Dec. 25, 1934. E. F. CORNOCK 1,985,765

CIGAR FEEDING MECHANISM

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Fig. 1.

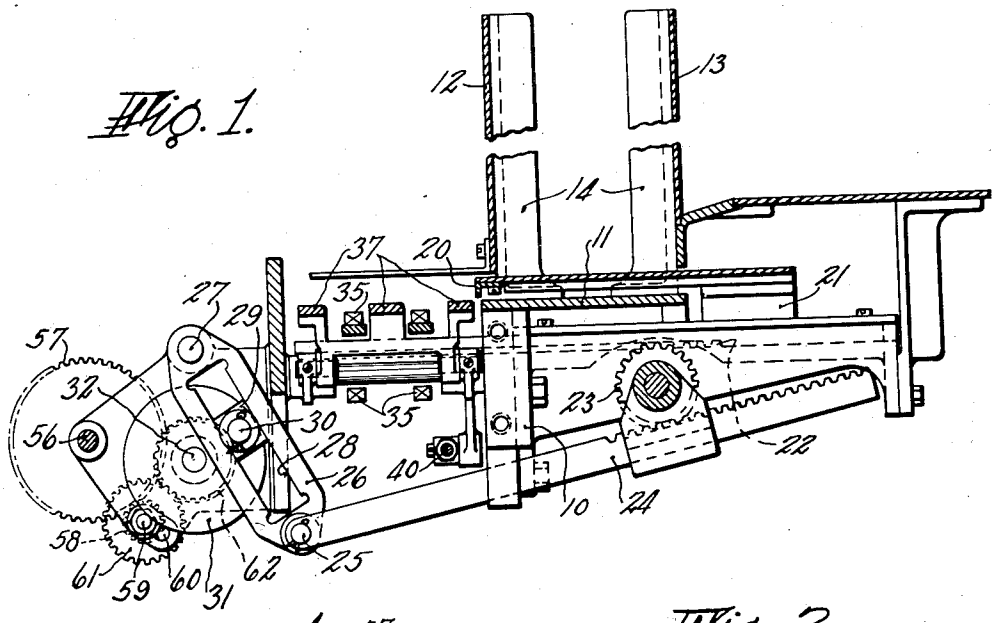
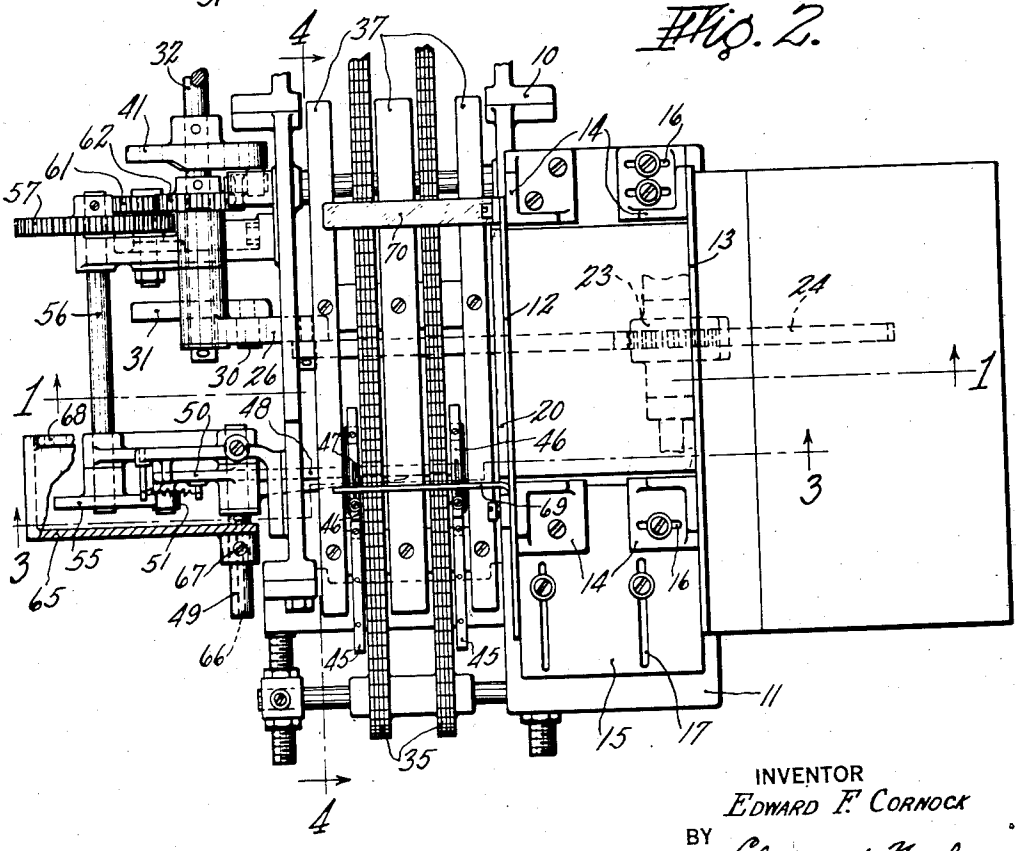


