E. E. BROOKES.

WINDOW ENVELOP MACHINE.

APPLICATION FILED JULY 29, 1919.

1,338,119. Patented Apr. 27, 1920.

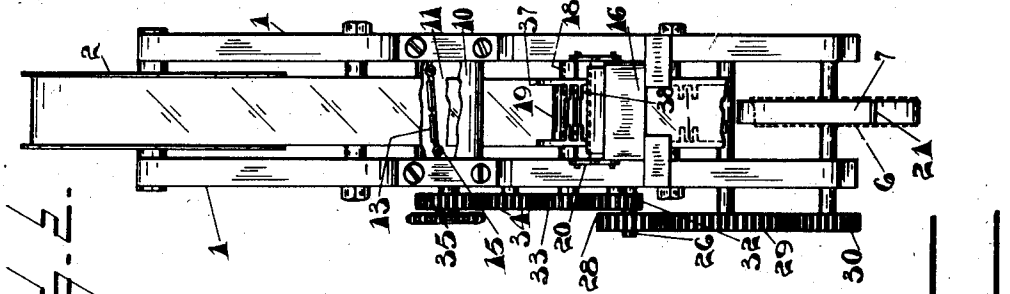


Fig. 2.

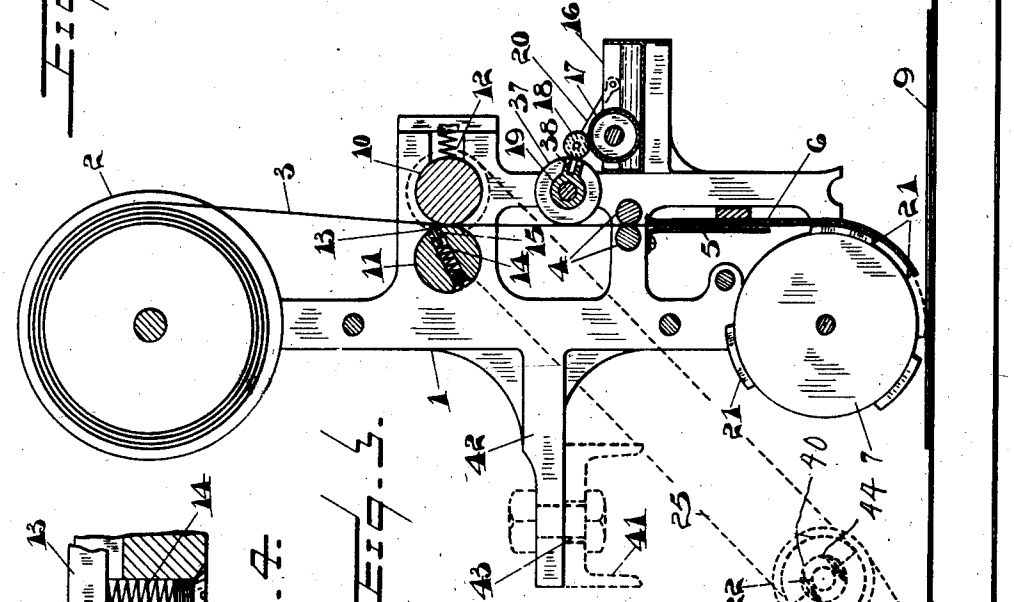


Fig. 3.

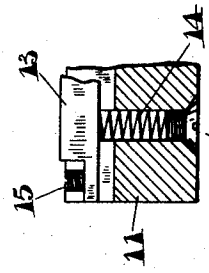


Fig. 4.

