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D. H. POPE
MACHINE FOR WRAPPING AND LABELING
NEWSPAPERS, MAGAZINES, AND
THE LIKE

2,620,609

Filed Jan. 26, 1949

2 SHEETS—SHEET 1

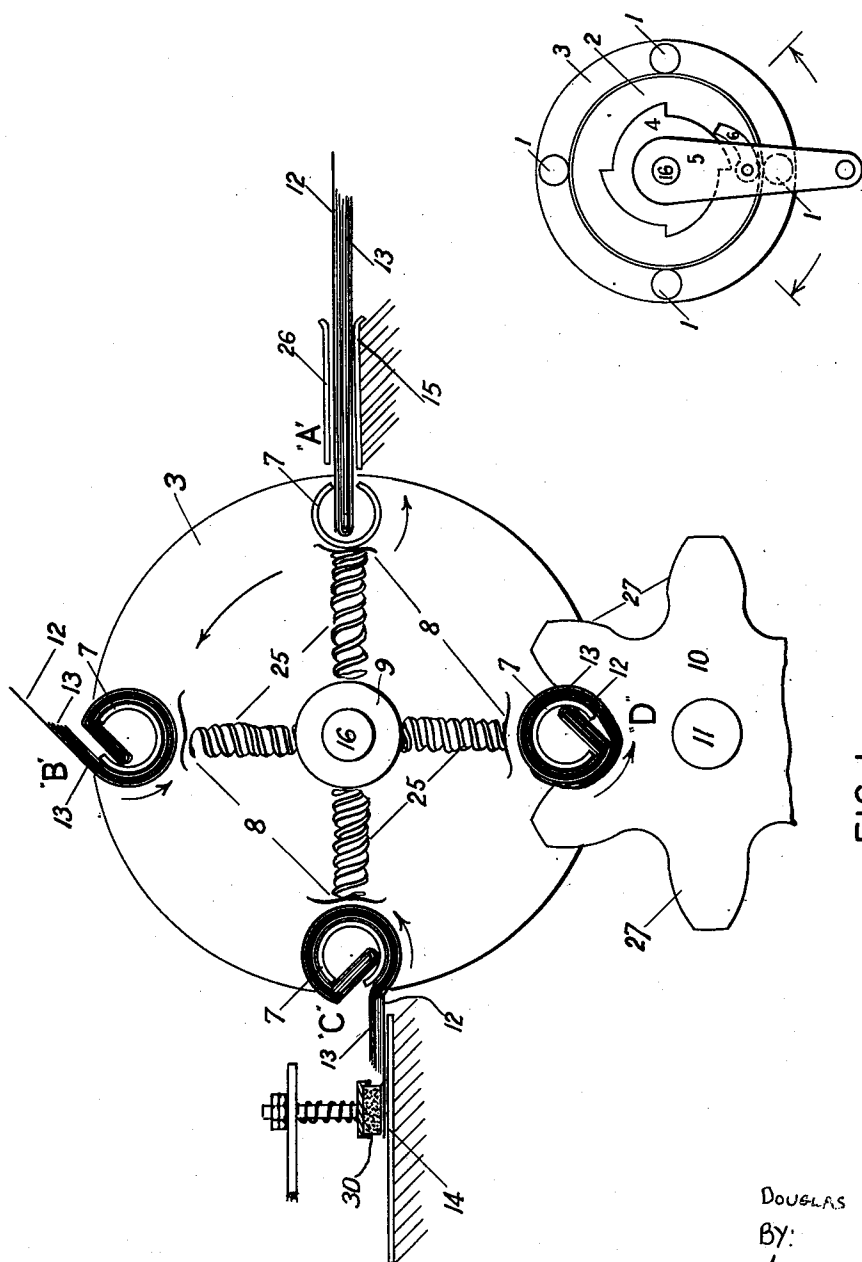


FIG. 3

FIG. 1

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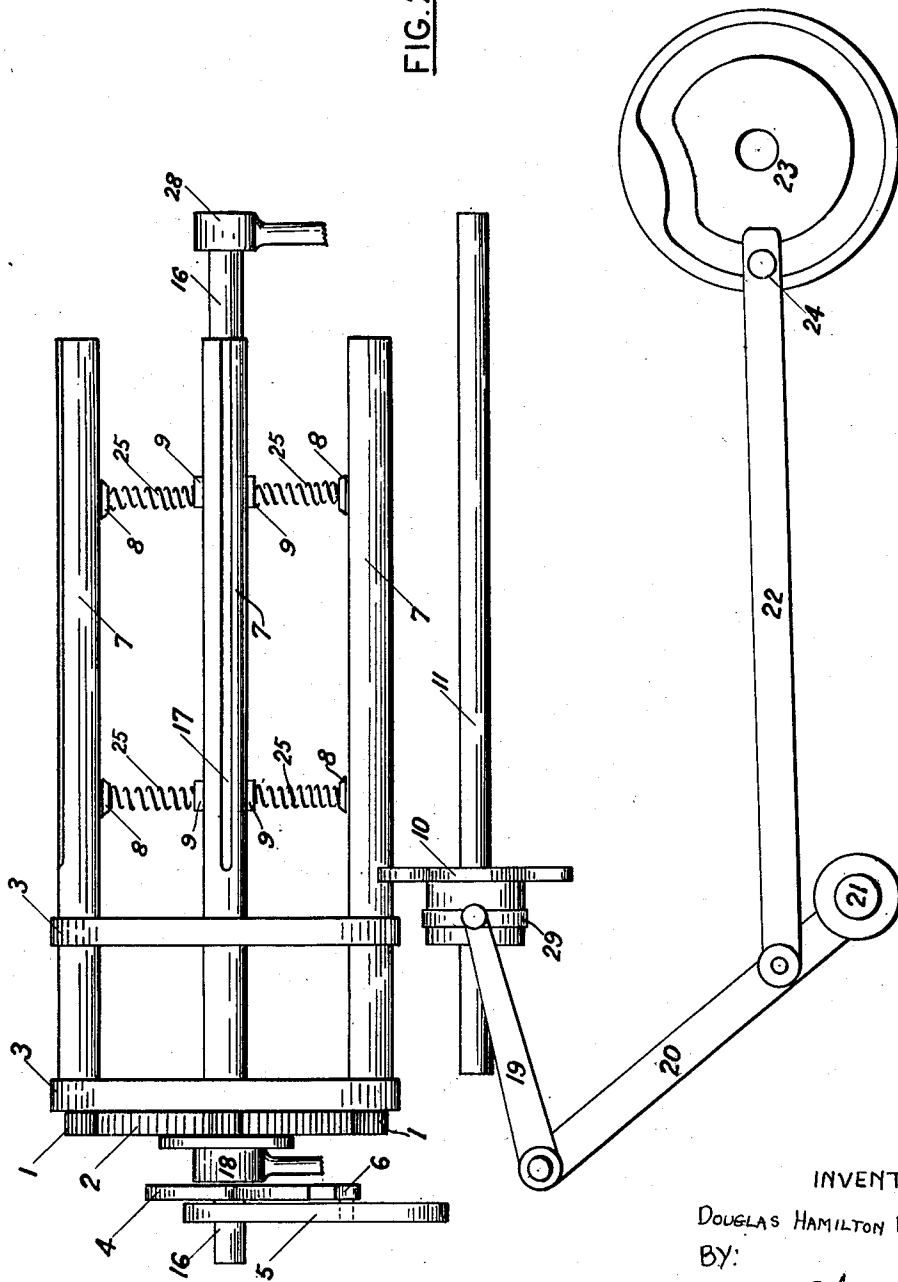
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2 SHEETS—SHEET 2

FIG. 2



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UNITED STATES PATENT OFFICE

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MACHINE FOR WRAPPING AND LABELING
NEWSPAPERS, MAGAZINES, AND THE LIKEDouglas H. Pope, Boondall, Queensland, Australia,
assignor of one-half to Mervyn Harold Hamilton
Wills, Brisbane, Queensland, AustraliaApplication January 26, 1949, Serial No. 72,825
In Australia February 13, 1948

4 Claims. (Cl. 53—52)

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This invention relates to a machine for wrapping and labelling newspapers, magazines and the like and has as its object the provision of a comparatively simple machine into which such articles and their labels may be introduced, and by a rotary motion, be rolled, fastened with adhesive and ejected from the machine.

