P. BAMMER.

FEEDING MECHANISM.

APPLICATION FILED JULY 27, 1914. RENEWED JUNE 17, 1919.

1,336,771.

Patented Apr. 13, 1920

3 SHEETS—SHEET 1.

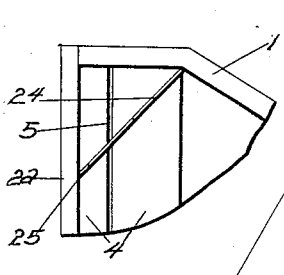


Fig 7

Fig. 1

Witnesses:

Albert J. Mattes

L. L. Butts

Inventor

Pius Bammer

By

J. Schmock.

Attorney

P. BAMMER.

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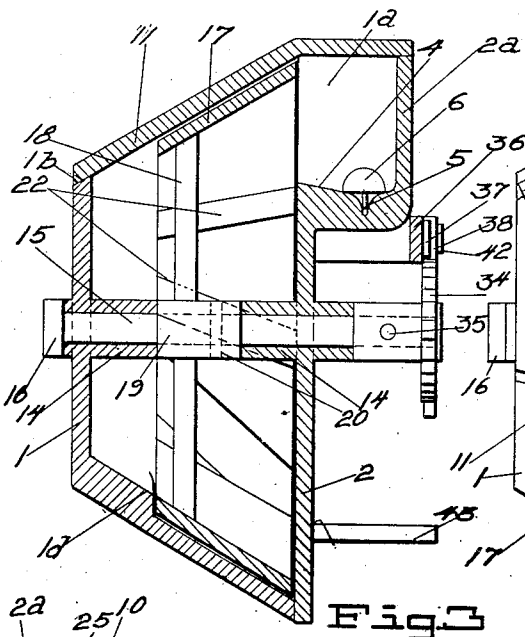


