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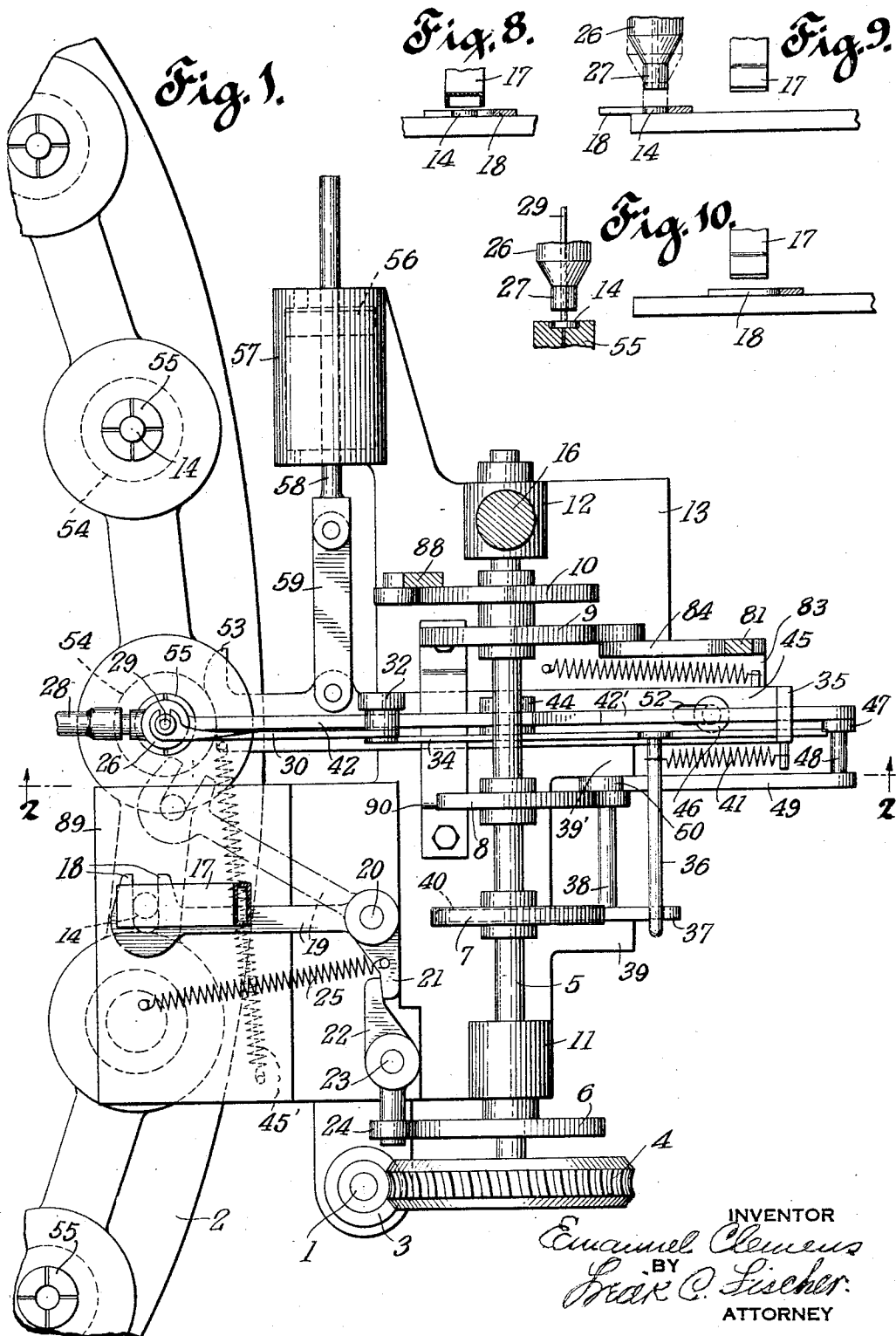
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1,828,174

