P. F. DUSHA, A. FEYK & J. KOMANCSEK.

FEEDING DEVICE FOR BUTTON MAKING MACHINES.

APPLICATION FILED NOV. 25, 1911.

1,077,335.

Patented Nov. 4, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

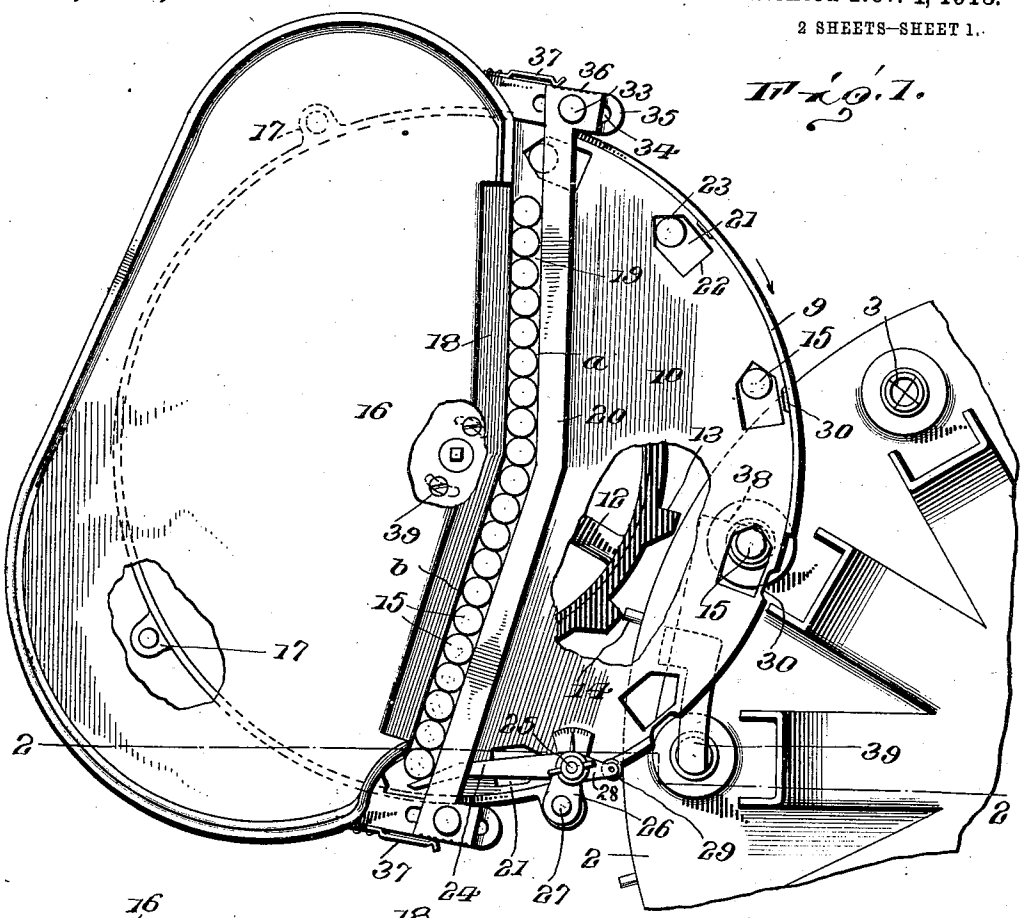
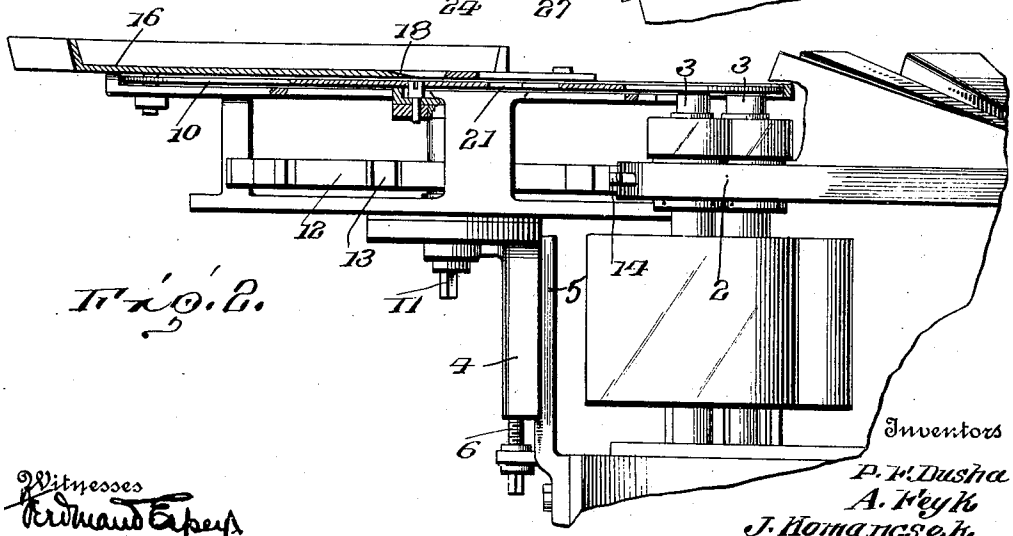