Fig. 3

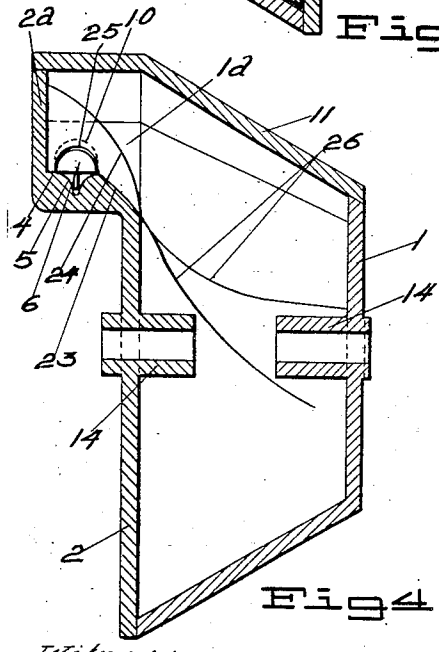


Fig. 4

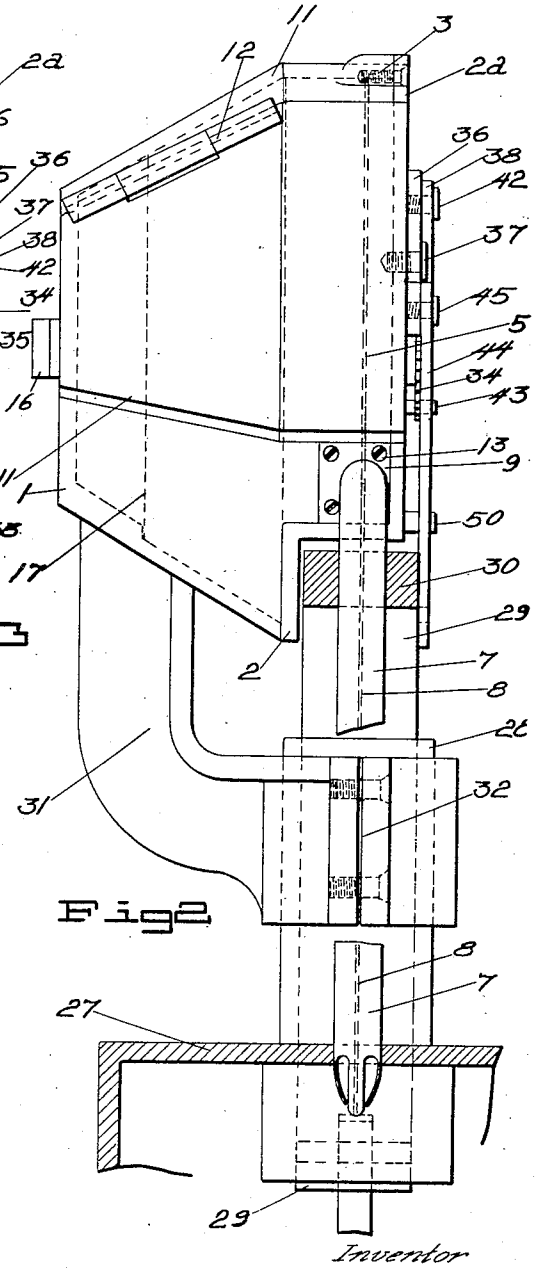


Fig. 2

Witnesses:
Albert J. Mattson
L. L. Buth

Inventor
Pius Bammer,
By
J. Johnson,
Attorney

P. BAMMER.

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3 SHEETS—SHEET 3.