ATTACHMENT FOR BUTTON MAKING MACHINES

Filed Feb. 1, 1930

4 Sheets-Sheet 1



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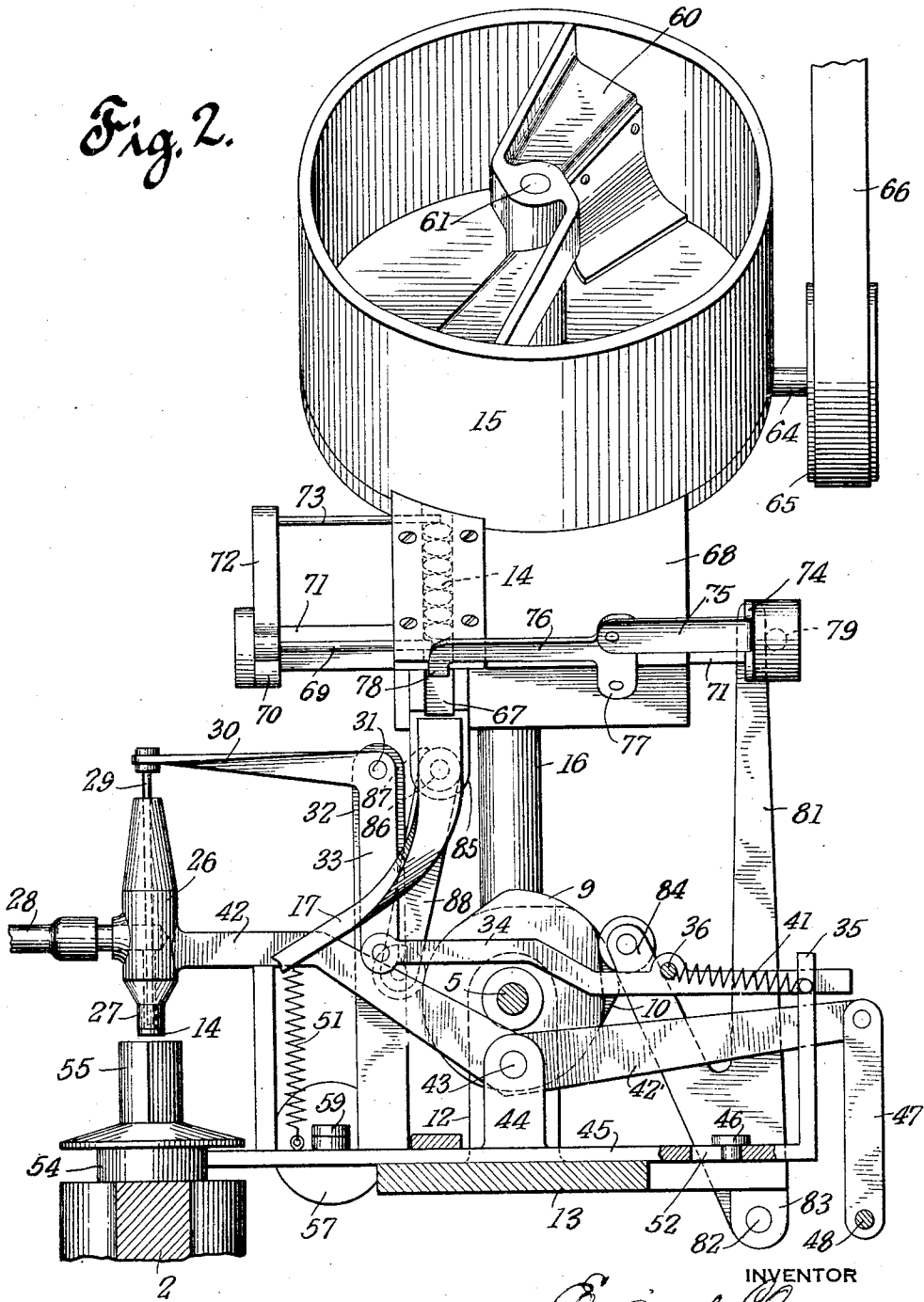
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Fig. 2.



