

June 1, 1926.

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1,587,477

MATERIAL FEEDING DEVICE FOR TOBACCO MACHINES

Filed June 17, 1922

2 Sheets-Sheet 1

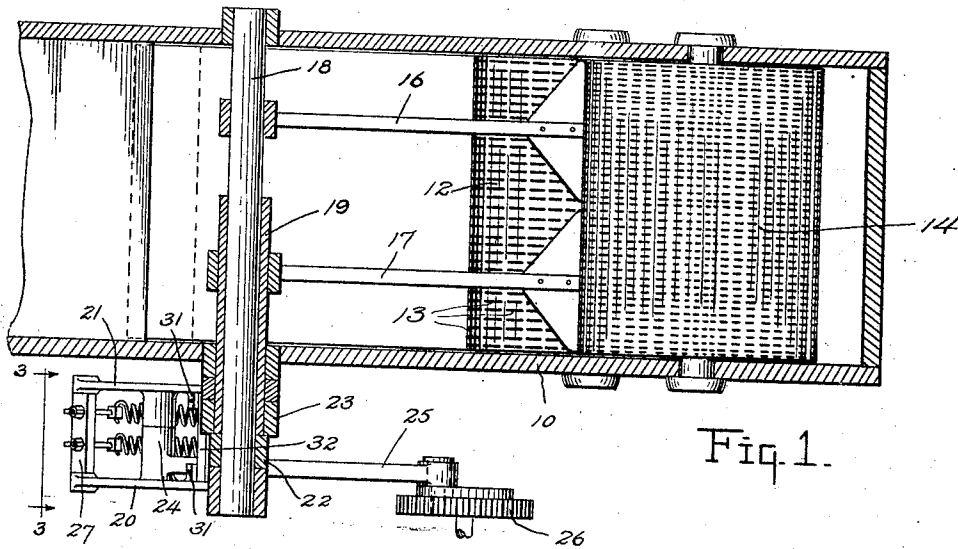


Fig. 1.

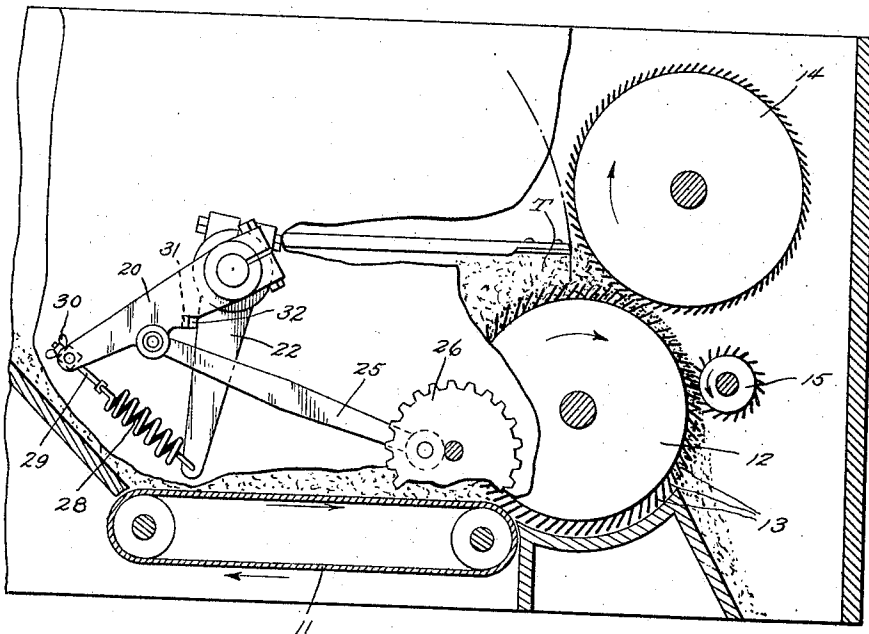


Fig. 2.

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Fig. 4.

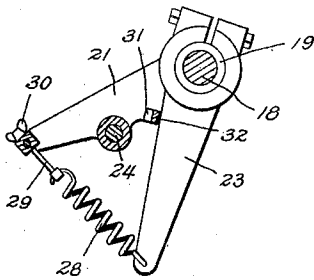


Fig. 5.

