

G. NAST.
 MAKING CIGARETTE TUBES.
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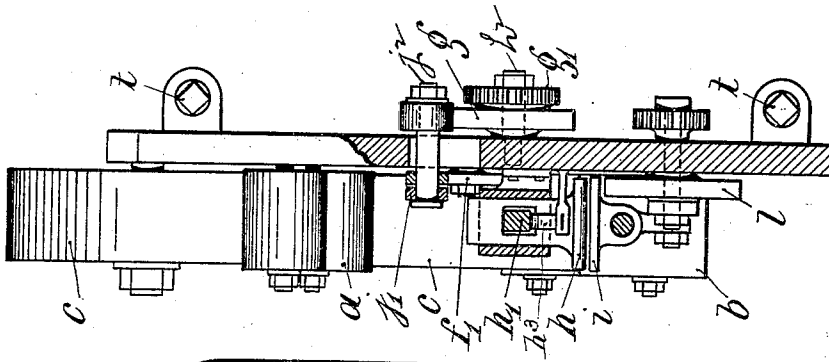


Fig. 2

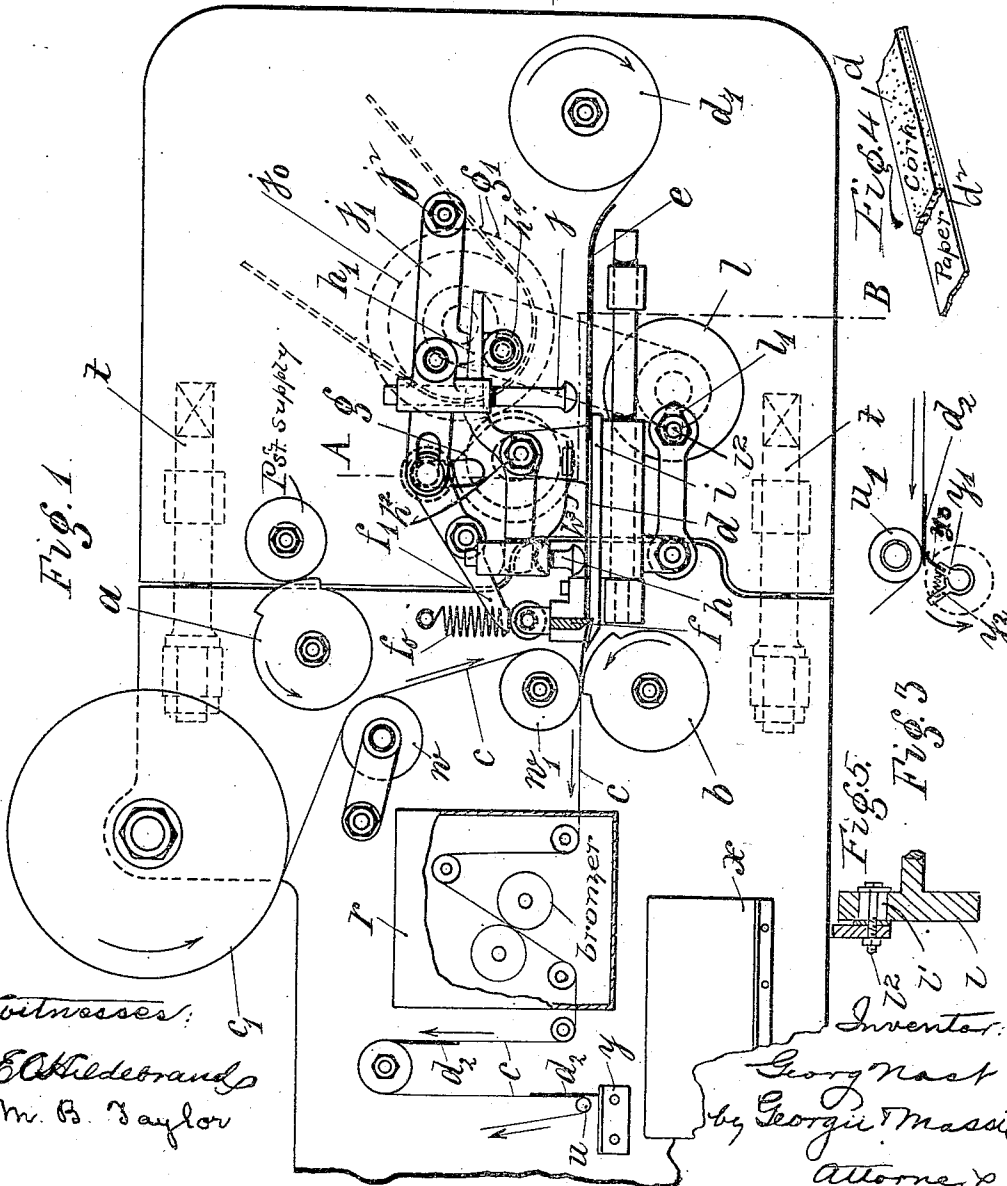


Fig. 1

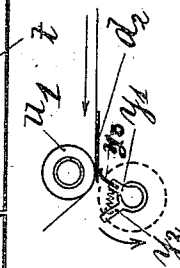
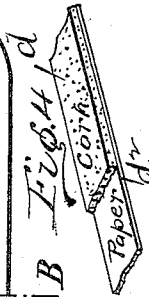
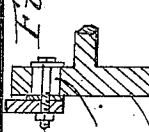


Fig. 3



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UNITED STATES PATENT OFFICE.

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MAKING CIGARETTE-TUBES.

936,019.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, GEORG NAST, citizen of Germany, residing at Munich, Germany, have invented certain new and useful Improvements in Apparatus for Making Cigarette-Tubes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved process and apparatus for making cigarette wrappers or tubes, and relates more particularly to a method of producing such wrappers or tubes with bronzed printing thereupon and with mouth-piece material applied thereto, and to an apparatus suitable for carrying out such a process.

The process consists in applying the cut sections of the mouth-piece material to the strip of cigarette paper, with a section of foundation material on the outside of said mouth-piece material, the said foundation material being allowed to remain as a protection to the mouth-piece material during the bronzing operation, whereby the mouth-piece is protected from bronze.

The new apparatus constituting one part of this invention, comprises a machine which makes it possible to provide a continuous strip of cigarette paper at uniform yet adjustable distances with leaf-gold, cork or similar mouth-piece plates, in order to thereafter feed the same to a bronzing apparatus in such a manner that the plates are protected in the bronzing apparatus from contact with the bronze, the apparatus being arranged in such a manner that the length of the mouth-piece plates may be suited to correspond to the length of the completed cigarette hulls.

