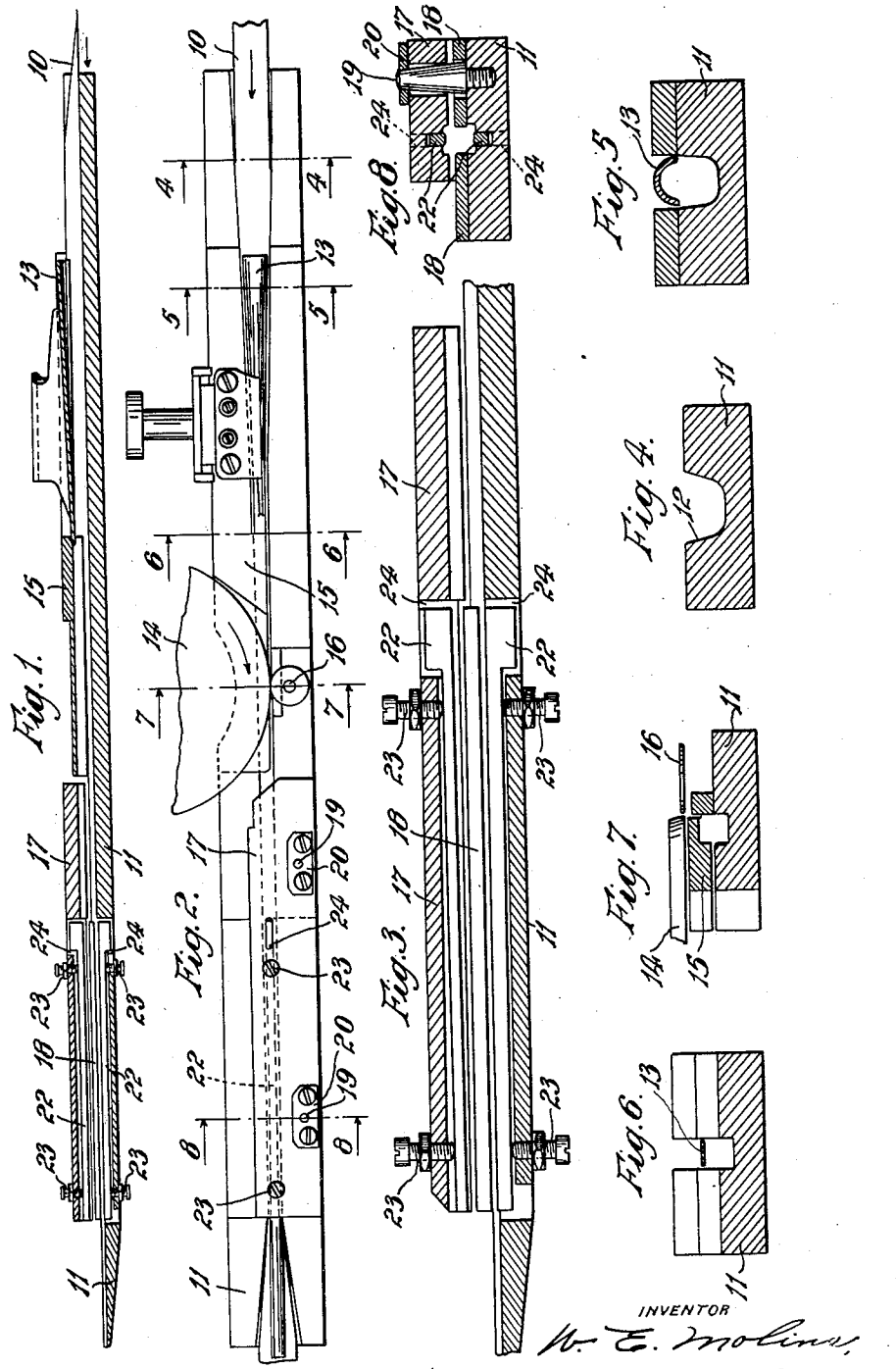
Aug. 28, 1934. W. E. MOLINS 1,971,869

CIGARETTE MAKING MACHINE

Filed June 26, 1933



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Patented Aug. 28, 1934 1,971,869

UNITED STATES PATENT OFFICE

1,971,869

CIGARETTE MAKING MACHINE

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Application June 26, 1933, Serial No. 677,743
In Great Britain June 28, 1932

7 Claims. (Cl. 131—43)

This invention is for improvements in or relating to cigarette making machines, and is particularly concerned with the rod forming means in a continuous rod cigarette making machine. In such apparatus, the stream of tobacco carried upon the cigarette paper which is conveyed by an endless tape passes, after an initial compression, through a grooved support and beneath a conical tongue which compresses the tobacco prior to its entering beneath the former which gives the final shape to the cigarette rod.

It is an object of the present invention to provide means whereby a cigarette rod is produced having substantially square cross section, and in accordance with the present invention there is provided in or for a cigarette making machine of the continuous rod type, means for making or forming a rod of substantially square cross section (for example, a square having rounded corners).

Preferably, the rod forming means according to the present invention has the same cross sectional shape as the rod, and is characterized by the provision of projections along a portion of the length of the former and extending inwardly from the flat sides thereof.

The purpose of providing the inwardly directed projections is to press the middle of the flat sides of the rod inwardly so as to make a concave recess therein. When the sides have thus been pressed inwardly, it is found that the rod when released from the former tends to expand and the concave portion of the rod will become substantially flat. Without the use of these projections, it is frequently found that the flat sides of the rod, after leaving the former, tend to become convex.

One example of rod forming means made in accordance with the present invention will now be described with reference to the accompanying drawing, in which:—

Fig. 1 is a sectional elevation through the rod forming means.