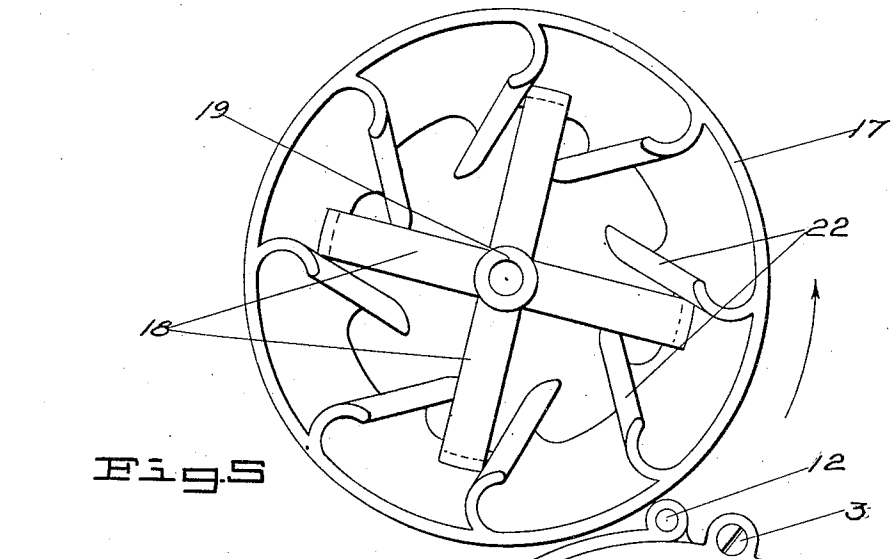


Fig.5

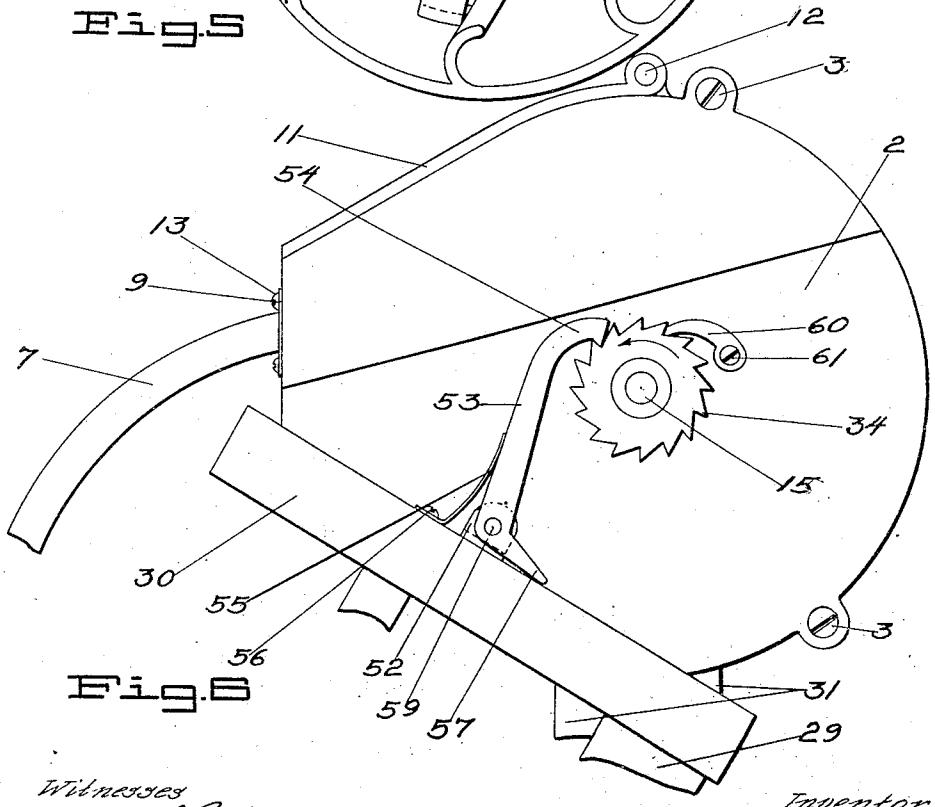


Fig.6

Witnesses

Albert J. Mattes

L. L. Butts

Inventor

Pius Bammer

By

J. H. Moock.

Attorney

UNITED STATES PATENT OFFICE.

PIUS BAMMER, OF PORTLAND, OREGON, ASSIGNOR TO NU AUTOMATIC BUTTON ATTACHING MACHINE COMPANY, OF PORTLAND, OREGON, A CORPORATION OF OREGON.

FEEDING MECHANISM.

1,336,771. Specification of Letters Patent. Patented Apr. 13, 1920.

Application filed July 27, 1914, Serial No. 853,310. Renewed June 17, 1919. Serial No. 304,917.

To all whom it may concern:

Be it known that I, PIUS BAMMER, a citizen of Germany, (who have declared my intention to become a citizen of the United States,) residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Feeding Mechanism, of which the following is a specification.

This invention relates to improvements in feeding mechanisms and has for its object to provide a device of this character adapted to feed articles and particularly buttons from a hopper into a feed tube used in button attaching machines.

It is also the object of this invention to adapt the mechanism to the use of buttons each provided with an eye and to provide therefor means for seating the eyes of the buttons in the slot in the button feed tube, the unseated buttons to be brushed aside and returned to the hopper automatically.

Another object is to make the mechanism operable by the button attaching machine itself in order to properly time the feeding mechanism so that they will operate in conjunction.

I attain these objects by means of the structure illustrated in the accompanying drawings in which:—

Figure 1 is a side elevation of the complete mechanism mounted upon a button attaching machine and it shows the method of connecting the mechanism with the machine for the purpose of coöperation.

Fig. 2 is a front elevation of the subject matter of Fig. 1 looking in the direction A—A, the button attaching machine being shown in section as taken on the line B—B, Fig. 1.

Fig. 3 shows a sectional elevation of the hopper and attendant parts taken on the line C—C of Fig. 1.

Fig. 4 is a sectional elevation of the hopper taken on the line D—D and shows the button fender and return incline for returning unseated buttons to the hopper.

Fig. 5 is a side elevation of the button carrier showing the curved, angularly disposed button pockets.

Fig. 6 is a side elevation of the hopper equipped with a modified form of operating mechanism.

Fig. 7 is a top plan view of the forward portion of the hopper with the cover removed, showing the fender for removing unseated buttons from the inclined chute.

Referring to the drawings in detail, 1 designates a hopper having the shape of the frustum of a cone and provided with a removable side plate 2 for the purpose of easy access to the interior thereof. Screws 3 attach the side plate to the open side of the hopper as shown.

