T. W. BALDWIN.

APPARATUS FOR APPLYING TIPS TO CIGARETTES.

APPLICATION FILED DEC. 5, 1916.

1,213,061.

Patented Jan. 16, 1917.

4 SHEETS—SHEET 1.

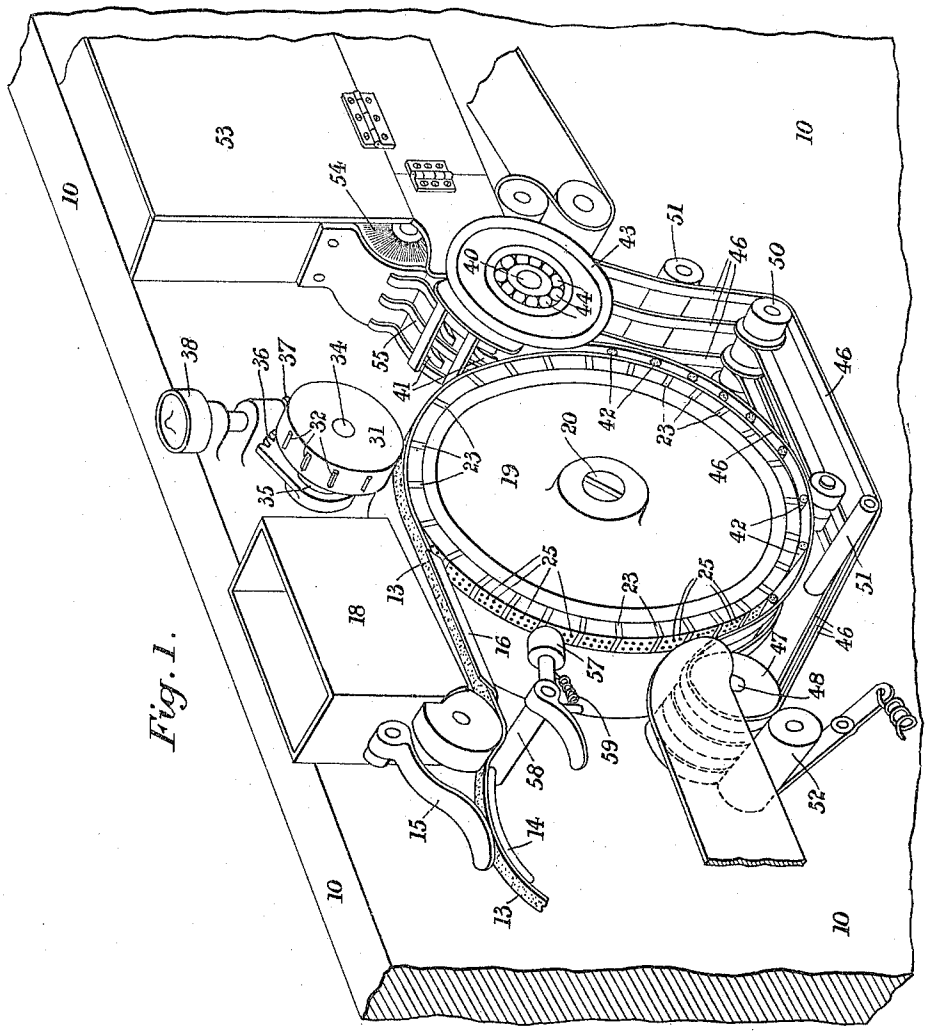

Fig. 1.

