Dec. 29, 1931. R. E. RUNDELL 1,838,111

VARIABLE SPEED MEASURING DRUM FOR TOBACCO FEEDS

Filed March 7, 1930

FIG. 1

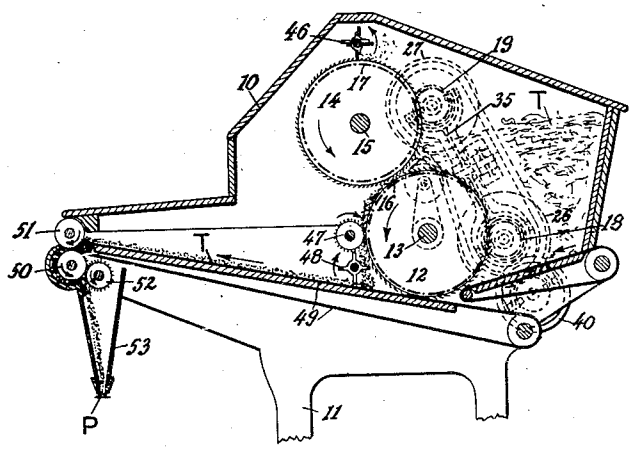


FIG. 2

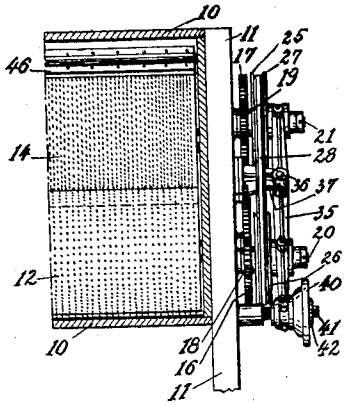


FIG. 3

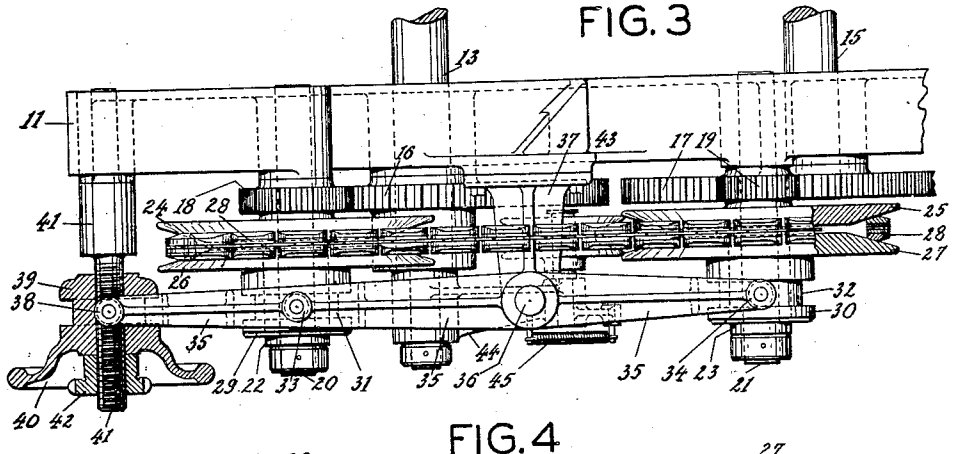
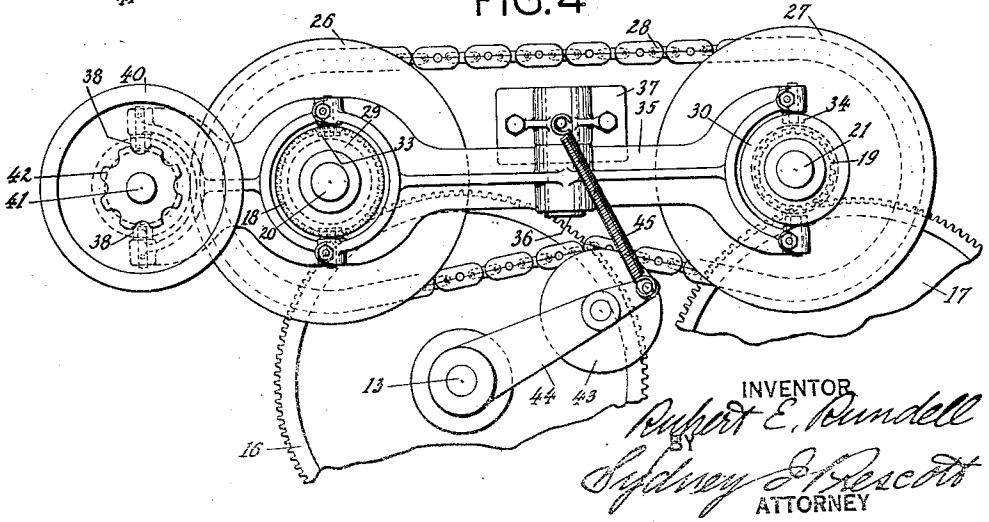


