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MACHINE FOR THE PRODUCTION OF BAGS AND THE LIKE

Filed Aug. 1, 1940

Fig.1.

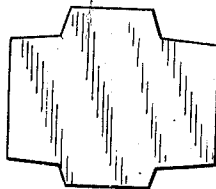


Fig.2.

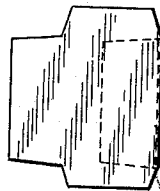


Fig.3.



Fig.4.

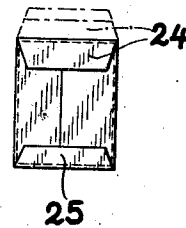


Fig.5.

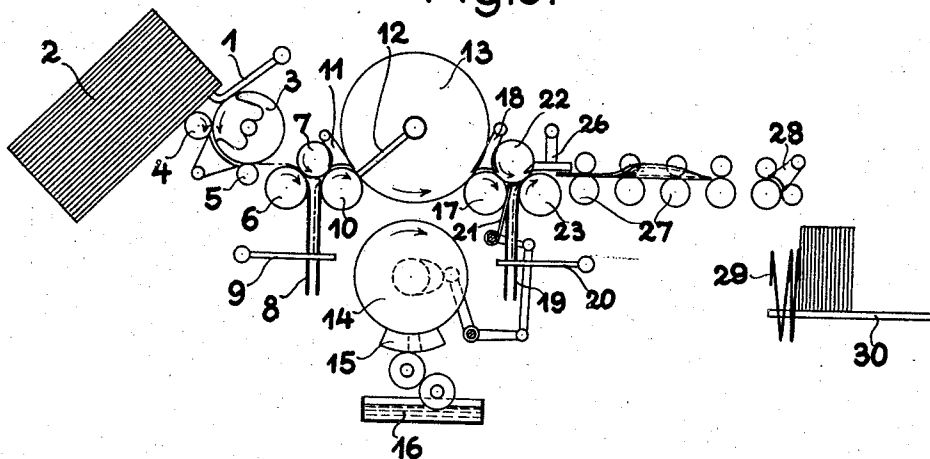


Fig.6.

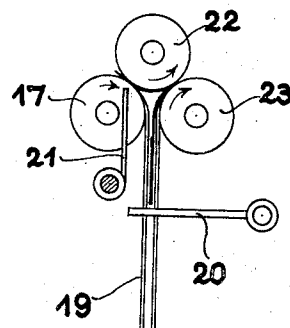
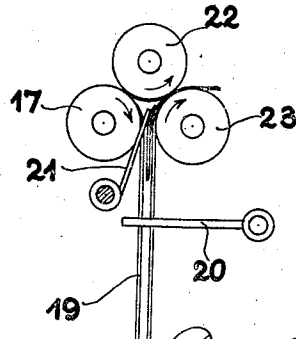


Fig.7.



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UNITED STATES PATENT OFFICE

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MACHINE FOR THE PRODUCTION OF BAGS
AND THE LIKEPeter Becker, Dusseldorf, Germany; vested in
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2 Claims. (Cl. 93—62)

When folding bags, pouches, envelopes or the like it is usual to conduct the cut in transverse direction through the roller track of a folding machine, as then the diameter of the rollers and also the distance between the rollers can be less great than when the cuts pass through the machine in longitudinal direction.

It is further of great advantage that on one and the same machine smallest envelopes as well as very large envelopes can be produced. In the folding machines of this type as used at present it is usual to distribute on several rollers the tools for folding and sticking the envelope. One or several rollers for pre-folding are arranged and also one or several gumming rollers. These rollers are all of similar diameter, and one revolution of the rollers corresponds as a rule to the folding of one envelope. The size of the envelopes to be made depends on the diameter of these rollers and on the distance between them. The largest and the smallest width of the envelope is limited by the diameter of and by the distance between the rollers.

It is however of great advantage if envelopes with larger difference in width can be made on one and the same machine.

According to the invention it is possible to produce small and large bags of larger than the usual difference in size on one machine, for only one single pair of rollers is constructed as tool carrier, namely the pair of gumming rollers. The diameter of these gumming rollers determines the largest bag, whereas all other rollers and their distances are kept very small so that even the smallest possible envelopes can be folded with the same machine. The pre-folding knives are omitted and the folding of the transverse folds can be obtained for instance by upset folding known from the manufacturing of flat bags in which the transverse folds are adjusted by adjustable stops.