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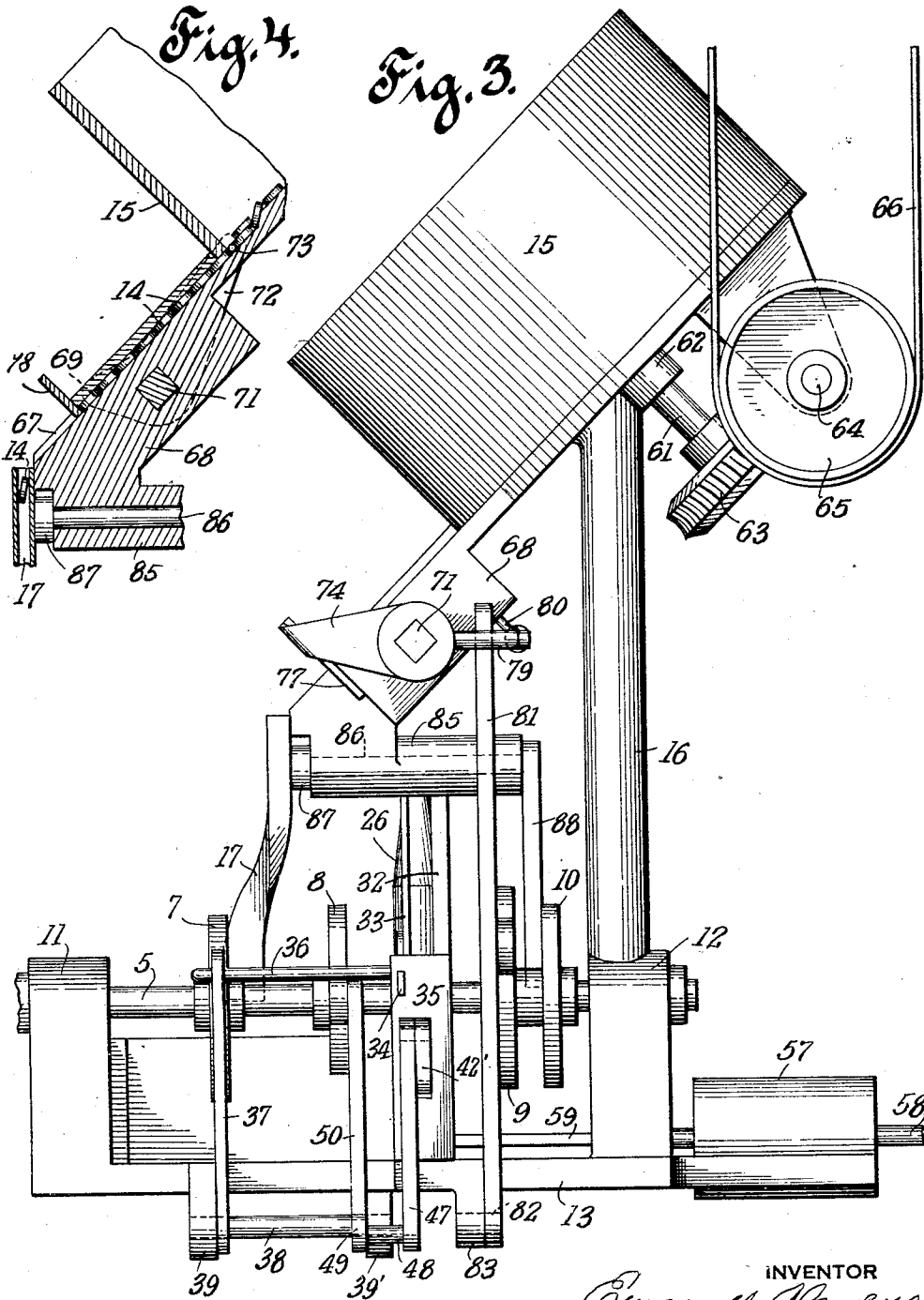
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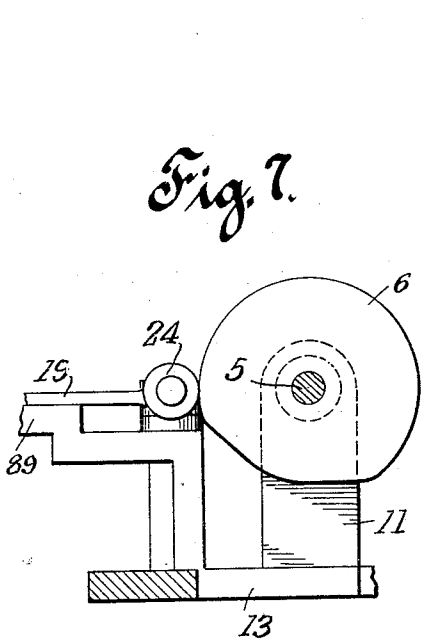


Fig. 7.

