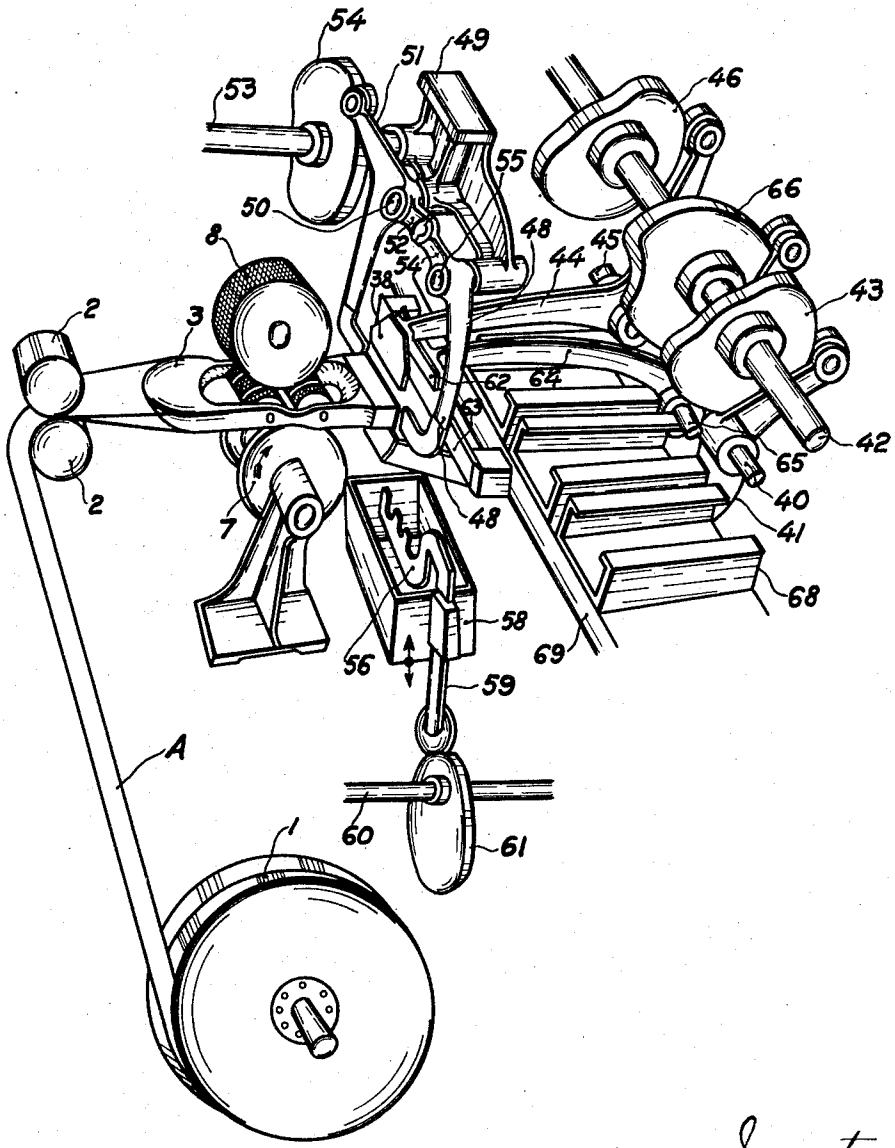
March 15, 1938. G. ÖRSTRÖM 2,110,939

MACHINE FOR MANUFACTURING BAGS

Filed June 30, 1936 3 Sheets-Sheet 1

FIG. 1



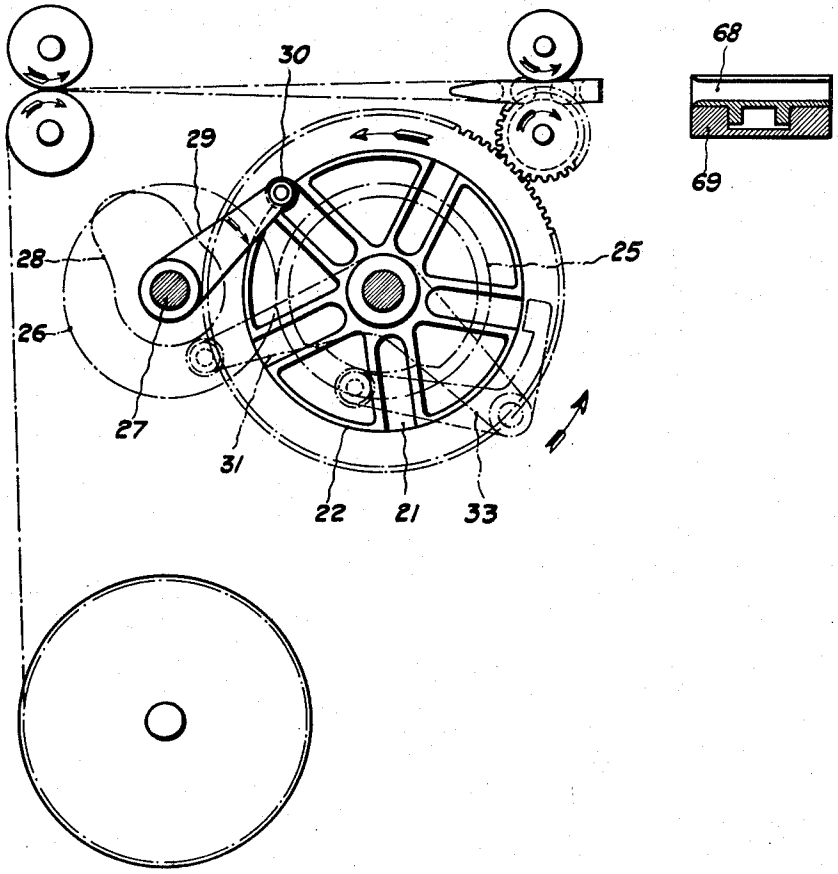
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MACHINE FOR MANUFACTURING BAGS

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FIG. 2



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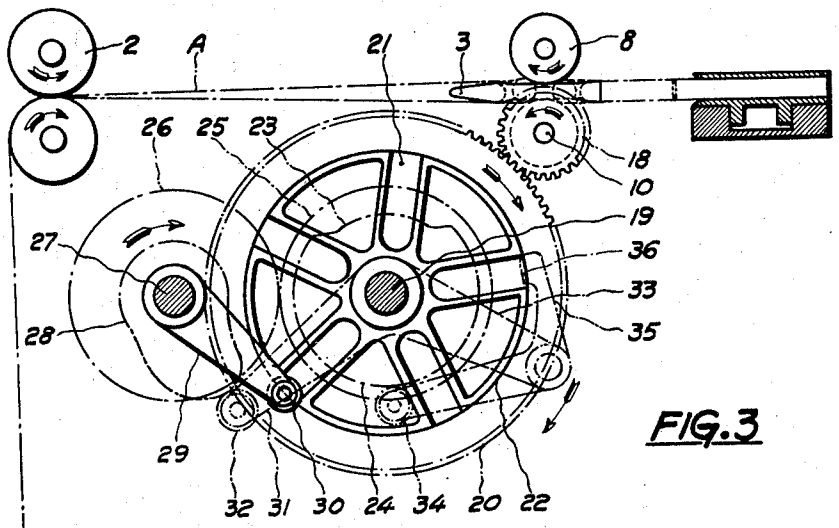


FIG. 3

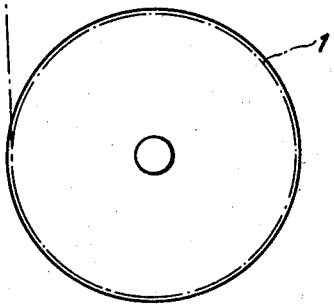
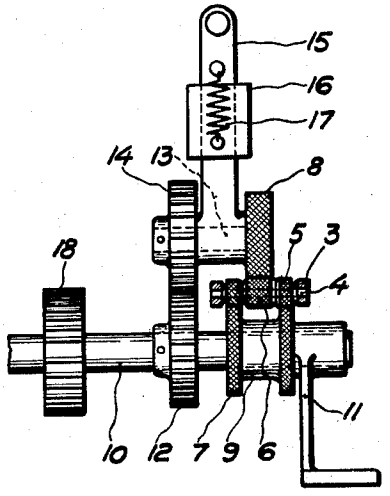


FIG. 4



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Patented Mar. 15, 1938 2,110,939

UNITED STATES PATENT OFFICE

2,110,939

MACHINE FOR MANUFACTURING BAGS

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Application June 30, 1936, Serial No. 88,248
In Sweden July 5, 1935

3 Claims. (Cl. 93—12)

This invention relates to an improved machine for manufacturing bags and it is an object of my invention to provide means for automatic and very rapid manufacture of bags, and more particularly small bags, such as "Cellophane" envelopes for cigarillos or the like, which envelopes or bags are immediately ready for filling and sealing.

