

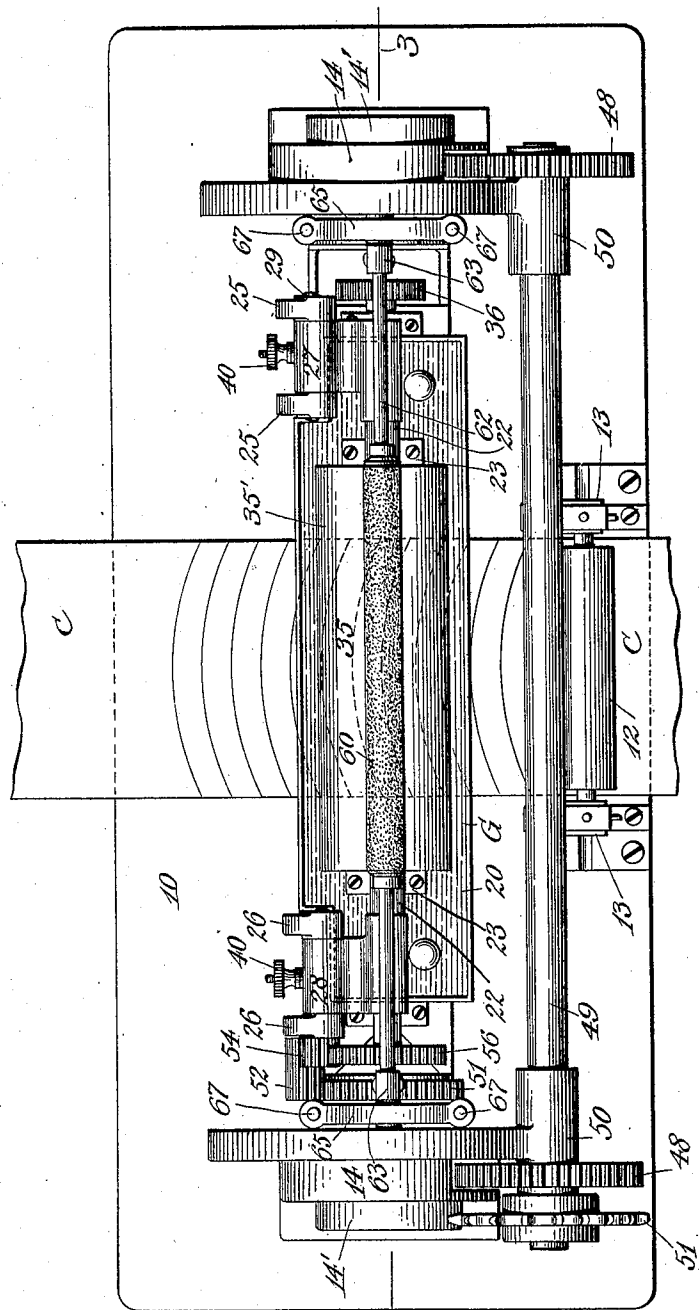
No. 823,714.

PATENTED JUNE 19, 1906.