In supplying the strip of cigarette paper with mouth-piece material, the latter, mounted upon a foundation strip, is fed over a table between two press rollers, through which rollers the cigarette paper also is led.

The novelty consists therein that the leaf gold or the like, together with its foundation strip, is cut into lengths suitable for the mouth pieces, then is pressed upon the corresponding pasted portion of the cigarette strip, and by allowing the small portion of foundation strip to adhere, the mouth-piece material is held protected against the bronze,

for sanitary reasons, on its way through the bronzing apparatus.

In order to be able to regulate the length of the small strips of mouth piece material, the stroke of the table by means of which the mouth-piece material is drawn off the supply roll and pushed between the feeding rolls, is made adjustable.

In the accompanying drawing such a machine is shown as one example of the invention, Figure 1 being a side elevation, Figure 2 an end view partly in section, and Figure 3 a detail of a modification, while Figure 4 shows in detail the relation of the mouth-piece material and its protecting layer, and Figure 5 the feed adjusting means.

The cigarette paper strip *c*, after it is printed, is led from the rolls *c*¹ over the rolls *w*, *w*¹, to the bronzing apparatus *r*. Upon its way it is supplied with paste by the roller *a*, at the proper place and over the required length. The roller *b*, then presses the mouth-piece material *d*, cut into exactly equal lengths, upon each pasted place of the paper strip. The mouth-piece material is drawn off from the supply roll *d*¹ along with an underlay or protective strip *d*² by table *i*, movable back and forth, and its end is fed by said table between the rolls *b* and *w*¹, while an automatically operating knife *f* located upon the table cuts off the piece of mouth-piece material together with its protective strip, necessary to be pasted on the strip of cigarette paper, which piece is pressed onto the proper pasted portion of the said strip *c*, which portion arrives at the desired point at the required time.