Another object of my invention is to provide means for materially reducing the costs of manufacture of bags, and more particularly small bags of the kind above referred to.

In the drawings illustrating a preferred embodiment of the invention:

Fig. 1 is a perspective view of the machine with some parts of its driving mechanism omitted;

Figs. 2 and 3 are side views of the feeding mechanism of the machine in two different operative positions; and

Fig. 4 is a front view of part of the feeding mechanism.

A collapsed tube A of "Cellophane" is uncoiled from a reel 1, conveyed between two rolls 2 and sleeved onto a core 3. The core comprises two transversely fixed spindles 4 and on each spindle are rotatably journalled two lateral rolls 5 and one intermediary roll 6. The rolls 5 and 6 form part of the core. The core is supported and held in a correct position by two lower rolls 7 which support each two of the lateral rolls 5 (Fig. 1) and by an upper roll 8 which presses the tube against the two intermediary rolls 6. The rolls 5, 6, 7, and 8 are all knurled. The rolls 7 are integrally formed with a common hub 9 which is rotatably journalled on a spindle 10. The spindle 10 is rotatably mounted in a frame 11 and a gear wheel 12 is secured to the spindle, which gear wheel meshes with another gear wheel 14 which is secured to a spindle 13. The spindle 13 is rotatably journalled in a vertical bracket 15 which is movable up and down in a guide 16. One end of a tension spring 17 is secured to the guide 16 and the other end to the bracket 15 which is thereby pulled down by the spring so that the roll 8 can press against the rolls 6.

The rotary movement of the spindle 10 necessary for the intermittent feeding of the tube A is obtained by means of the mechanism shown in Figs. 2 and 3. To the spindle 10 is fixed a gear wheel 18 which engages another gear wheel 20, rotatably mounted on the fixed shaft 19. A Geneva-wheel 22 having five radial slots 21 is fixed to the gear wheel 20. On the shaft 19 there is further rotatably journalled a cam disc 24 which has a peripheral depression 23 and is rigidly secured to a gear wheel 25. The gear wheel 25 meshes with another gear wheel 26 which is fixed to a continuously rotating driving shaft 27. To the shaft 27 there are fixed a cam disc 28 and an arm 29 which by means of a roller 30 is arranged to mesh with the slots 21 of the Geneva-wheel. The shaft 19 carries also a pivotally mounted arm 31 having a roller 32 which by a spring (not shown) is pressed against the cam disc 28. The arm 31 forms part of a bell crank lever the other arm 33 of which carries another bell crank lever 35 pivoted thereto. One arm of the lever 35 carries a roller 34 which by a spring (not shown) is pressed against the cam disc 24 and the other arm has a hook 36 of about the same width as the slots 21.

Immediately behind the core 3 are arranged a lower and an upper folding member 37 and 38, respectively, and two side folders 39. The folder 37 is fixed to a bell crank lever 41 which is pivoted to a pin 40 and actuated by a cam disc 43 which is fixed to a rotating shaft 42. The folder 38 is fixed to a bell crank lever 44 which is pivoted to a pin 45 and actuated by a cam disc 46, secured to the shaft 42. The side folders 39 form extensions of lever arms 47 and 48. The arm 47 is pivotally journalled on a pin 50 which is secured to a bracket 49, and said arm forms part of a lever having two other arms 51 and 52. The arm 51 is actuated by a cam disc 54 which is secured to a shaft 53, rotatably journalled in the bracket 49 and the arm 52 meshes by means of a claw-coupling with an arm 54 which forms part of a bell crank lever pivotally mounted on the pin 55 and has another arm 48 the free end of which constitutes the other side folder 39.

Immediately below the folding members is operative a paste supply finger 56 which is movable up and down in a paste container 58. The finger 56 constitutes an end of a rod 59 which is actuated by a cam disc 61 secured to a rotary shaft 60.

