

Aug. 14, 1928.

R. R. KITCHEL ET AL

1,680,996

CIGAR BUNCH MACHINE

Filed Feb. 7, 1925

2 Sheets-Sheet 1

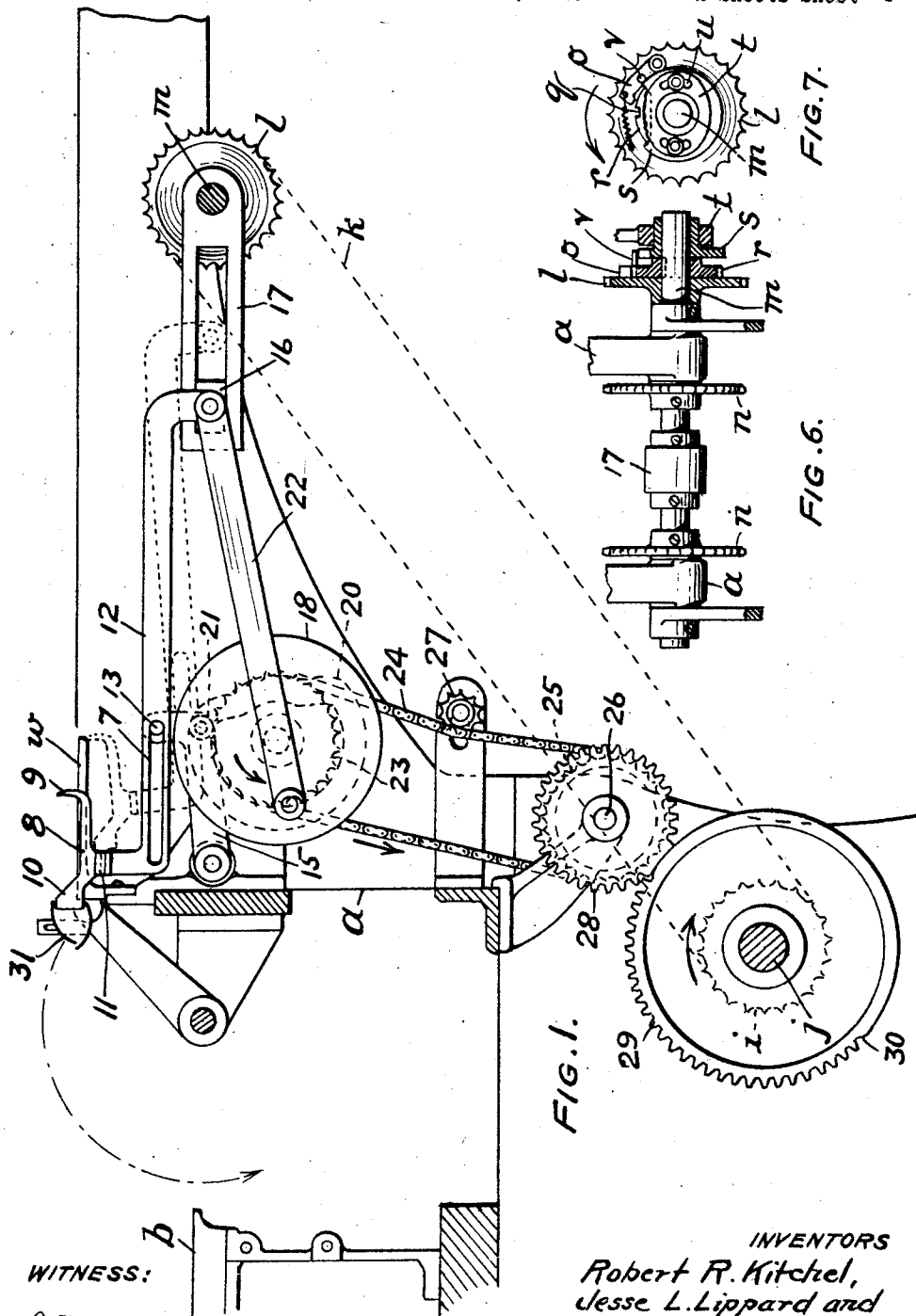
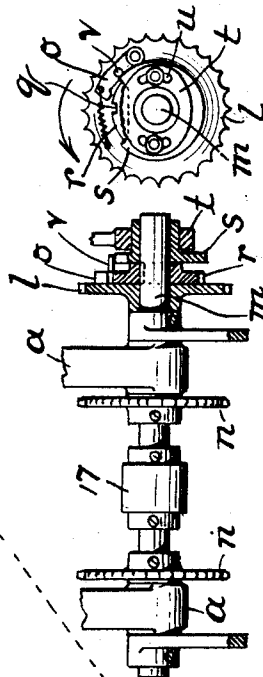


FIG. 7.