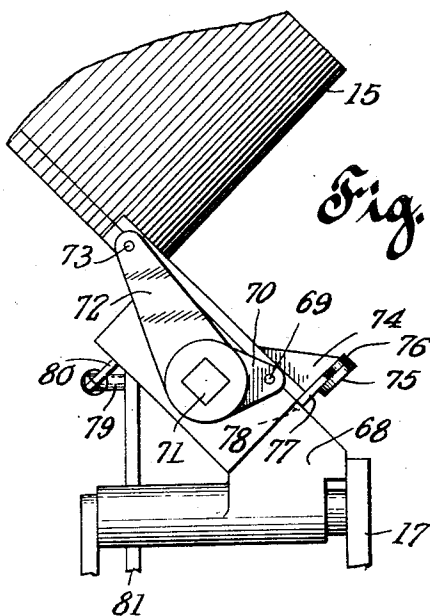


Fig. 6.

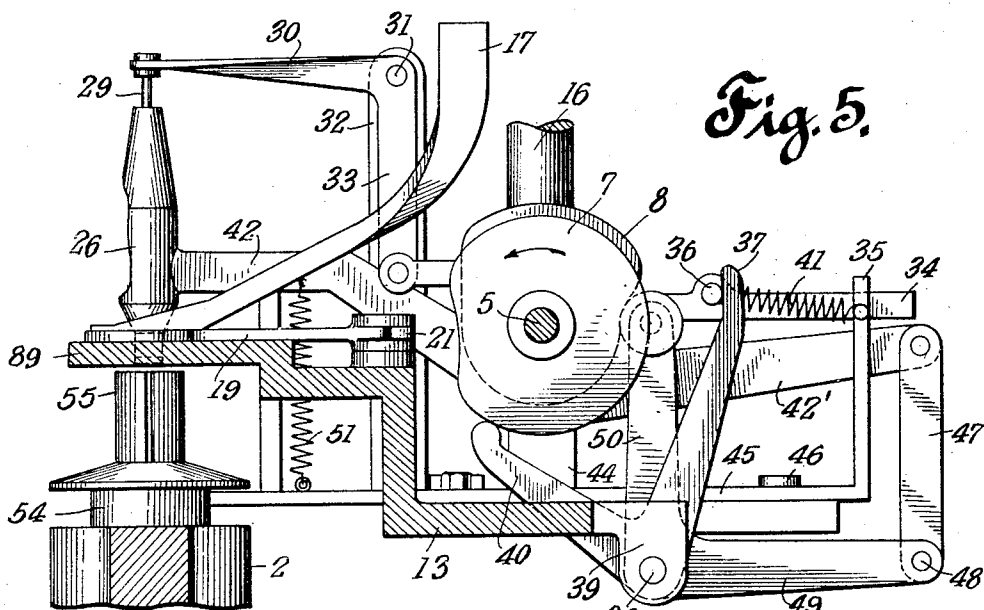


Fig. 5.

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# UNITED STATES PATENT OFFICE

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## ATTACHMENT FOR BUTTON MAKING MACHINES

Application filed February 1, 1930. Serial No. 425,162.

This invention relates to button making machines and more particularly to devices for feeding blanks to such machines.

In button making machines such as have a plurality of chucks moving in an arcuate path, it has been, heretofore, necessary to feed the button blanks to the machines by hand, thus requiring an attendant for each machine. In view of the low price at which buttons must be sold, it is desirable that means be provided to reduce the cost of production of such buttons as far as possible, and the elimination of the services of attendants for the machine would represent a material reduction in the cost of operating the machine.