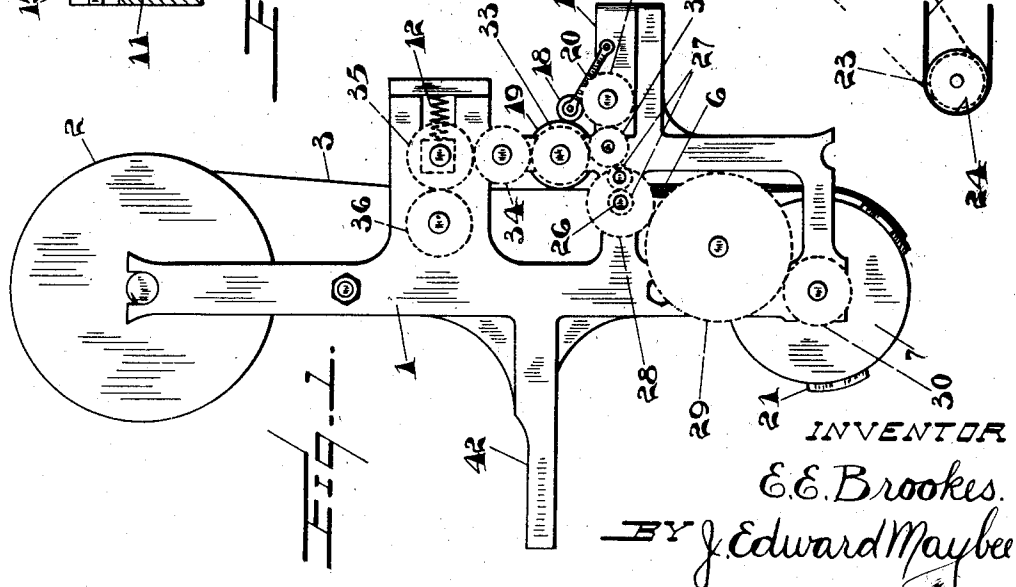


Fig. 1.

INVENTOR

E. E. Brookes.

BY J. Edward Maybee

ATTY.

UNITED STATES PATENT OFFICE.

EDWARD EARNEST BROOKES, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO W. J. GAGE & COMPANY, LIMITED, OF TORONTO, CANADA.

WINDOW-ENVELOP MACHINE.

1,338,119. Specification of Letters Patent. Patented Apr. 27, 1920.

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To all whom it may concern:

Be it known that I, EDWARD E. BROOKES, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Window-Envelop Machines, of which the following is a specification.

This invention relates to apparatus adapted to secure in position the transparent panels or windows used to close the window openings in window envelops, and my object is to devise apparatus of this type which may be used with existing envelop machines and by means of which the panels may be applied to openings located in any position in the front of the envelop.

I attain my object by means of the constructions hereinafter described and illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the apparatus;

Fig. 2 a front elevation of the same; and

Fig. 3 a side elevation, partly in section; and

Fig. 4 a sectional detail of the rotary knife of the severing device.

In the drawings like numerals of reference indicate corresponding parts in the different machines.

1 is a frame suitably shaped to support the different parts. On the top of this frame is journaled the supply roller 2 which carries a band 3 of window material. From this roller the band passes between the rollers of the severing device, hereinafter more particularly described, to the feed rollers 4. From these feed rollers the band passes between the guide members 5 and 6 to a position beneath the rotary window applying roller 7, which lies close above the surface of the endless carrier 8 for the envelop blanks 9. Between the feed rollers and the severing rollers a gumming device constructed as hereinafter described is located.

The severing device comprises a plain roller 10 supported in slotted bearings and normally pressed toward the roller 11 by coil springs 12. The roller 11 is longitudinally slotted and a knife 13 is supported therein, normally resiliently extended, by springs 14. Grub screws 15 hold the knife 13 in place and limit its extension, (see Fig. 4.) This knife is discontinuous and does not extend the full width of the band so that the band is only partly not completely severed. The roller 11 is of a circumference substantially equal to the length of the piece of material required to form the window, and is driven as hereinafter described.

The gumming device is in the main of ordinary construction, comprising a tank 16, a pick-up roller 17, a transferring roller 18, and a gumming roller 19. The rollers 17 and 19 are driven as hereinafter described, while the transferring roller is carried on the pivoted arms 20. The guide 5 extends straight down from beneath the feed rollers 4 parallel to the upper portion of the guide 6. The lower end of this guide 6, which is formed of resilient material, is curved concentric with the applying roller 7. It is preferably adapted to be substantially engaged by the projections 21 on the roller, these projections being formed of some comparatively soft clinging material, such as soft rubber.