FIG. 4



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Patented Dec. 29, 1931

1,838,111

UNITED STATES PATENT OFFICE

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VARIABLE-SPEED MEASURING DRUM FOR TOBACCO-FEEDS

Application filed March 7, 1930. Serial No. 434,096.

This invention relates to tobacco feeds for continuous rod cigarette machines, its main object being to provide means for independently changing from time to time the speed of the tobacco feed measuring drum, thereby controlling the amount of tobacco to be fed to the continuous running paper strip.

In manufacturing cigarettes by means of a continuous rod cigarette machine, it is required that the cigarette rod be at all times of the same density so that all cigarettes be of equal weight; but experience has taught that, during the running of the machine, the tobacco density of the rod varies, due to changes in the condition of the tobacco, caused by variation of temperature, humidity, grade and fineness of the tobacco, etc. Furthermore, when the tobacco mass runs low in the feed magazine, a smaller quantity of tobacco is picked up by the feed drum, which also results in a decrease of density. With the present invention these difficulties are overcome by providing means for making the speed of the filler or measuring drum independently variable without stopping the machine.

The speed adjustment in the present invention is accomplished by driving the filler or measuring drum from the shaft of the main drum by a set of gear wheels variably connected through a pair of expansion pulleys and a V-shaped belt. The belt seat of each of these expansion pulleys is made up of a stationary and a movable conical flange, the two movable flanges being attached to the fork ends of a pivoted double lever which is operable by a hand wheel. By swinging the said lever about its fulcrum, the conical flange of one of the pulleys is moved away from its stationary member and that of the other pulley toward its stationary member, thereby causing the V-belt to change its seat on both pulleys, thus decreasing the belt-contact diameter of the first pulley and increasing that of the second pulley, thus quickly effecting, by this double action, a corresponding change in the speed of the measuring drum, which regulates the amount of tobacco on the main feed drum, or pick-up drum.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be fully described hereinafter and then specifically set forth in the claims hereunto appended.

In the accompanying drawings:

Fig. 1 is a sectional side view of a tobacco feed for a cigarette machine, showing the application of the variable speed drive to its measuring drum;

Fig. 2 is a sectional end view of the same;

Fig. 3 is a plan view of the variable speed drive unit; and

Fig. 4 is a side view of the variable speed drive unit.

In carrying the invention into effect, there is provided a cigarette machine tobacco feed having a feed drum and a filler or measuring drum, and means for selectively driving said filler drum at different speeds without altering the speed of the other parts of the feed to vary the quantity of tobacco delivered by the feed. In the best constructions contemplated, the filler drum driving means includes a belt and two expanding pulleys deriving their motion from a constant speed shaft of the feed and delivering it to the variable speed shaft of said filler drum. The above means may be widely varied in construction within the scope of the claims, for the particular structure selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the precise structure shown and described.

