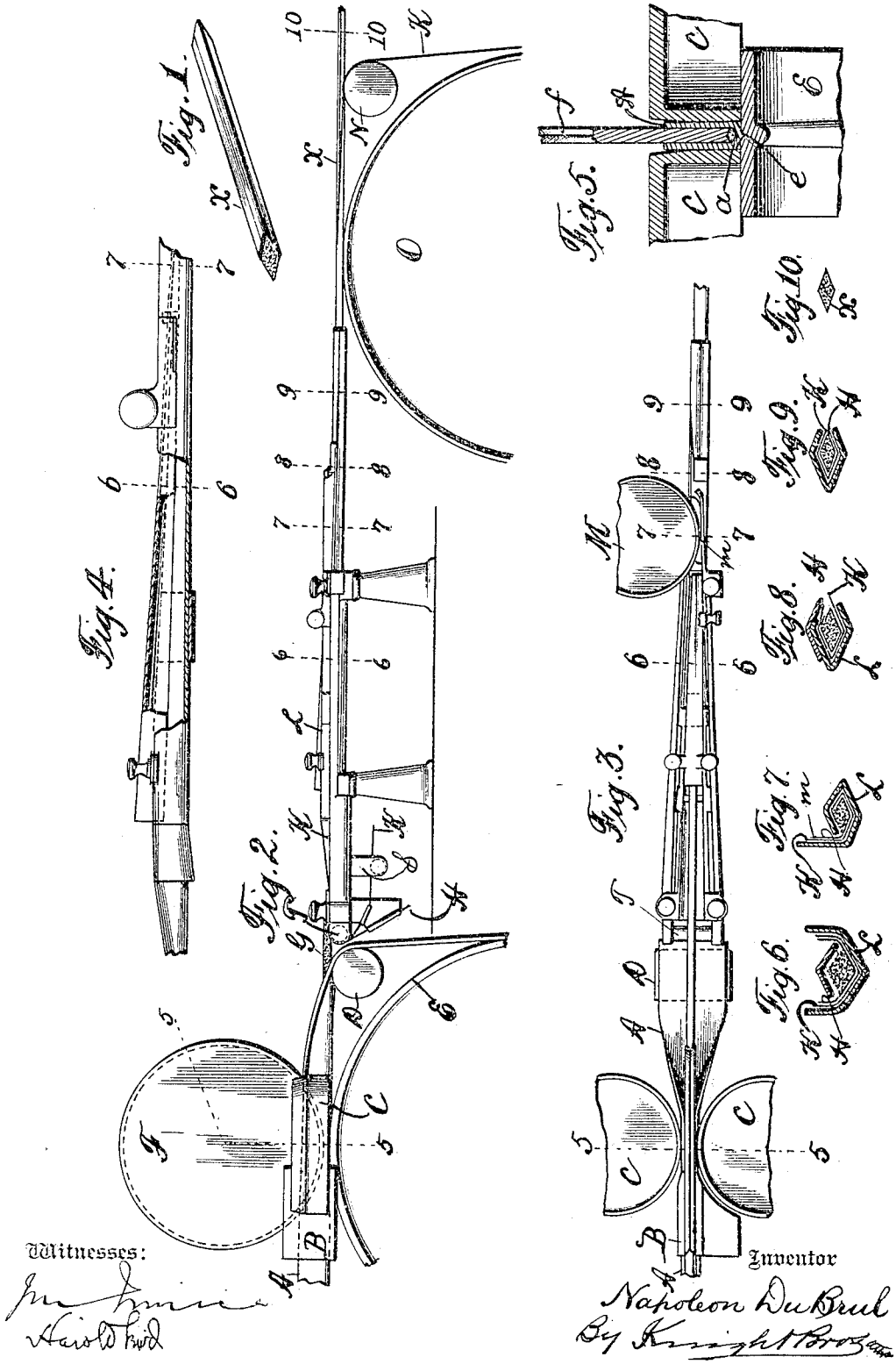
No. 793,286. PATENTED JUNE 27, 1905.