E. A. CLAUS.
GUMMING MACHINE.
APPLICATION FILED OCT. 7, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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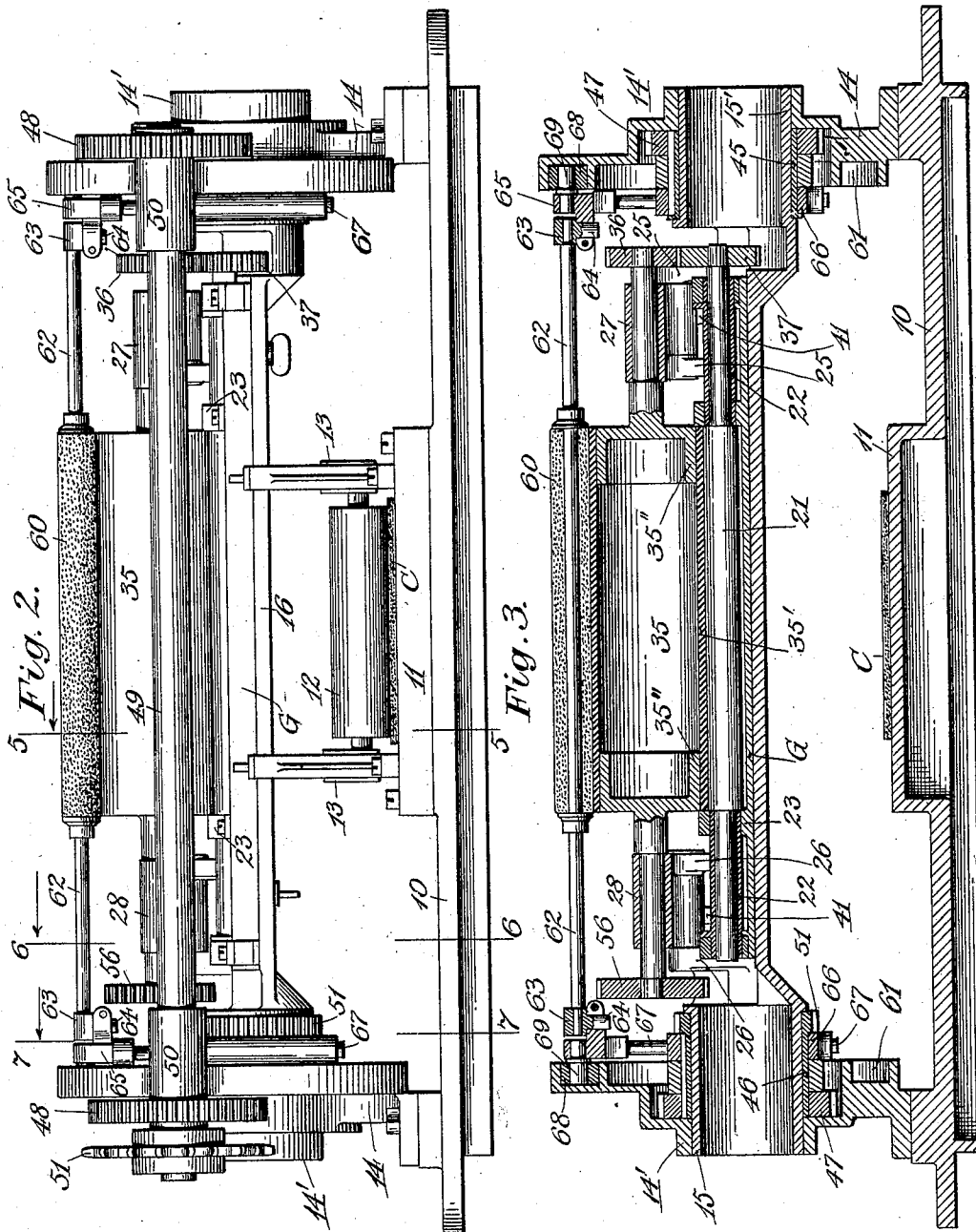
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

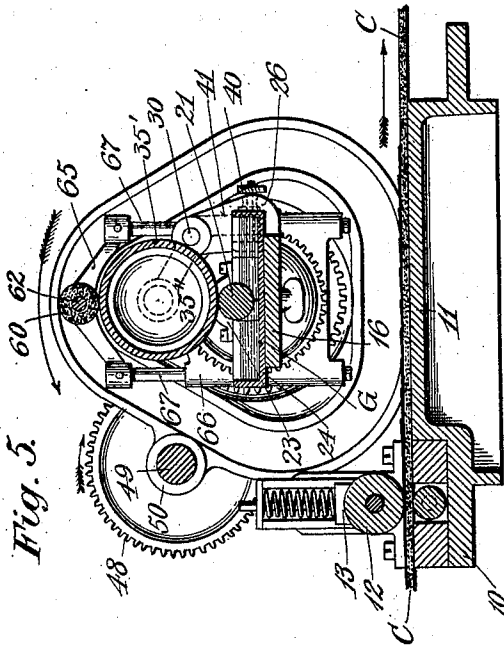


Fig. 5.