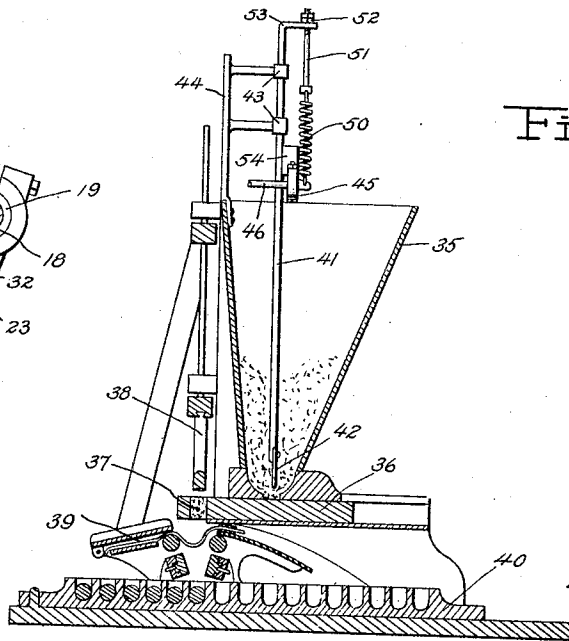


Fig. 6.

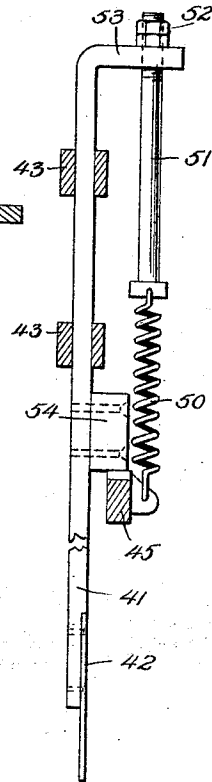


Fig. 3.

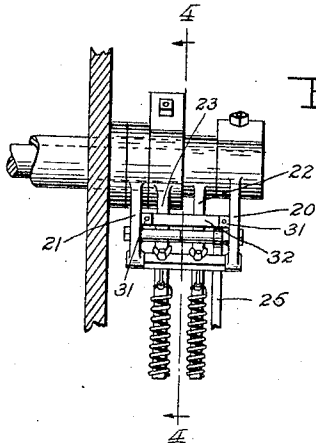
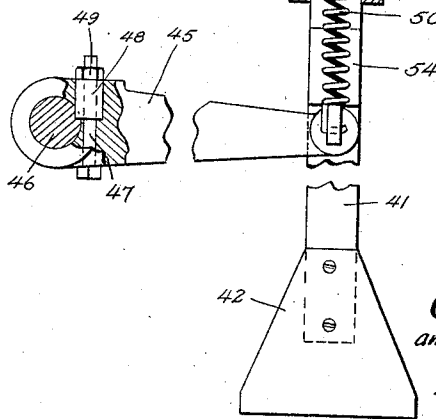


Fig. 7.



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UNITED STATES PATENT OFFICE.

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MATERIAL-FEEDING DEVICE FOR TOBACCO MACHINES.

Application filed June 17, 1922. Serial No. 569,051.

Our invention relates to feeding devices and particularly to feeding devices for use in combination with tobacco machinery. It is an object of our invention to apply pressure to the material to be fed to the measuring devices of tobacco machinery such as matrices, card-clothing or other devices used for similar purposes.

Heretofore it has been impossible to feed a uniform amount of material continuously or successively even though gravity or non-resilient packers have been employed. This difficulty presents itself because the compactness of the mass of material presented to such measuring devices is not consistently uniform, and consequently varied amounts of material are fed to the measuring devices.

Therefore, the primary object of our improved arrangement is to provide feeding means whose operation is resiliently effected, thereby enabling the variations in compactness of the material to be compensated for and a constant and uniform supply of material presented to the measuring devices of tobacco machinery.

In carrying out our improved invention we have illustrated the same as employed in connection with a cigarette making machine and a cigar bunching machine, it being however obvious to those skilled in the art that the invention is equally applicable to other forms of tobacco machinery.

The various features of our improved invention, together with the manner of operation of the same will be made more apparent in the accompanying specification and drawings, in which:

Fig. 1 is a plan view partly in section of a cigarette making machine with our improved invention applied thereto.

Fig. 2 is a side elevation of the structure shown in Fig. 1, certain parts being broken away.

Fig. 3 is a fragmentary elevation as viewed along lines 3—3 of Fig. 1.

Fig. 4 is a vertical section taken along lines 4—4 of Fig. 3 looking in the direction of the arrows.

Fig. 5 is an elevation partly in section of a cigar bunching machine with a modified form of our invention applied thereto.

Fig. 6 is an enlarged side elevation of the feeding device shown in Fig. 5, and

Fig. 7 is another side elevation of this

form of feeding device viewed from a different angle.