FIG. 6.

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2 Sheets-Sheet 2

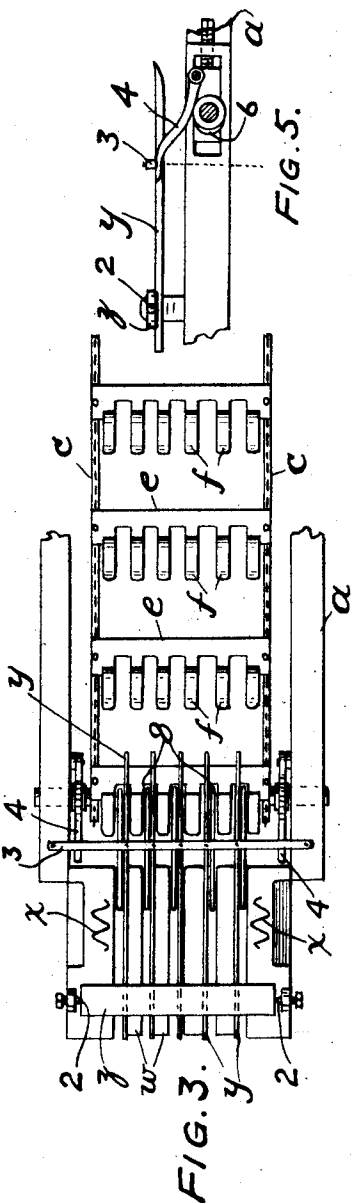


FIG. 3.

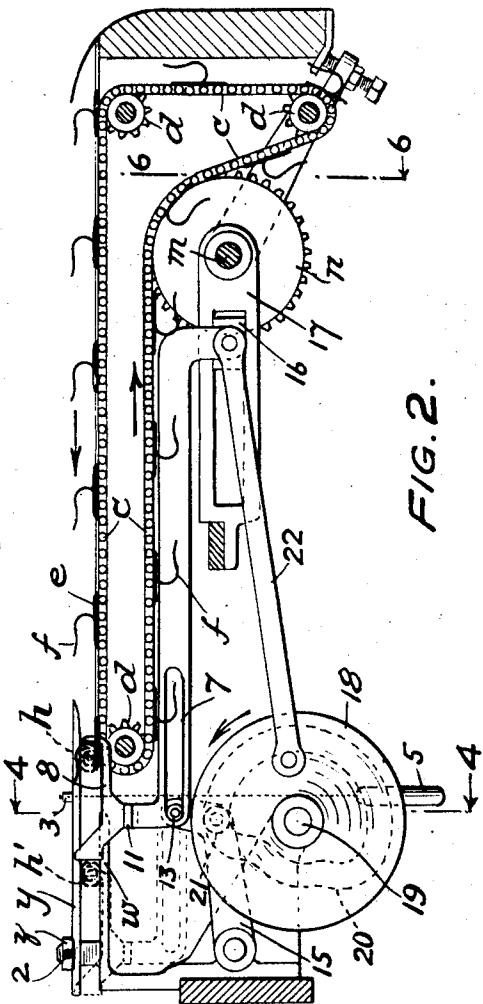


FIG. 2.

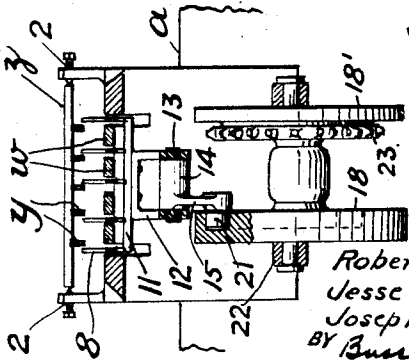


FIG. 4.

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UNITED STATES PATENT OFFICE.

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CIGAR-BUNCH MACHINE.

Application filed February 7, 1925. Serial No. 7,483.

Our invention relates to an improvement in cigar bunch machines and more particularly to an improved reaper.