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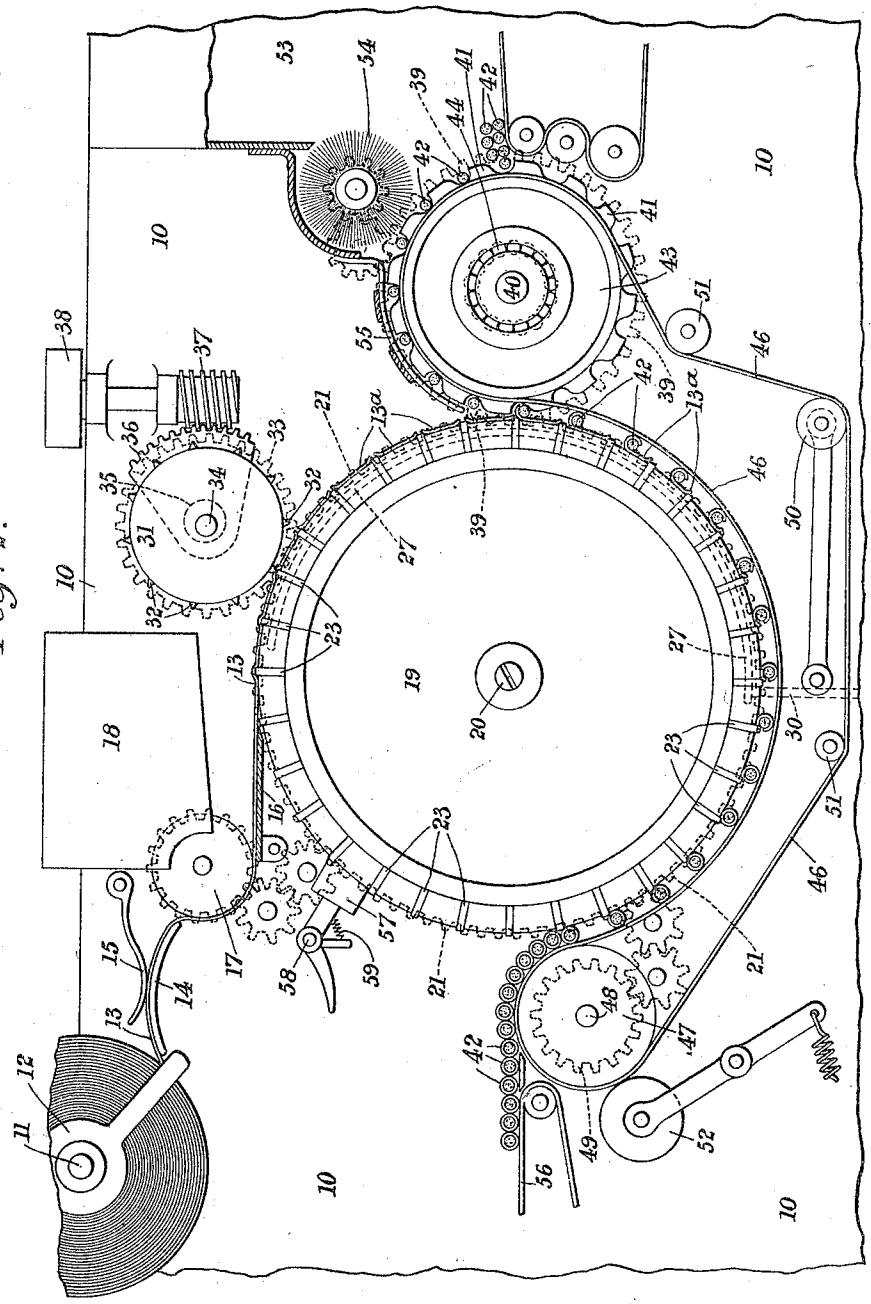
4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

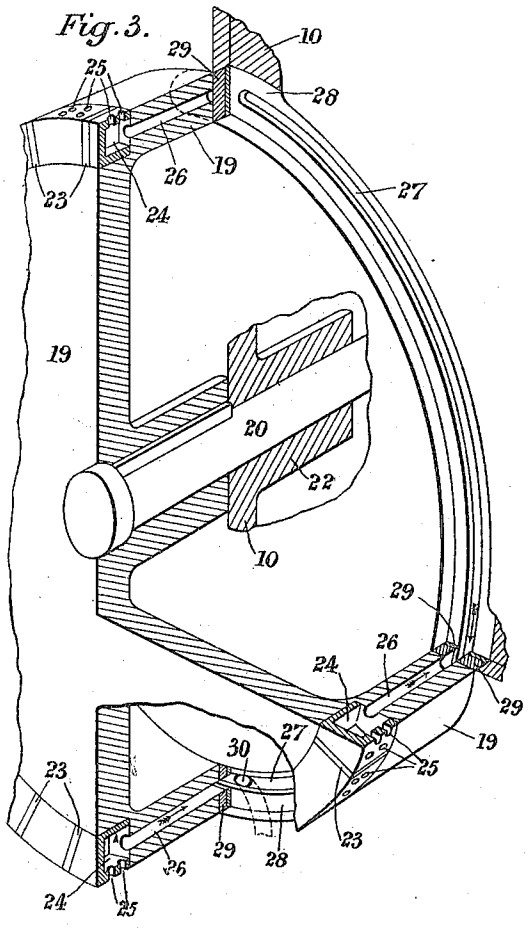


Fig. 5.

