

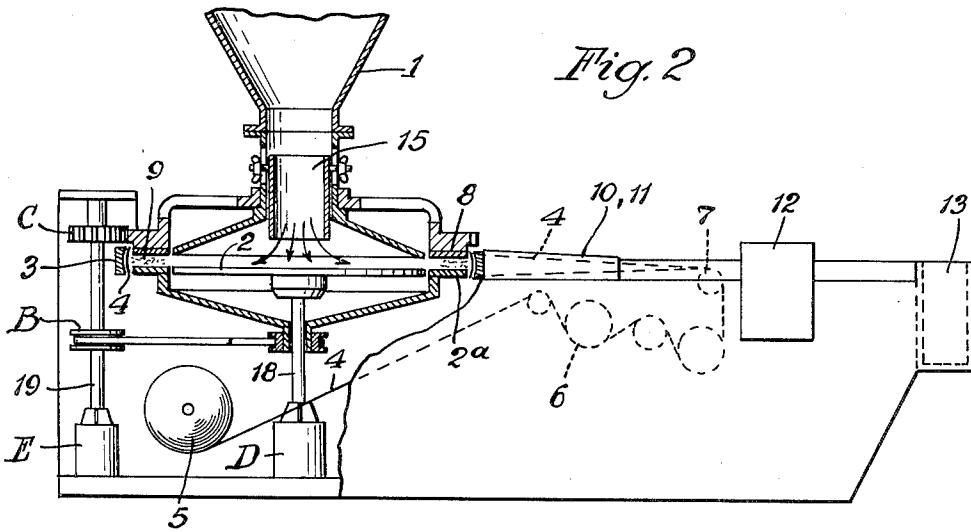
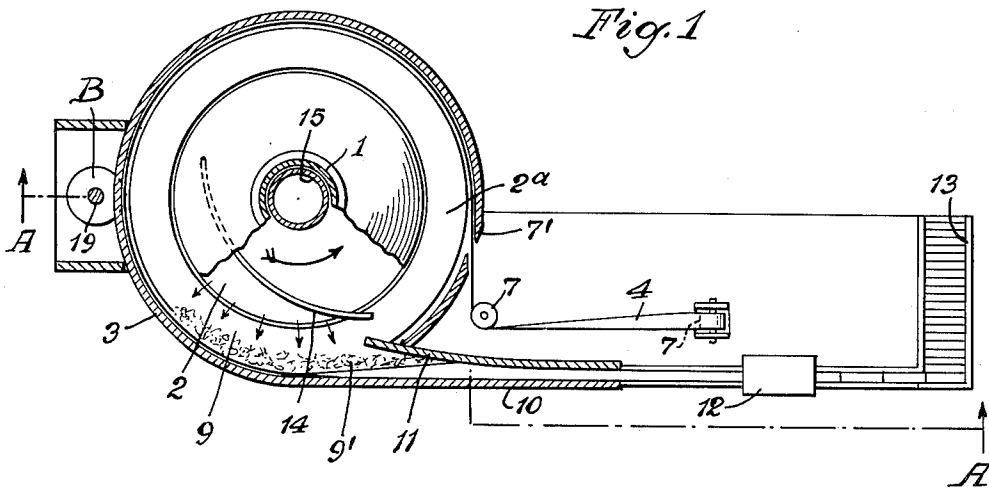
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DEVICE FOR FORMING TOBACCO RODS OR STRINGS

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DEVICE FOR FORMING TOBACCO RODS  
OR STRINGS

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The invention relates to a device for forming tobacco strings used in the manufacture of cigarettes and especially to a device for preparing endless tobacco rods or strings by centrifugal action.

Present methods of forming tobacco strings for the above purpose utilize machines and devices with string-forming parts subjected to extreme wear and tear so that such parts have to be replaced frequently. This is especially the case with bridges, jaws, forming bands, and other parts in the conventional cigarette machines. In the usual method of producing tobacco strings, which are destined to be enveloped by cigarette paper for making cigarettes, the tobacco to be enveloped is laterally carried onto the moving paper strip and the tobacco has to accelerate suddenly the moment it gets in contact with the paper. Difficulty is experienced by this method in reliably obtaining a good prepressed and compact tobacco rod or string necessary to make good cigarettes.

An object of the present invention is to eliminate some of the disadvantages pointed out above by the arrangement disclosed below. In this arrangement, the tobacco to be carried onto the cigarette paper strip, is given an acceleration in the direction of the moving strip before it gets in contact with it. This is achieved by subjecting the tobacco to centrifugal forces imparted by a rotating disc and hurling it against a cigarette paper strip moving at the bottom of a channel around the periphery of the rotating disc in the same direction as the disc rotates. In this way, no sudden acceleration is imparted to the tobacco when it comes in contact with the paper and the centrifugal forces act not only to distribute the tobacco evenly on the moving paper strip within the channel but also precompress it into a compact tobacco string. The tobacco string so formed is then tangentially diverged out of the annular channel together with the backing paper strip into an enveloping device, and can there be formed into a ready cigarette string much easier and faster than by conventional methods.

The method of the present disclosure can be carried into effect with relatively simple means. The tobacco is dropped continuously onto the center portion of a rotating disc and is hurled into the channel with the moving paper strip arranged around its periphery, as mentioned above. The tobacco, accumulating within said channel on the moving paper strip is tangentially diverged from the device directly and without any interposed bridges or the like into the en-

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veloping device. This permits the operation of the paper strip at a much higher speed and consequently accelerates the cigarette string forming operation.

