METHOD OF AND MEANS FOR THE PRODUCTION OF CIGARETTE RODS
IN THE MANUFACTURE OF MACHINE MADE CIGARETTES
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Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

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To all whom it may concern:

Be it known that I, Paul Max Ernst Hohn, a subject of the Republic of Germany, residing at Zwickauer Str. 48, Dresden-A, Germany, have invented certain new and useful Improvements in Methods of and Means for the Production of Cigarette Rods in the Manufacture of Machine-made Cigarettes, of which the following is a specification.

As is well known, in the manufacture of handmade cigarettes the tobacco is introduced into a mould lined with cigarette paper and rolled with the fingers to the shape of a half-ring in cross section, the half-ring being closed to form a complete ring in the next operation so as to form a rolled cigarette of circular cross section.

In other words, in such manufacture of cigarettes by hand labour the tobacco strip is brought to ring-shape in cross-section by rolling, there being in the centre of the ring a small opening in which the tobacco is quite loose and is not closely packed together by the pressure applied in rolling, so that a handmade cigarette, even if tightly packed, will always "draw", because of the "flue" extending along its longitudinal axis.

In the production of the cigarette rod in the manufacture of machine-made cigarettes the treatment is quite different. The tobacco is delivered to an endless circulating apron and with this apron is led through a shaping channel in which it is shaped by pressure rolls to form the cigarette rod. The tobacco which has previously been gathered together is subjected to high pressure which is transmitted through the tobacco mass so that the centre of the rod is the most tightly packed portion. In consequence, machine-made cigarettes produced from a rod which has been subjected to ever so slightly excessive pressure do not "draw".

Indeed, it is notorious that the proportion of defective cigarettes is quite high so that special precautions must be taken to ensure that the thickness and tightness of the rod shall be exactly regulated.

The invention aims at reproducing in the machine-production of cigarette rods the method employed in the production of handmade cigarettes, so as to obtain a satisfactory product without resort to any delicate adjustment of the shaping devices and to obtain, notwithstanding irregularities in the cigarette rod, a cigarette which is loose in the centre and which will therefore "draw" satisfactorily. With this object in view, the sectional contour of the endless apron employed in the shaping operation is varied progressively as is also the shaping and pressing rolls, so that the tobacco fed from the distributor to the apron is first spread in a flat layer of uniform thickness, whereas upon this layer is brought to semicircular form in cross section, and then the free limbs are brought together to form a closed ring.

In the accompanying drawings Figs. 1 to 4 show the apron associated with the relative shaping and pressing rolls in the principal phases of the formation of the rod. Figs. 5, 6 and 7 show in vertical cross section a layer of tobacco in the three principal stages which come into consideration.

Referring to the drawings, the apron which runs beneath the usual distributor is in the shape of an opentopped channel of rectangular cross section comprising a part a which forms the base of the channel and two parts b which form the flanges or side walls of the channel.

The tobacco c coming from the distributor enters the channel. Dipping into the channel is a cylindrical roll d which spreads out the tobacco c to form a plane flat layer of uniform thickness as indicated in Fig. 5. The roll d may be formed in a known manner as a feeder or detector, being mounted at the end of a rod lever so that foreign bodies which may be present with the tobacco, such as nails, stones and the like, will lift the roll d and thereby rock the lever to effect in known manner arrest of the movement of the apron.

In its further travel the apron is so curved that the base portion a assumes the form of a semicircle a'. At this point there dips into the channel a roll e which as shown at f has a convex periphery of half round section and which roll in conjunction with the apron shapes the tobacco layer c to the form of a half ring in section as shown in Fig. 6. The next step is to bring the free ends g of this half ring together so as to form a complete ring. This opera-
tion is effected by contracting the channel, diminishing the diameter and providing at this point a roll \( h \) which is formed with a semi-circular groove \( i \). This roll \( h \) engages the ends of the limbs of the half ring shown in Fig. 6 and presses them centrally together so that the rod is formed into the shape of a closed ring as indicated in Fig. 7. In the rod of annular shape thus produced there is at the center a small free opening, or rather the tobacco particles are loose at the center, so that ample provision is made for draught.

Even if at a later stage the apron be further contracted as shown in Fig. 4, and the tobacco pressed by a pressing roll \( k \) having a peripheral groove of still smaller diameter to complete the closed ring, the pressure applied will not constrict too much the passage through the ring. Even with application of increased pressure the tobacco rod will have a loose structure at the center. It follows, therefore, that there is not the same necessity for care in pressing the tobacco rod, as the finished cigarettes will not be rendered defective if there should be irregularities in the mass of tobacco, there being always sufficient draught even when the cigarettes are closely packed.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A method of making the tobacco rod for the manufacture of machine made cigarettes, consisting in shaping tobacco to form a flat layer and forming the same into a closed ring.

2. A method of making the tobacco rod for the manufacture of machine made cigarettes, consisting in shaping the tobacco to form a flat layer, and forming the same into a closed ring and compressing the same, leaving the center less compact than the remainder of the roll.

3. A method of shaping the tobacco rod in the manufacture of machine made cigarettes, consisting in shaping the tobacco to form a flat layer, then shaping the flat layer in the form of a half ring and then bringing the free ends together to form a closed ring with a free passage therethrough.

4. A method of shaping tobacco rod in the manufacture of machine made cigarettes, consisting in shaping the tobacco to form a flat layer then bringing the ends around to form a half circle, bringing the free ends together to form a closed ring with a passage in the center, and compressing the roll to leave the recess less compact than the remainder of the roll.

5. The method which consists in subjecting an elongated mass of cigarette tobacco to a succession of longitudinal rolling pressures to compress said mass into the form of a rod having a relatively loosely compacted central portion.

6. The method which consists in subjecting an elongated mass of cigarette tobacco to a succession of longitudinal rolling pressures each applied in a direction normal to the central longitudinal line of the mass, thereby compress said mass into the form of a rod having a relatively loosely compacted central portion.

7. Means for shaping a mass of cigarette tobacco into rod-like form comprising a flexible apron upon which the tobacco is distributed, and a series of rollers arranged above the apron having varying cross-sectional contours to successively exert a compacting pressure upon the tobacco mass and mold the same into rod-like form with the central portion of said mass relatively loosely compacted.

8. Means for shaping cigarette tobacco into rod-like form comprising a series of rollers of different peripheral cross-sectional form and a flexible apron to convey the tobacco mass beneath said rollers for engagement thereby, said apron adapted to be progressively varied in cross-sectional contour as the tobacco is engaged by the respective rollers whereby the tobacco is shaped under pressure into rod-like form with the central portion thereof relatively loosely compacted.

In testimony whereof I affix my signature.

Paul Max Ernst Hohn.