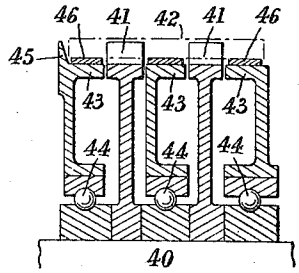


Fig. 6.

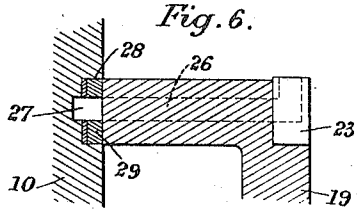
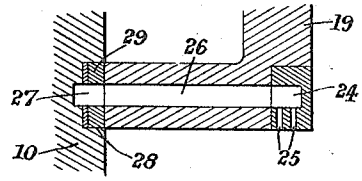


Fig. 7.



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4 SHEETS—SHEET 4.

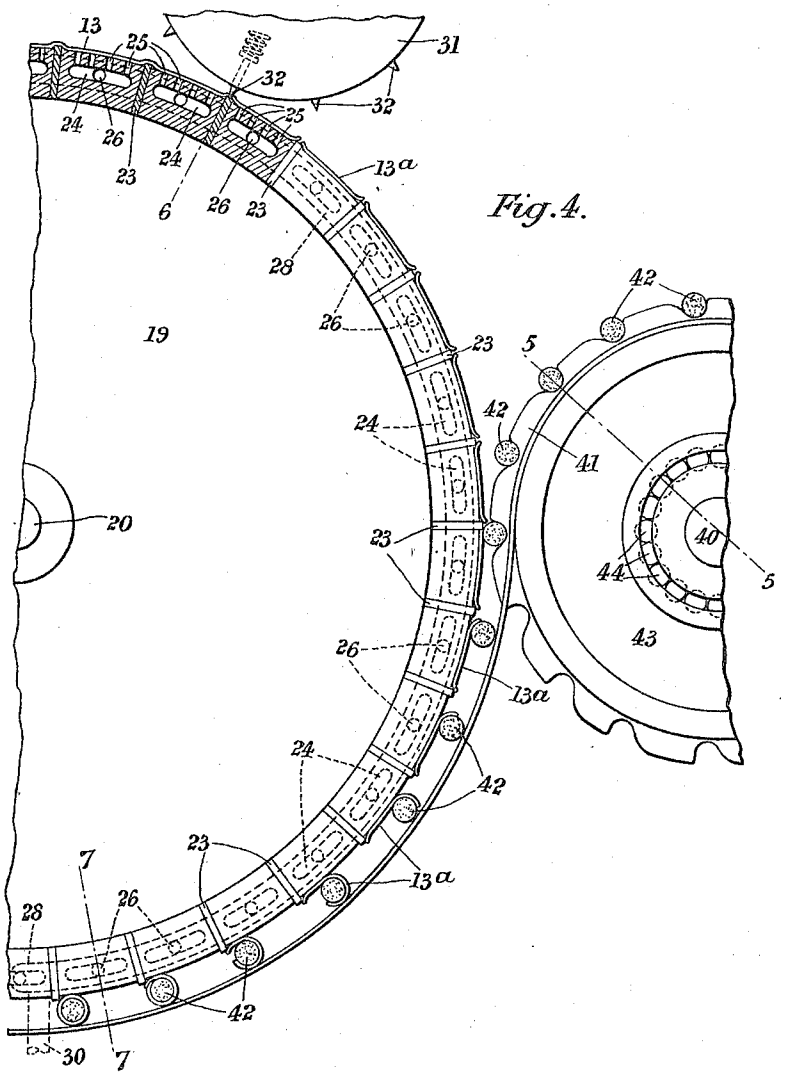

Fig. 4.

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UNITED STATES PATENT OFFICE.