According to this invention the machine consists of a framework designed to receive the articles to be folded, a main shaft or axle equipped with an end or head member on which are mounted a plurality of planetary gears which mesh with a stationary gear or sun wheel mounted concentrically of the said main shaft. The planetary gears are fitted on the ends of engaging means such as hollow or split winding or wrapping spindles, in such manner that as the head member is caused to rotate the planetary gears being in mesh with the sun gear will rotate, carrying with them in rotation the said spindles.

The main shaft is caused to rotate for part of a revolution, remain stationary for a period, and again rotate for a further part of a revolution, the number of part rotations and stops in each complete rotation being the same as the number of planetary gears and spindles. For instance where three operations requiring separate pauses only are being performed, such as feeding in, gumming and ejecting a paper, it will only be necessary for three planetary gears and spindles to be used. However the number of spindles may be increased together with the planetary gears and is not limited to any precise number.

As the spindle, which has received the end of the paper and the label moves from the feeding in position to the gumming position it is caused to rotate and thus rolls the paper and label around it. During the period at rest the end of the label is brushed with adhesive, when the paper is further rotated while being moved to the ejecting position whence during the next pause it is ejected from the machine, the spindle rotating further to the feeding in position to receive the end of another paper and label.

The spindles are geared so that at each stop the opening therein is radially directed outwardly. At each rest period for the spindles a paper is inserted in the spindle at the feeding in position, adhesive is brushed on the end of the label at the gumming position and the paper is ejected from the spindle at the ejecting position.

When it is desired to roll a paper on itself without a separate label, the adhesive is applied at the gumming position to the end of the paper itself.

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As the spindles are supported at one end only the head member in which they are mounted is specially designed as with two spaced discs carrying bearings (in which the spindles rotate) to enable the accurate alignments of the spindles to be maintained. The main shaft may have the above-described intermittent movement of rotation transmitted to it by any suitable means known to those skilled in the art, but in a preferred construction the means consist of a ratchet and pawl arrangement.

The spindles may be of selected size to suit the type of paper being wrapped and may be of any desired shape. While this motion of the ejector plate may be effected in various ways, in a preferred construction it is done by a cam and lever link motion.

To ensure that the paper is wound to the desired degree of tightness on the spindles spring-loaded pads mounted on the main shaft press against the spindle, or the outer fold of the paper or label being wound thereon as the case may be.

In a modification the springs may be carried on arms attached to the end member.

In order to describe the invention more fully, reference will now be made to the accompanying drawings which depict a form of the invention in which four spindles and planetary gears are used and wherein:

Figure 1 is a fragmentary diagrammatic end view of the machine, while

Figure 2 is a side elevation thereof, and

Figure 3 illustrates a suitable pawl and ratchet assembly for intermittently rotating the main shaft of such machine.

The machine as depicted consists of a suitable framing adapted to support the integers now to be described.

A main shaft or axle 16 is mounted in suitable bearings 18 and 28 extending from the machine framing and carries a fore end member or head 3 fixed thereon and formed of spaced plates so as to keep certain spindles 7 later referred to carried therefrom in alignment and in a rigid manner.

At the fore end the main shaft 16 carries a ratchet gear 4 fixed thereon which is engaged by a pawl 6 pivotally carried on an oscillating arm 5 having free semi-rotary movement on the said main shaft 16 and being operated by a cam, eccentric or the like (not shown) driven from any suitable power source in known manner after the forms of various mechanisms to intermittently rotate the said main shaft 16.

The spindles 7 are arranged at equally spaced intervals about the head member 3 extending

therefrom parallel with the main shaft 16 and are rotatably mounted in said head and pass therethrough at their fore ends and each have mounted thereon a planetary gear 1 meshing with a sun wheel 2 concentric with the main shaft 16. These spindles 7 form wrapping members and have an elongated opening 17 therein extending in from the outer end to a point near the head 3 and are appropriately shaped to receive the end of a paper or magazine indicated at 13 in Figure 1, together with a label indicated by numeral 12, and are later referred to in the description of operation. In this construction the wrapping spindles 7 are four in number but this may be varied, as previously mentioned.