N. DU BRUL.

MACHINE FOR MAKING DIAMOND CIGARETTES.

APPLICATION FILED OCT. 3, 1903.

2 SHEETS—SHEET 1.



Witnesses:

Harold Ewd

Inventor

Napoleon Du Brul

By Knight Bros

No. 793,286. PATENTED JUNE 27, 1905.

N. DU BRUL.

MACHINE FOR MAKING DIAMOND CIGARETTES.

APPLICATION FILED OCT. 3, 1903.

2 SHEETS—SHEET 2.

Fig. 11.

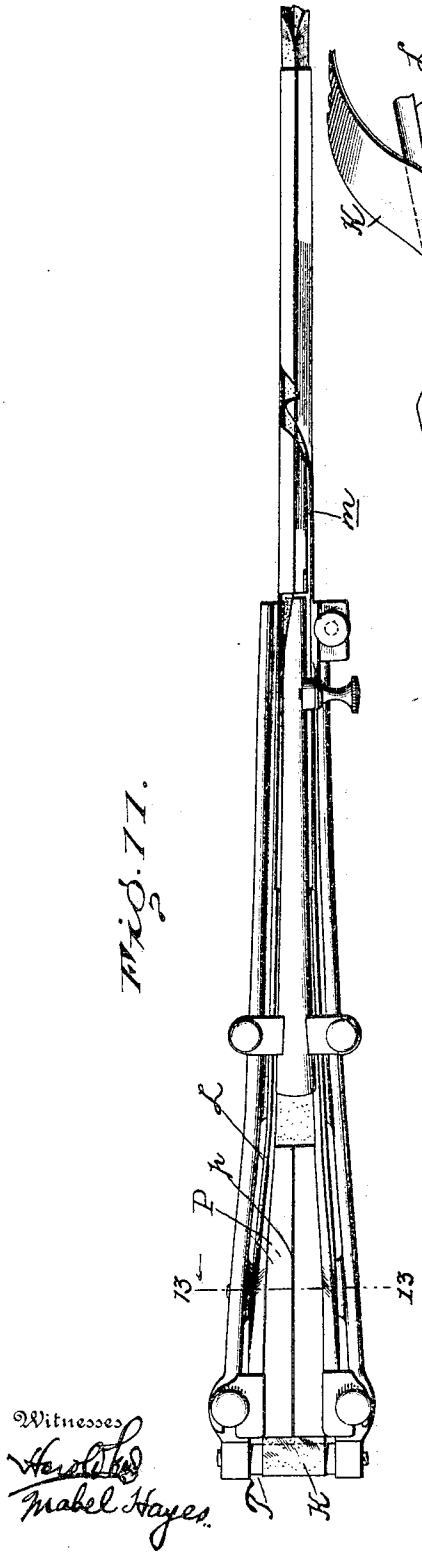


Fig. 14.

