No. 832,289. PATENTED OCT. 2, 1906.

A. L. BOUCHER.

CIGARETTE FINISHING MACHINE.

APPLICATION FILED MAR. 6, 1906.

3 SHEETS—SHEET 1.

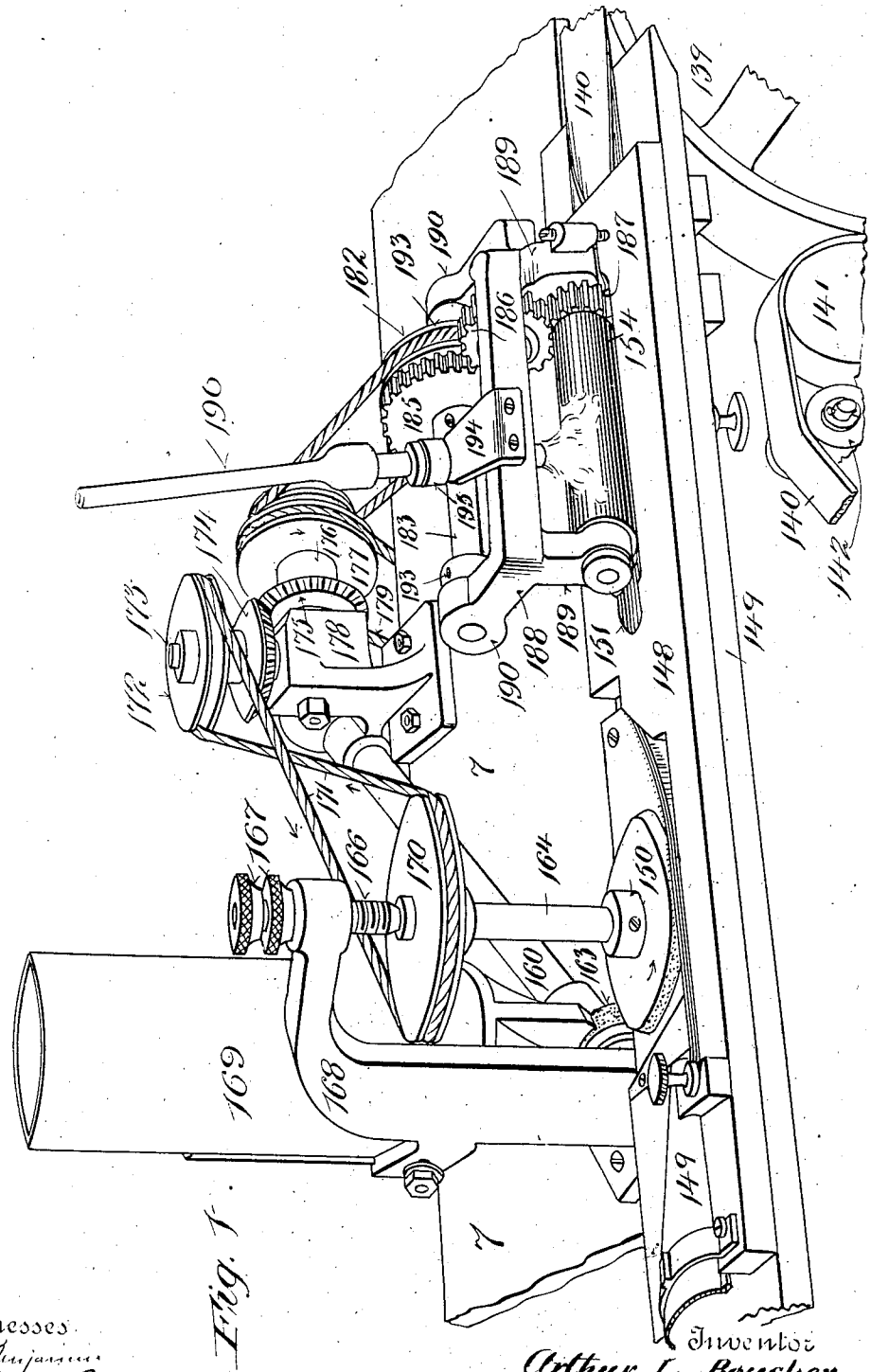


Fig. 1.