In cigar bunch machines of the automatic type, provided with an intermittent filler feeding device, such, for example, as forms the subject-matter of the U. S. Letters Patent granted to Meyer Bayuk No. 1,538,082 dated May 19, 1925, there is required some means, as a reaper, for removing the fillers from the feed, positioning them for trimming by the corrugated knives and placing them in the filler transfer.

The handling of the fillers, as by the reaper, presents a problem of some complication, since the fillers must be taken from the feed, positioned for trimming and after they are trimmed passed to the filler transfer and at the same time always keeping the filler under control so as to prevent the tobacco forming the filler from separating. To retain the fillers in the form in which they are entered in the feed by the operator, it is found necessary to maintain a certain amount of pressure on the fillers during their movements by the reaper and while they are being trimmed.

Now it is the object of our invention to provide reaping mechanism to withdraw the fillers from the feed, position them for trimming and enter them in a transferring device without loss of form.

Further objects of our invention are to provide a reaper which will be highly efficient and durable in operation and at the same time simple in construction and free from the necessity for complicated or frequent adjustment.

Having now indicated, in a general way, the nature and purpose of our invention, we will proceed to a detailed description thereof with reference to the accompanying drawings, in which we have illustrated a preferred embodiment, and in which—

Fig. 1 is a sectional view of a portion of a cigar bunch machine showing a part of a reaper and its operating mechanism in accordance with our invention.

Fig. 2 is a sectional view similar to Fig. 1 showing a reaper embodying our invention, in association with a filler feeding device.

Fig. 3 is a plan view of the subject of Fig. 2.

Fig. 4 is a sectional view on line 4—4 of Fig. 2.

Fig. 5 is an enlarged view showing a detail of construction.

Fig. 6 is a sectional view on line 6—6 of Fig. 2.

Fig. 7 is a view showing details of a clutch structure.

In the several figures, *a* indicates the frame of a cigar bunch machine and *b* a rolling table which may be of usual construction.

On the frame of the machine is mounted a filler feeding device comprising a pair of endless chains *c* passing over suitable sprockets *d* and to which are secured transversely extending bars *e*, each serving to support a plurality of spaced clips or fingers *f* beneath which a filler *h* is adapted to be placed by an operator. The chains *c* are driven intermittently in a step-by-step manner from a sprocket *i* on a driven shaft *j*, through a chain *k* engaged with a sprocket *l* loosely mounted on a shaft *m* which carries sprockets *n* engaged with chains *c*. The sprocket *l* is intermittently connected with shaft *m* through the engagement of a spring-pressed pawl *o* carried by sprocket *l* in one of four notches *q* in a disc *r* keyed to shaft *m*. Adjacent the disc *r* and loosely mounted on shaft *m* is a cam disc *s* having a cam surface cut in its periphery and adjustably secured to a support *t* by means of bolts passing through arcuate slot *u* in the support. A pin *v* extends laterally from the pawl *o* and rides on the periphery of cam disc *s* and controls the entry of pawl *o* into notches *q* in disc *r*. The pawl is allowed to enter a notch *q* when the pin rides into the cut-out portion in the periphery of the cam disc and is lifted out of the notch when the pin rides out of the cut-out portion. While the pawl is in a notch *q*, the shaft *m* will be turned and the chains *c* and fingers *f* advanced. The time of entry of the pawl into a notch and the distance the feed is advanced is determined by adjustment of the cam disc *s*, as will be obvious from inspection of Fig. 7.

At the end of the feeding device there is provided a supporting surface, composed of a plurality of spaced strips *w*, at the sides of which are positioned dies *x* for cooperation with cutters, of well known con-

struction for trimming and cutting out the ends of the filler prior to the application of the binder.

Above the strips *w* are a plurality of ski bars *y* secured adjacent their rear ends to a cross member *z* pivotally mounted on trunnions 2. A bar 3 extends transversely of the ski bars and is adapted to be lifted, against the action of a weight 5 suspended from it, by means of levers 4 actuated by cams 6 connected with the forward pair of feed chain sprockets *d* to raise the ski bars and permit them to fall under the influence of weight 5 for the purpose to be hereinafter explained.