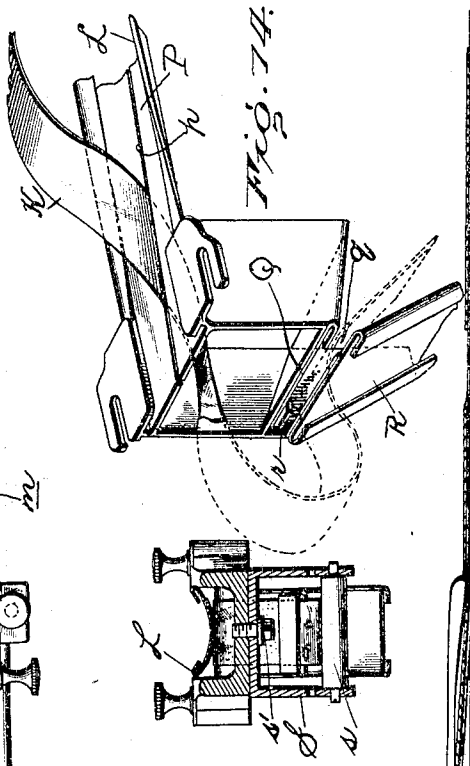
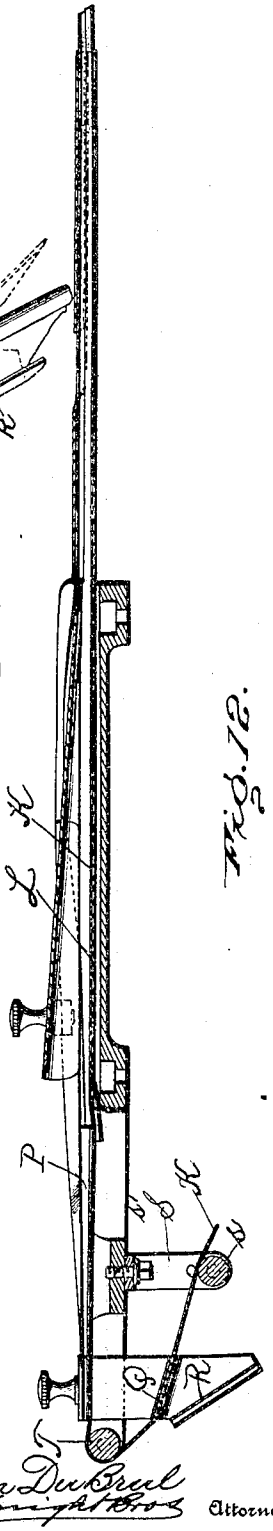


Fig. 13.

Fig. 12.



Witnesses
Harold Hayes
Mabel Hayes.

Inventor
Napoleon DuBrul
By Knight Bros
Attorneys.

No. 793,286. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

NAPOLEON DU BRUL, OF CINCINNATI, OHIO.

MACHINE FOR MAKING DIAMOND CIGARETTES.

SPECIFICATION forming part of Letters Patent No. 793,286, dated June 27, 1905.

Application filed October 3, 1903. Serial No. 175,690.

To all whom it may concern:

Be it known that I, NAPOLEON DU BRUL, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton, State of Ohio, have invented a certain new and useful Machine for Making Diamond Cigarettes, of which the following is a specification.

My invention relates to a machine for making cigarettes of diamond shape in cross-section.

For reasons explained at length in a copending application on a diamond cigarette and a process of making the same, filed by me of even date herewith, Serial No. 175,691, a cigarette of diamond shape in cross-section has a number of practical advantages over and is greatly to be preferred to a cigarette of circular, oval, or other cross-section, particularly if such diamand-shape cigarette is made by machinery which compresses the filler before inclosing it in the wrapper into such compact and definite diamond shape as will cause the cigarettes made therefrom to maintain such shape until entirely consumed.

My present invention has for one of its objects the provision of means that will take tobacco in suitable condition and form it into a filler, preferably a continuous rope of diamond-shaped section, performing the work in such manner that the edges at the four angles of the filler will be sufficiently compressed or condensed to cause the rope or filler to retain the diamond shape and a diamond-shape wrapping-tube which will maintain the diamond shape and condensation of the filler while the latter is being introduced into the wrapper and fold the wrapper-strip into a diamond-shaped wrapper around the filler and complete a diamond-shape cigarette-rod in such form that after being cut up into cigarettes these cigarettes will have a fixed and permanent diamond shape the angles of which will be maintained in the mouth of the smoker until the cigarette is consumed.

In the manufacture of cigarettes by machines employing a wrapper-tube and an endless tape working therethrough it is very important to provide for rapidly replacing these endless tapes when worn. As these tapes usually have their ends cemented together, it is desirable to have the machine so constructed that the tapes can readily be introduced after they have been cemented into endless bands, so that a number of these bands can be prepared beforehand and held ready for immediate use and loss of time thus avoided in the operation of the machine. Hence another feature of my invention relates to a construction of the wrapping-tube and tape-guide which permits the endless band-tape to be readily introduced without taking apart these members of the machine.

One of the functions of the endless tape is to support the projecting edge of the wrapper-paper in position at the point of contact with the paste-applying means. It is desirable to be able to adjust the projection of the tape at this point to a nicety. Hence a further feature of my invention relates to the construction of a portion of the tape-guiding means, whereby the tape may be directed more or less to the side, which will cause its projection, as stated.