Inwardly of each wrapping spindle 7 there is a pressure pad 8 mounted to move towards its related spindle by means of a compression loading spring 25 secured at the outer end to said pad 8, and at the other end fixed to a collar 9 fast on the main shaft 16. These pads 8 are suitably curved or otherwise shaped to more or less conform to the curvature of the said rollers 7 which they are adapted to resiliently contact in such a manner as to co-act therewith in a rolling wrapping action exerted upon the paper 13 and label 12 in the action of wrapping same, as later more fully described.

At one side of the machine preferably in a horizontal plane, there is a guide for the reception of a paper and its label to lead same to a wrapping roller 7 as each is successively positioned opposite thereto with its slot 17 in register. This guide as shown consists of a lower guide plate 15 and upper guide plate 26 suitably spaced apart and supported on or from the machine framing. If desirable these plates may be adjustable so that they can be set apart or moved closer together.

At the other side of the main shaft 16 and its associated mountings a gumming table 14 is arranged at a position where each wrapping spindle 7 is adapted to register with a protruding portion of a label extending beyond the paper 13 and which label end is deposited on the said table while a gumming brush or other applicator 30 supplies gum thereto.

At a position at one side of the main shaft 16 say on the underside at a point where each wrapping roller 7 is positioned successively vertically of the shaft axis where the wrapping operation is complete, ejector mechanism is fitted in the machine framing, and consists of an ejector plate 10 of toothed or slotted form having a series of equally spaced cavities therein which are shaped more or less complementary to a wrapping roller and such ejector plate 10 is slidably positioned on a shaft 11 fixed in brackets or the like (not shown) fast to or from the machine framing. The position of this shaft 11 is such that the ejector plate cavities each take about a portion of a wrapping roller 7 as same is advanced thereto, and the said plate rotating on the said shaft 11 to bring its cavities into position.

The ejector plate 10 is affixed to a collar 23 which is also slidable on the fixed shaft 11. A link 19 is pivoted at one end to the collar 23 and at the other end connects to a lever 20 pivoted at its outer end on a shaft 21, and such lever 20 outwardly of said shaft 21 is connected by an arm 22 to a stud 24 contacting an operating cam 23 adapted to be driven in any suitable manner to synchronise the movement of the ejector

plate 10 with the pause in rotation of the main shaft 16 and its wrapping spindles 7.

In operation a paper or the like 13 and label 12 are directed through the guide opening between the plates 15-26 so that the leading ends of said paper and label are positioned in the opening 17 of the wrapping spindle 7 aligned with what is herein termed a feeding in position A (see Figure 1). The main shaft 16 being rotated in an anticlockwise direction by means of the pawl 6 operating on the ratchet 4 the spindles 7 are rotated by their planetary gears 1, and as the spindle assembly rotates, the paper 13 and label 12 are rolled about their related spindle 7 tension of the wrapping being maintained by the pads 8 pressed into contact with the matter to be wrapped by the springs 25. The rolling is shown at position B and at gumming position C, the paper 13 is fully wrapped, but the end of the label is protruding and gum is applied thereto, the shaft 16 and its assembly being halted during such operation. As the spindle 7 moves on and passes from position C to ejecting position D the wrapping of the gummed end of the label 12 about the paper is completed, and the assembly is again stopped while the wrapped paper 13 is ejected by the ejector plate 10 which is moved along its shaft 11 for the purpose.

As one wrapped paper or the like has been ejected the spindle assembly again moves, the ejector plate 10 partially revolving on its shaft 11, the next spindle 7 fits into the following plate cavity.

It will be seen that in the stopping operations an article can be loaded in, gumming and ejection effected at the positions shown in Figure 1 so that there are not separate stops for such operations.

I claim:

1. A machine for wrapping and labeling flat flexible articles such as newspapers, magazines and the like, comprising in combination, a rotatable carrier having an axis of rotation; at least one wrapping spindle rotatably mounted at one end thereof on said carrier and projecting therefrom so as to have a free end, said wrapping spindle having an axis of rotation extending parallel to the axis of rotation of said carrier; means for intermittently rotating said carrier so that said wrapping spindle moves intermittently along a circular path between consecutive positions of rest along said circular path; means on said wrapping spindle for transversally receiving and holding an edge portion of a flat flexible article to be wrapped and a sheet-shaped wrapper superimposed on one face of said flexible article; a feeding station for feeding one of said flexible articles and one of said sheet-shaped wrappers superimposed on one face of said article to said wrapping spindle, said feeding station being located adjacent the circular path of said wrapping spindle at the first of said positions of rest of the same in a plane defined by the axis of rotation of said carrier and the axis of rotation of said wrapping spindle while facing said feeding station; guiding means engaging said flat flexible article and said wrapper superimposed thereon for wrapping the same around said wrapping spindle during rotation of said wrapping spindle relative to said rotatable carrier; means for rotating said wrapping spindle only during rotation of said carrier so that during rotation thereof from said first position of rest to a second position of rest said flat flexible arti-