THOMAS WILLIAM BALDWIN, OF CRAYFORD, ENGLAND, ASSIGNOR TO BRITISH-AMERICAN TOBACCO COMPANY LIMITED, OF WESTMINSTER, ENGLAND.

APPARATUS FOR APPLYING TIPS TO CIGARETTES.

1,213,061. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed December 5, 1916. Serial No. 135,216.

To all whom it may concern:

Be it known that I, THOMAS WILLIAM BALDWIN, a subject of the King of Great Britain, residing at the Young Men's Christian Association, Rodney Hut, Crayford, in the county of Kent, England, have invented certain new and useful Improved Apparatus for Applying Tips to Cigarettes, of which the following is a specification.

This invention relates to apparatus for tipping with cork, or other suitable, material the ends of cigarettes of such section that the tips can be applied thereto by a rolling action.

The object of the present invention is to produce apparatus which will tip such cigarettes much more rapidly and efficiently than can be done by apparatus for the purpose as hitherto constructed.

The apparatus according to this invention comprises means for passing a continuous ribbon of the material to be used for the tips (which I will for the purposes of description presume to be cork) from a spool around a drum provided with orifices on its periphery leading to a suction pump, or the like, whereby the ribbon of cork is caused to adhere to the drum; means for cutting the said ribbon into suitable lengths while adhering to the drum; and means for rolling each cigarette against one of said lengths so that it is wrapped around the end of the cigarette.

The general arrangement of the apparatus may be as follows:—The ribbon of cork can be guided from a spool to the periphery of the drum, an adhesive being applied to the exposed surface of the said ribbon. The orifices on the periphery of the drum lead, through chambers, to channels in communication with a suction pump, or equivalent exhauster. The said orifices extend around the periphery and communication between the exhauster and the chambers to the orifices of which the cork is applied is successively opened when the drum and ribbon have reached a fixed point and is shut off at another point after the strips of cork have been successively wrapped around the ends of the cigarettes. The cutter is a rotary one provided with a series of knives projecting through its periphery and preferably secured resiliently and so situated that, on rotation of the cutter and the drum, the knives cut the cork ribbon into lengths, or strips, which are held to the periphery by the suction of the exhauster. The cigarettes to be tipped are carried from a chute, or conveyer, by a feed wheel and traveling bands and against the severed lengths of cork at a speed faster than the travel of the drum. This has the effect of rolling the cigarettes each against a length of cork which is wrapped around the end of the cigarette and held thereon by the adhesive. The tipped cigarette is then carried around with a rolling motion and delivered from the apparatus into any suitable conveyer, or receptacle.

The following is a description with reference to the accompanying drawings of an apparatus constructed in accordance with this invention which is however not limited to the precise construction illustrated.

Figure 1 is a perspective view of the apparatus. Fig. 2 is an elevation partly in section, and, Fig. 3 an enlarged partial sectional perspective view. Fig. 4 is an enlarged sectional detail. Figs. 5, 6 and 7, are sections on the lines 5—5, 6—6 and 7—7, respectively, of Fig. 4.

The same reference numerals indicate the same parts throughout the several figures.

The main framing 10, supports a spindle 11, for the cork spool 12, the ribbon of cork 13, passing over a bridge table 14, and under a tension foot 15, onto a trough 16. Between the table 14, and the trough 16, is a roller 17, in contact with adhesive which is supplied from a receptacle 18, secured to the framing 10, the said roller being adapted to place a film of the adhesive upon one side of the ribbon of cork 13, which then passes onto the drum 19, secured to a spindle 20, which is driven by a gear wheel 21 (shown in dotted lines in Fig. 2). 22 (see Fig. 3) is a bearing in the framing 10, for the said spindle. The drum 19, has a series of radial cutter blocks or anvils, 23, situated at one end of the periphery of the drum and between adjacent cutter blocks 23, is a hollow chamber 24, having therein orifices 25, upon which the cork ribbon 16 rests. Each chamber 24, has a connecting passage 26, in the drum, leading to a semi-circular recess 27, in the framing 10, which recess 27, is situated within a semi-circular channel 28, in the face of the framing 10. Packing rings 29 are secured in the said channel to insure an air-

