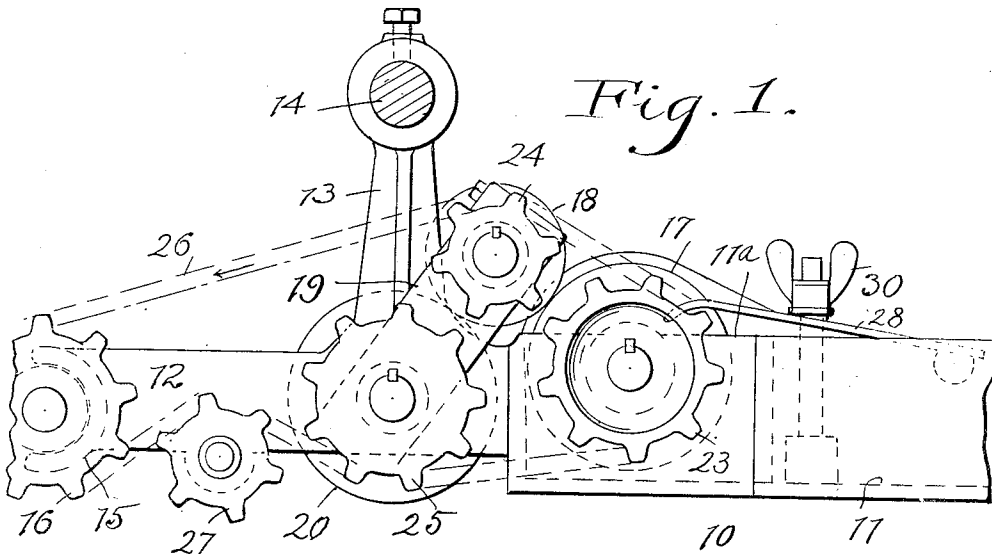
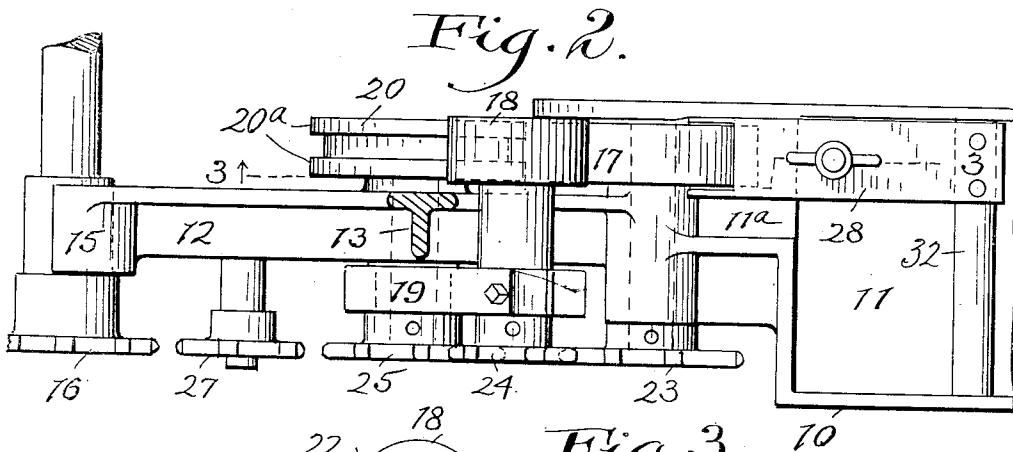
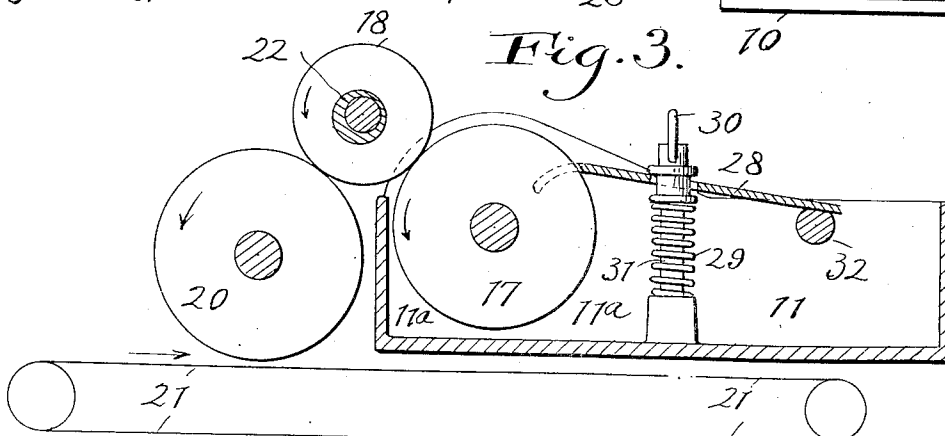


H. F. AFFELDER,
GUMMING DEVICE.
APPLICATION FILED SEPT. 6, 1919.

1,409,908.