The several parts of my invention preferably constitute parts of a complete machine for carrying out the entire process of making cigarettes; but as such machines are well unterstood in their general arrangement and operation I have herein shown and described only those parts immediately concerned with the several features of my present invention.

In the accompanying drawings, Figure 1 is a perspective view of the article to be produced. Figs. 2 and 3 are respectively a side elevation and a plan of the rope-finishing mechanism and the wrapping-tube of a so-called "continuous-cigarette" machine embodying my present invention. Fig. 4 is a sectional elevation, on a larger scale, of a portion of the wrapping-tube. Figs. 5, 6, 7, 8, 9, and 10 are transverse sections taken, respectively, on the lines 5 5, 6 6, 7 7, 8 8, 9 9, and 10 10, Figs. 2 and 3. Figs. 11 and 12 are respectively a plan and a longitudinal sectional view, on an enlarged scale, of the wrapping-tube with its support. Fig. 13 is a section on the line 13 13, Fig. 11. Fig. 14 is a perspective view of the receiving end of the tube with the tape-guide beneath the same.

Referring first to the general arrangement

of the machine, which corresponds substantially to parts covered by my United States Letters Patent of April 2, 1901, No. 671,417, A represents a portion of an endless belt of a continuous-cigarette machine which receives properly-dressed tobacco from any suitable source of supply and passes through a guide to a pair of forming-rolls C, which shape the belt up into a trough *a*, in which the tobacco, previously narrowed into a rope, is suitably pressed preparatory to receiving its wrapper. From the rolls C the belt opens out and passes over a guide-roll D and thence to a large wheel E, which may be employed to drive the belt.

F represents a presser-roll working in the trough *a*.

G represents the tobacco rope, which leaves the belt at a point above the guide-roller D, passes over onto the paper strip H, traveling with tape K, and is carried into the wrapping-tube L, where the paper is passed through the several stages leading up to its complete conformity to and envelopment of the rope, is supplied by a wheel M with paste along one edge, and has its edge pressed down to complete the cigarette-rod, which thereafter passes to any well-known severing device. (Not shown.) The tape passes over guide-roller N to a wheel O, which may be its drive-wheel.

Thus far I have not alluded to the novel feature of the apparatus, but will now describe the same.

Wheel E and presser-roll F are constructed with angularly-grooved peripheries, the groove in the former giving to the trough *a* an angular bottom and the groove in the presser-wheel coöperating with the angular groove to form a compression-space of diamond section, in which the tobacco rope fed by the belt H is condensed or compressed into permanent definite diamond shape in cross-section. (See Fig. 5.) The shape of this compression-space is preferably such that the minor axis of the diamond is vertical and the major axis horizontal, so that compression is in the direction of the minor axis. In this way the lateral acute angles of the rope lying in the major axis are formed by compression on the sides of the angles, which is the best direction to produce the acute angles to render them firmly condensed, self-sustaining, and permanent, while the obtuse angles are best compressed on their apexes. Hence I am enabled in this way to insure finally and permanently the definite shape desired for all the angles and produce the rope in such condition that it will impart the same shape to the enveloping wrapper and the finished article and enable the latter to retain such shape until the article is consumed. Emerging from the diamond-shape condensing or compressing means the permanently-formed rope passes onto the paper at the receiving end P of the wrapping-tube L, beneath which the tape passes, and then, with the paper and tape, onto the angular bottom of the tube, to which the paper, tape, and filler conform, as shown in Fig. 6. Continuing in its course through the wrapping-tube, (see Fig. 7,) the paper and tape are folded around the acute angle on one side of the rope, while the paper and tape project vertically past the acute angle on the other side in position to have paste applied to the projecting edge of the paper at the point *m*. Upon reaching the point represented by the section Fig. 8 the paper and tape have been folded around the other acute angle and over the upper obtuse angle of the rope, so that the pasted edge of the paper overlaps the edge first laid, after which the work advances to a part of the diamond-shaped tube represented by Fig. 9. At this point the pasted edge has been fully laid. The seam lies along one of the flat sides, which involves an additional advantage. The finished diamond-shaped cigarette-rod now emerges from the tube with its filler permanently condensed and molded into a four-sided section having the obtuse upper and lower angles and the acute lateral angles characteristic of the diamond shape, and the filler has been so formed that the angles of the rod or cigarettes cut therefrom will maintain their shape permanently until the cigarettes are consumed.