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

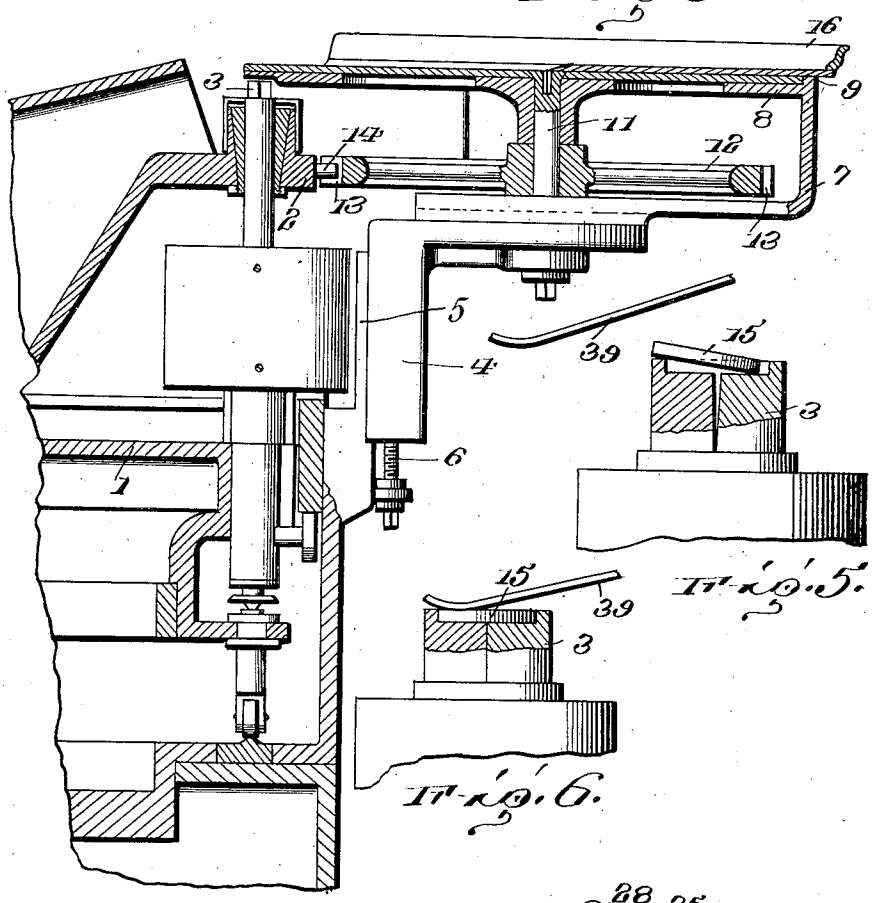


Fig. 5.

Fig. 6.

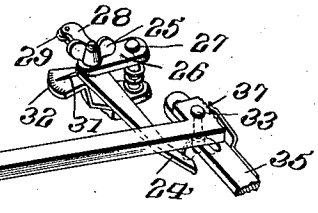
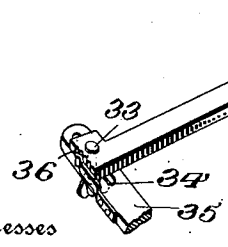


Fig. 4.



