June 2, 1936. H. F. BRIGGS 2,042,827

SAFETY STOP FOR BAG CLOSING MACHINES

Filed Sept. 13, 1935

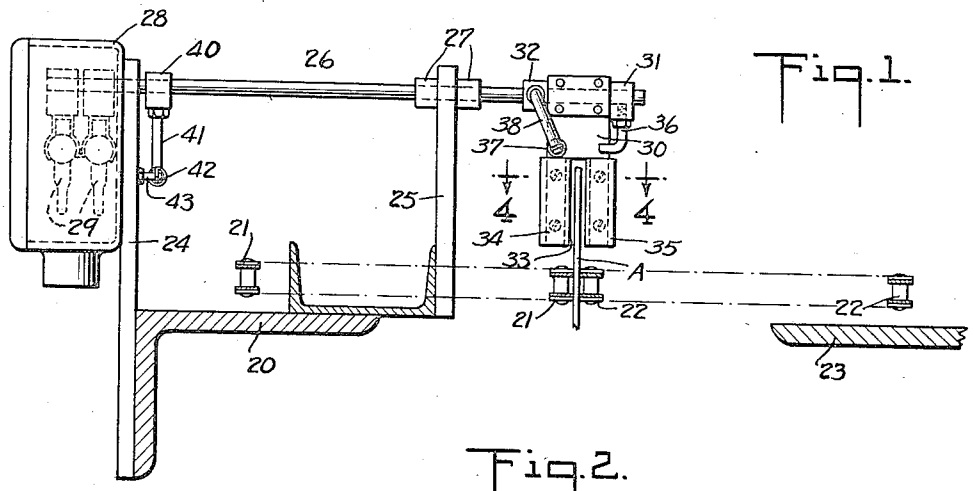


Fig. 1.

Fig. 2.

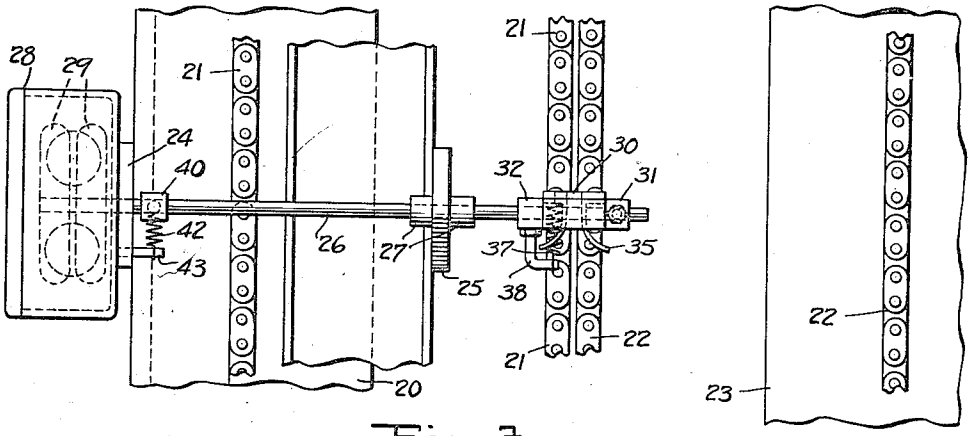
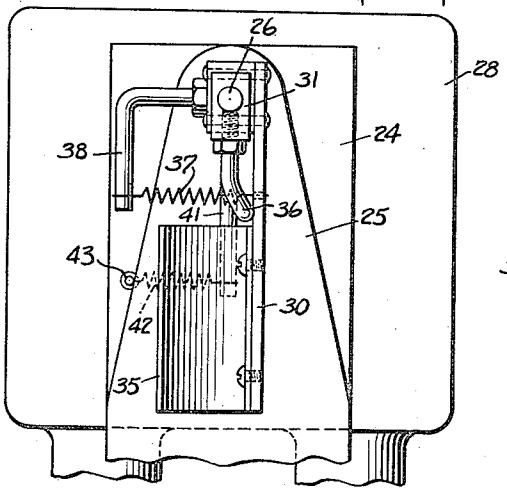


Fig. 3.



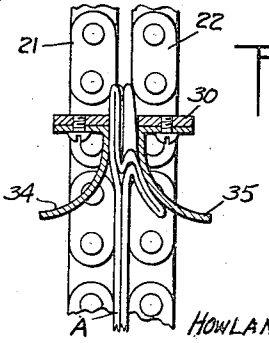


Fig. 4.

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Patented June 2, 1936 2,042,827

UNITED STATES PATENT OFFICE

2,042,827

SAFETY STOP FOR BAG CLOSING MACHINES

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Application September 13, 1935, Serial No. 40,363

2 Claims. (Cl. 192—127)

The present invention relates to bag closing machines for filled open mouth paper bags. Although capable of general utility, the device is particularly designed for use in connection with machines such as disclosed and claimed in my co-pending application Serial No. 19,396, filed May 2, 1935, in which machines large multi-ply, paper bags are filled with material and progressed through a sewing machine for stitching the open mouths. The device is not limited to such use, but may be used in connection with any closure effecting means having means for gripping the collapsed mouth of a filled bag below the end thereof and assisting to feed the same while being closed.