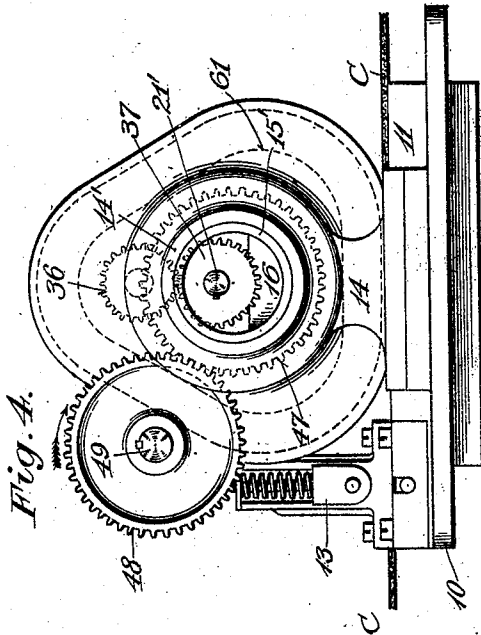


Fig. 4.

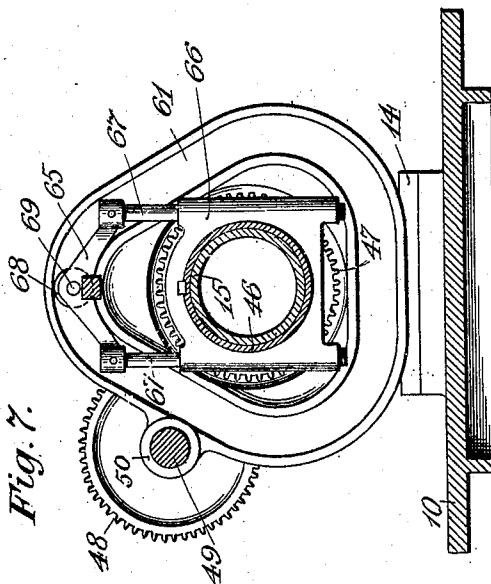


Fig. 7.

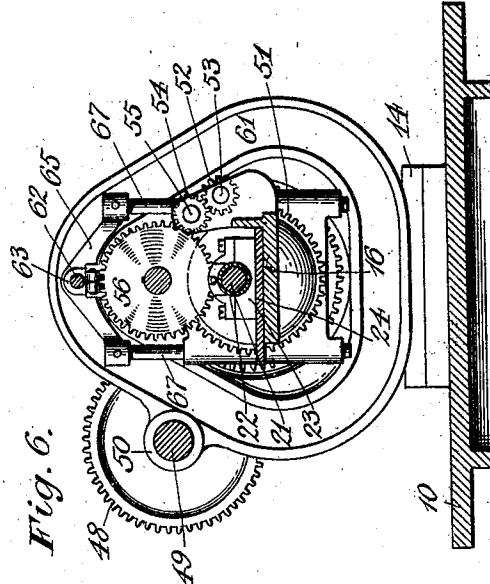


Fig. 6.

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GUMMING-MACHINE.

No. 823,714.

Specification of Letters Patent.

Patented June 19, 1906.

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To all whom it may concern:

Be it known that I, EMIL A. CLAUS, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Gumming-Machines, of which the following is a full, clear, and exact specification.

This invention relates to gumming mechanism, and more especially to machines for depositing a film of gum or other adhesive on blanks—such as envelopes, wrappers, and similar articles; and it has for one of its objects the provision of a device whereby the successively-fed blanks are subjected to the action of the gum-depositing means repeatedly in order to secure a complete and uniform gum deposit on the blank-surface.

My invention has, furthermore, for its object the combination, with the gumming-machine proper, of a conveyer whereby the several blanks are carried into the path of and into contact with the gum-depositing device, this conveyer having, preferably, an intermittently-advancing movement and being at a standstill during the gumming operation.

My invention has, furthermore, for its object the provision of means whereby the gum-depositing device is brought into contact with the gum-supplying drum for a considerable portion of the peripheral surface thereof to insure an ample supply of gum for the depositing device.

My invention has, furthermore, for its object the provision of a revoluble gum-depositing device having its path of travel around the gum-supply box, thereby rendering the entire machine compact.