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FEEDING DEVICE FOR BUTTON-MAKING MACHINES.

1,077,335. Specification of Letters Patent. Patented Nov. 4, 1913.

Application filed November 25, 1911. Serial No. 662,495.

To all whom it may concern:

Be it known that we, PAUL F. DUSHA, ANTON FEYK, and JOSEPH KOMANCSEK, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Feeding Devices for Button-Making Machines, of which the following is a specification.

This invention relates to the art of button making, and comprehends certain new and useful improvements in feeding devices for feeding the blanks to button making machines, the feeding device being in a commercial sense one of the component parts of the button making machine, and the present invention relating particularly to a feeding device for a button machine of the type illustrated in our copending application for Letters Patent of the United States, Serial No. 668,252, filed December 28, 1911.

The invention has for one of its primary objects a button blank feeding device which will be positive in its operation, so as to insure the intermittent and successive feeding of the blanks, one at a time, to the chucks of the button making machine, and which will be so constructed and the parts so arranged that adjustments may be easily secured, whereby the device is rendered adaptable for use in feeding button blanks of varying thicknesses and diameters within a wide range of sizes and within the scope of the button machine of which the feeding device forms a part.

The invention also has for its object a device of the character hereinbefore stated which will not only be positive and sensitive in its action and capable of adjustment for different sized blanks, and also capable of adjustment as a whole in a vertical direction to compensate for the wearing down of the chucks, but which will be composed of comparatively few parts of simple construction that will be durable as well as efficient in operation, and capable of being easily manufactured, readily assembled, easily adjusted and easily maintained in order.

A still further object of the invention is a button blank feeding device that will be so correlated with the revoluble chuck carrying table of the button making machine that one button blank at a time will be deposited in a predetermined position in the receiving recess of the chucks as they sweep past the feeding device, means being provided whereby the blank will be positively, and yet gently, pressed down into the recess of the open chuck and accurately centered therein, and held until the chuck shall have closed upon and gripped the blank.

The invention also has for its object, in a feeding device of this type, an easily adjustable gage bar which constitutes or defines one wall of a runway along which the blanks roll in the operation of the device, and to provide a correspondingly adjustable detent and releasing arm which automatically operates to release one button at a time just as a pocket in the revoluble feed disk of the device arrives at a predetermined point underneath the discharge end of the runway, said revoluble disk being adjustable about its axis in its initial position, whereby, although each of the pockets of the disk is capable of receiving a blank of the largest diameter of which the machine equipped with the feeding device is capable of handling, yet at the same time, the shape of said pockets and susceptibility of the disk to adjustment, will insure the proper positioning of the blanks in the pockets and the proper engagement of said blanks by the walls of the pockets which are rearmost, the direction of rotation of the disk being considered. And the invention also aims to generally improve this class of devices and render them more useful and commercially desirable, it being understood that our invention, while designed particularly for use in connection with a button forming machine, is also applicable for feeding blanks to other machines, or capable of being used in other analogous arts generally.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that we shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a top plan view, partly broken away, of our improved feeding device, showing it in operative juxtaposition to a portion of the revoluble chuck carrying table of our improved button making machine hereinbefore mentioned; Fig. 2 is a sectional side

elevation, the section being taken approximately on the line 2—2 of Fig. 1; Fig. 3 is a diametrical section through the device, looking at the opposite side from that viewed in Fig. 2; Fig. 4 is a detail perspective view of the gage bar above mentioned together with portions of the supporting arms therefor and the adjustable detent and blank releasing device hereinafter specifically described, and Figs. 5 and 6 are views of a chuck, said views being in the nature of diagrams and illustrating the preferred initial position of a blank in a chuck and the subsequent final position therein, pressed down into the recess of the chuck by a spring which forms part of the feeding mechanism.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

The button making machine for which the blank feeding device of the present invention is primarily designed, includes a revoluble drum 1 embodying a table 2, said table carrying any desired number of chucks 3 rotatable about their longitudinal axes through a predetermined portion of their revoluble movement. The purpose of the device of this invention is to successively feed the button blanks one at a time to the chucks as they sweep, one after the other, in a circular series, past and underneath the feeding device, each chuck being automatically opened to receive the button blank at one point in the movement of the chuck, and immediately thereafter closing upon the blank so as to securely hold it for the facing, drilling, grinding, fish eye forming, or other operations of the main machine.