From the foregoing it will be seen that the general form of the wrapping-tube is diamond shape in cross-section, and this diamond-shaped tube, which takes the diamond-shaped rope from the means which produce it in permanent form and while conducting the rod through the various stages of applying the wrapper, not only avoids any tendency of changing the shape, but maintains the exact shape of the rod, folding the paper successively upon its flat sides and discharging the rod ultimately in the same shape in which it entered.

The tape K will in practice be in the form of an endless band passing around the wheel O, through the hanger S, through tape-guide Q, around roller T, beneath the receiving end P, and through the wrapping-tube L to the wheel O. The paper is fed through a guide R beneath the tape-guide. In order to introduce a new endless tape when worn without removing the tube, the paper-guide R is supported at *r* from the tape-guide at one side only, so as to leave an opening *q* at the other side for the introduction of the tape, and the receiving end or plate P of the tube is provided with a longitudinal slot or kerf *p*, through which the tape may be passed to bring it beneath said receiving end or plate, after which the tape may be worked through the tube in the usual manner. As already stated, the paper receives the paste at the point *m*, at which point it is supported by the tape projecting vertically, as shown in Fig.

7. The extent of projection of the tape at this point may be determined by directing the tape to the one side or the other before entering the tube. To accomplish this directing of the tape in an accurate and convenient manner, I provide the hanger S with a swivel-mounting *s'*, formed by a screw, which upon being loosened permits the hanger to be angularly adjusted horizontally and upon being tightened will hold the hanger to its adjustment.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a cigarette-machine the combination of means for forming a rope of diamond-shaped section comprising a belt supplying tobacco, the rollers shaping said belt into a trough, the angularly-grooved wheel imparting an angular bottom to said trough, and the angularly-grooved presser-wheel fitting in the trough of the belt and forming therewith a diamond-shaped compression-space, means supplying a strip of wrapper-paper, and a wrapping-tube of diamond-shaped section, receiving the strip of wrapper-paper with the diamond-shaped rope, folding the paper into a wrapper of diamond section, while maintaining the diamond section of the rod thereto and discharging a finished cigarette-rod with a permanent diamond-shaped section.

2. In a cigarette-machine, the combination of a wrapping-tube, a tape-guide and an endless tape passing beneath the receiving end of the wrapping-tube; said tape-guide being open at one side and said end of the wrapping-tube having a longitudinal slot therein, so that the endless tape may be introduced into its guide and beneath the end of the wrapping-tube.

3. In a cigarette-machine, the combination of the wrapping-tube, the tape-guide, and the paper-guide supported from the tape-guide at one side only, and spaced from the tape-guide at the other side to provide an opening for the admission of the tape to its guide.

4. In a cigarette-machine, the combination of the wrapping-tube, the endless tape passing beneath the receiving end of the wrapping-tube, the tape-guide adjacent to said receiving end of the wrapping-tube, and the paper-guide supported from the tape-guide; said receiving end of the tube being slotted, and the paper-guide being supported at one side only from the tape-guide, and spaced from said tape-guide on the opposite side to provide an opening whereby the endless tape may be put in place.

5. In a cigarette-machine, the combination with the tube in which the wrapper is applied and pasted, and a tape for supporting the wrapper-paper therein; of a tape-guiding roller having a supporting-bracket swiveled beneath the wrapping-tube to permit the roller to turn in a horizontal plane to determine the height of the supporting edge of the tape at the pasting-point.

The foregoing specification signed this 26th day of September, 1903.

NAPOLEON DU BRUL.

In presence of—
H. WHYRICK,
F. BROERMAN.