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cle and said wrapper superimposed thereon are partly wrapped around said wrapping spindle so that said wrapper projects outwardly from said flexible article; an adhesive applying station for applying an adhesive to said projecting portion of said wrapper, said adhesive applying station being located adjacent the circular path of said wrapping spindle at said second position of rest of said carrier, said rotating wrapping spindle cooperating with said guiding means to cause, during rotation of said carrier from said second position of rest into a third position of rest, the adhesive portion of the wrapper to be wrapped upon the wrapped wrapper and flexible article so as to firmly secure said wrapper and to form a wrapped tubular flexible article; ejector means for removing said wrapped flexible article, said ejector means being reciprocally movable parallel to said wrapping spindle and located adjacent the circular path of said wrapping spindle at said third position thereof; means supporting said ejector means for sliding movement parallel to said wrapping spindle; and means for reciprocating said ejector means during said third rest period of said carrier.

2. A machine for wrapping and labeling flat flexible articles such as newspapers, magazines and the like, comprising in combination, a rotatable shaft having an axis of rotation; a carrier fixedly mounted on said shaft; means for intermittently rotating said shaft; at least one wrapping spindle rotatably mounted at one end thereof on said carrier and projecting from said carrier so as to have a free end, said wrapping spindle having an axis of rotation parallel to the axis of rotation of said shaft; gear means connecting said shaft with said wrapping spindle for rotating said wrapping spindle during rotation of said carrier and for stopping said wrapping spindle when said carrier is in a rest period during the intermittent rotation of said shaft; means on said wrapping spindle for transversally receiving and simultaneously holding an edge portion of a flat flexible article to be wrapped and a sheet-shaped wrapper superimposed on one face of said flat flexible article; a feeding station for feeding an article to said wrapping spindle, said feeding station being located adjacent to the path of said wrapping spindle in a plane defined by the axis of rotation of said carrier and by the axis of rotation of said wrapping spindle during a first rest period in the intermittent rotation of said carrier; guiding means engaging said flexible article and said wrapper for wrapping said article and said wrapper around said wrapping spindle during rotation of said carrier and of said wrapping spindle; a gumming station located behind said feeding station in the direction of rotation of said carrier and including means for supporting a projecting end portion of a partly wrapped wrapper, and means for applying gum to said end portion of said wrapper, said gumming station being located in a plane defined by the axis of said carrier and by the axis of said wrapping spindle during a second rest period in the intermittent rotation of said carrier and being spaced from said feeding station so that an article and a wrapper fed at said feeding station to said wrapping spindle are partly wrapped around said wrapping spindle when arriving at said gumming station; ejector means reciprocally movable parallel to said wrapping spindle and located behind said gumming station in the direction of rotation of said carrier for ejecting a completely wrapped arti-

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cle from the free end of said wrapping spindle during a third rest period in the intermittent rotation of said carrier, said gummed end portion having been stuck to the main portion of said wrapper and the ejected article having been completely enclosed in a wrapper during movement of said wrapping spindle from the gumming station to the ejector means; means supporting said ejector means for sliding movement parallel to said wrapping spindle; and means for reciprocating said ejector means during said third rest period of said carrier.

