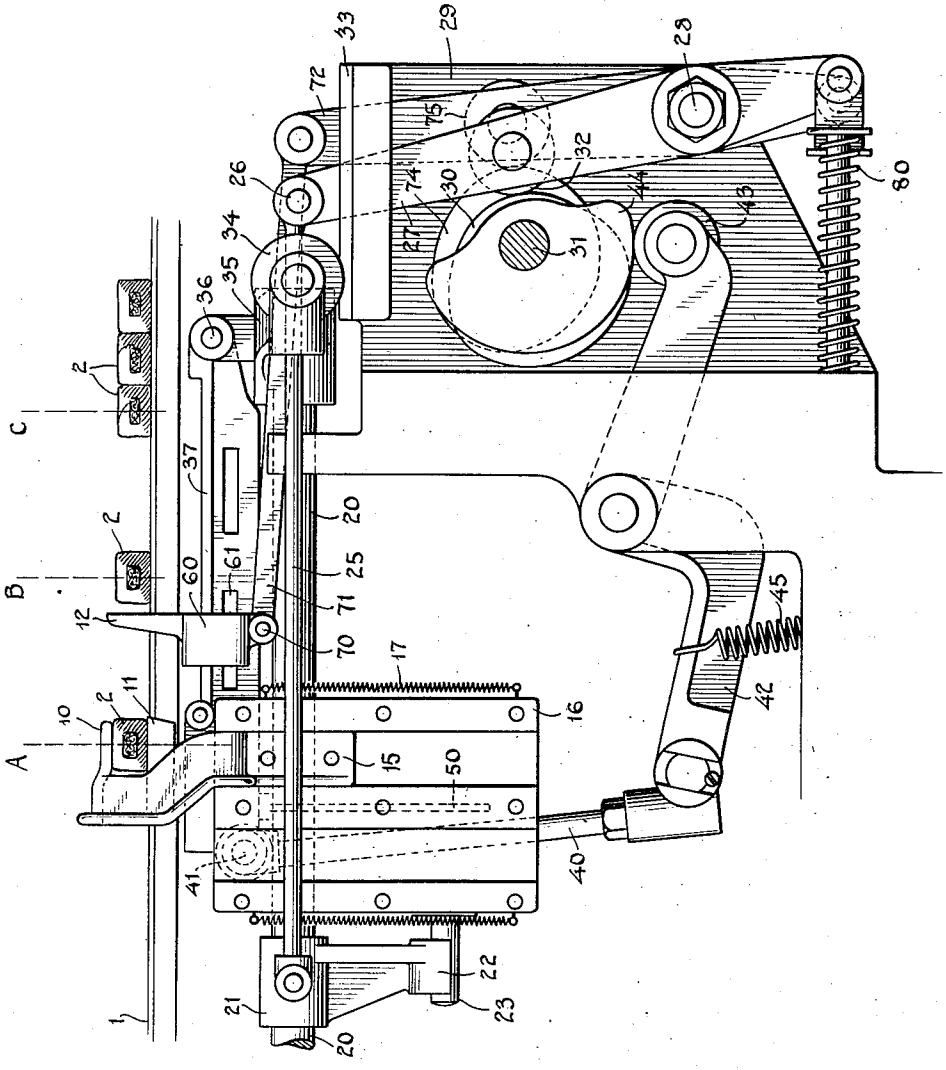
Dec. 27, 1927. 1,653,648

F. X. MALOCSAY

FEEDING DEVICE

Filed May 21, 1923



INVENTOR
Francis X. Malocsay
BY Schechter & Kobel
his ATTORNEYS.

Patented Dec. 27, 1927. 1,653,648

UNITED STATES PATENT OFFICE.

FRANCIS X. MALOCSAY, OF UPPER SADDLE RIVER, NEW JERSEY, ASSIGNOR TO INTERNATIONAL BANDING MACHINE COMPANY, A CORPORATION OF NEW YORK.

FEEDING DEVICE.

Application filed May 21, 1923. Serial No. 640,467.

This invention relates to those machines in which a series of articles is adapted to be fed automatically therethrough from one position to another. During the passage through the machine the articles are adapted to be operated upon by one or more mechanisms and are adapted finally to be discharged from the machine.