Fig. 2.



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Fig. 3.

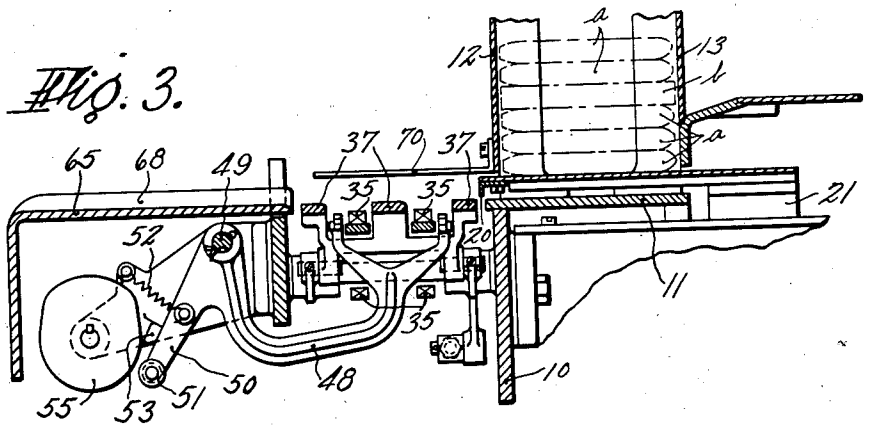


Fig. 4.

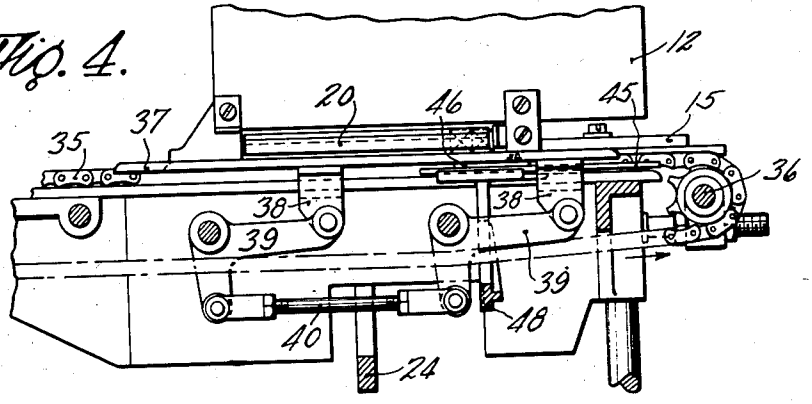


Fig. 5.

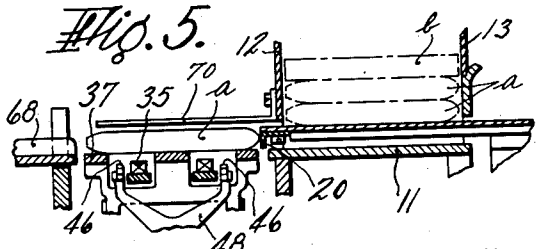


Fig. 6.