Referring now more particularly to Figs. 1 to 4, the first form of our invention will be described. The numeral 10 indicates a hopper or container of a cigarette making machine and 11 an endless belt which conveys the tobacco to a carding drum 12 in the usual manner and which forms the bottom of the hopper 10. The carding drum 12 is provided on its outer surface with card-clothing or measuring devices 13. Mounted adjacent the carding drum 12 is a stripper drum 14 which brushes off the surplus tobacco from the card clothing or measuring devices 13. Mounted also adjacent the carding drum 12 is a picker roll 15 which discharges the tobacco from the measuring devices 13.

The mechanism thus far described is of the usual type and represents one form of a cigarette making machine in connection with which our improved feeding device may be efficiently and conveniently employed. The feeding mechanism comprises a pair of tampers 16 and 17 mounted so as to be capable of independent movement in a manner to be more fully hereinafter described.

Journalled transversely of the hopper 10 is a rocker shaft 18 which in turn carries a rotatable sleeve 19. The tampers 16 and 17 are secured to the shaft 18 and sleeve 19 respectively so as to be actuated thereby.

The rocker shaft 18 and sleeve 19 project beyond the hopper 10 at one side thereof as clearly shown in Fig. 1 and have journalled thereon arms 20 and 21, the arm 20 being journalled on the shaft 18 and the arm 21 on the sleeve 19.

A pair of similarly shaped arms 22 and 23 are clamped to the shaft 18 and sleeve 19 respectively.

The rocker arms 20 and 21 are connected together by a transverse stud shaft 24 to which one end of a pitman rod 25 is pivotally connected. The other end of the pitman rod 25 is eccentrically connected to a pinion gear 26 which forms the driving means of the mechanism and by which the pitman rod 25 is reciprocated.

The free ends of the rocker arms 20 and 21 are connected together by a bar 27 and connection between the end of each rocker

arm 20 and 21 and the free end of each of the arms 22 and 23 is established by means of a spring 28, a bolt 29 and an adjusting nut 30 and bar 27. Obviously the tension of the spring 28 may be regulated by adjusting the nut 30.

Each of the rocker arms 20 and 21 is formed with a lug 31 to which is bolted a cross-bar 32, thus forming a stop which engages the arms 22 and 23 to move them positively in one direction.

The operation of this form of our invention will now be described: When the tobacco T is carried forward by means of the belt 11, it is pressed into the measuring device 13 by means of tampers 16 and 17. These tampers are adapted to swing on the are indicated in dotted lines in Fig. 2, obtaining their movement through the oscillation of the rocker shaft 18 and sleeve 19.

This oscillation is accomplished by the reciprocation of the pitman rod 25 which in turn, swings the rocker arms 20—21, which as hereinbefore mentioned, are loosely journaled on the ends of the rocker shaft 18 and sleeve 19 respectively. As the rocker arms 20—21 are swung toward the left (as viewed in Fig. 2), they cause the arms 22 and 23 to swing in a like direction because of the resilient connection therebetween. Obviously therefore, as the rocker arms 20—21 move toward the left in Fig. 2, the arms 22 and 23 are moved in a like direction and owing to the fixed connection between the upper ends of these arms and the shaft 18 and sleeve 19, the said shaft and sleeve are rotated and the tampers 16 and 17 swung downwardly to press the tobacco T into the measuring device 13. If, however, one of the tampers encounters a larger amount of tobacco than usual, this tamper will press the tobacco toward the measuring device with a pressure equal to the tension of its associated spring 28. If the resistance of the tobacco beneath this tamper overcomes the tension of the associated spring, this tamper will cease to move and the associated spring is extended to permit the continued movement of the rocker arms the rest of the distance. Obviously, both tampers may simultaneously encounter an amount of tobacco in excess of the amount which is to be fed to the measuring device and thereupon both tampers will exert a pressure upon the tobacco T equal to the tension of their respective springs whereupon the tampers will cease to move and the springs be extended by the continued movement of the rocker arms 20—21.

On the return movement of the rocker arms 20—21 the cross bar 32 will engage the arms 22—23 to positively move them in the direction of the idle movement of the tampers 16—17, that is, to raise the tampers. Thus, it is obvious that the tampers are posi-

tively moved in one direction and resiliently urged during their operative movement and the tobacco T will consequently be fed to the measuring device 13 in a uniform and efficient manner.

Referring now more particularly to Figs. 5 to 7 inclusive, the second form of our invention will be described in detail. In these figures our improved invention is illustrated as employed in connection with a cigar bunching machine and while the details of construction are modified somewhat, to accommodate the invention to this different type of machine, the principle of operation remains however, the same.