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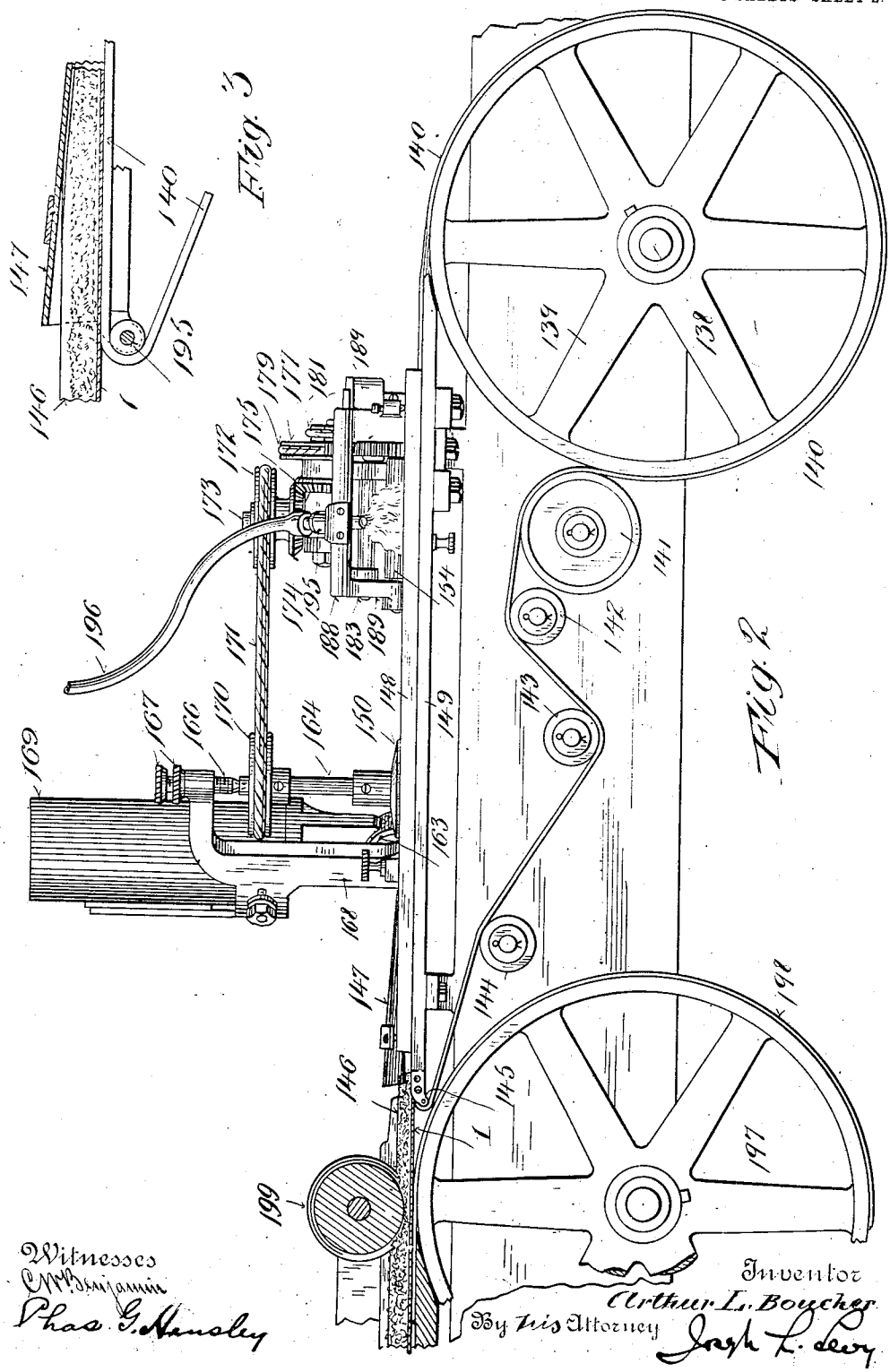
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3 SHEETS—SHEET 2.