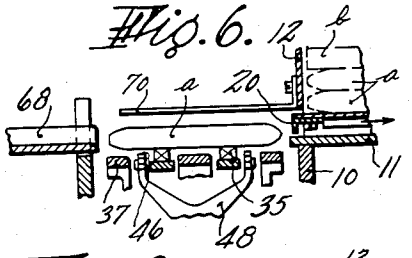


Fig. 7.

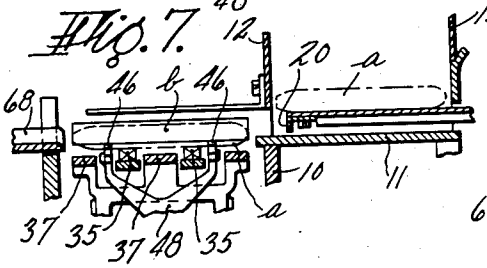
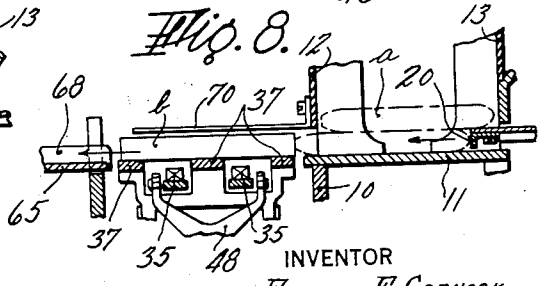


Fig. 8.



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CIGAR FEEDING MECHANISM

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Application September 11, 1933, Serial No. 688,882

6 Claims. (Cl. 198—24)

This invention relates to machines for feeding articles such as cigars from a hopper and then collecting the rows thus fed out into a single file on a conveyor, so that the articles may be handled individually in a wrapping or banding machine. The invention has been embodied in its preferred form in a feeding mechanism such as is shown in the Smith Patents 1,873,058, August 23, 1932 and 1,911,650, May 30, 1933.

In the commercial handling of cigars it is customary to stack them in rows with the number of cigars in successive rows varying. To preserve the continuity of the rows when the cigars are stacked in a magazine a wooden block or filler is placed at the end of each of the short rows. When the rows are removed from the magazine and collected in a single file it is necessary to remove these blocks. Heretofore this has been done manually, the blocks being picked out by an operator. It is the object of the present invention to remove these blocks automatically by mechanical means. It is obvious that in certain aspects the invention could be utilized for removing a predetermined number of cigars from a layer rather than for removing wooden filler blocks. In the following description however, the mechanism will be described in connection with its preferred use in removing the wooden blocks.

Referring to the drawings:

Fig. 1 is a sectional elevation on line 1—1 of Fig. 2 of a machine embodying the invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a section on line 4—4 of Fig. 2; and

Figs. 5 to 8 inclusive are fragmentary views showing successive stages in the operation of the mechanism.

The mechanism is carried upon a frame 10 upon which is located a cigar feeding table 11. Upon this table is located a magazine consisting of front and back walls 12 and 13 supported upon brackets 14 which themselves form the side walls. The brackets at one end are carried upon a plate 15 with the rear brackets coupled to it by screw and slot connections 16 and with the plate itself mounted upon the table 11 by a screw and slot connection 17. Cooperating with the magazine is a mechanism for feeding out and depositing upon a conveyor successive layers of cigars, this mechanism being in the preferred embodiment constructed as follows. Passing across the bottom of the magazine between the table 11 and the elevated lower edges of the walls 12 and 13 is a pusher 20 carried upon a reciprocable slide 21. This slide carries a rack 22 engaging a pinion 23 which is itself rotatable by a rack 24, the latter rack being pivoted at 25 to a crank 26 rocking about a pivot 27 on the frame. Within a slot 28 in this crank runs a block 29 mounted upon a pin 30 carried by a crank disc 31 continuously rotating upon a shaft 32 driven as described in the Smith patents above.