It is an object of this invention to provide a device for automatically feeding blanks to a button making machine so that the services of an attendant for the machine will not be required.

A further object is in the provision of a pneumatic device for picking up button blanks and depositing them in the chucks of a button making machine.

A further object is the provision of a device for depositing button blanks in the chucks of a button making machine and means for causing said device to follow the path of the chucks during the depositing operation.

A further object is the provision of a normal distributing receptacle whereby only one blank at a time will be delivered to the feeding device.

These and other advantages, which will later appear, are accomplished by the simple and practical construction and arrangement of parts hereinafter described and exhibited in the accompanying drawings, forming part hereof, and in which:

Figure 1 represents a plan view of feeding device.

Figure 2 represents a sectional elevation taken on line 2—2 of Figure 1.

Figure 3 represents a rear elevation of the device.

Figure 4 represents a sectional view of a hopper mechanism forming a part of the device.

Figure 5 represents an elevation of linkage systems used in the device.

Figure 6 represents an elevation of a cam mechanism used in the device.

Figure 7 represents an elevation of mechanism controlling the issuance of button blanks from a supply hopper.

Figures 8, 9, 10 represent views showing the position of certain parts of the mechanism during the feeding of blanks to a button making machine.

Referring to the drawings, in Figure 1 is shown a shaft 1, driven in synchronism with the button machine 2. The shaft 1 carries a worm 3 in mesh with a worm wheel 4 fixed to shaft 5, the latter having fixed thereto the cam discs 6, 7, 8, 9 and 10, the shaft 5 being journalled in bearings 11 and 12 on a base 13.

The button blanks 14 issue from a hopper mounted on a support 16 projecting from the bearing 13, and pass through a chute 17 into a position between the forks 18 of the arm 19 of a bell crank pivoted at 20. The other arm 21, of the bell crank is engaged by the arm 22 of a rocker pivoted at 23, the arm 24 of the rocker being acted upon at predetermined times by the cam 6 to cause arm 19 to be moved to the position shown in full lines in Figure 1 so that it may properly receive a button blank from the chute 17. The arm 19 is normally urged to the position shown in dotted lines in Figure 1 by the action of a tension spring 25 connected to the base 13 and to the arm 21.

After the button blank is received between the forks 18, the arm 19 is moved to the position shown in dotted lines in Figure 1, at which point it may be picked up by a pneumatic feeder, which comprises a tube 26 hav-

ing a reduced tip 27 of less diameter than the button blanks. The air is constantly exhausted by suitable means from the tube through a pipe 28 to create a vacuum in the tube so that a button blank will be readily

5 picked up when in contact with the tip 27.  
The vacuum is destroyed and the button is released at the proper time by a pin 29 which passes through the tube 26, and is  
10 connected to the arm 30 of a bell crank pivoted at 31 to a bracket 32. Pivotaly connected to arm 33 of the bell crank is a link 34 which slides in a slot in a bracket 35. Projecting laterally from the link 34 is a pin  
15 36 engaged by the arm 37 of a bell crank pivoted at 38 to the ear 39 projecting from the base 13. The other arm 40 of the bell crank engages the cam 7 which rotates in the direction of the arrow as shown in Figure 5.  
20 A tension spring 41, connected to pin 36 and the bracket 35 normally urges the pin 36 towards the bracket 35.

Connected to the tube 26 is a lever 42 pivoted at 43 to an ear 44 projecting upwardly  
25 from a lever 45 pivoted at 46 to the base 13. The arm 42' of the lever 42 passes through a slot in bracket 35 rising from lever 45 and is pivotally connected to a link 47, which is pivotally connected by a pin 48 to the arm  
30 49 (see Figure 5) of a bell crank pivotally mounted on shaft 38, which is mounted in ears 39 and 39' projecting from the base 13.

The other arm 50 of the bell crank engages the cam disc 8 which causes, through the  
35 linkage system, an up and down movement of tube 26 at predetermined times. A tension spring 51 fixed to arm 42 and the lever 45 normally urges the tube 26 downward.