Other features and advantages will be disclosed in the following detailed description and accompanying drawing showing diagrammatically a preferred form of the invention. Referring to the drawing:

Fig. 1 illustrates diagrammatically a top view of a device with which the method of the invention can be performed with certain parts sectioned to show more detail;

Fig. 2 is a diagrammatic side view of the device partly sectioned substantially on the line A—A of Fig. 1.

A correct quantity of tobacco is continuously supplied through a hopper to a chamber 1 said tobacco landing on a circular disc 2 at the bottom thereof, said disc rotating in the direction of the arrow as shown in Fig. 1. Concentrically around disc 2 and substantially within the same plane is disposed a flat ring 2a and above and parallel to the ring 2a another similar flat ring 8 is disposed, leaving an annular space between the two rings 2a and 8. The two flat rings 2a and 8 rotate in the same direction as disc 2. A cigarette paper web 4, unreeling from its spool 5, is passed through the printing mechanism 6 and guide rolls 7, it then comes into contact with the periphery of the flat rings 2a and 8 and is carried around these rings bridging thereby the annular space between them. Thus an annular channel 9 is formed by the two rings and the paper strip in combination. A fixed cylindrical wall 3 extends along the outer circumference of the rings 2a and 8 and backs the paper strip on the outside for the distance it is in contact with the discs. The strip enters wall 3 tangentially at point 7'. The two rings 2a and 8 rotate, as already stated above, and the paper strip 4 runs on their periphery moving along at their peripheral speed. The tobacco, landing on the rotating disc 2 is subjected to centrifugal forces and hurled in radial direction, as indicated by the arrows in Figs. 1 and 2, into the annular channel 9 formed by the rotating flat rings 2a and 8 and the moving paper strip. The annular channel corresponds in size to the thickness of the tobacco string to be produced. The so formed and prepressed tobacco string with the paper strip as backing, leaves the annular string channel tangentially at 9', and is directly guided into forming tools 10, 11 where it is completely enveloped by the paper strip to a complete cigarette rod.

The fact that the prepressed tobacco string leaves the centrifugal producing device tangentially and is conducted directly into the forming tools without interposed bridges or the like permits of substantially higher speeds of cigarette rod making and such constitutes a considerable part of this invention. After the cigarette rod or string has passed the tools 10, 11 it is led to the cutting tools 12 and forwarded through scale and counting devices to the storage bin 13, for further handling and packing in a conventional manner.

The preferred construction diagrammatically shown in the drawing has a horizontally arranged revolving disc 2, although the disc need not necessarily occupy this position. The speed of the flat rings 2a and 8 has to correspond to the speed of the moving paper strip 4, because the strip moves with them, whereas it is desirable to have the speed of circular disc 2 adjustable to control the centrifugal forces imparted to the tobacco, and thereby influence the compactness of the tobacco string produced. Fig. 2 illustrates by way of example that the circular disk 2 is mounted on the upper end of a vertical shaft 18 driven by a motor D while another vertical shaft 19 driven by another motor E has mounted thereon a pulley B and a gear C for driving the flat rings 2a and 8, respectively.

It has further been found advisable to give the fixed wall 3, backing the paper strip during its contact with the flat rings 2a and 8, a concave working surface. The paper strip, under the influence of the tobacco hurled against it, presses in turn against this surface and takes its shape. Such a concave strip, it has been found, assists the rod or string forming and enveloping operations. It must, however, be stated, that such a concave surface is not indispensable, a plane surface works as well in some cases. In any case, however, the surface has to be smooth to avoid resistance to the paper strip as much as possible.

To prevent the tobacco landing on disc 2 from being thrown directly into the outlet 9' of the device, a baffle-plate 14 or the like is interposed before the outlet, to deflect the tobacco substantially to the opposite side of chamber 1 and to the string forming channel at that side. Furthermore, a tubular member 15 is provided to guide the tobacco onto the circular disc 2, as shown in Fig. 2. Such a tubular member, if made vertically adjustable, may serve also to regulate the tobacco stream into the device.

Having thus described a preferred embodiment of my invention, I desire to have it understood that the device shown is only illustrative and that various alterations in the details are possible without departing from the scope of the invention.

What I claim is:

1. A device for producing a continuous tobacco string comprising two laterally spaced rotatable flat rings, a rotatable center disc concentrically arranged within said flat rings, means for feeding tobacco onto said center disc, means for guiding a continually unreeling paper strip around the periphery of said flat rings bridging the space between them, a fixed wall surrounding the circumference of both said flat rings and forming with the latter an annular channel along the bottom of which said paper strip is adapted to slide and means for driving said center disc and said flat rings at different speeds.

2. A device for producing a continuous tobacco string according to claim 1, including a baffle-plate for diverging tobacco supplied to the center disc to a predetermined portion of the channel formed by said flat rings and fixed wall, and means for conveying the formed tobacco string with said paper strip tangentially from said channel directly into forming tools.

3. A device for producing a continuous tobacco string comprising a center disc, rotatable about a vertical axis, means forming a rotatable channel around the outer circumference of said center disc, means for passing a continuous paper strip along the base of said channel with the same speed with which said channel forming means rotates, means for backing said paper strip during the passage along the base of said channel, said means having a concave wall against which said paper strip is urged, a supply hopper above said rotatable center disc, a vertically adjustable tubular member within said hopper, and means for rotating said center disc with a speed which is different from the speed with which said channel-forming means is rotated.

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