A portion of the hopper, as at 1^a and the upper portion of the side plate as at 2^a are offset so as to form an inclined button chute 4 having a groove 5 formed in the cover portion to receive the eyes of the buttons 6. The groove 5 is preferably formed with rounded corners as shown in Fig. 3 so as to facilitate the proper seating of the buttons with their eyes in the groove as illustrated in said figure. The front of the hopper is provided with an orifice 10 through which the buttons may pass from the chute 4. As it is the intention to deliver the buttons from the chute 4 to the button attaching machine or other device in which they may be required, a feed tube 7 having a groove 8 and provided with a flanged attaching base 9 is fastened by means of screws 13 to the hopper so as to register with the orifice 10 thus permitting the buttons to travel from the chute 4 through the orifice 10 and thence through the tube 7 to their destination.

The hopper is cut away at 1^b to provide an opening through which buttons may be placed in the hopper and it is provided with a cover 11 which is hingedly attached at 12 so as to cover the opening thus formed.

Transversely disposed bearings are provided at 14 through the center of the hopper 1 and side plate 2 for the reception of a rotatable shaft 15 having a head 16.

To convey the buttons or other articles from the bottom of the hopper to the chute a cone shaped rotary carrier 17 having arms 18 and a centrally disposed hub 19 is mounted upon the shaft 15 between the bearings 14 and is held to rotate with the shaft 15 by means of a pin 20. The carrier is made to conform in contour with the interior of the cone shaped portion of the hopper, with just enough space between them to permit easy rotation of the carrier, so that buttons and the like cannot pass between the carrier and the hopper except

through a passage formed in the front of the hopper by extending its front wall as at 1^c. The peripheral shell of the carrier is shorter in its axial dimension than the hopper as shown in Fig. 3 and the bottom of the hopper, at the side of the carrier is slightly raised as at 1^d so that buttons may pass from the hopper into the carrier.

The shell of the carrier 17 is provided with curved trough-like pockets 22 disposed at an angle with sufficient inclination to eject the buttons onto the inclined chute 4 after lifting them to the proper height to pass over the edge of the chute which inclines toward the groove 5 at its rearward end, and downwardly and away from the groove at its forward end, as at 23 so that the eyes of the buttons tend to enter the groove as they descend down the chute 4. In order to remove from the chute all buttons whose eyes are not properly seated in the groove a fender 24 is fastened obliquely across the forward end of the chute and is provided with an orifice 25 so disposed as to permit only the properly seated buttons to pass therethrough and into the tube 7, the improperly positioned buttons being turned to one side and ejected from the chute 4 over the inclined edge 23 and thence down an inclined return chute formed in the extended portion of the hopper at 26 to the bottom of the hopper, from which they are then permitted to reënter the carrier 17 to be again conveyed to the chute 4. As a certain percentage of the buttons will invariably fail to properly seat themselves in the chute 4 the rotation of the carrier will be so timed as to convey more buttons to the chute than would be actually required. the surplus buttons being returned to the hopper as described while a continuous supply of buttons will be conveyed through the tube 7 as required.

It is obvious that to maintain a proper supply of buttons through the tube 7 when in use with a machine whose operation is irregular it is desirable to connect the button feeding mechanism with said machine so that they may operate in unison.

To this end the carrier 17 is provided with a rotating mechanism actuated by the machine.

For the purpose of illustration a common form of button attaching machine is shown at 27. This machine is provided with a tubular column 28 which forms a bearing for a reciprocating bar 29 having an overhanging arm 30.

The hopper 1 is provided with a bracket 31 having a split limb 32 adapted to engage the column 28 to which it is clamped by means of screws 33 in the position shown in Fig. 1, so that the end of the feed tube 7 will deliver the buttons where required.