To avoid unequal tension on the cigarette paper *c* and also to insure uniformity in the affixing of the mouth-piece material to the pasted areas on the paper, the feed roll *w*¹ is truly cylindrical, while the pressure roll *b* has a total circumference corresponding to the distance between centers of the pasted areas of the paper and a part of such circumference consists of a projection having an area substantially equal to the pasted area, whereby the feed of the paper is constant and increased pressure is given by the roll *b* at the exact moment when the pasted area and its section of mouth-piece material is passing between the two rolls.

The underlay strip coming off the feed roll *d*¹ and passing between the rolls *b* and *w*¹ along with the mouth-piece material, as

above described, adheres to the latter and together therewith passes through the bronzing device *r* protecting the mouth-piece material from the bronze. In order to remove this foundation strip *d*² from the mouth-piece after leaving the bronzing apparatus, the same is stripped off in any suitable manner. As shown in Fig. 1, for instance, the paper strip *c* with the mouth-piece material secured thereto, may be led over a roll or rod *u* of small diameter, so that thereby the paper strip abruptly changes its direction of travel, whereupon the underlay strip *d*², not being secured to the mouth-piece *d* will not turn, but continues its course. Its dislodgment may be further facilitated, as shown in Fig. 1, by striking against a plate *y* and being thrown into a receptacle *x*.

In Fig. 3 a modified form of detaching device is shown in which the paper strip *c* with the mouth-piece material *d* and foundation *d*² is led over a roll *w*¹ which may in this case be of larger diameter than in the former. Here the strip *d*² is engaged by the elastic stripper *y*² carried by an arm *y*¹ which is connected by a coil spring to a revolving arm *y*². By this means the stripper, after tensioning the spring, is given an abrupt forward movement detaching the strip *d*², as will be readily understood.

The feeding of the strip *d* by the table *i*, takes place as follows: As soon as a small piece is cut from the strip *d*, the latter is held stationary against a fixed guide plate *e* by a downward moving presser foot *j*, whereupon the table *i*, moves back from the free end of the strip *d*, until said strip projects forward over the table edge. At this moment a second presser foot *h*, mounted on the table *i* and moving therewith, presses the strip *d* against the table *i*, while at the same time the foot *j* moves upward. The table then moves forward toward the rolls *w*¹ and *b* and thereby pushes the end of the mouth-piece material between said rollers, whereupon the knife *f* descends and cuts the mouth-piece strip and foundation strip, after which the operation is repeated as before. The movement of the presser-feet *h* *j*, as well as of the knife *f* is produced by means of levers *j*¹, *h*¹ operated by a cam, *g*, and a spring *f*⁰, while the table *i* is moved back and forth by a crank disk *l*.

The lever *h*¹ is fulcrumed at *h*² and has its work arm bearing downward on the presser foot *h* against the tension of the spring *h*³, while its power arm overlies a roller *h*⁴ carried by the lever *j*¹, which latter is fulcrumed at *j*² and carries the presser foot *j* and has its free arm *f*¹ bearing downward on the vertically reciprocating knife *f* against the tension of the spring *f*⁰. The lever *j*¹ is operated directly by the cam *g*

and the presser feet *h* and *j* indirectly by said cam through the intermediary of the levers *j*¹ and *h*¹.

In order to regulate the relation of the parts and to be able to alter the length of the strip of mouth-piece material to be cut off, the part of the machine carrying the table *i* is on the one hand adjustable with relation to the rolls *w*¹, *b*, while on the other hand the crank-pin *l*² of the crank-disk *l* is made adjustable in a slot *l*¹ of the said disk *l*. The adjustment of the part of the machine carrying the table *i* can be done for example by a screw-spindle *t*. This screw-spindle, journaled at *t*¹ in one part of the machine is in threaded engagement with a nut *t*² secured to the other part of the frame, and the parts of the machine may be adjusted relatively to each other by turning the spindle by means of its squared head *t*³.