tight fit. The recess 27, is connected to a suction pump, or equivalent exhauster, by a pipe 30, so that when a chamber 24, has its orifices 25, covered by the cork ribbon and its connecting passage 26, is in communication with the semi-circular recess 27, the suction will draw the ribbon 13 against the periphery of the drum. The ribbon 13, is cut into lengths by the rotating cutter 31, carrying knives 32, so disposed that the cutting edges will take against the cork on the cutter blocks 23. These knives are preferably mounted so that they will have a certain amount of resiliency. The said rotating cutter 31, is driven by a toothed wheel 33, engaging with the toother wheel 21, its spindle 34, being mounted in a bearing having an eccentric bush 35. This bush has a radial toothed sector 36, actuated by screw spindle 37, having a milled head 38, for the purpose of adjusting the knives 32, relatively to the cutter blocks 23, on the drum 19.

Gearing with the toothed wheel 21, is a toothed wheel 39 (Fig. 2) on a spindle 40, having two, or more, toothed, or recessed, wheels 41, the shape of the teeth, or recesses being such as to accommodate a cigarette 42. Alternately situated are three, or more, rotating disks 43, having ball-bearings 44, the inner one having a flange 45, (Fig. 5). Around each of these disks 43, takes an endless belt 46, which also takes around the drum driven pulley 47, having on its spindle 48, a toothed wheel 49, geared through idlers with the toothed wheel 21. Each belt 46, has a jockey pulley 50, and passes around the guide rollers 51, and between the driven pulley 47, and tension roller 52, for the purpose of holding the cigarettes in contact with the drum and cork ribbon. The periphery of each of the disks 43, is in alinement with the roots of the teeth of the wheels 41, so that cigarettes, when in the teeth or recesses will also bear upon the belts 46. It will be observed that the tooth wheels 41, and drum 19, travel at a slower rate than the travel of the belts 46, thereby giving a rolling movement to the cigarettes.

When the apparatus is in operation, the cigarettes are fed from the container 53, against the toothed or recessed wheels 41, and only one cigarette at a time is allowed to pass by reason of the rotating brush 54. The cigarettes are prevented from falling out of the toothed or recessed wheels 41, by the quadrant guard 55, until the cigarettes engage with the drum 19. The cork ribbon 13, receives its adhesive material from the roller 17, and is held to the periphery of the drum by suction as soon as each chamber 24, comes into communication with the recess 27, leading to the pipe 30. The ribbon 13, is then cut transversely in alinement with the blocks 23, into lengths 13^a, which are prevented from leaving the drum 19, by reason of the suction which is maintained. As the end of a cigarette engages with one end of a cut-off length or cork 13^a, (Fig. 4) the said length, aided by the adhesive and the rolling action of the cigarette, will wind around the end of the cigarette, the winding being completed before the corresponding chamber 24, has passed the end of the recess 27. The cigarettes are finally delivered, over the driving pulley roller 47, onto an endless receiving belt 56, to any suitable place, or receptacle. The orifices in the periphery of chamber 24, then come into contact with a cleaning wiper 57, mounted upon a spindle 58, and tensioned by a spring 59.

What I claim is:—

1. In a cigarette tipping machine, the combination with a movable tip carrier, of a movable cigarette carrier arranged to hold the cigarette in engagement with a tip on the tip carrier, said carriers moving at different speeds to effect the rolling of the cigarette while in engagement with the tip to wrap the latter on the cigarette.

2. In a cigarette tipping machine, the combination with a movable tip carrier, of a movable cigarette carrier arranged to hold the cigarette in engagement with a tip on the tip carrier, said carriers moving at different speeds in the same direction to effect the rolling of the cigarette while in engagement with the tip to wrap the latter on the cigarette.

3. In a cigarette tipping machine, the combination with a movable carrier serving to hold a plurality of independent tips, of a cigarette carrier moving at a different speed of travel and arranged to bring a plurality of cigarettes severally into engagement with said tips and effect, by said difference of speed of travel, the rolling of the cigarettes to wrap the tips thereon.

4. In a cigarette tipping machine, the combination with means for feeding and carrying cigarette tips, of means for severally feeding the cigarettes and a traveling band receiving the cigarettes from the feeding means and bringing them into rolling engagement with the tips to wrap the latter severally on the cigarettes.