An object of the present invention is to make possible the high speed production of filled and closed bags by automatically safeguarding against the presentation of improperly collapsed bag mouths to the closing means. It sometimes happens that the plies of a bag become folded or disarranged in the bag gripping and feeding mechanism, necessitating careful supervision. If allowed to continue in such fashion a poor closure will be formed, or the closing means will be damaged. The latter is particularly true of a sewing machine, the needles and other parts of which are broken very easily. The speed of the machine is thus affected by the necessity of inspecting each bag mouth before it reaches the closing means. The present invention corrects this defect by the provision of means for sensing the presence of a defective bag mouth and stopping the machine prior to the entry of the same into the closing means. The operator thereby need only attend that portion of the machine when and if an improperly arranged bag is presented thereto.

In particular the invention comprises a plate having a bag mouth receiving throat positioned above the path of the bags. As illustrated, the bags are gripped by chains or belts above which the ends of the bags project, and which assist to feed the bags into means for effecting the closure of the projecting ends. A switch or switches are opened by the pivoting of said plate in case a bag mouth is disarranged and incapable of passing through the throat.

Referring to the drawing wherein like numerals refer to like parts throughout:

Fig. 1 is a side elevation of the invention;

Fig. 2 is a plan view thereof;

Fig. 3 is an enlarged end elevation thereof; and

Fig. 4 is an enlarged cross-sectional view taken on line 4—4 of Fig. 1.

The illustrations show the device mounted upon a frame member 20 of the machine. A bag gripping and feeding belt 21, supported on member 20, cooperates with an opposed belt 22 supported on a frame member 23. A bag mouth A is gripped between the belts below its end and presented thereby to any suitable operating means. The bags may be presented thereto automatically, as in said aforementioned application, or manually. The feeding means need not comprise belts, as long as the bag mouth projects as aforesaid. A standard comprising plates 24 and 25 rotatably supports a rod 26, which is longitudinally fixed by means of collars 27. One end of rod 26 passes into an outlet box 28 and supports a switch 29 (or switches as shown) for controlling the machine. The switches are preferably of the mercury contact type, as illustrated. Rotation of rod 26 from its normal angular position opens the circuit to the driving motors (not shown).

The other end of rod 26 projects over the path of the bags and carries a freely mounted plate 30, prevented from slipping along the rod by collars 31 and 32. The lower portion of plate 30 is provided with a throat 33 of such width that normal bag mouths may freely pass through the same. A pair of flaring guides 34 and 35 align the oncoming bags with the throat. An abutting finger 36 fixed to collar 31 contacts the face of plate 30 which is held against the finger by a spring 37 fastened to plate 30 and the end of an arm 38 fixed to collar 32. Plate 30 normally hangs in substantially vertical position, but an improper bag mouth will rotate plate 30, rotating rod 26 by reason of spring 37 and throwing the switches to open position. A limiting means is provided by means of a collar 40 fixed to rod 26 and carrying a lever 41, to the end of which is attached a spring 42 extending to a pin 43 upon the face of plate 24. Spring 42 is under no tension when plate 30 is vertically disposed, whereas spring 37 is always under tension, and a folded bag mouth such as shown in Fig. 4 will cause rotation of the plate and rod until spring 42 is placed under greater tension than spring 37. As soon as this occurs the plate may continue to rotate, but such rotation will be relative to the rod and will not be of any great extent due to the opening of switch 29. In this manner breakage of switch parts is prevented.

Fig. 4 illustrates the manner in which one corner of a gusset may become folded back, causing the device to operate. This is the most frequent

cause of trouble, but other faults occur such as breakage or slippage of one or more plies, overfilling, filling material becoming caught in the mouth of the bag above the belts, etc. In any case the fault is corrected before any damage is done.

The preferred form of the invention is illustrated herein, but other forms may occur to those skilled in the art, and are intended to be claimed as my invention if within the scope of the following claims.

I claim:

1. A safety stop for a filled bag closing machine of the type having means for gripping the collapsed sides of a filled bag below the open end thereof to be closed and assisting to feed the bag into suitable mechanism for effecting the closure thereof, comprising a plate having a throat of sufficient width to permit passage of a bag end therethrough as the bag is progressed by said means, a switch-controlling, rotatably mounted rod from which said plate depends, constantly tensioned spring means tending to prevent rotation of said plate relative to said rod, and a second spring means placed under tension by rotation of said rod whereby the effect of said first spring means may be overcome.

2. A safety stop for a filled bag closing machine of the type having means for gripping the collapsed sides of a filled bag below the open end thereof to be closed and assisting to feed the bag into suitable mechanism for effecting the closure thereof, comprising a plate having a throat of sufficient width to permit passage of a bag end therethrough as the bag is progressed by said means, a switch-controlling, rotatably mounted rod from which said plate depends, an abutment fixed to said rod and bearing against a face of said plate, an arm fixed to said rod, a spring tensioned between said plate and said arm tending to prevent relative rotation of said plate and rod and holding said plate against said abutment, a lever fixed to said rod, and a second spring extending from said lever to a fixed pin, said second spring being placed under tension by rotation of said rod and plate until its tension overcomes the tension of said first spring.

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