The driving mechanism is arranged substantially as follows: 22 is any convenient shaft of the envelop machine to which the window attaching device is applied. This shaft will be one which is geared in some manner with one of the rollers or wheels carrying the carrier 8. This is illustrated diagrammatically in Fig. 3, sprocket gearing 23 being shown whereby the shaft 22 is driven in synchronism with the roller 24 carrying the carrier 8. By means of sprocket gearing 25 the spindle of the roller 10 is driven from the shaft 22. The feed rollers 4 are preferably geared together by means of the gearing 27 (see Fig. 1). On the spindle 26 is secured a gear pinion 28 meshing with a suitably journaled intermediate gear wheel 29 which meshes with a gear pinion 30 secured to the spindle of the window applying roller 7.

The gumming apparatus is driven by means of a gear pinion 31 meshing with one of the gears 27. This pinion 31 meshes with the gear wheel 32 fast on the spindle of the pick-up roller 17 and the gear wheel 33 secured to the spindle of the gumming roller 19. The gear wheel 33 meshes with the intermediate gear wheel 34, which meshes with the gear wheel 35 secured to the spindle of the roller 10. The gear wheel 35 in turn meshes with the gear wheel 36 secured to the spindle of the roller 11. The gearing

is so proportioned that the peripheral speed of the feed rollers and the severing rollers is substantially the same, while the peripheral speed of the applying roller may be somewhat greater, hence the applying roller by virtue of the fact that the projections 21 thereon press the band of window-forming material against the curved lower end of the guide member 6 and against the envelop blank, pull on the end of the band, and break away the part of the severed portion from the remainder of the band.

It will be noted particularly on reference to Figs. 2 and 3 that the gumming rollers are arranged to gum only the edges of the band of window material, and in addition part only of the ends of each separate window piece. The gumming roller is therefore formed with circular flanges 37 from which extend short inward projections 38. There is therefore after the band has been gummed a central portion along the band where there is no gum. The guides 5 and 6 are in width no greater than this ungummed portion of the band, and the applying roller and its projections are preferably no wider than the guides, so that the gummed portions of the end piece of the band of window forming material do not contact with any part whatever until they reach a position to contact with the envelop blank, so that after the band is gummed none of the adhesive material is rubbed from the band and perfect attachment to the envelop blank is secured.

It is necessary to arrange the apparatus so that the window may be attached in any desired position in the front of the envelop. This necessitates some arrangement whereby the position of the device transversely of the envelop machine may be adjusted, and also some means of adjustment whereby the relative positions of the envelop blank and the window being applied may be altered. This latter adjustment I attain by providing means whereby the position of the projections on the applying roller may be varied relative to the traveling carrier 8. This is readily effected by making the sprocket wheels 25 rotarily adjustable on the shaft 22. This may be accomplished in various manners. I illustrate the wheel as being divided and clamped by a split collar 40 provided with clamping bolts 44. The adjustment of the device transversely of the machine is effected by supporting it on a transverse member 41 forming part of or secured to the envelop machine, the frame 1 being provided with the arm 42 secured to this transverse member by means of a bolt and slot connection 43.

What I claim as my invention is:—

1. The combination with an envelop machine provided with a traveling carrier for envelops of a window attaching device secured to the machine and adjustable thereon transversely of the carrier; gearing between the carrier and the window attaching device; and means included in said gearing for varying the timing of the attaching device relative to the carrier.

2. A window attaching device for window envelops comprising a frame; a supply roller for a band of window material journaled on said frame; feed rollers journaled on the frame and between which the band passes; means located between the feed rollers and the supply roller for partly severing the band; a gumming device located between the feed rollers and the severing device adapted to gum the edges of the band; a rotary applying device having a greater peripheral speed than the feed rollers and therefore adapted to tear off from the band a partly separated window; and a guide adapted to guide the band to a position for engagement by the applying device, said guide being engageable by the applying device to tear off the partly separated window.

3. A window attaching device substantially as set forth in claim 2 in which the guide is narrower than the band and the lower end is resilient and is curved substantially concentric to the applying device, the latter being provided with resilient projections adapted to press the band against and draw it along the curved end of the guide.

4. A window attaching device substantially as set forth in claim 2 in which the guide is tubular at its upper part and single at the lower part, the outer side being extended downward and curved under the applying device.

Signed at Toronto, Canada, this 5th day of June, 1919.

EDWARD EARNEST BROOKES.