5. In a cigarette tipping machine, the combination with a constantly moving tip carrier and means for continuously feeding thereto the cigarette tips, of a constantly moving conveyer for the cigarettes and means for continuously feeding the cigarettes severally thereto, said conveyer being arranged to travel past the tip carrier and severally roll the cigarettes in engagement with the several tips to wrap the latter on the cigarettes.

6. In a cigarette tipping machine, the combination with a constantly moving tip carrier and means for continuously feeding thereto a band of tip material and cutting

the same thereon into tip lengths, of a constantly moving conveyer for the cigarettes and means for continuously feeding the cigarettes severally thereto, said conveyer being arranged to travel past the tip carrier and severally roll the cigarettes in engagement with the several tips to wrap the latter on the cigarettes.

7. In a cigarette tipping apparatus employing a ribbon of tip material, the combination of means for applying adhesive to the ribbon, a rotatable drum over which said ribbon passes during a partial revolution, said drum having suction orifices in the area of contact with the tip material whereby the latter is held against the drum, a cutter arranged to sever the ribbon into tip lengths and cigarette feeding means serving to roll the cigarettes severally against the lengths of tip material to wrap the latter on the cigarettes.

8. In cigarette tipping apparatus employing a ribbon of tip material, the combination of means for applying adhesive to the ribbon, a rotatable drum over which said ribbon passes during a partial revolution, said drum having independent peripheral portions provided with suction orifices in the area of contact with the tip material whereby the latter is held against the drum on the blocks between said portions, a rotatable cutter carrying knives for severing the ribbon upon said blocks into tip lengths, and cigarette feeding means serving to roll the cigarettes severally against the lengths of tip material to wrap the latter on the cigarettes.

9. In cigarette tipping apparatus employing a ribbon of tip material, the combination of means for applying adhesive to the ribbon, a rotatable drum over which said ribbon passes during a partial revolution, said drum having independent peripheral portions provided with suction orifices in the area of contact with the tip material whereby the latter is held against the drum on the blocks between said portions, a rotatable cutter carrying knives for severing the ribbon upon said blocks into tip lengths, and cigarette feeding means including traveling belt means to hold the cigarettes severally against said tip lengths and roll the same thereon to wrap the tips on the cigarettes.

10. In cigarette tipping apparatus, a drum having independent segments provided with peripheral suction orifices and lateral draft channels opening therethrough, in combination with a stationary member at the side of said drum and having a suction chamber with which said draft channels severally communicate during a portion of a revolution of the drum.

11. In cigarette tipping apparatus, a drum having independent segments provided with peripheral suction orifices onto which a ribbon of tipping material is fed, separate cutter blocks interposed between adjacent segments, and a rotary cutter having knives arranged to coöperate with said cutter blocks to sever the ribbon into tip lengths.

12. In a cigarette tipping apparatus, a cigarette feeding device comprising a plurality of recessed wheels to receive and carry cigarettes, disks located between said wheels and having their peripheries below the peripheries of the recessed wheels, endless belts taking around said disks and receiving cigarettes from said recessed wheels, a tip carrying drum, the belts being carried partially around said drum to press the cigarettes against the tip lengths thereon and moving at different speed from the drum to roll the cigarettes thereon and effect the wrapping of the tip lengths on the cigarettes.

13. In a cigarette tipping apparatus, a rotary suction drum, means for feeding thereto a ribbon of tipping material, means for cutting the latter into tip lengths on the drum, and means for rolling the cigarettes while in engagement with the cut lengths on the drum to wrap said lengths on the cigarettes.

14. In a cigarette tipping apparatus, a rotary suction drum, means for feeding thereto a ribbon of tipping material, means for cutting the latter into tip lengths on the drum, band means traveling at a different speed from the peripheral speed of the drum for holding and rolling the cigarettes in engagement with the cut lengths on the drum to wrap said lengths on the cigarettes.

15. In a cigarette tipping apparatus, a rotary suction drum, means for feeding thereto a ribbon of tipping material, means for applying adhesive to said ribbon, means for cutting the latter into tip lengths on the drum, band means traveling at a different speed from the peripheral speed of the drum for holding and rolling the cigarettes in engagement with the cut lengths on the drum to wrap said lengths on the cigarettes.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

THOMAS WILLIAM BALDWIN.

Witnesses:
J. KERSHAW PICKUP,
G. T. TYSON.