The carrier shaft 15 is provided with a ratchet 34 which is held to rotate therewith by a pin 35. A lever 36 is pivotally mounted at its median point upon a pin 37 carried by the side plate 2^a just above the ratchet. A swinging arm 38 having a hooked end 39 and a projection 40 is pivotally mounted at 42 upon the rearward end of lever 36 and depends therefrom so that its hooked end 39 may be held in engagement with the ratchet 34 by a spring 41 which is attached at one end to the projection 40 and at its other end to a pin 43 carried by the side plate 2. An actuating bar 44 is pivotally mounted upon the forward end of lever 36 at 45 and depends therefrom as shown in Fig. 1. The bar 44 terminates at its lower end in a hook 46 adapted to engage a plate 47 which is attached as by screws 51 to the overhanging arm 30 of the button attaching machine. The bar 44 is yieldingly held in engagement with the plate 47 by means of a spring 48 which is attached to it at one end and at its other end to the pin 43. As the reciprocation of bar 29 may be considerably more than would be necessary to properly operate the bar 44 it is desirable to provide means for disengaging the hook 46 from the plate 47, after the carrier has been sufficiently rotated. To this end the bar 44 is provided with a slot 49 containing a pin 50 carried by the side plate 2, which construction will cause the lower end of the bar 44 to swing forward when carried downwardly thus disengaging the hook 46 from the plate 47, as shown in construction lines in Fig. 1, the spring 48 then returning the bar 44 to its normal position, as shown in full lines in the same view. It is obvious of course that actuation of the bar 44 will through the medium of lever 36 and arm 38 rotate the ratchet 34 and incidentally the shaft 15 and carrier 17.

In Fig. 6 is shown a modified form of operating mechanism.

A bearing bracket 52 is carried by the overhanging arm 30. An arm 53, having its upper end hooked as at 54 and provided at its lower end with a transversely disposed tail-piece is pivotally mounted on the bearing bracket 52 at 59. A spring 55 attached to the arm 30 by a screw 56 bears against the arm 53 and tends to hold its hooked end 54 in engagement with the ratchet 34 as shown. The tail-piece 57 is adapted to engage the upper surface of arm 30 so as to limit the rearward movement of arm 53 thus permitting it to rotate the ratchet only a certain distance as required.

To prevent backward rotation of the ratchet and its attendant parts upon the returning stroke of the reciprocating bar 29 a pawl 60 is pivotally mounted upon the side plate 2 at 61 so as to engage the ratchet 34 as shown in Fig. 6.

Although the device has been described as

a button feeding mechanism it is obvious that it could and may be used for conveying various articles such as tacks, gromets and the like from a hopper to a feed tube. The reference to a button attaching machine has been made for the purpose of lucid illustration only, it being evident that the plate 47 or arm 53 could be attached to an oscillating or reciprocating part of any machine.

What I claim as new and desire to protect by patent is:—

1. A feeding mechanism comprising a stationary hopper, a rotatable hollow cone shaped carrier in the hopper having conveying pockets on said conical portion adapted to elevate articles therefrom, an off-set portion formed in the hopper at one side thereof, the bottom of said off-set portion lying below the upper portion of the carrier as it rotates and adapted to receive the articles elevated thereby, and means for rotating the carrier.

2. A feeding mechanism comprising a stationary conical hopper having a chute, a hollow cone-shaped rotatable carrier entirely at one side of said chute having angularly disposed trough-like pockets adapted to elevate articles from the hopper and discharge the same to the chute by gravity, and means for operating the carrier.

3. A feeding mechanism comprising a hopper having a chute, a hollow cone-shaped rotatable carrier within and conforming to said hopper and having conveying pockets attached within its peripheral shell adapted to convey articles from the hopper to the chute, and means for operating the carrier.

4. A feeding mechanism comprising a hopper having a chute, a hollow cone shaped carrier rotatable in the hopper at one side of the chute, and having spirally arranged curved trough-like conveying pockets attached within its peripheral shell adapted to convey articles from the hopper to the chute, and means for operating the carrier.

5. A feeding mechanism comprising a hopper having a chute, a rotatable carrier within said hopper entirely at one side of said chute, and having angularly disposed trough-like conveying pockets attached within its peripheral shell adapted to convey articles from the hopper to the chute, and means for operating the carrier.

6. A feeding mechanism comprising in combination with a stationary cone-shaped hopper having a chute, a hollow cone-shaped carrier closely fitting and revolubly mounted within the hopper, and having angularly disposed trough-like conveying pockets adapted to convey articles from the hopper to the chute, and means for actuating the carrier.

7. A feeding mechanism comprising in combination with a cone-shaped hopper having a chute, a hollow cone-shaped carrier revolubly mounted therein and having trough-like conveying pockets attached within its peripheral shell adapted to convey articles from the hopper to the chute, and means for actuating the carrier.