Behind the paste supply and folding members is arranged a cutter for the "Cellophane" tube. The cutter consists of an upper movable knife 62 and a lower fixed knife 63 cooperating with the upper knife. The knife 62 is secured to a bell crank lever 64 which is pivotally mounted on a pin 65 and actuated by a cam disc 66 secured to the shaft 42.

Behind the knives is arranged a conveyor 69 provided with pockets 68 and driven in a well known manner transversely to the feeding direction of the "Cellophane" tube so as to transport the finished bags laterally, conveniently to a station for filling them with cigarillos, for instance, and sealing of the open end of the bag.

In operation, it is provided that the "Cellophane" tube A is moved forward into such position that its open end projects somewhat beyond the rear end of the core 3. First, the side folders 39 tuck in two opposite walls of the open tube end. Then the lower folder 37 moves upwards and folds another wall of the tube about the tucked in parts. Then the finger 56 is moved upwards against the upper flap which is still unfolded and supplies adhesive to the under side of said flap. Thereafter the folder 38 folds down said flap about the other flaps and thereby the sealing of the tube end about the rear end of the core is finished.

At the end of the sealing operation thus described the different parts of the feeding mechanism occupy the relative positions shown in Fig. 2 and the arm 29 is about to swing the roller 30 into a slot 21 of the Geneva-wheel 22. On further swinging of the arm 29 in the direction shown by the arrow it turns the Geneva-wheel somewhat more than one fifth of a revolution so that the gear wheel 20 rotates the gear 18, 12, 14 and thereby also the roll 8 which presses one side wall of the tube against the rolls 6 and advances the tube end into a predetermined position in a pocket 68 of the conveyor 69. Then the knife 62 cuts off the sealed tube end which is then transported laterally to a filling station, for instance. The movement of the tube into cutting position takes place on opening the collapsed tube as it is sleeved onto the core. The tube encloses the rolls 5 and 6 and the rolls 7 press its lower side wall pressed against the rolls 5. After being cut the tube end is to be retracted from the cutting station to the folding station. For this purpose the cam disc 28 during the cutting operation has swung the arm 31 down so that the arm 33 has been moved up into the position shown in Fig. 3 and the cam disc 24 has moved the roller 34 outwards so that the hook 36 has entered a slot 21 of the Geneva-wheel 22. Immediately after the cutting operation the cam disc 28 allows the arm 31 to swing upwards again whereby the arm 33 is swung down but the cam disc 24 holds still the hook 36 in engagement with the Geneva-wheel. Therefore the Geneva-wheel is swung back slightly in the direction of the arrow (Fig. 3) until its slots 21 occupy again the angular position shown in Fig. 2. This retracting movement of the Geneva-wheel is thus equal to the swinging movement during the feeding of the tube in addition to one fifth of one revolution and said retracting movement effects the required retracting movement of the tube. After finishing said movement the different parts of the feeding mechanism occupy anew the positions shown in Fig. 2 and the process now described commences again by sealing the free end of the tube.

What I claim is:

1. In a machine for manufacturing bags from tubes of sheet material, a core over which the tube is sleeved, movable friction means engaging the tube on the core for advancing the tube a predetermined distance to cutting position, means for then cutting the tube at a point beyond and spaced from the core, means for retracting the tube to remove the cut end from the cutting means, means for folding inwardly some of the cut edge portions about the end of the core, means for supplying adhesive to at least one edge portion of the tube, and means for folding said adhesive portion over the other folded portions to secure the closed end of the tube.

2. In a machine for manufacturing bags, a core, mechanism for sleeving a tube of thin sheet material onto said core, a conveyor arranged behind said core and movable transversely of said tube, means to seal the tube end about said core, means for then causing said mechanism to sleeve the tube further onto said core and thereby to supply the sealed tube end to said conveyor, and means for cutting off said tube end between said conveyor and said core.

3. In a machine for manufacturing bags, a core, mechanism for sleeving a tube of thin sheet material onto said core, a conveyor arranged behind said core and movable transversely of said tube, means to seal the tube end about said core, means for causing said mechanism to sleeve the tube further onto said core and thereby to supply the sealed tube end to said conveyor, means for then cutting off said tube end between said conveyor and said core, and means for then retracting said mechanism to make the tube end recede from said conveyor toward said core.

GUSTAF ÖRSTRÖM.