A further object of my invention resides in the particular construction and organization of the several operative elements, as will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, in which similar characters denote similar parts, Figure 1 is a top view of a gumming-machine embodying my invention. Fig. 2 is a front view thereof. Fig. 3 shows a central longitudinal section of the machine. Fig. 4 represents an end view thereof looking from the right of Fig. 2. Figs. 5, 6, and 7 are vertical cross-sections taken on lines 5 5, 6 6, and 7 7, respectively, indicated in Fig. 2.

Briefly stated, my improved machine comprises a conveyer upon which properly-cut blanks are deposited in such a manner as to

overlap each other for a distance which is equal to the surface to be gummed, so that, as a matter of fact, each blank serves as a gage and as a means to protect the preceding blank against being supplied with gum for more than the required surface. The conveyer carries the blanks beneath a frictionally-operated retaining-roller, whereby the blanks are held against displacement during the gumming operation, which is effected by a composition roller receiving its gum-supply from a gum-box and intervening mechanism adapted for varying the thickness of the gum film to be taken up by the gumming-roller proper. This roller is mounted for revolution around a centrally-disposed gum-box somewhat in accordance with the "sun-and-planet" system, and the gum-box holder is so constructed that access may be had to the gum-box—as, for instance, for refilling—without the necessity of stopping the machine or any liability of interference with the revolving parts thereof.

Referring to the drawings, 10 denotes a suitable bed having near the center thereof a table 11, which serves as a support for a conveyer C, upon which the blanks to be gummed are placed so as to overlap each other, as seen in Fig. 1, thus leaving a certain surface exposed to receive a deposit of gum. It may be stated at this time that in the operation of the machine the conveyer C has an intermittently-advancing movement imparted to it from an element of a blank-cutting machine, whereby the several blanks are successively cut from a web-roll, this mechanism, however, not forming any part of the present invention. The blanks on the conveyer are carried beneath a friction-roller 12, journaled in spring-pressed bearings 13 and holding the blanks in firm contact with the surface of the conveyer, so as to prevent them from being pulled forward by the action of the gumming device.

Secured on the bed 10 are a pair of supports 14, on which the several operative elements of the gumming mechanism are mounted. The hubs 14' of the support 14 are bored out to receive the cylindrical ends 15 15' of a platen 16, which extends across and above the table 11 and supports a gum-box G, comprising a gum compartment or reservoir 20, in which a ductor-roller 21 is mounted for rotation. This roller is provided with trunnions 21', journaled in stationary bushings 22, which are tightly fitted

into blocks 23, secured on the bottom plate 24 of the gum-box G.

Near its rear wall the gum-box is provided with ears 25 26, adapted to receive arms 27 28, pivoted at 29 30, respectively, and supporting at their upper ends a gum-transfer roller 35, which in the present instance comprises a cylindrical shell 35', firmly secured to a pair of heads 35'', the trunnion of one of 10 which carries a gear 36 in engagement with a gear 37, secured on the ductor-roll 21. When now the transfer-roller 35 is rotated, as will be hereinafter described, its peripheral speed is greater than that of the ductor-roll 21 by 15 virtue of the nearly-equal sizes of the gears 36 and 37 and the difference in the diameters of the said rollers, so that the gum is practically pulled from the ductor in the form of a thin film, the thickness of which can further- 20 more be regulated by varying the distance between said rollers—as, for instance, by means of thumb-nuts 40 (see Fig. 1) engaging tailpieces 41, constituting parts of the arms 27 28, above referred to.

From the foregoing it will be understood 25 that the more the thumb-nuts 40 are moved inward the higher the position of the transfer-roller will be, and consequently a thicker layer of gum is permitted to pass between the rollers 21 and 35. Furthermore, in view of 30 cylindrical hubs 15 15' of the platen 16 I am enabled to position the latter in the hubs 14' so as to bring the gum-box to a level no matter what the position of the machine as a 35 whole may be, at least within certain limits.