Patented Mar. 21, 1922.



Inventor: { Harry F. Affelder
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UNITED STATES PATENT OFFICE

HARRY F. AFFELDER, OF CLEVELAND, OHIO.

GUMMING DEVICE.

1,409,908.

Specification of Letters Patent. Patented Mar. 21, 1922.

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To all whom it may concern:

Be it known that I, HARRY F. AFFELDER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Gumming Devices, of which the following is a full, clear, and exact description.

This invention relates to gumming devices adapted particularly for envelope and paper box making machinery though the invention could be used to advantage in gumming straight strips of paper.

In envelope and paper box making machinery considerable difficulty has been encountered in applying adhesive or so-called gum to the upper faces of the articles to be gummed, this difficulty being due to the fact that the gumming roll projects through an opening in the bottom of the gum box, i. e. the receptacle containing the liquid or semi-liquid adhesive material. In consequence there is always more or less of a leakage of the gum around the roll, the leakage being particularly severe after the machine has been run for a considerable time. This gum often causes a wastage of envelopes or other articles being gummed, and interferes seriously with the operation of the machine.

The object of the present invention is to overcome the disadvantage above stated, and to provide an efficient gumming device which can be applied to any machine or apparatus such as envelope or paper box making machines operating on paper or similar material.

In carrying out my invention I employ a series of coacting rollers which carry the gum over the top of the box to a rotary gum applying member, such as a roller or brush, which preferably projects beneath the box so that on relative movement between the gumming device and the envelopes or other material to be gummed, the gum will be applied to the upper surfaces of the latter, it being an important feature of the invention that the coacting rollers rotate in the same direction so that the gum is transferred from one roller to the other and applied to the articles to be gummed, and the excess can be conveyed back again through the series to the gum box or initial roller.

The invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts which

will be described in the specification and set forth in the appended claims.

Though the principle of my invention may be applied to gumming devices varying in construction as to the many details such as the shape and manner of supporting the gum box, and coacting rotary members and the manner of driving the latter, in the accompanying sheet of drawings I have shown one embodiment which operates with high efficiency, and in the drawings Fig. 1 is a side view of the device, parts being broken away; Fig. 2 is a plan view of the same; and Fig. 3 is a sectional view substantially along the line 3—3 of Fig. 2.

In the construction shown in the drawings, a casting 10 is utilized to form the gum box, and the support for the coacting rollers, as well as the means by which the device may be applied as a unit to a machine, such as an envelope making or equivalent machine. This casting contains a gum box or receptacle 11, for the gum or adhesive material, and it has a forwardly projecting arm 12, the latter having an upstanding arm or bracket 13 with which the device as a whole may be secured to a rod or equivalent member 14 on the frame of the machine, and the free end of the arm having a boss 15, with a half round bearing which in this instance engages a sleeve-like extension on a driving sprocket 16. It might be stated at this point that there are no openings in the bottom or sides of the box beneath the gum level.

Rotatably supported by the arm and located in a narrow extension 11^a of the gum box is a roller 17, whose lower part dips into the gum in the gum box so that the gum will be carried around the periphery of the roller. Coacting with the roller 17 and adapted to pick up the gum from its periphery is a second roller 18, which preferably engages the roller 17, but may be separated therefrom by a very slight clearance. This roller is rotatably mounted in an arm 19 adjustably supported by the arm 12 of the casting.

This second roller 18 transfers the gum to a rotary member 20 which may be in the form of a roller as here shown, or may be in the form of a brush, and applies the gum to the paper or articles as they are fed along, as by means of a conveyor indicated conventionally at 21, the bottom of this rotary member projecting below the bottom of

the gum box. It will of course be obvious that other means may be employed for causing relative movement between the articles to be gummed and the gumming device, as by moving the gumming device relative to the former. This rotary member 20 preferably contacts the intermediate roller 18, though as in the first instance, they may be separated by a very slight clearance without affecting to any extent the efficiency of the device.

This rotary member 20 is rotatably supported by the arm 12 of the casting, preferably on the pivotal axis of the arm 19 which carries the second roller 18, so that by adjusting the arm 19 to adjust the roller 18 with respect to the roller 17 this adjustment will not affect the relative positions of the roller 18 and rotary member 20 as far as the spacing of their surfaces is concerned. It might be mentioned at this point that the position of the roller 18 may be adjusted with respect to the rotary member 20, and this is preferably accomplished by having the shaft on which the roller 18 is mounted run in an adjustable eccentric bushing 22 at the outer end of the arm 19.