Having thus fully described my invention, what I claim is:—

1. The combination, with means to feed a strip of cigarette paper, and means to apply a paste at intervals thereto, of means to supply superposed mouth-piece material and protective material to the pasted areas, a coating device, and means to feed the cigarette paper strip with the affixed mouth-piece material and superposed protective material through the coating device.

2. The combination, with means to feed a strip of cigarette paper, and means to apply a paste at intervals thereto, of means to feed superposed mouth-piece material and protective material to the pasted areas, a coating device, and means to remove the protective material after coating.

3. The combination, with means to feed a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of means to concurrently feed a strip of mouth-piece material and a protective strip onto the paste area of the paper, means to sever that portion of the mouth-piece material and protective strip pasted to the paper, a bronzing device arranged in the path of the paper and the applied mouth-piece and protective section, and means to remove the protective section after bronzing.

4. The combination, with means for feeding a strip of cigarette paper longitudinally, of a longitudinally reciprocatory table over which a strip of mouth-piece material may pass, a presser foot arranged to press the said mouth-piece material to the table, means for moving the table and presser foot forward and back, a knife arranged to cut the mouth-piece material when the table is forward, means for pasting the paper, and means for pressing the cut portion of the mouth piece material upon the strip of cigarette paper, a presser foot arranged to hold the mouth-piece material against backward

movement when the table moves backward, and means for actuating the presser feet alternately.

5 The combination, with means to feed a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of a longitudinally reciprocatory feeding table, means to supply to said table a strip of mouth-piece material, a pair of
10 presser feet, one mounted above and to move with said table and both arranged to reciprocate at an angle thereto above the mouth-piece material, means to move the table and one presser foot forward and back, means to
15 actuate the presser feet alternately to hold the mouth-piece material against the table in its forward movement and to hold the same against a fixed support during the return movement of the table, a knife in advance of
20 the table, means to actuate the knife after each forward movement of the table to sever a section of mouth-piece material corresponding to the paste area on the paper strip, and means to affix the section to the
25 pasted paper.

6. The combination, with means to feed a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of a longitudinally reciprocatory feeding table, means to supply to said table concurrently a strip of mouth-piece material and an underlay strip, a pair of presser feet, one mounted above and to move with said
30 table and both arranged to reciprocate at an angle thereto above the mouth-piece and underlay strip, means to move the table and one presser foot forward and back, means to actuate the presser feet alternately to hold the mouth-piece material and underlay strip
35 against the table in its forward movement and to hold the same against a fixed support during the return movement of the presser feet, a knife in advance of the table, means to actuate the knife after each forward
40 movement of the table to sever a section of mouth-piece and underlay material corresponding to the paste area on the paper strip, means to affix the section to the pasted paper, a bronzing device arranged in the path of the paper and affixed sections, and means to
45 separate the underlay section after bronzing.

7. The combination, with means to feed a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of a longitudinally reciprocatory feeding table, means to supply to said table a strip of mouth-piece material, a pair of
55 presser feet, one mounted above and to move with said table and both arranged to reciprocate at an angle thereto above the mouth-piece material, means to move the table and one presser foot forward and back, means to actuate the presser feet alternately to hold the mouth-piece material against the table in
60 its forward movement and to hold the same

against a fixed support during the return movement of the table, a knife in advance of the presser feet, means to actuate the knife after each forward movement of the table to sever a section of mouth-piece material corresponding to the paste area on the paper strip, means to affix the section to the pasted paper, and means to adjust the feeding table relative to the affixing means to vary the size of the sections.