Adapted to be operated between the strips *w* are a series of spaced reaper fingers 8 turned up at the rear ends as at 9 and provided with heel portions 10 at the forward ends. The fingers 8 are mounted on a cross member 11, which is supported by the turned-up ends of a pair of parallel supporting bars 12. Adjacent the ends of the bars which support the fingers, the bars are longitudinally slotted, as at 7, for the reception of the ends of a pin 13 passing through a knuckle 14 on one end of a lever 15, the other end of which is pivoted to the frame of the machine. The opposite ends of the bars 12 are pivotally secured to a block 16 slidably mounted in slots formed in brackets 17 supported from shaft *m* and the frame of the machine. The lever 15 is adapted to be oscillated by means of a cam disc 18 mounted on a shaft 19 and on the side of which is formed a cam surface 20 adapted to be followed by a cam follower 21 carried by the lever. The rods 12 are adapted to be reciprocated through the medium of connecting rods 22 pivotally connected to the block 16 and to the cam wheel 18 and to corresponding crank disc 18' also mounted on shaft 19. Thus, it will be observed that if the wheels 18 and 18' be rotated the rods 12 will be reciprocated and oscillated and the cam surface 20 being properly designed the reaper fingers 8 supported on the ends of rods 12 will be moved from the position shown in full lines, Fig. 1, longitudinally of the strips *w* to the position shown in dotted lines, Fig. 1, then downwardly, longitudinally and upwardly again to the position shown in full lines, Fig. 1.

Secured to disc 18' is a sprocket wheel 23 over which passes a chain 24 engaging a sprocket wheel 25 mounted on a shaft 26, an adjustable idler sprocket 27 being provided for adjusting chain 24.

The shaft 26 is adapted to be intermittently driven by means of a small gear 28 mounted on the shaft and a large gear 29 mounted on a shaft *j* which is continuously driven, as shown in Fig. 1. The gear 29 is provided throughout part of its periphery

with teeth and is partly blank, as indicated, the ends of the section being beveled off as indicated at 30. The periphery of the small gear 28 is also provided with a blank section. The gear 29 is continuously rotated and while its teeth are in mesh with the teeth of gear 28, the gear 28 is driven. However, in the rotation of the gears, the blank section of gear 28 meets the blank section of gear 29 and the blank section of gear 28 will ride thereon. When the end of the blank section of gear 29 is reached due to the bevel, indicated at 30, the teeth of the two gears will mesh and gear 28 will be again driven.

If now it be assumed that the clutch controlling the actuation of the filler feeding device and the relationship of the gears 28 and 29 be arranged so as to properly time the actuation of the filler feed and reaper, the operation of the device will be simply explained.

Referring to Fig. 2, assuming the feed to be at rest, the reaper actuating mechanism has just come into operation and the reaper fingers are raised with their upturned rear ends 9, behind a filler *h* in the clamps *f*, and the heel portions 10 behind a filler *h'*. The reaper moves longitudinally draws the filler *h* from the feed and pushes the filler *h'* into the jaws of a transfer device 31. When the filler *h'* is entered in the transfer, the filler *h* will have been positioned over the dies *x*, with which a cutter cooperates. The reaper then rests and the cutter operates and the jaws of the transfer device close. The reaper fingers then are moved rearwardly, downwardly and upwardly, during which the feed device moves, to come to rest as the reaper fingers move upwardly to a position to withdraw a filler.

The ski bars are normally yieldingly held by weight 5 so as to bear on the fillers *h* and *h'* under the control of the reaper, their forward ends being lifted by cams 6 to permit the feeding device to advance a filler to the position shown in Fig. 2.

Having now fully described our invention, what we claim and desire to protect by Letters Patent is:

1. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a finger having upturned ends, means to actuate the finger to effect the withdrawal by one of its ends of a filler from the feeding device and the delivery by its other end of a previously withdrawn filler, and a bar adapted to bear on the fillers during their withdrawal from the feeding device and delivery to the transfer device.

2. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a finger having upturned ends, means to actuate the finger to effect the withdrawal by one of its ends of a filler

from the feeding device and the delivery by its other end of a previously withdrawn filler, a surface for the support of the fillers acted on by the finger, and a bar pivotally mounted above said surface and adapted to bear on the fillers during their withdrawal from the feeding device and delivery to the transfer device.

3. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a finger having upturned ends, means to actuate the finger to effect the withdrawal by one of its ends of a filler from the feeding device and the delivery by its other end of a previously withdrawn filler, a surface for the support of the fillers acted on by the finger, a bar pivotally mounted adjacent one of its ends and extending above said surface, and means yieldingly depressing said bar.

4. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a finger having upturned ends, means to actuate the finger to effect the withdrawal by one of its ends of a filler from the feeding device and the delivery by its other end of a previously withdrawn filler, a surface for the support of the fillers acted on by the finger, a bar pivotally mounted adjacent one of its ends and extending above said surface, and means acting on said bar to yieldingly depress it, said bar being adapted to be raised against the action of said means.

5. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a finger having upturned ends, means to actuate the finger to effect the withdrawal by one of its ends of a filler from the feeding device and the delivery by its other end of a previously withdrawn filler, a surface for the support of the fillers acted on by the finger, and a bar pivotally mounted adjacent one of its ends and extending above said surface, means yieldingly depressing said bar, and means adapted to intermittently raise said bar.

6. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a plurality of spaced supporting surfaces extending in a plane from adjacent the delivery point of the feeding device to adjacent the receiving position of the transfer device, a plurality of fingers the ends of which are upturned adapted to be moved longitudinally between said surfaces to effect the withdrawal of a filler from the feed and the delivery of a filler to the transfer device over said surfaces, a plurality of pivotally mounted bars extending longitudinally above said surfaces, and means to yieldingly depress said bars.

7. A reaper for cigar bunch machines comprising, in combination with a supporting surface, a finger, a support for said fin-

ger, a lever slidably connected to said support, means to oscillate said lever, and means to reciprocate said support whereby said finger will be moved longitudinally and vertically in respect to the plane of said surface.

8. A reaper for cigar bunch machines comprising, in combination with a supporting surface, a finger, a slide block, a support for said finger pivotally connected at one end to said block, a pivoted lever slidably connected to said support, means to oscillate said lever, and means to reciprocate said slide block whereby said finger will be moved longitudinally and vertically with respect to the plane of said surface.

9. In a cigar bunch machine in combination with a supporting surface, a finger, a slide block, a support for said finger pivotally connected at one end to said block, a pivoted lever slidably connected to said support, a plurality of bars extending longitudinally above said surface, a pivotally mounted support for said bars secured thereto adjacent one of their ends, means tending to depress the free ends of said bars, means to reciprocate said slide block, and means to oscillate said lever whereby said finger will be moved longitudinally and vertically with respect to said surface.

10. In a cigar bunch machine in combination with a supporting surface, a finger, a slide block, a support for said finger pivotally connected at one end to said block, a pivoted lever slidably connected to said support, a plurality of bars extending longitudinally above said surface, a pivotally mounted support for said bars secured thereto adjacent one of their ends, means tending to depress the free ends of said bars, means adapted to be actuated intermittently to raise the free ends of said bars against the action of said means for depressing them, means to reciprocate said slide block, and means to oscillate said lever whereby said fingers will be moved longitudinally and vertically with respect to said surfaces.

11. In a cigar bunch machine, in combination, a transfer device, a filler feeding device having a plurality of filler retainers, means to actuate said feeding device intermittently, a plurality of spaced surfaces extending from adjacent the delivery point of said feeding device to adjacent the reception point of the transfer device, a plurality of pivotally mounted bars extending longitudinally above said surfaces and having free ends extending over the delivery point of said feeding device, means to yieldingly depress said bars, a plurality of fingers having upturned ends, a slide block, a pair of supporting bars pivotally connected at one end to said slide block, means affording a connection between said fingers and said bars, a lever connected to said bars by a slot

and pin connection, means for oscillating said lever, and means for reciprocating said slide block, said means being operated in synchronism with said means for actuating said feeding device whereby, when said feeding device is stopped in delivery position, said lever will be oscillated to raise one of the ends of said fingers behind one of said filler retainers and said slide block will be reciprocated to cause said fingers to be moved longitudinally to withdraw a filler from the retainer.

12. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a restricted passage for fillers between the feeding device and the transfer device, said passage being formed by two opposed surfaces one of which is yielding, and means to withdraw

a filler from the feeding device and enter it in the passage.

13. In a cigar bunch machine, the combination with a filler feeding device and a filler transfer device, of a restricted passage for fillers between the feeding device and the transfer device, said passage being formed by two opposed surfaces one of which is yielding, and means adapted to be actuated to withdraw a filler from the feeding device, pass it through said passage, and deliver it to the transfer device.

In testimony of which invention, we have hereunto set our hands, at Philadelphia, Pennsylvania, on this 21st day of January, 1925.

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