June 5, 1934. C. J. DU BRUL 1,961,684

METHOD OF MAKING CIGARS

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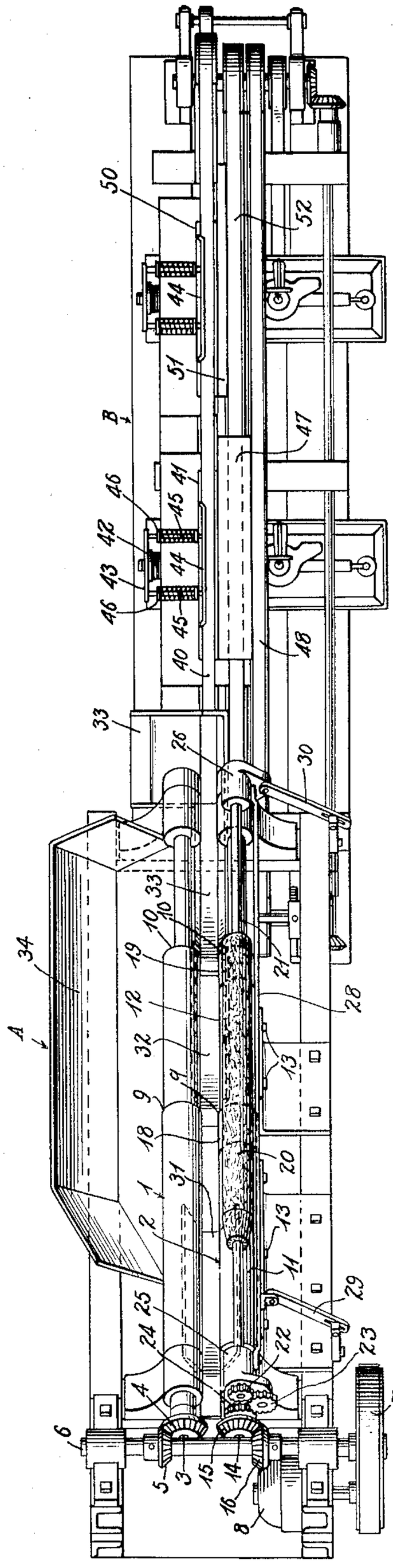


Fig. 1.

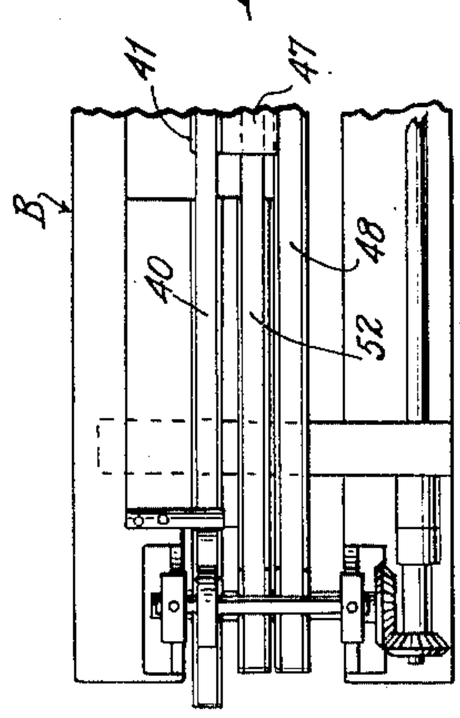


Fig. 2.

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## METHOD OF MAKING CIGARS

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Application August 19, 1931, Serial No. 558,129

1 Claim. (Cl. 131—52)

Cigars are made by first forming a bunch of filler tobacco wrapped in a binder, and then rolling the bunch into a wrapper. The filler may be composed of long or short fragments of tobacco leaves, or may be made by simply rolling the leaves in a continuous spiral until the desired diameter has been reached. The latter method is a hand process, but bunches made of shredded or long filler are ordinarily produced by machine. Variations in size, shape, and density of the bunches not only make cigars which are ununiform in appearance and smoking qualities, but also lead to difficulties in wrapping.

The purpose of this invention is to improve the art of making cigars by supplying the wrapping table with bunches which are all within certain limits of variation in size, shape, density, and weight, thereby removing much of the difficulty of wrapping and at the same time helping to produce cigars which are more uniform and perfect. In processes employed up to this time there has been no way to assure that all bunches sent to the wrapper are near enough to a certain standard to be worth wrapping or to take a wrapper smoothly. Irregularities may occur in the shape or size of the bunch as well as in its denseness and the weight of tobacco which it contains. The first of these defects, irregularities of shape or size, make it difficult or impossible to roll the bunch in a wrapper in such a way as to give a smooth well shaped cigar. The head is particularly hard to wrap if the bunch is out of shape or of incorrect size and the variations in these respects which have always occurred heretofore have made it necessary to cut the notch of the wrapper shallower than it should be and rely upon a slight tearing of the wrapper at the notch to take care of the variations of the bunches. The only method of eliminating defective bunches heretofore has been by occular inspection, which is inaccurate and tedious.

Variations in denseness of the bunches make cigars which are unpleasant to smoke because they are either difficult to draw through, or because they draw too easily and burn too rapidly, which makes the temperature of the smoke abnormal and spoils its aroma. It is furthermore an advantage to both the manufacturer and the consumer to know that each cigar contains the same weight of tobacco.