3. A machine for wrapping and labeling flat flexible articles such as newspapers, magazines and the like, comprising in combination, a rotatable shaft having an axis of rotation; a carrier fixedly mounted on said shaft; means for intermittently rotating said shaft; at least one wrapping spindle rotatably mounted at one end thereof on said carrier and projecting from said carrier so as to have a free end, said wrapping spindle having an axis of rotation parallel to the axis of rotation of said shaft; gear means connecting said shaft with said wrapping spindle for rotating said wrapping spindle during rotation of said carrier and for stopping said wrapping spindle when said carrier is in a rest period during the intermittent rotation of said shaft; means on said wrapping spindle for transversally receiving and simultaneously holding an edge portion of a flat flexible article to be wrapped and a sheet-shaped wrapper superimposed on one face of said flat flexible article; a feeding station for feeding an article to said wrapping spindle, said feeding station being located adjacent to the path of said wrapping spindle in a plane defined by the axis of rotation of said carrier and by the axis of rotation of said wrapping spindle during a first rest period in the intermittent rotation of said carrier; guiding means engaging said flexible article and said wrapper for wrapping said article and said wrapper around said wrapping spindle during rotation of said carrier and of said wrapping spindle; a gumming station located behind said feeding station in the direction of rotation of said carrier and including means for supporting a projecting end portion of a partly wrapped wrapper, and means for applying gum to said end portion of said wrapper, said gumming station being located in a plane defined by the axis of said carrier and by the axis of said wrapping spindle during a second rest period in the intermittent rotation of said carrier and being spaced from said feeding station so that an article and a wrapper fed at said feeding station to said wrapping spindle are partly wrapped around said wrapping spindle when arriving at said gumming station; ejector means reciprocally movable parallel to said wrapping spindle and located behind said gumming station in the direction of rotation of said carrier for ejecting a completely wrapped article from the free end of said wrapping spindle, during a third rest period in the intermittent rotation of said carrier, said gummed end portion having been stuck to the main portion of said wrapper and the ejected article having been completely enclosed in a wrapper during movement of said wrapping spindle from the gumming station to the ejector means; means supporting said ejector means for sliding movement parallel to said wrapping spindle; and means for reciprocating said ejector means during said third rest period of said carrier.

4. A machine for wrapping and labeling flat

flexible articles such as newspapers, magazines and the like, comprising in combination, a rotatable shaft having an axis of rotation; a carrier fixedly mounted on said shaft; means for intermittently rotating said shaft; at least one wrapping spindle rotatably mounted at one end thereof on said carrier and projecting from said carrier so as to have a free end, said wrapping spindle having an axis of rotation parallel to the axis of rotation of said shaft; gear means connecting said shaft with said wrapping spindle for rotating said wrapping spindle during rotation of said carrier and for stopping said wrapping spindle when said carrier is in a rest period during the intermittent rotation of said shaft; means on said wrapping spindle for transversally receiving and simultaneously holding an edge portion of a flat flexible article to be wrapped and a sheet-shaped wrapper superimposed on one face of said flat flexible article; a feeding station for feeding an article to said wrapping spindle, said feeding station being located adjacent the path of said wrapping spindle in a plane defined by the axis of rotation of said carrier and by the axis of rotation of said wrapping spindle during a first rest period in the intermittent rotation of said carrier; guiding means engaging said flexible article and said wrapper for wrapping said article and said wrapper around said wrapping spindle during rotation of said carrier and of said wrapping spindle; a gumming station located behind said feeding station in the direction of rotation of said carrier substantially diametrically thereto and including means for supporting a projecting end portion of a partly wrapped wrapper, and means for applying gum to said end portion of said wrapper, said gumming station being located in a plane defined by the axis of

said carrier and by the axis of said wrapping spindle during a second rest period in the intermittent rotation of said carrier and being spaced from said feeding station so that an article and a wrapper fed at said feeding station to said wrapping spindle are partly wrapped around said wrapping spindle when arriving at said gumming station; ejector means reciprocably movable parallel to said wrapping spindle and located behind said gumming station in the direction of rotation of said carrier for ejecting a completely wrapped article from the free end of said wrapping spindle during a third rest period in the intermittent rotation of said carrier, said gummed end portion having been stuck to the main portion of said wrapper and the ejected article having been completely enclosed in a wrapper during movement of said wrapping spindle from the gumming station to the ejector means; means supporting said ejector means for sliding movement parallel to said wrapping spindle; and means for reciprocating said ejector means during said third rest period of said carrier.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
486,088	Crowell	Nov. 15, 1892
593,959	Clark	Nov. 16, 1897
828,630	Scott	Aug. 14, 1906
981,017	Sheldon	Jan. 10, 1911
1,060,983	Kempf	May 6, 1913
1,166,737	Baird	Jan. 4, 1916