This invention has for one of its objects the provision of novel means for moving a plurality of articles one at a time from one position to another. Although these positions may be any desired positions such as feeding and operating positions, the invention is particularly applicable in connection with moving articles from ejecting position, that is, the final position after the last operation on the article, to the discharging position, that is, the final position before the articles are removed from the machine for packing or storing.

More particularly this invention is designed for use in connection with combined cigar feeding and banding machines in which the cigars are adapted to be fed successively through the machine by automatic means to feeding position, from feeding position to banding position, where a banding machine operates upon the cigars, then from banding position to ejecting position. My invention provides novel means for operating the cigars from ejecting position to discharging position ready for packing into boxes.

It is a further object of my invention to provide operating means as described which will not strike the cigars or other delicate articles with a sharp, jarring jolt but will contact therewith gently so as not to damage the article.

It is a further object of my invention to provide operating means as described which will move the cigars or other articles to final discharging position in the same order and relative positions which they occupied originally and without turning or twisting.

Other objects and advantages will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel arrangement and co-relation of instrumentalities herein fully described and illustrated in the accompanying drawings considered together or separately and then finally pointed out and specifically defined and indicated in the appended claims.

The disclosure made the basis of exemplifying the present invention concept suggests a practical embodiment thereof, but the invention is not to be restricted to the exact details of this disclosure, and the latter, therefore, is to be understood from an illustrative, rather than a restrictive, standpoint.

The inventive idea involved is capable of receiving a variety of mechanical expressions, one of which, for the purposes of illustration, is shown in the accompanying drawing, in which is shown a front view of a combined cigar feeding and banding machine embodying my invention, parts of the machine having been omitted and only those portions of the machine necessary to a description of my invention having been shown.

The machine comprises a table 1 over which a plurality of cigars 2 or similar articles are adapted to be fed successively through several positions, in the present case, first to feeding position, then to banding position shown at A where a banding machine operates upon the cigars, from the banding position to ejecting position shown at B and finally to the discharging position indicated at C. The feeding mechanism and all of the mechanism in advance of the banding position has not been shown, but for a suitable mechanism of this type reference may be had to my copending application, Ser. No. 640,463, filed May 21, 1923. If desired, the cigars may be fed to the banding position A in any suitable manner, or even by hand, the manner of feeding not being essential to the present invention. Assuming that the cigars have been fed to the banding or operating position A and banded by a banding machine (not shown) or acted upon by some other machine, means are provided in the shape of gripper fingers 10, 11 for gripping the banded cigar and moving it to the ejecting position B. Further, means are provided in the shape of a finger or fingers 12 adapted to engage the cigar in ejecting position B and move it to discharging position C preparatory to packing or other

disposition of the article. Means are provided for reciprocating these fingers between their respective operating positions, that is, fingers 10, 11 between positions A and B, and fingers 12 between positions B and C.

Finger 10, which is shown as the upper finger adapted to engage the upper surface of the banded cigar, is carried at the upper end of a slide 15 operating in a gripper block 16 and normally held in effective position to engage the cigar by means of a spring 17 engaging the slide at one end, and the gripper block at the other and normally tending to draw the finger downwardly. The gripper block is mounted upon a main shaft 20 upon which is fixed a hub 21, said hub having a depending fork 22 engaging a shaft 23 fixed to the gripper block to hold said block against rotation upon shaft 20. Fixed to the hub 21 is a link 25 pivotally connected at its other end 26 to the upper end of a link 27 pivoted at 28 in the main frame 29 of the machine, said link 27 having a roller 32 engaging a cam 30 mounted upon a shaft 31 adapted to be driven continuously from any suitable source of power. It is obvious, therefore, that link 25 will be reciprocated to reciprocate shaft 20 and hence the gripper block 16. Carried at one end of shaft 20 is a hub 35 having rollers 34 operating on rails 33 on the main frame. Pivoted to the hub 35 at 36 is a gripper bar 37 which has formed integrally therewith finger 11. The finger 11 is positioned directly below the finger 10 to cooperate therewith in gripping the banded cigar or article which has been operated upon. Since shaft 20 carries the gripper block and its finger 10 and also the gripper bar 37 and its finger 11, the fingers 10 and 11 will be reciprocated together between positions A and B.