The object of my invention is therefore, to assort the completed bunches before they are sent to the wrapping table, to remove all those that are of irregular shape, abnormal size, either too dense or not dense enough, or of incorrect weight. The selection is accomplished by a combination of gauging and weighing steps. If the gauging is carried out first the bunches which are oversized, undersized, tapered or bumpy are first separated from the bunches of standard size and shape, and the latter are then subjected to a weight test in which the over and under weight bunches are separated from those of standard weight. The order of the steps may be reversed, in which case all bunches of standard weight will first be selected and then the over and undersized, tapered and bumpy bunches culled out. The gauging and weighing are preferably carried out by machine. Since the bunches have been cut to correct length when they come to the selecting machines, those which are of uniform standard diameter are of uniform volume; therefore those which are of the same uniform diameter and the same weight will be of the same denseness. These two selecting operations send to the wrapping table bunches which, because of their uniform size, shape, and firmness, wrap smoothly and easily, giving a product which deviates very little from the standard.

Any suitable gauging and weighing machine may be used in carrying out the process. By way of illustration I have shown in the accompanying drawing a machine which will give very rapid and accurate results. This machine is described in greater detail in the co-pending application of C. J. Du Brul and W. J. Luttmann, Serial No. 624,298, filed July 23, 1932.

In the drawing Fig. 1 is a somewhat diagrammatic plan view of the machine, and Fig. 2 is a fragmentary plan view of the end of the weighing machine which is obscured by the gauging machine in Fig. 1.

The measurement of the diameter of the bunches can be readily accomplished by the type of machine employing stepped rollers spaced apart to form slots of increasing width through which the bunches of different diameters drop, those dropping through the slot of correct width being guided away separately from those dropping through slots of greater or less width. The machine must also include means for removing those bunches which tilt to an upright position because of a tapered or bumpy shape which permits one end to drop through one section of the rolls where the width is not sufficient to pass the larger end.

The diametral selecting machine indicated

generally by the character A in the drawing comprises a pair of spaced rolls 1 and 2. The roll 1 is fixed upon a shaft 3 which is driven through bevelled gears 4, 5, shaft 6, and belt 7 from an electric motor 8. The roll 1 is decreased in diameter at steps 9 and 10, the intermediate portions being cylindrical.

The roll 2 is partly composed of stationary sections 11 and 12 fixed by screws 13 to the frame of the machine. Within these stationary sections is rotatably mounted a shaft 14 driven by bevelled gears 15, 16 from shaft 6. Rotating sections 18 and 19 of the roll 2 are fixed upon shaft 14 so as to rotate therewith, for a purpose to be presently described. The roll 2 has steps 9 and 10 corresponding to those of the roll 1.

Above the roll 2 is a third roll 20 fixed upon a shaft 21. This shaft is driven by gears 22, 23, 24, the latter fixed upon shaft 14, in the same direction as sections 18 and 19 of roll 2. Shaft 21 is rotatably mounted in bearings 25, 26 pivotally supported on shaft 14. These bearings are secured together by a bridge piece 28 and are held in adjusted position by braces 29, 30.

The rolls 1 and 2 are inclined downwardly toward the right. The cigar bunches are dropped onto the upper left end of the rolls and usually assume a position parallel to the rolls. Bunches which are of less than standard diameter drop through the slot between the upper ends of the rolls and are carried off by chute 31. Bunches of greater diameter are moved by the rotation of roll 1 and gravity toward the right and pass over the shoulders 9 to the next section of the rolls. Here the bunches of standard diameter drop through and are conveyed by a chute 32 to the weighing machine. Oversized bunches continue their movement along the rolls and pass over the shoulders 10, where they drop through into chute 33 and are carried off. Bunches which are in part small enough to drop between the rolls at the upper end, but which are prevented from doing so by a tapered shape or lump assume an upright position and are carried down the rolls in that way until they reach section 18 of roll 2. At this point the combined action of the three rotating rolls 1, 18, and 20 lifts the bunch clear of the rolls and throws it into trough 34. Bunches assuming an upright position in the next section of the rolls, because of a tapered or bumpy shape, encounter similar treatment at the rotating section 19. The undersized bunches, the oversized bunches, and the tapered or lumpy bunches may be collected separately and thus give an indication of the nature of the defective operation of the bunch forming machine. The roller 20 can be adjusted toward or away from the slot between the rolls 1 and 2 to insure perfect ejection of tapered and lumpy bunches. This roll 20 is preferably provided with a cover of plush or other suitable material to increase the friction at its contact with the defective bunches.

The bunches of standard size and shape dropping into chute 32 are guided to the weighing machine indicated generally by the character B. The bunches are first led onto a conveyor 40 on which they are carried over the pan 41 of a scale. Bunches which are overweight depress the scale pan sufficiently to close a switch which completes an electric circuit through a solenoid 42. A pivotally mounted armature 43 having a limited swinging movement carries a kicker 44 by arms 45 slidably mounted in brackets 46. When the electric circuit is closed the armature 43 is drawn in and moves the kicker 44 across conveyor 40. The bunch which is on the scale at the moment is thus pushed off conveyor 40 and slides down a chute 47 onto another conveyor 48 arranged a little below the conveyor 40. Bunches of standard or too-light weight do not depress the scale pan 41 sufficiently to close the electric circuit and so are carried on by conveyor 40. They arrive above a second scale pan 50, which is associated with a kicker 44 like the one first described, but which is set to be depressed and close its electric circuit by lighter bunches, namely bunches of standard weight. The standard weight bunches will therefore be kicked off the conveyor 40 at this point and are guided by a chute 51 onto a third conveyor 52. The underweight bunches are carried on by conveyor 40 and discharged over its end. The standard and overweight bunches are separately collected at the ends of conveyors 52 and 48. The standard weight bunches, being also of standard size, shape and density, are carried to the wrapping table.

I claim:

The process of making cigars which comprises forming bunches of tobacco, subjecting finished bunches to a gauging and weighing operation in which those not conforming to certain standards of size, shape, and weight are rejected, and wrapping the bunches of standard size, shape, and weight.

CLARENCE J. DU BRUL.