8. A feeding mechanism comprising in combination with a cone-shaped hopper having a chute, a hollow cone-shaped carrier revolubly mounted therein and having angularly disposed trough-like conveying pockets attached within its peripheral shell adapted to convey articles from the hopper to the chute, and means for actuating the carrier.

9. A feeding mechanism comprising a hopper having a chute, a rotatable carrier having conveying pockets adapted to convey articles from the hopper to the chute, a rotatable shaft upon which the carrier is rigidly mounted, a ratchet rigidly secured upon the shaft, a lever pivotally mounted on said hopper above the ratchet, an arm pivotally pendant from one end of said lever having a hooked end and adapted to engage the ratchet so as to rotate it and means for actuating the lever.

10. A feeding mechanism comprising a hopper having a chute, a rotatable carrier having conveying pockets adapted to convey articles from the hopper to the chute, a rotatable shaft upon which the carrier is rigidly mounted, a ratchet rigidly secured upon the shaft, a lever pivotally mounted on said hopper above the ratchet, a hook-ended arm pivotally pendant from one end of said lever and adapted to engage the ratchet so as to rotate it, an actuating arm pivotally pendant from the other end of the lever and means for actuating it.

11. A feeding mechanism comprising a hopper having a chute, a rotatable carrier having conveying pockets adapted to convey articles from the hopper to the chute, a rotatable shaft upon which the carrier is rigidly mounted, a ratchet rigidly secured upon the shaft, a lever pivotally mounted above the ratchet, a hook-ended arm pivotally pendant from one end of said lever and adapted to engage the ratchet so as to rotate it, an actuating arm pivotally pendant from the other end of the lever and having a hooked lower end and reciprocative means adapted to engage the hooked end of the last mentioned arm for the purpose of actuating it.

12. A feeding mechanism comprising a hopper having a chute, a rotatable carrier having conveying pockets adapted to convey articles from the hopper to the chute, a rotatable shaft upon which the carrier is rigidly mounted, a ratchet rigidly secured upon the shaft, a lever pivotally mounted above the ratchet, a hook-ended arm pivot-

ally pendant from one end of said lever and adapted to engage the ratchet so as to rotate it, an actuating arm pivotally pendant from the other end of the lever and having a hooked lower end, reciprocative means adapted to engage the hooked end of the last mentioned arm for the purpose of actuating it and means for disengaging the hooked end of the last mentioned arm from the reciprocative means.

13. A feeding mechanism comprising a hopper having a chute on one side thereof, a rotatable carrier within and conforming around its entire periphery to the hopper and having conveying pockets interiorly arranged therein and adapted to convey articles from the hopper to the chute, means for removing articles not properly seated in the chute directly to said pockets, means for returning the removed articles to the hopper and means for operating the carrier.

14. A feeding mechanism comprising a case constituting a hopper having an offset portion in said case forming a chute, a rotatable carrier having conveying pockets interiorly arranged therein and adapted to convey articles from the hopper to the chute, a fender within said offset portion for removing articles not properly seated in the chute directly to said pockets and means for operating the carrier.

15. A feeding mechanism comprising a hopper having an offset portion forming a chute, a rotatable carrier having conveying pockets interiorly arranged therein and adapted to convey articles from the hopper to the chute, an arch shaped fender within said offset portion disposed diagonally across the chute for removing articles not properly seated in the chute directly to said pockets and means for operating the carrier.

16. The combination with a hopper, of a hollow cone shaped carrier rotatably mounted therein, and having conveying pockets interiorly of said cone shaped surface adapted to receive and convey articles from the hopper.

17. The combination with a hopper, of a hollow cone shaped carrier rotatably mounted therein, and having trough-like conveying pockets interiorly of said cone shaped surface adapted to receive and convey articles from the hopper.

18. The combination with a hopper, of a hollow cone shaped carrier rotatably mounted therein, and having trough-like conveying pockets angularly disposed interiorly of said cone shaped surface, said pockets being adapted to receive and convey articles from the hopper.

In testimony whereof I affix my signature in presence of two witnesses.

PIUS BAMMER.

Witnesses:
V. E. HOLSTON,
G. BAILEY.