As this machine works with smaller rollers than was possible up to the present, the machine is of smaller size, more handy and cheaper.

An embodiment of the invention is illustrated by way of example in the accompanying drawing, in which:

Fig. 1 shows an unfolded cut for a bag,

Fig. 2 the same cut after the first transverse folding,

Fig. 3 the same cut after the second transverse folding,

Fig. 4 a completely folded bag,

Fig. 5 a side view of the folding machine,

Fig. 6 a folding proceeding in the up-setting

process prior to the forming of the transverse fold, and

Fig. 7 a folding proceeding according to the up-setting process after the forming of the preliminary fold.

The operation of the folding machine is as follows:

The sucker 1 (Fig. 5) sucks the lowermost cut of a pile 2 into the notch of a roller 3. By the rotation of the roller the cut is pulled off the roller and by the rotation of a counter-roller 4 from the pile. This roller carries out one or more revolutions in the rhythm of the pair of gumming rollers, the sucker however only one oscillating movement. By passing along a guide piece the cut gets to the roller 5 which feeds the cut in horizontal position to the pair of rollers 6, 7. From here the cut gets into the pocket 8, where the front edge of the cut comes into contact with stops 9. Hereby the cut is upset and forms a loop in front of the rollers 7, 10 which loop is gripped by these rollers and folded to form a fold. This kind of folding is known. Continuing to move along the guide 11 the sucker 12 of the counter gumming roller 13 sucks-on this cut and conducts it along the gumming element 15 of the gumming roller 14 to the roller 17. The gumming element 15 receives its agglutinant from the glue-mechanism 16. The cut is then fed to the pair of rollers 17, 22 below the guide 18 and thence into the pocket 19, wherein the feeding is stopped by the stops 20. The stops 9, 20 are adjustable, so that the transverse folds can be accurately placed into the corners of the cuts. By the stops 20 upsetting of the cut takes place again and the second transverse fold is formed between the rollers 22, 23. For assisting this proceeding stops 21 are provided which serve as guide at the fold formation (Figs. 6 and 7).

At this second pre-folding the cut is turned, so that the bottom-and closing flap 24, 25 of the cut (Figs. 3 and 4) come to the top. This is a great advantage as then a control of the folding of these flaps is ensured. The cut is conducted through the machine only in horizontal position so that the flaps are on top.

By the guide 26 the cut reaches the roller track 27 where the folding of the closing-and bottom flap takes place. The guide 28 conducts the ready folded envelopes to the conveying worms 29. The envelopes are then collected on rails 30.

I claim:

1. In a machine of the kind described, a set of feeding rolls including a pair of spaced rolls rotating in the same direction and a third roll rest-

ing on and coacting with each roll of the pair, a vertical guide for receiving a blank passing between the first and third rolls in one direction and for delivering a blank in position to pass in the opposite direction between the second and third roll, a stop associated with said guide and arranged to stop movement of the blank into said guide prior to the passage of the blank entirely in the first direction whereby to cause a bend to form in said blank for folding between the second and third rolls, a second set of similar rolls, guide and stop, the second guide receiving the blank with the folded part downwardly and delivering the blank with its upper part also folded, and blank gumming means interposed between said roll sets and including a suction cylinder engaging each set of rolls.

2. In a machine of the kind described, a set of feeding rolls including a pair of spaced rolls rotating in the same direction and a third roll resting on and coacting with each roll of the pair, a

vertical guide for receiving a blank passing between the first and third rolls in one direction and for delivering a blank in position to pass in the opposite direction between the second and third roll, a stop associated with said guide and arranged to stop movement of the blank into said guide prior to the passage of the blank entirely in the first direction whereby to cause a bend to form in said blank for folding between the second and third rolls, a second set of similar rolls, guide and stop, the second guide receiving the blank with the folded part downwardly and delivering the blank with its upper part also folded, blank gumming means interposed between said roll sets and including a suction cylinder engaging each set of rolls, and a third set of rolls consisting of a plurality of pairs, said third set receiving the partly folded blanks from the second set and arranged to fold the remaining sides of the blank.

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