It will be noted that brackets 32, 35 and  
40 44 are integral with and move with the lever 45, which has a lost motion connection with the base 13 by means of the pivot pin 46 and a slot 52 in the lever 45. The lever 45 has a curved extremity provided with a shoulder  
45 53 adapted to be engaged by the cylindrical supports 54 of the chucks 55 on a standard button making machine.

The cylindrical support 54 carries the lever  
50 45 with it until further rotary movement of the lever is resisted by the engagement of a piston 56, against the rear wall of a dashpot 57, the piston rod 58 being pivotally connected to lever 45 by a link 59. When the rotary  
55 movement of the lever 45 is thus resisted, the lever moves longitudinally by reason of the slot 52 and the pin 46, and the pull of spring 45' attached to the lever 45 and the base 13.

Blanks 14 from which the buttons are  
60 formed are deposited in the hopper 15, which is provided with a stirrer 60, fixed to a shaft 61 journaled in a bearing 62 supported by the bottom of the hopper. The shaft is constantly rotated by means of a worm wheel  
65 63, engaging a worm, (not shown) fixed to

a shaft 64, to which is also fixed a pulley 65 driven by a belt 66.

As the blanks issue from the hopper 15, they slide in a groove 67 in a bracket 68 supported by the hopper. A pin 69 intermit-  
70 tently moves transversely of the groove 67 and allows but one blank to pass at a time. The pin 69 projects laterally from an arm 70 fixed to a square shaft 71 extending through the bracket 68 to the other side thereof.  
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A pin 73 projecting laterally from an arm 72 also fixed to shaft 71, moves intermittently transversely of the mouth of the hopper and shoves out of the way any blanks which may be too large to pass through the mouth of the  
80 hopper and enter the groove 67.

The shaft 71 is fixed to an arm 74 on the other side of bracket 68, the arm 74 having a portion 75 bent at right angles, which is pivotally connected to a lever 76 having a  
85 projection 77 pivoted to the bracket 68. The lever has a projection 78 at its extremity resting normally in the groove 67, which projection is intermittently raised to allow a blank between the pin 69 and the projection  
90 78, to pass into the chute 17.

Projecting from arm 74 is a pin 79 normally urged towards bracket 68 by a spring attached to pin 79 and to a pin 80 on the bracket. Pin 79 is engaged by lever 81  
95 pivoted at 82 to an ear 83 depending from the underside of base 13. The arm 84 of lever 81 engages cam disc 9, which causes, through the intermediate linkage system, the shaft 71 to be reciprocated in the bracket 68, whereby the  
100 pins 69 and 73 and the projection 78 perform their respective functions in synchronism with the other elements of the device.

Supported by bracket 68 is a bearing 85 in which is journaled a shaft 86 having a boss  
105 87 to which the chute 17 is attached. Fixed to shaft 86 is a crank arm 88 engaging cam disc 10 to cause a periodic swinging movement of the chute 17 to move the latter out of the path of the forked arm 19.  
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In operation, blanks 14 are fed intermit-  
tently into chute 17 by the mechanism connected with the hopper 15 as above described. The blank passes through the chute and is deposited on the shelf 89 between the forks 18 of  
115 the arm 19, (see Figure 8), which is then moved to the dotted line position, as shown in Figure 1, by the contracting of the tension spring 25.

During this movement of the arm 19, the  
120 lever 45 is being drawn towards arm 19 by the contracting of tension spring 45', the movement being limited by the stop 90 fixed to the base 13, which establishes a position where the tip 27 of the tube 26 will be directly above  
125 a blank between forks 18, the tube 26 being moved upwardly by the lever 42 at the same time so that it will clear the shelf 89. (See Figure 9.) The tube 26 is lowered until the tip 27 engages the blank, which will remain  
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in such a position due to the vacuum, created in the tube. The action of cam 8, lever 42 and spring 51 cause the tube 26 to be again raised and then lowered into a position directly above a chuck 55 on the button-making machine 2.