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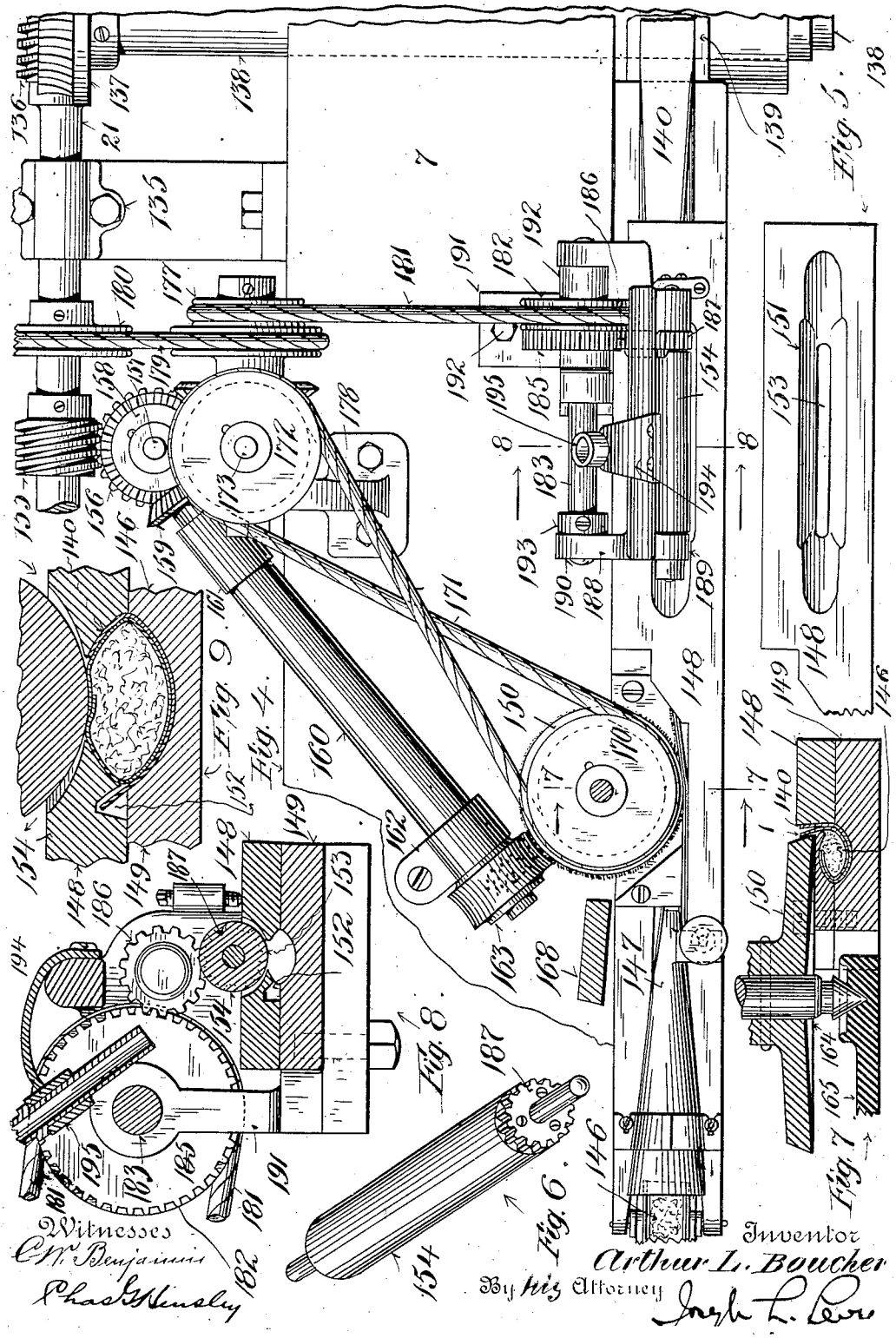
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ARTHUR L. BOUCHER, OF NEW YORK, N. Y., ASSIGNOR TO NEW YORK CIGARETTE MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CIGARETTE-FINISHING MACHINE.

No. 832,289. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed March 6, 1906. Serial No. 304,464.

To all whom it may concern:

Be it known that I, ARTHUR L. BOUCHER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, and State of New York, have invented certain new and useful Improvements in Cigarette-Finishing Machines, of which the following is a specification.

The object of my invention is to provide an ordinary cigarette-machine with means for rapidly and accurately heating and drying the freshly-pasted seam, so that this seam will always be firmly and properly held. This object is accomplished by means of my invention, one embodiment of which will be hereinafter more particularly set forth.

For a more particular description of my invention reference is to be had to the accompanying drawings, forming a part hereof.

Figure 1 is a perspective view of my improvement and that part of a cigarette-machine to which it relates. Fig. 2 is a front elevation of the same. Fig. 3 shows a detail in section of the cigarette-rod-forming mechanism. Fig. 4 is a plan view of the structure shown in Fig. 1. Fig. 5 shows a recessed plate in which a roller revolves. Fig. 6 is a perspective view of this roller, which revolves in the plate 5. Fig. 7 is a sectional view taken on the line 7 7 of Fig. 4 looking in the direction of the arrows. Fig. 8 is a similar view taken on the line 8 8 of Fig. 4. Fig. 9 is a sectional view greatly enlarged and taken on the same line as Fig. 8, but showing only a portion of the structure and also showing a cross-section of the cigarette-rod.