Mounted for rotation on the cylindrical hubs 15 are sleeves 45 46, which carry gears 47 in engagement with gears 48, secured upon a shaft 49, which is journaled in bearings 50, 40 constituting parts of the supports 14, above referred to, and rotative movement may be imparted to said shaft by a sprocket 51, operated by a chain from any convenient source. (Not shown.) Hence it is evident 45 that both sleeves 45 46 are operated simultaneously and in unison—a fact which I take advantage of in actuating both ends of the gum-depositing device, and thus maintaining the latter in axial parallelism with the 50 transfer-roller 35, which is also operated from the hub 15, having gear-teeth 51 in engagement with a pinion 52, which is journaled on a stud 53, held in one of the ears above mentioned. The pinion 52 is of sufficient length to engage a similar pinion 54, 55 pivoted on a stud 55, (see Fig. 6,) which is held in the same ear 26 and in mesh with a gear 56 on the trunnion of the transfer-roll head 35'', the train just described serving to 60 rotate the rollers 35 and 21 in a positive manner and at a predetermined speed ratio from the sleeve 15, as will be readily understood.

The gum-depositing device consists in its preferred form substantially of a roller 60, 65 made of what is generally known as “compo-

sition” and having a planetary movement around the gum-box. In order to carry this gumming-roller into a comparatively extensive peripheral contact with the gum-transfer roller 35 for the purpose of covering sub- 70 stantially the entire surface of the gumming-roller, the latter is guided in a certain path as prescribed by a pair of cam-grooves 61, formed in the supports 14. The roller 60 is provided with a shaft 62, journaled at its 75 ends in boxes 63, which are provided with stems 64, adapted for radial adjustment in yokes 65, which are mounted for revolution around the axis of the sleeves 15 15', the organization being preferably as follows: Keyed 80 to the sleeves 15 15' are a pair of carriers 66, adapted to receive movable guide-rods 67, secured in the yokes 65, so that as the sleeves are rotated the yokes will move radially relatively to the axis of said sleeves and as controlled by the cam-grooves 61, which govern 85 the path of cam-rollers 68, journaled on studs 69, secured in said yokes 65. (See Fig. 3.)

Inasmuch as the radial movement of the yokes 65 is positively controlled by the cam- 90 grooves 61, I deem it expedient to journal the roller-shaft 62 in the bearings 63, which are mounted for radial adjustment relative to the axis of revolution of the yokes, or, in other words, to provide means for varying 95 the contact-pressure between the roller-surface and the blanks and also to compensate for the wear on said roller.

By referring to Figs. 5 and 7 it will be seen that the upper portion of the cam-groove 61 100 is formed substantially concentric with the axis of transfer-roller 35, so that the soft composition roller 60 will be carried into contact with the surface of the latter for an angular distance of nearly ninety degrees, which 105 covers in reality more than the circumference of the roller 60. The yoke 65 revolves in the direction of arrow *a*, and after the roller 60 has obtained its supply of gum said yoke will be caused to move inward to avoid 110 the driving-shaft 49, then outward again and in a horizontal direction thus carrying the gumming-roller into contact with the blanks on the conveyer C, whereupon the cam-groove will again direct the gumming-roller into contact 115 with the transfer-roller 35 to obtain a fresh gum-supply.

The horizontal travel of the gumming-roller extends in practice over four exposed blank edges, each being about three-fourths 120 of an inch in width, and inasmuch as the step-by-step movement of the conveyer is in conformity therewith it follows that each blank will receive four gummings during its passage through the gum-depositing zone, thus insuring perfect and uniformly-even work. 125 It is of course manifest that the number of these repetitional gummings may be varied and, furthermore, that this number depends upon the length of overlap of the successive blanks, 130

provided the cam-groove of the machine is not changed.

In view of the fact that a machine of the type described will necessarily use a large amount of gum I deem it expedient to provide facilities for replenishing the gum-box, when required, and hence the cylindrical hubs 15 15' are made tubular, so that a pipe from a gum-reservoir may be passed through the same and connected with the gum-box without interfering with the continuous operation of the machine.

Having described my invention, I claim—

1. The combination, with a blank-conveyer, and a gumming mechanism comprising a gum-supply device; of a gumming device, and means for bringing said gumming device repeatedly into contact with said supply device and a blank on the conveyer, alternately, to lay a plurality of gum films on the same portion of the blank-surface.

2. The combination, with a blank-conveyer, a gumming mechanism comprising a gumming device, and means for actuating the same for laying a plurality of gum films on each one of the blanks; of a blank-retaining device coöperative with the conveyer and for holding the blanks thereon during the gumming operation.