The gripping fingers 10 and 11 are adapted to be rendered effective to engage the article when the fingers are in position A, so that they may carry the article to position B, and are adapted to be rendered ineffective when in position B to release the article. In order to render the fingers 10 and 11 effective in position A, it is necessary to move the fingers together. Finger 10, as we have seen, is normally moved to effective position by spring 17, and means are provided for moving finger 11 upwardly when said finger reaches position A. This latter means comprises a link 40 pivotally connected at 41 to the gripper bar, said link 40 being connected at its lower end to a bell crank 42, whose other end 43 is in engagement with a cam 44 mounted upon shaft 31, said cam being so shaped and positioned as to cause link 40 to move the gripper bar and hence finger 11 upwardly when the finger 11 approaches position A. The cam 44 will operate to permit spring 45 to draw the link 40 downwardly when the finger 11 reaches position B. As the gripper bar 37 descends, it engages the top of a link 50 within the gripper block 16, said link being suitably geared by gearing (not shown) to the slide 15, so that when the gripper bar 37 is moved downwardly to move finger 11 to ineffective position, finger 10 is moved upwardly also to ineffective position. It is thus apparent that fingers 10 and 11 are moved simultaneously to effective position when in position A and to ineffective position when in position B. The operation thus far will be readily apparent. Shaft 20 is reciprocated to the right and left (in the drawing), so that fingers 10 and 11 are carried back and forth between position A and position B. The fingers 10 and 11 are rendered effective as they approach position A to engage the article in said position and then carry the article to position B, where said fingers are rendered ineffective to release the article, that is, the fingers are spread apart out of engagement with said article. This process is repeated continuously.

At the same time that one article is moved from banding or operating position A to ejecting position B, it is desired to move the article in ejecting position B to discharging position C. For this purpose the finger or fingers 12 are provided. Said finger 12 is mounted upon a carriage 60 supported in a slot 61 in the gripper bar 37. If the finger 12 were connected to the gripper bar 37 in such manner as to move integrally therewith, it is apparent that finger 12 would strike the cigar in ejecting position with the full force of the movement of the gripper bar to the right and thus cause possible injury to the cigar or other delicate article. To avoid such injury, the carriage 60 is slidable in slot 61 in the gripper bar and is given a reciprocating movement independent of the reciprocating movement of the gripper bar 37. This movement is somewhat slower and of smaller amplitude so as to impart a much gentler movement to the cigar in ejecting position than would otherwise be possible. The amplitude of reciprocation of fingers 12 is made considerably smaller than that of gripper bar 37, the slot 61 permitting this difference in movement in providing sufficient lost motion. The fingers 12 start their movement toward their right from their extreme left position before gripper bar 37 and end their movement about the same time, so that, since the amplitude of movement of fingers 12 is smaller and the time is greater, the rate of movement of fingers 12 is therefore much slower than that of gripper bar 37 and the fingers 10 and 11. For reciprocating the carriage there may be pivotally connected thereto at 70 a link 71, whose other end is pivotally connected to a link 72 pivoted to the fixed frame 29 at 28 and adapted to be operated by a cam 74, also

mounted upon the continuously driven shaft 31, and engaging a roller 75 on link 72.

It will be understood that cams 30, 44 and 74 are so shaped and of such contour as to give the hereinbefore described coaction of elements. A spring 80 holds link 27 in engagement with its cam, and a similar spring is provided for link 72.

It will be understood that in the case of cigars, these articles are given their final shape by packing in a box, said shape being usually rectangular in cross-section, and are then supplied to the banding machine row by row. After packing, adjacent cigars have a definite relation to each other, and if this relation were disturbed, the shape of the cigars would be altered and would no longer fit into the box in the same manner. In many cases this would completely destroy the appearance of the cigars. From the foregoing description of the device it will be apparent that the cigars are moved from position A to B, and from B to C in exactly the same relation which they maintained before being fed to these positions and without turning or twisting, so that when the cigars are discharged in position C, they occupy the same relative interlocking positions which they had before entering the machine. The slow, gentle movement of finger 12 guards against possible displacement of the cigars from their predetermined positions.