The tobacco feed of the cigarette machine consists of a housing 10 containing the tobacco magazine and the various feed drums and belts, the said housing being mounted on a frame 11. The main drum 12, which picks up the tobacco T placed in the magazine portion of the housing 10, is mounted on a shaft 13 which is driven at constant speed from the main drive of the cigarette machine. The filler or measuring drum 14, the pins of which engage the tobacco carried by the drum 12, is mounted on a shaft 15. Shafts 13 and 15 are supported by bearings in the main frame 11 and carry the gears 16 and 17, respectively, engaging with gears 18 and 19

supported by studs 20 and 21 mounted in main frame 11. Gears 18 and 19 are provided with sleeves 22 and 23, respectively, to which are fastened the stationary members 24 and 25, and on which are slidably mounted the movable members 26 and 27, forming two expansion pulleys 24, 26 and 25, 27, which are connected by a V-shaped link belt 28. The slidable members 26 and 27 are provided with sleeves 29 and 30 having recesses 31 and 32 for receiving rollers 33 and 34 pivoted to fork lever 35 which, through stud 36, is supported by bearing bracket 37 mounted on main frame 11. To fork lever 35 are pivoted rollers 38 engaging with an annular groove in sleeve 39 of handwheel 40 mounted on the threaded stud 41 supported by main frame 11. Stud 41 carries the lock nut 42 which holds the handwheel 40 in position after adjustment. To keep the belt 28 in tension, a pulley 43 is pivoted on lever 44, loosely mounted on shaft 13 and connected to bracket 37 by means of a spring 45.

In feeding the tobacco T to the continuous running paper strip P, the quantity of tobacco picked up by the main drum 12 is regulated by the measuring drum 14 which moves in the opposite direction, throwing the surplus tobacco back into the magazine. Any tobacco carried along by the measuring drum 14 is removed by the beater 46. The tobacco carried by the main drum 12 is taken off by the picker roller 47, a fan 48 placed beneath the picker roller 47 directing the stream of the tobacco onto the feed belt 49 which carries it to the pin roller 50 onto which it is guided by the pressure roller 51. A second picker roller 52 takes the tobacco off the pin roller 50 and delivers it through a guide chute 53 onto the continuous running paper strip P.

The quantity of tobacco on the feed belt 49, for a given speed of the main feed drum 12, depends entirely on the speed of the measuring drum 14 which removes more tobacco from the pick up drum and thus causes the quantity fed to the paper strip P to be the smaller, the faster it revolves. By turning the hand wheel 40, therefore the lever 35 will, by its double action, vary the effective diameter and speed of the pulleys 24, 26 and 25, 27 and quickly change the amount of the tobacco fed to the paper strip, and the density of the cigarette rod can thus be readily adjusted to varying conditions of the tobacco.

What is claimed is:

1. The combination with a cigarette machine feed having a measuring drum, of means operative while the feed is running for selectively driving said drum at different speeds without altering the speed of the other parts of the feed to vary the quantity of tobacco delivered by the feed.

2. The combination with a cigarette machine feed having a measuring drum, of means for selectively driving said drum at different speeds without altering the speed of the other parts of the feed to vary the quantity of tobacco delivered by the feed, said drum being continuously rotated by said means.

3. The combination with a cigarette machine feed having a measuring drum, of means for selectively driving said drum at different speeds without altering the speed of the other parts of the feed to vary the quantity of tobacco delivered by the feed, said means including a belt and two expanding pulleys deriving their motion from a constant speed shaft of the feed and delivering it to the variable speed shaft of said drum.

4. A tobacco feed comprising a constant speed feed drum for feeding tobacco, a measuring drum for removing surplus tobacco from the feed drum, and variable speed driving means for the measuring drum operative while the measuring drum is running for selectively driving it at different speeds.

5. A tobacco feed comprising a constant speed feed drum for feeding tobacco, a measuring drum for removing surplus tobacco from the feed drum, and variable speed driving means for the measuring drum, said driving means including expansion pulleys connected to the feed drum and measuring drum respectively, driving means connecting said pulleys, and means for expanding and closing said pulleys whereby to vary the speed of said measuring drum.

In testimony whereof, I have signed my name to this specification.

RUPERT E. RUNDELL.