Throughout the various figures of the drawings similar reference characters designate similar parts.

This application shows an independent improvement which may or may not be placed on the same cigarette-machine as that shown and described in my copending application filed of even date herewith and serially numbered 304,463.

The frame of the cigarette-machine is indicated by the character 7 and the main driving-shaft by the character 21, which characters are the same as those used for the same parts in my aforesaid copending application. The shaft 21 is suitably supported by suitable bearings 135, which are placed in the rear of the machine in any convenient position. Near one end the shaft 21 is provided with a worm-gear 136, which drives a corresponding worm-gear 137, fixed to a shaft 138, running transversely of the machine, which shaft carries a large pulley-wheel 139 on the front of the machine. This pulley 139 carries a belt or ribbon 140, which belt also passes over idle pulleys or rollers 141 and 142, thence under a roller 143, and thence over another roller 144, and finally around a very small roller 145. These rollers 142 to 145, inclusive, are all mounted on the front of the machine, as indicated in Fig. 2. From the roller 145 the belt 140 passes under the paper web 1, which is bent to form a trough and which contains the filling 146, and this passes through the funnel 147, where the belt 140 is bent snug around the web 1, except that, as indicated in Fig. 7, the web 1 and the ribbon 140 each have a substantial vertical portion. The vertical portion of the belt 140 comes in contact with the long tube which extends from the smaller end of the funnel 147 and is composed of two plates 148 and 149, held together, as indicated in Fig. 7, by a screw. The vertical part of the web 1 comes in contact with a paste-wheel 150, which will be described more in detail below. It is sufficient to say here that the paste-wheel 150 supplies the web 1 with paste in proper quantities, and the web is then fed along, together with the filling 146 and belt 140, to a position under the opening 151 in the plate 148. The opening through which the cigarette-rod passes from the paste-wheel is slightly changed after leaving this paste-wheel, so that gradually the vertically-disposed portion of the belt (shown in Fig. 7) is carried over into a recess 152, (shown in Figs. 8 and 9,) and meanwhile the paper web 1 of the cigarette-rod, which has been freshly covered with paste, is bent over the filling 146 and is pressed down against the other edge of the web 1 and in this condition is brought under the small slot 153 in the opening 151, where it comes in contact with a roller 154, as will more fully appear below. From the roller 154 the cigarette-rod passes out from this portion of the machine, and the belt 140 is disengaged therefrom and passes over the wheel 139 to repeat the operation above described. The shaft 21 is also provided with a worm

155, which meshes with a worm-gear 156, which is fixed to the same vertical shaft 157 as the bevel-gear 158, which meshes with another bevel-gear 159 on a shaft 160, which runs diagonally of the frame 7 of the machine and is supported in bearings 161 and 162, respectively. At the inner end of the shaft 160 is a paste-wheel 163, which passes under a paste-can 169 and receives paste therefrom in the usual manner. This wheel 163 is so shaped and situated as to carry paste to the wheel 150 and to supply the wheel 150 with the exact amount required. The wheel 150 revolves in the direction of the movement of the web 1 through the machine, as indicated by arrows in Fig. 1, and at a higher velocity, so that there is a slight sliding contact between the web 1 and the wheel 150, whereby the paste is scraped off. This wheel 150 is mounted as follows: It is on a vertical shaft 164, the lower end of which is conical and rests in an end bearing 165. The upper end of the shaft 164 is properly centered so as to revolve round the point of a vertically-disposed screw 166, held firmly in place by jam-nuts 167 and a standard 168, to which the paste-can 169 is secured.

As the precise form of the paste-can and standard 168 is immaterial, it is not necessary to describe them further than to say that the standard 168 is properly fixed to the frame 7 of the machine. Near its upper end the shaft 164 is provided with a pulley-wheel 170, which is preferably shaped to receive a crossed cord or band 171, which also engages a smaller pulley 172 on a vertical stud-shaft 173, which stud-shaft is provided with a bevel-gear 174, which meshes with a corresponding bevel-gear 175, fixed to the shaft 176, on which are a series of cone-pulleys 177. Both the shafts 176 and 173 are supported by the pedestal 178, which rests on the frame of the machine. The cone-pulley 177 has one groove which receives a cord or other belt 179, which also passes round a corresponding pulley 180 on the main shaft 21, and another groove in the pulley 177 receives a cord 181, passing over a grooved pulley 182 and mounted on a spindle 183, which runs parallel to the roller 154 and is connected to the same by a gear 185, fixed to said shaft, which gear engages an idle gear 186, which in turn engages a pinion 187, fixed to the roller 154. The roller 154 is journaled in the frame 188, which is preferably provided with vertical arms 189, in which the said roller 154 is journaled. The frame 188 also has other arms 190, which are horizontally disposed and which are trunnioned on the shaft 183, and the shaft 183 is in turn supported by a bracket 191, secured to the frame 7 of the machine by suitable cap-screws 192. Collars 193 hold the shaft 183 in proper relation to the frame 188.