In these figures the reference character 35 represents the hopper of a cigar bunching machine in which tobacco for fillers, is placed. Slidably mounted beneath the hopper is a matrix or measuring device 36, the slot or opening 37 formed therein being adapted to be filled with tobacco ejected from the hopper 35 and moved laterally to the position illustrated in Fig. 5. In the further operation of cigar bunching machines, a plunger 38 is adapted to push out the tobacco carried in the opening 37 and deposit the same in an apron 39 where it is rolled and later conveyed into the cigar mould 40. As this latter structure forms no part of our present invention and is merely representative of one type of cigar bunching machines now universally employed, no further detailed description of the same is thought necessary.

In carrying out our invention we provide a tamper in the form of a plunger rod 41 carrying a tamper head 42 on the lower end thereof. This rod 41 is slidably mounted in bearings 43 or the like carried by a supporting frame 44 which may be bolted to the upper edge of the hopper 35 or to any other fixed part of the machine. For reciprocating the rod 41 we provide a rocker arm 45 locked to a rocker shaft 46 which has a rocking movement applied thereto, similar to the movement applied to the shaft 18 of the structure hereinbefore described. The rocker arm 45 is locked to the shaft 46 by means of a locking device in the form of a bolt 47 which carrier a sleeve 48 which is forced into engagement with the shaft 46 by means of a nut 49.

Resilient connection between the free end of the rocker arm 45 and the tamper rod 41 is accomplished by means of a spring 50, a bolt 51 and adjusting lock nuts 52. The bolt 51 passes through the angularly bent end 53 of the tamper rod 41. The tamper rod 41 is positively moved in an upward direction by securing to the tamper rod a stop here shown in the form of a block 54 secured to the rod and in position to be engaged by the free end of the rocker arm 45, whereupon the tamper rod 41 will be raised.

It is obvious without further description, that as the rocker arm 45 is rocked in one direction, the tamper rod 41 and consequently the tamper head 42 will be resiliently urged downward and into engagement with the tobacco carried in the hopper 35. Should the tamper encounter a larger amount of tobacco than usual, the tamper will exert a pressure on the tobacco equal to the adjusted tension of the spring 50 whereupon downward movement of the tamper rod 41 will cease and the spring be stretched to compensate for the continued movement of the rocker arm 45. As the rocker arm 45 moves in the opposite direction it encounters the stop 54 and positively raises the tamper rod 41. Therefore, it is obvious that we have provided a feeding device which is resiliently urged in the direction of its operative movement and positively moved in the opposite direction.

As hereinbefore mentioned, we have illustrated part of a cigarette making machine and a cigar bunching machine solely for the purpose of indicating the manner in which our improved invention may be employed in connection with machines of this type, but it should be understood that our invention is applicable to tobacco machines of various other types and the structures shown herein are to be considered as illustrative examples only.

We therefore reserve the right to make such changes and modifications in the construction and form of our invention as we may find necessary and as may come within the purview of the accompanying claims.

Having thus described our invention, what we claim is:

1. A tobacco feeding device comprising a tamper; means for reciprocating said tamper,

a resilient connection between said tamper and reciprocating means whereby said tamper may be resiliently moved in one direction, and means to return the tamper in the opposite direction.

2. A tobacco feeding device comprising a plurality of oscillating tampers, operating means therefor, and means resiliently connecting each tamper to the operating means whereby said tampers may be resiliently and independently urged in operative direction and returned in the opposite direction.

3. A tobacco feeding device comprising a plurality of tampers, a rocker shaft, a sleeve on said shaft, means connecting said tampers to said sleeve and shaft respectively, and means for independently rocking said shaft and sleeve.

4. A tobacco feeding device comprising a plurality of tampers, a rocker shaft, a sleeve on said shaft, means connecting said tampers to said sleeve and shaft respectively, rocker arms journaled on said shaft and sleeve respectively, means for rocking said arms, and resilient means connecting said rocker arms to said shaft and sleeve whereby said shaft and sleeve may be independently rocked.

5. A tobacco feeding device comprising a plurality of tampers, a rocker shaft, a sleeve journaled on said shaft, said tampers being secured to said sleeve and shaft respectively, rocker arms journaled on said shaft, means for rocking said arms, arms rigidly secured to said shaft and sleeve respectively, adjustable resilient means connecting said last mentioned arms to said rocker arms whereby movement of said rocker arms actuates said tampers.

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