Since the machine 2 is constantly rotating, it is necessary for the tube 26 to follow the chuck until cam 7 has caused pin 29 to move downward to disengage the blank from the tip 27. (See Figure 10.) The following of chuck 55 is accomplished by the engagement of the circular support 54 with the shoulder 53, which engagement is maintained until the blank has been deposited on the chuck, at which time the piston 56 has engaged the rear wall of the dashpot 57, and limits further rotary movement of lever 45, which then moves longitudinally due to the camming action of the support 54 on the shoulder 53, the longitudinal movement being enabled by the pin 46 and the slot 52.

Spring 45' then draws the lever 45 towards the arm 19 again, to repeat the operation for another blank.

Immediately after the passage of a blank 14 from the chute 17, the latter is moved upwardly out of the path of the arm 19 by the action of the cam 10 and arm 68. After arm 19 has delivered a blank to the tube 26, the arm 19 is returned to the position shown in full lines in Figure 1 by the action of cam 6 and arm 22.

The pipe 28 is connected to a constantly acting pump or other evacuating means, so that a vacuum will be created in tube 26 whenever the opening to tip 27 is covered by a blank 14.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many modifications without departing from the general scope herein indicated and denoted in the appended claims.

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

1. In an attachment for feeding blanks to a button making machine having a plurality of chucks moving in an arcuate path, a base, a lever having a pin and slot connection with the base, a shoulder at the extremity of the lever adapted to be engaged by a cylindrical support for a chuck so that the lever will follow the path of the chuck, means for limiting the rotary movement of the lever whereby said lever will be forced to move longitudinally due to the camming action of the chuck support on the shoulder, the longitudinal movement being enabled by the pin and slot connection means on the lever to releasably hold a button aligned with a chuck, and

means to return the lever to its initial position.

2. In an attachment for feeding blanks to a button making machine having a plurality of chucks moving in an arcuate path, a tube positioned above the path of the chucks, means for raising and lowering the tube, means for creating a vacuum in said tube so that it may pick up a blank, means to cause the tube to follow an arcuate path and means for releasing the blank for deposit on a chuck.

3. In an attachment for feeding blanks to a button making machine having a plurality of chucks moving in an arcuate path, an arm having a forked extremity, a chute for depositing blanks between the forks of said arm, a tube, means for moving said arm into a position immediately below the tube, means for creating a vacuum in the tube so that it will pick up by its suction a blank from between the forks of the arm, means for raising and lowering the tube into a position immediately above one of the chucks, means to disengage a blank from the tube and deposit it in said chuck, and means to cause the tube to follow the path of the chuck during the depositing of the blank.

4. In an attachment for feeding blanks to a button making machine having a plurality of chucks moving in an arcuate path, an arm having a forked extremity, a chute for guiding a blank into a position between the forks of said arm, a tube having means connected therewith for creating a vacuum therein, means for moving said arm into a position adjacent the tube, means to cause the tube to follow an arcuate path and means for raising the chute out of the path of the arm during the movement of the latter.

5. In an attachment for feeding blanks to a button making machine, a hopper for said blanks, said hopper having an opening near its bottom, a bracket supported by the hopper, a groove in said bracket communicating with the opening in said hopper, a shaft slidably mounted in the bracket, a pin mounted on said shaft, said pin being adapted to intermittently traverse the opening in the hopper to remove blanks which may be too large to pass through said opening, a second pin mounted on the shaft, said pin being adapted to intermittently traverse the groove to prevent the passage of more than one blank at a time, a chute having its mouth communicating with the groove, a gate positioned in the groove to control the passage of blanks from the groove to the chute, means connecting said gate with the shaft, and means for reciprocating said shaft.

6. In an attachment for feeding blanks to a button making machine having a plurality of chucks moving in an arcuate path, a base, a lever having a lost motion connection with the base, a shoulder at the extremity of the

lever engageable by a support for a chuck to cause the lever to follow the path of the chuck, means carried by the lever to releasably hold a button blank aligned with the chuck, and means to limit the rotary movement of the lever to cause the chuck support to exert a camming action on the lever to move the latter longitudinally.

This specification signed this 18th day of December, 1929.

EMANUEL CLEMENS.

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