Fig. 2 is a plan of Fig. 1.

Fig. 3 is an enlarged sectional elevation of one end part of the rod forming means.

Figs. 4, 5, 6, 7 and 8 are sections through the rod forming means along the lines 4—4, 5—5, 6—6, 7—7 and 8—8 respectively.

Like reference numerals refer to like parts throughout the several figures of the drawing.

The cigarette paper is moved in the direction of the arrow shown in Figures 1 and 2, being conveyed by an endless tape 10. The tape is carried on a support 11 which at the point 4—4 in Figure 2, and as shown in Figure 4, is provided with a trough 12 in which the cigarette paper is given substantially a U-shaped form. The cigarette paper web is already loaded with tobacco, and at the point 5—5 in Figure 2 (see also Figure 5), a conical tongue 13 is provided to press the tobacco on to the shape shown in the cross section at Figure 5 in order to facilitate the eventual pressing of the tobacco into the desired shape.

The tongue 13 gradually tapers until it becomes a flat strip at the point 6—6 of Figure 2 (see also Figure 6), and it will also be seen from the latter figure that the trough has gradually changed its shape so as to form a rod of square cross section.

At the point 7—7 of Figure 2 and shown also in Figure 7, the usual pasting or gumming roller 14 applies adhesive to the portion of the paper web which forms the lap of the finished cigarette rod, and which extends through the slit 15 in the former between the gumming roller 14 and the presser roller 16.

After this, the lap of the paper web is folded over and pressed down along the portion 8—8 of the rod forming mechanism shown in Figures 2 and 3, and in cross section in Figure 8. This part of the rod forming mechanism, which is the essential part for giving the final shape to the cigarette rod, comprises the supporting element 11 and a cover 17. Between the cover 17 and the support 11 there are provided two strips 18, the inner ends of which project inwardly beyond the flat sides of the former and make corresponding depressions in the cigarette rod. The position of the cover 17 is maintained by means of pins 19 which are fixed to the support 11 and which extend through the cover 17 and through plates 20. These latter are screwed to the cover 17. The cover 17 is secured to the support 11 by movable clamps, not shown, but which press on the plates 20.

Strips 22 are also provided so that their inner faces extend beyond the horizontal sides of the former and press the cigarette rod inwardly. The extent to which the projections 22 extend inwardly may be regulated by means of screws 23 and similar means is provided for adjusting the projections 18. These projections 22 are normally a tight fit within slots 24 in the support 11 and cover 17 and the frictional contact is sufficient to prevent the parts slipping inwardly accidentally.

By providing the projections 18 and 22, the flat sides of the cigarette rod are compressed

so as to form concave recesses therein. In this way, when the rod emerges from the rod forming means, it will tend to expand as usual, but owing to the compression of the middle of the flat sides, the rod will expand so as to resume a substantially square cross sectional shape. The projections are so disposed, as found by experiment, that after the rod expands a little as it emerges from the former, its density is substantially uniform, i. e., as uniform as that of an ordinary round cigarette rod. The corners of the cigarette rod former and the rod are slightly rounded.

Cigarettes of substantially square section are particularly suitable for packing in the soft pouch packages used extensively in the United States of America, and to some extent in other countries, and when made in this way their cross sectional density is as uniform as the present cigarette machines will permit. This uniformity is not lost during the packing. In the usual way of making the cigarettes round and then highly compressing them when packing, the uniform density of the filler becomes disturbed, in addition to which the cigarettes in a batch assume all kinds of shapes, while the heavy compression necessary tends to force tobacco out of their ends.

What I claim as my invention and desire to secure by Letters Patent is:—

1. For a cigarette making machine, the combination with means for forming a continuous cigarette rod of substantially square cross-section, of means to press the sides of the wrapped tobacco filler inwardly towards the longitudinal axis of the cigarette rod to allow for the natural expansion of the tobacco after the cigarette rod leaves the confines of the rod forming means.

2. For a cigarette making machine, the combination with means for forming a continuous cigarette rod of substantially square cross-section, of means to give the sides of the cigarette rod a concave curvature to allow for the natural expansion of the tobacco after the cigarette rod leaves the confines of the rod forming means.

3. For a cigarette making machine, the combination with means for folding a wrapper about a continuous tobacco filler to form a continuous cigarette rod of substantially square cross-section, of means to secure the wrapper about said filler, and means to press the sides of the completed rod inwardly towards the longitudinal axis of the rod.

4. For a cigarette making machine, the combination with means for folding a wrapper about a continuous tobacco filler to form a continuous cigarette rod of substantially square cross section, of means to secure the wrapper about said filler, and means to give the sides of the completed rod a concave curvature.

5. For a cigarette making machine, the combination with means for folding a wrapper about a continuous tobacco filler to form a continuous cigarette rod of substantially square cross-section, of means to secure the wrapper about said filler, and means movable towards and away from the longitudinal axis of the rod to press the sides of the completed rod inwardly towards said axis.

6. For a cigarette making machine, the combination with a die of substantially square cross-section to fold a wrapper about a continuous tobacco filler to form a continuous cigarette rod, of a wrapper securing element, and a die of substantially square cross-section having a rib protruding from each side thereof and extending lengthwise of the rod to depress the sides of the same.

7. For a cigarette making machine, the combination with a die of substantially square cross-section to fold a wrapper about a continuous tobacco filler, to form a continuous cigarette rod, of a wrapper securing element, and a die of substantially square cross-section having a rib protruding from each side thereof and extending lengthwise of the rod to depress the sides of the same, said ribs being movable towards or away from the longitudinal axis of the rod.

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