8. The combination, with means to feed a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of a longitudinally reciprocatory feeding table, means to supply to said table concurrently a strip of mouth-piece material and an underlay strip, a pair of presser feet, one mounted above and to move with said table and both arranged to reciprocate at an angle thereto above the mouth-piece material and underlay strip, means to move the table and one presser foot forward and back, means to actuate the presser feet alternately to hold the mouth-piece material and underlay strip against the table in its forward
85 movement and to hold the same against a fixed support during the return movement of the presser feet, a knife in advance of the table, means to actuate the knife after each forward movement of the table to sever a section of mouth piece and underlay material corresponding to the paste area on the paper strip, means to affix the section to the pasted paper, means to adjust the position of the knife and feeding table relative to the affixing means, means to regulate the range of movement of the feeding table to vary the size of the sections, a bronzing device arranged in the path of the paper and affixed sections, and means to separate the underlay section after bronzing.

9. The combination, with means to continuously feed a strip of cigarette paper longitudinally, and means to apply a paste at uniform intervals to said paper, of means to intermittently feed severed sections of mouth-piece material and a protection material to the pasted areas, a bronzing device, and means to remove the protecting section after bronzing.

10. The combination, with a cigarette paper supply roll, a paper feed roll traversed by the paper and having a substantially uniform diameter, and means to supply a paste to the paper at intervals, of means to feed severed sections of mouth-piece material onto the paste areas of the paper as they reach the feed roll, and a pressure roll having a circumference corresponding to the intervals between centers of the pasted areas of the paper and a projecting area on its periphery substantially equal to the paste area and the section of mouth-piece material, said pressure roll arranged to press the mouth-piece section firmly onto the paste area as

the paper passes between the feed roll and the pressure roll.

11. The combination, with a cigarette paper supply roll, a paper feed roll traversed 5 by the paper and having a substantially uniform diameter, and means to supply a paste to the paper at intervals, of means to feed severed sections of mouth-piece material and a protecting strip onto the paste areas of the 10 paper as they reach the feed roll, and a pressure roll having a circumference corresponding to the intervals between centers of the pasted areas of the paper and a projecting area on its periphery substantially 15 equal to the paste area and the section of mouth-piece material, said pressure roll arranged to press the mouth-piece and protecting section firmly onto the paste area as the paper passes between the feed roll and the 20 pressure roll, a bronzing device traversed by the paper after passing the feed and pressure rolls, and means to separate the protecting section after bronzing.

12. The combination, with means to feed 25 a strip of cigarette paper longitudinally, and means to apply paste at intervals to said paper, of means to concurrently feed a strip of mouth-piece material and an underlay strip onto the paste area of the paper, means 30 to sever that portion of the mouth-piece material and underlay strip pasted to the paper, a bronzing device arranged in the path of the paper and the applied mouth-piece and underlay section, and means to remove 35 the underlay section after bronzing comprising a revolving spring arm arranged to frictionally engage the protecting section and jerk the same from the mouth-piece section.

13. The combination, with means to feed 40 a strip of cigarette paper longitudinally,

and means to apply paste at intervals to said paper, of means to concurrently feed a strip of mouth-piece material and an underlay strip onto the paste area of the paper, means to sever that portion of the mouth- 45 piece material and underlay strip pasted to the paper, a bronzing device arranged in the path of the paper and the applied mouth piece and underlay section, and means to remove the underlay section after bronzing 50 comprising a revolving arm adjacent to the path of the paper and having a speed of travel greater than the speed of travel of the paper, the arm arranged to frictionally engage the section of protecting material 55 and to be tensioned by the difference in speed whereby to pull the protective section loose.

14. The combination, with means to continuously and uniformly feed a strip of cigarette paper longitudinally, and means to 60 apply a paste at uniform intervals to said paper, of means to intermittently feed severed sections of mouth-piece material and a protection material to the pasted areas, a bronzing device, and means to remove the 65 protecting section after bronzing comprising a revolving spring arm adjacent to the path of the paper and having a speed of travel greater than the speed of travel of the paper, the arm arranged to frictionally engage 70 the section of protecting material and to be tensioned by the difference in speeds whereby to pull the protective section loose.

In testimony whereof I hereunto affix my signature in the presence of two witnesses. 75

GEORG NAST.

Witnesses:

LOUIS F. MUELLER,
MATHILDE K. HELD.