3. The combination, with a blank-conveyer, a gumming mechanism comprising a gumming-roller, and means for guiding the same in parallelism with said conveyer and into contact with the blanks thereon, of a blank-retaining device coöperative with the conveyer and for holding the blanks thereon during the gumming operation.

4. The combination, with a blank-conveyer, and a gumming mechanism comprising a gum-supplying device; of a gumming-roller, means for guiding said gumming-roller in parallelism with the conveyer and into contact with the blanks on the conveyer, and a device for holding the blanks during the gumming operation.

5. The combination, with a blank-conveyer, and a gumming mechanism comprising a gumming-roller; of means for bringing said roller into contact with the blanks on the conveyer, and a friction-roller coöperative with the conveyer and for holding the blanks thereon during the gumming operation.

6. The combination, with a blank-conveyer, and a gumming mechanism comprising a gum-reservoir, a gum-supplying roller coöperative therewith; and a gumming-roller; of a cam for bringing said gumming-roller into contact with said supplying-roller and the blanks on the conveyer, alternately.

7. The combination with a blank-conveyer, and a gumming mechanism comprising a gum-reservoir, a gum-supplying roller, and a gumming-roller; of a cam for guiding said gumming-roller in parallelism with the

conveyer, and for repeatedly gumming each blank thereon.

8. The combination with a blank-conveyer, a gumming mechanism comprising a gum-reservoir, and a gum-supplying device, and a gumming-roller; of a pair of stationary cams for guiding said gumming-roller in parallelism with the conveyer, and means for actuating said roller.

9. The combination with a blank-conveyer, a gumming mechanism comprising a gum-reservoir and a gum-supplying device, and a gumming-roller; of a pair of stationary cams for guiding said gumming-roller in parallelism with the conveyer, and means for actuating said roller, and a device for holding the blanks on the conveyer during the gumming operation.

10. In a gumming-machine, the combination, with a gum-reservoir, a gum-supplying device, and a gumming-roller; of means for bringing said roller into contact with said supply device and to lay a film of gum substantially on the entire surface of said gumming-roller.

11. In a gumming-machine, the combination, with a gum-reservoir, a gum-supplying device, and a gumming-roll; of a cam for bringing said roller into contact with said supply device and to lay a film of gum substantially on the entire surface of said gumming-roller.

12. In a gumming-machine, the combination, with a gum-reservoir, and a supply-roller; of a yoke mounted for revolution around the reservoir, a gumming-roll carried by said yoke, and means for controlling the movement of the yoke and for bringing said roll into contact with the supply-roller.

13. In a gumming-machine, the combination, with a gum-reservoir, and a supply-roller; of a yoke mounted for revolution around the reservoir, a gumming-roll carried by said yoke, and a cam for controlling the movement of the yoke and for bringing said roll into contact with the supply-roller.

14. In a gumming-machine, the combination, with a gum-reservoir; and a supply-roller; of a pair of yokes mounted for simultaneous revolution around said reservoir, a gumming-roll carried by said yokes, a pair of stationary cams for controlling the movement of the yokes, and means for positioning the gumming-roll on said yokes.

15. In a gumming-machine, the combination, with a gum-reservoir, and a gum-supplying roller, of a pair of yokes mounted for revolution around said reservoir, a gumming-roll carried by said yoke, means for controlling the radial movement of said yokes, and means for positioning the gumming-roller on the yokes.

16. In a gumming-machine, the combination, with a gum-reservoir, a ductor-roll, and a transfer-roller; of means for positioning

said transfer-roller relatively to the ductor-roll, and means for actuating the transfer-roller at a greater circumferential speed than that of the ductor-roll.

- 5 17. In a gumming-machine, the combination, with a pair of supports, and gum-reservoir mounted for rotation therein; of a gum-supplying device, a gumming-roll mounted for revolution around the reservoir, and
10 means for controlling the movement of said roll toward and away from the supply device.
18. In a gumming-machine, the combina-

tion, with a gum-reservoir, a ductor-roll rotatable therein, a transfer-roller coöperative with the ductor-roll, and means for position- 15
ing said transfer-roller relatively to the ductor-roll; of a pair of yokes mounted for revolution around said reservoir, a gumming-roll carried by said yokes, and means for positioning the gumming-roll on the yoke.

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