A bracket 194, secured to the frame 188, secures and supports a burner-tube 195, which is preferably a Bunsen burner and which is connected with any suitable source of gas-supply by a flexible tube 196. This burner 195 is so disposed and arranged that the flame from it plays upon and heats the roller 154, and as this roller revolves rapidly its heated surface comes in contact with the fresh seam of the cigarette-rod and dries and secures the same, so that there is no danger of this rod opening and ruining one portion of the rod, as has heretofore been common in the operation of this machine. It is not necessary to heat the roller 154 by a gas-burner, as the same result may be obtained by simply giving this roller 154 a very high speed. However, the gas-heater is preferred, as the wear and tear of the roller 154 and its driving-gear running at a high speed costs more than gas. The roller 154 always runs with the seam of the cigarette-rod, so as not to tend to unfasten it, as would be the case if run in the opposite direction. This results in a smooth and highly-finished seam, and if any superfluous paste should get outside the seam this roller carries it off, as will be clear from Fig. 9, whereby all tendency to foul the passage-way for the cigarette-rod is obviated.

At the left of Fig. 2 is shown a large pulley 197, similar in all respects to the pulley 139 and which carries a belt 198, similar to the belt 140, and also a certain compressing-roller 199, which somewhat compresses the filling 146 on the web 1, which at that time rests on the belt 198. As this mechanism is a part of the cigarette-machine and forms no part of my invention, it is shown only for convenience, and further description is unnecessary.

From the foregoing the operation of my improved cigarette-machine will be readily understood. The filler 146 and the web 1 pass into the funnel 147, where they are somewhat compressed and given the approximate cross-section of the cigarette. This cigarette-rod is then passed along and pasted and sealed, as above described, and the seam so formed is then passed under the heating, drying, and smoothing roller 154, as shown clearly in Fig. 9, and from this the rod is supported by the belt 140 and passes onto the next mechanism of the machine. For purposes of adjustment, renewal, or repair the roller 154 may be raised upon the spindle 183 as a pivot, and then the seam of the cigarette-rod is visible through the opening 153. The roller 154 is positively driven at a high speed through the gears 185 to 187, inclusive, and the belts and pulleys which connect the wheel 182 on the spindle 183 with the pulley 180 on the shaft 21.

In the foregoing has been described one embodiment of my invention. It is obvious that one or more of its characteristics may be employed elsewhere, so that I do not regard it as limited to the precise structure herein described, but as broad enough to cover all

structures that come within the annexed claims.

Having described my invention, what I claim is—

1. In a cigarette-machine, means for pasting a cigarette-rod, rotary means for smoothing seam, and means for heating said rotary means.

2. In a cigarette-machine, means for pasting a cigarette-rod, rotary means for smoothing the seam, means for heating said rotary means, and a slotted plate under which said rod is passed and through which said rotary means acts upon said rod.

3. In a cigarette-machine, means for pasting a cigarette-rod, a heated roller, means for heating said roller, means for supporting the roller above said rod, and means for revolving said roller in contact with said rod.

4. In a cigarette-machine, means for pasting a cigarette-rod, a roller, means for supporting the roller above said rod, means for revolving said roller and means for heating the roller while it is revolved.

5. In a machine of the class described, means for pasting a cigarette-rod, a roller, a pivoted frame for supporting said roller, means for revolving said roller, and means for heating the same while it is revolved.

6. In a machine of the class described, a belt adapted to receive a web with tobacco resting thereon, a funnel for compressing this web and tobacco into a tube, means for pasting the edges of the web together, and heated and rotary means for pressing the edges of the tube together.

7. In a cigarette-machine, means for pasting a cigarette-rod, a roller, means for supporting the roller above said rod, and means for revolving said roller at a high speed and in contact with the seam of said rod.

8. In a cigarette-machine, means for pasting a cigarette-rod, a heated roller, means for supporting the roller above said rod and means for revolving said roller in contact with the seam of said rod and running in the direction of the exterior lapping of the paper of the seam.

Signed this 25th day of February, 1906.

ARTHUR L. BOUCHER.

Witnesses:

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