed bag by means of a tin-tie strip, the combination with means supplying tin-tie tape in a continuous length, guide means therefor, and cutting means for severing said tape to form individual tin-tie strips, means having operation to bend the upright folded portion of the bag and simultaneously move the same adjacent to and into substantial contact with the tin-tie tape prior to the severing of the tape into a tin-tie strip, and other means having operation following the severing of the tape to bend the respective ends of the individual strip to releasably fasten the folded portion to the top of the bag, a support mounting said cutting means for reciprocating movement in a direction parallel with the length of the tape, and means for actuating said cutting means, said last mentioned means having operation when said cutting means approximately reaches the limit of its movement in a forward direction.

30. In a machine of the character described adapted to operate on closed bags having an up-standing folded portion, the combination with means supplying tin-tie tape in a continuous length, said tape having a strip of paper secured thereto, means for cutting out portions of said paper strip to form paper tabs, feeding means for the continuous strip to locate the forward end thereof above the bag, means for applying an adhesive to the paper tabs during said feeding operation, other means gripping the folded portion of the bag and bending the same into a horizontal position by moving the said portion adjacent to and substantially into contact with the forward end of said tin-tie tape, cutting means for severing the tape forming said forward end into an individual tin-tie strip having a paper tab, means bending the respective ends of the tin-tie strip to releasably fasten the folded portion to the top of the bag, and a member having operation to press the paper tab into contact with the top of the bag to adhesively secure the same to the bag.

GEORGE LONG.