It is essential to the operativeness of my improved gumming device that the several rotary members, and particularly the rollers 17 and 18, rotate in the same direction in order that the gum will not be squeezed out from between the contacting or coating rollers, but will be picked up from one and be transferred to the other in the desired manner. The rollers may, of course, be driven in the same direction in different ways, but in this case the shafts on which they are mounted are provided with sprocket wheels 23, 24 and 25, and these sprocket wheels are rotated in the same direction by a sprocket chain 26 which turns over the driving sprocket 16. In this instance an idler sprocket 27 is also employed. Preferably the peripheral speeds of the several rollers are the same or substantially the same, though this is not absolutely essential, it being important, however, that the peripheral speed of the applying roller or brush be the same as, and in some instances faster than the linear speed of the articles being gummed.

With a device constructed as described, having coacting rollers driven as explained, the gum is picked up by roller 17 and transferred to the intermediate roller 18, and is by this roller transferred to the applying roller or brush 20 without any wastage of gum whatsoever, and at the same time the gum is applied very effectively to the paper or articles as they are fed through the machine, the amount of gum that is applied to the articles to be gummed, and in fact, the amount that is transferred from one roller to the other being controllable

by means of an adjustable blade or wiper 28 which is supported by the gum box in any suitable manner with its edge adjacent the periphery of the roller 17, in this instance, by means of a coil spring 29 beneath the blade, and a wing nut 30 above the blade on a threaded stud 31. The forward edge of the blade can be made to approach or recede from the periphery of the roller 17 so as to provide as narrow or wide a slot as desired for the passage of the adhesive between the blade and the periphery of the roller, the rear end of the blade being attached to a rotary cross-piece 32 extending between the sides of the gum box. Other means for controlling or varying the amount of adhesive carried around the periphery of roller 17 may, however, be employed.

Not only is the gum transferred in the manner stated, in a very effective manner from one roller to the other, and finally applied to the articles to be gummed, but should the feeding of the articles be stopped, there is no wastage of the gum, but it is conveyed back from the applying roller or brush to the gum box, being transferred from the latter to the intermediate roller, and from the intermediate roller to the initial or feeding roller 17, this result being due to the fact that the rollers rotate in the same direction. In fact, it will be observed that in the embodiment of the invention here shown, the rotary member 20 is in the form of a roller having a grooved periphery, and with two gum applying peripheral portions 20^a which enables the gum to be applied onto the articles at one point, or along one line, or at two points, or along two lines, depending upon the amount that the articles to be gummed project across the surface of the roller 20 while the gumming is being done. Even though the articles to be gummed engage only the inner peripheral portion 20^a of the roller 20, and no gum is picked up from the outer peripheral portion 20^a, nevertheless, the gum that is applied to this portion in the operation of the gumming device is returned in precisely the manner stated, back to the gum box.

As before stated, my invention may be carried out by means other than here shown, or with the parts differently arranged and constructed. For example, it is not essential that the rollers be supported on a part integral with the gum box, or that they be relatively narrow rollers as here shown, for I have successfully applied the invention to long rollers for use in machines in which the gum is to be applied in a wide strip onto the articles to be gummed, and, as previously stated, the applying rotary member may be in the form of a brush instead of a smooth surfaced roller.

Having described my invention, I claim:

1. In a gumming device, a receptacle for

gum or adhesive, and a plurality of rotary members having adjacent peripheral portions by which the gum is taken from the gum receptacle and applied to articles to be gummed, the rotary member which applies the gum to the articles, and the rotary member which applies the gum to said member both rotating in the same direction.

2. In a gumming device, a receptacle for gum or adhesive and a plurality of coating rotary members arranged in a series with their peripheral portions adjacent each other so that the gum may be transferred from one rotary member to the other, and including a feeding member projecting into the receptacle, an intermediate member, and an applying member which receives gum from the intermediate member and applies it to the articles to be gummed, and means for

rotating the intermediate member and the applying member in the same direction. 20

3. In a gumming device, a gum box for gum or adhesive, and a plurality of coating rotary members arranged in a series with their peripheral portions adjacent each other so that gum may be transferred from one rotary member to another, said rotary members including a feeding member projecting into the box, an intermediate rotary member which receives gum from the first-named, and an applying rotary member which receives gum from the second-named and applies it to the articles to be gummed, and means for rotating all said rotary members in the same direction. 25 30 35

In testimony whereof, I hereunto affix my signature.

HARRY F. AFFELDER.