Throughout this specification I have described my invention in connection with a cigar feeding and banding mechanism, but I wish it distinctly understood that this was solely for illustrative purposes and to describe one practical embodiment of my invention, and that the invention herein is capable of a wide variety of uses on other articles. Thus, for example, the device can be utilized in connection with candy wrapping or banding machinery or generally with any type of wrapping or banding machine wherein a plurality of similar articles are fed to a banding or wrapping machine and then discharged.

In accordance with the provisions of the patent statute, I have described the principle of my invention together with the apparatus which I now consider to represent a practical embodiment thereof, but I desire it understood that my invention is not confined to the particular form of apparatus herein shown and described, the same being merely illustrative, and that the invention can be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which the objects of my invention are attained, and the new results accomplished, as herein set forth, as it is obvious that the particular embodiments herein shown and described are only some of many that can be employed to attain these objects and accomplish these results.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a device of the character described, means for moving an article from one position to a second position, and means mounted upon said first means for moving an article from the second position to a third position.

2. In a device of the character described, means for moving an article from one position to a second position, and independently operable means mounted upon said first means thereof for moving an article from the second position to a third position.

3. In a device of the character described, means comprising gripping fingers for moving an article from one position to a second position, and means mounted upon said first means for moving an article from the second position to a third position.

4. In a device of the character described, means for moving an article from one position to a second position, and means mounted upon said first means for moving an article from the second position to a third position, said first named means comprising gripping fingers adapted to engage the article and said second named means comprising a finger adapted to engage the article.

5. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, means for reciprocating said first means between said first and second positions, and means for reciprocating said second means between said second and third positions.

6. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, means for reciprocating said first means between said first and second positions, and means for reciprocating said second means independently of said first means between said second and third positions.

7. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, means for reciprocating said first means between said first and second positions, and means for reciprocating said second means between said second and third positions substantially simultaneously with said first means.

8. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, means for reciprocating said first means between said first and second positions, and means for reciprocating said second means between said second and third positions substantially simultaneously with said first means but at a different rate than said first means.

9. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, and means for reciprocating said first and second means but through different amplitudes.

10. In a device of the character described, means for moving an article from one position to a second position, means mounted upon said first means for moving an article from the second position to a third position, means for reciprocating said first means, and means for reciprocating said second means substantially simultaneously with said first means but at a different rate and through a different amplitude than said first means.

11. In a device of the character described, a table, means operable to effective position above said table to move an article on said table from one position to a second position, and means for operating said first named means to ineffective position below said table when said article reaches the second position.

12. In a device of the character described, means for moving an article from one position to a second position, means for moving an article from the second position to a third position, said first means comprising upper and lower fingers, a gripper block carrying said upper finger, a gripper bar carrying said lower finger, said second means comprising a finger carried by said bar, and means for operating said bar and its attached fingers to ineffective position.

13. In a device of the character described, means for moving an article from one position to a second position, means for moving an article from the second position to a third position, said first means comprising upper and lower fingers, a gripper block carrying said upper finger, a gripper bar carrying said lower finger, said second means comprising a finger carried by said bar and means for operating said bar and its attached fingers to ineffective position, and means actuated by said bar when moving to ineffective position for rendering said upper finger ineffective.

14. In a device of the character described, a table, means for moving an article on said table from one position to a second position, means for moving an article on said table from the second position to a third position, said first named means comprising upper and lower fingers, a gripper block carrying said upper finger, a gripper bar carrying said lower finger, said second means comprising a finger carried by said bar, means for operating said bar and its attached fingers to ineffective position below said table and to effective position above said table, and means actuated by said bar by rendering said upper finger ineffective.

15. In a device of the character described, means for moving an article from operating position to ejecting position, means for moving a preceding article from ejecting position to discharging position, and means for reciprocating said first two means through different amplitudes in the same period of time.

This specification signed this 7 day of May, 1923.

FRANCIS X. MALOCSAY.