The pusher operates to remove the lowermost row of articles from the bottom of the magazine and to position them above a pair of chains 35 passing at one end around sprockets on a stationary shaft 36 and at the other end around sprockets not shown in the present case but described in the Smith patents, the chains being preferably continuously moving. The cigars or other articles are held elevated above the upper surfaces of the chains as they are being fed out by the pusher by means of rails 37 forming a vertically movable platform and are deposited upon the chains by a downward movement of these rails. The rails are carried upon brackets 38 each pivoted to one arm of a pair of bell cranks 39, the other arms of which are coupled by a link 40. The bell cranks are rocked and the rails moved up or down by a cam 41 mounted on the continuously rotating shaft 32 as is fully described in the Smith patents.

The operation of the device as thus far described is the same as is described in the patents referred to. The particular improvements to which the present case relates are centered about the mechanism for handling wooden filler blocks *b* which are placed at the end of certain of the rows of cigars *a* in the magazine. In the case shown, the blocks are all located at that end of the row which is towards the bottom of the sheet in Fig. 2. According to the type of cigar being operated upon these blocks may appear in alternate rows, in every third row, or in every fourth row. The mechanism is therefore made adjustable so that it may accommodate all of these cases and will remove blocks only, leaving the cigars free to pass along the conveyor chains 35.

A pair of rails 45 are mounted as shown in Fig. 2 beside two of the rails 37. Upon each of these rails 45 are short ledges 46 forming a block elevator and connected by a screw and slot connection 47 so that they may be shifted longitudinally along the rails. The screw fastening each of these ledges may pass into any one of a number of tapped holes in the rails which gives a rough adjustment, a finer adjustment being secured by sliding the ledges along in their slots until they are in exactly the right position. Each

of the rails is carried by a forked arm 48 pivoted at 49 to the frame and having an extension 50 carrying a cam roll 51. A spring 52 normally holds the arm 48 against a stop 53 as shown in Fig. 3, the ledges in this position being slightly below the upper surfaces of the conveyor chains.

The cam roll is periodically operated upon by a cam 55 mounted upon a shaft 56 which carries at its other end a gear 57. This gear meshes with a gear 58 rotatable upon a stud 59 adjustably mounted in a slot 60 in the frame. A gear 61 is keyed or otherwise secured to the gear 58 so that the two rotate as a unit, and itself meshes with a gear 62 fixed upon the shafts 32. The stud 59 can be removed from the machine and the gear 58 changed in order to vary the number of revolutions given to the shaft 56 with reference to the shaft 32. The slot 60 which is made arc-shaped in form about a center coinciding with the axis of shaft 32, permits this change to be made while preserving the gears in proper mesh. The cam 55 and its cooperating parts are covered by a guard 65 keyed at 66 to the pivot stud 49 and held in adjusted position by a set screw 67. On the outer surface of this guard is a flange 68 serving as a guide for the blocks.

The operation of the device can now be considered. In Fig. 5 a row of cigars not containing a block has been forced out onto the rails 37 by the plunger 20. As the plunger goes back the rails 37 descend, depositing the row of cigars upon the chains 35 as shown in Fig. 6. After a predetermined number of cycles of the machine, during which complete rows of cigars are fed, a row will be reached which contains a wooden spacer block. In the case shown, a block occurs in every fourth row. In Fig. 7 a block has just been fed out by the plunger 20. Initially this block is supported, as are the cigars, by the rails 37. At this point in the cycle the forked arm 48 is raised by the cam 55 causing the ledges 46 to engage the lower surface of the block. As long as the uppermost position of the elevator 46 is above the conveyor chains 35, it is not material to this invention whether the elevator travels to the same elevation as the rails 37, or to a higher or lower point than these rails. It is convenient to have the block pushed away by the next layer of cigars, thus avoiding the necessity of giving the elevator 46 a sufficient length of stroke to do the actual delivery of the block or of providing a separate clearing plunger. In the preferred case the elevator is held elevated during the descent of the rails 37, which deposit the cigars in a row upon the conveyor chains. The cigars will then move with the conveyor chains leaving behind them the still elevated block. This is clearly shown in Fig. 7 in which the cigars are being carried along by the conveyor chains 55 and block *b* is held elevated by the ledges 46. In the next cycle of the machine as shown in Fig. 8, the block is picked up by the ledges 37 and the forked arm 48 again descends. The coordination of the parts is such that the block is at all times kept elevated above the conveyor chains. When the next row of cigars is fed out as shown in Fig. 8, the forward end of one at the end of the row contacts with the block and pushes it off onto the guard 65. The blocks and cigars are guided by a member 69 at the rear of the row and pass under a guide plate 70.

In changing from a cigar arrangement having a spacer block in every fourth row to one for example in every second row, it is necessary to change the gear 58 and also to replace the cam 55. By changing the gear the point of the cam is caused to come into operation at similar points separated from each other by a different number of complete cycles of the machine. By changing the cam the duration of the elevation of the ledges 46 is controlled so that irrespective of the different speeds of shaft 56 the period during which the ledges are held elevated will be the same.

Changes in the specific mechanical features may be made to adapt the device to particular environments or to different operating conditions, some of which changes have been indicated above, without departing from the invention as set forth in the following claims.

What I claim is:

1. A cigar feeding device comprising a magazine formed to contain superposed rows of cigars with spacing blocks in certain only of the rows, a plunger movable periodically to shift said rows successively from the magazine, and mechanism automatically operable in timed relation with the plunger on those cycles when a spacing block is fed out with a row to remove said block from the row.

2. A cigar feeding device comprising a magazine formed to contain superposed rows of cigars with spacing blocks in certain of the rows, a plunger movable periodically to shift said rows successively from the magizine, a vertically movable platform receiving the rows from the plunger, a conveyor located below the upper position of the platform and upon which the cigars are set upon the descent of the platform, an elevator vertically movable in position to receive the blocks, and means for reciprocating the elevator in timed relation with the other parts so as to maintain the blocks above the conveyor until the next succeeding upward movement of the platform, whereby the blocks so held will be forced off the platform by the row of cigars next pushed out by the plunger.

3. A cigar feeding device comprising a magazine formed to contain superposed rows of cigars with spacing blocks in certain of the rows, a conveyor positioned adjacent the magazine, means for removing successive rows of cigars from the magazine and depositing them upon the conveyor, and mechanism operable to engage the spacing blocks and prevent their partaking of the forward movement of the conveyor, whereby the blocks will be pushed sideways out of registration with the conveyor by the movement from the magazine of the next succeeding row of cigars, and means controlling the operation of said mechanism so that it will operate only upon those rows of cigars containing a spacing block.

4. A cigar feeding device comprising a magazine formed to contain superposed rows of cigars with spacing blocks in certain of the rows, a conveyor positioned adjacent the magazine, means for removing successive rows of cigars from the magazine and depositing them upon the conveyor, an elevator vertically movable to lift said blocks away from the surface of the conveyor, and mechanism operable in timed relation to said depositing means for causing lifting movement of the elevator only upon the feeding out of those rows containing a spacing block.

5. A cigar feeding device comprising a magazine formed to contain superposed rows of cigars with spacing blocks in certain of the rows, a conveyor positioned adjacent the magazine, means for removing successive rows of cigars from the magazine and depositing them upon the conveyor, an elevator vertically movable to en-

gage said blocks and hold them away from the surface of the conveyor, a replaceable cam actuating said elevator, and change speed gearing coupling said cam to said removing and depositing means whereby the frequency of operation of the elevator may be changed to correspond with the frequency of occurrence of spacing blocks in successive rows.

6. A cigar feeding device of the type having a magazine, a plunger movable through the magazine to remove a row of cigars therefrom, a continuously traveling conveyor over which the cigars are delivered by the plunger, and a table movable to a level above the conveyor to receive the cigars and then to a level below the conveyor to deposit the cigars upon the conveyor; said device including an elevator positioned beside the table and movable independently thereof to hold selected articles of a row elevated above the conveyor after the table descends, and means for driving said elevator including a replaceable cam and change speed gearing driving the cam, whereby the frequency of operation of the elevator may be changed to correspond with the frequency of occurrence in successive rows of articles to be removed thereby.

EDWARD F. CORNOCK.