The present embodiment of the invention includes an angular bracket 4 mounted for vertical adjustment on a vertically disposed guide 5 secured to a stationary part of the button making machine, the vertical adjustment of said bracket being, in the present instance, effected by means of a lighter screw 6, and being for the purpose of sustaining the operative parts of the feeding device in proper relation to the chucks as the latter wear down from repeated use. The outstanding arm of the bracket 4 supports a casting 7 which includes a substantially circular base plate 8 with an upstanding marginal flange 9 within which a disk 10 is received in superposed relation to said plate, and the disk 10 is carried by a centrally disposed vertical shaft 11 journaled in the bracket 4 and casting 7, said shaft carrying a wheel 12 formed in its periphery with a predetermined number of teeth 13. These teeth are designed to be intermittingly engaged by pins 14 projecting radially from the peripheral edge of the table 2, whereby an intermittent movement will be imparted to the wheel 12, and consequently also to the feeding disk 10 which is movable therewith.

The button blanks, designated 15, are designed to be initially deposited upon a rimmed tray 16 which is secured in any desired way upon the casting 7 so as to expose substantially half of the upper surface of the feeding disk 10, said tray in the present instance being secured to ears 17 projecting from the outer face of the casting 7, as clearly indicated in Fig. 1. The tray 16 is formed with a preferably angular, beveled or downwardly inclined, discharge edge 18, leading down to the upper surface of the feeding disk 10, said discharging edge defining one wall of a substantially diametrically disposed, angular runway 19, the bottom of which is formed by the upper face of the disk 10, and the other side wall of which is defined by an angular gage bar 20, shown in detail in Fig. 4. The disk 10 is intended to rotate in the direction of the arrow shown in Fig. 1, and as it rotates in this direction, the button blanks 15, fed by hand or otherwise down into the runway 19, are rotated or rolled circumferentially along the edge *a* of the bar 20 until they reach the angle of said bar, whereupon they are rolled in the same direction of rotation along the edge *b* of the tray, the blanks being thereby, through the frictional action of the rotating disk 10, constantly fed over toward the discharge end of the runway, which is at the lower end of the device as viewed in Fig. 1. Here the blanks are held until, at predetermined intervals, they are released, one after another, and permitted to drop into pockets 21 that are cut or otherwise formed in the feeding disk 10 around the rim thereof, said pockets lying entirely within the margin of the disk and being preferably partly rectangular, as indicated at 22, and partly V-shaped (at the rear, the direction of rotation considered), as indicated at 23, the rearwardly tapering side walls of said pockets rendering them capable of accurately engaging and accommodating button blanks of different diameters so as to properly center them over the chucks, it being understood that the apices of the respective angular portions of the pockets move in a circular path which at the proper point in the rotation of the disk 10 intersects the circular path of movement of the centers of the chucks 3.

The means for holding the blanks 15 and for releasing the blanks one at a time, comprises, in the present embodiment of the invention, a detent and releasing arm 24, shown in detail in Fig. 4, said arm being adjustably connected by a screw and wing nut 25, at one end to a relatively short bar 26, pivoted to swing about the point 27 as an axis, and spring pressed in one direc-

tion. The bar 26 is formed with an angular extension 28 carrying a roller 29 that is designed to bear against the peripheral edge of the disk 10, said edge being formed at regular intervals with notches 30, whereby as the notch reaches the roller 29, the latter will ride therein and permit a swinging movement of the bar 26 in a direction to carry the free end of the arm 24 outwardly so as to release the button with which it has been in engagement, and permit said button to drop into the subjacent pocket 21 of the disk 10, whereupon the roller 29 will ride out of the notch in the continued rotation of the disk 10 and effect the engagement of the free end of the arm 25 with the next button to be discharged from the runway 19.

It is to be particularly noted that the bolt and clamping nut connection between the arm 24 and the bar 26 admits of the arm being adjusted on the bar according to the diameter of the blanks being fed; and in order to properly gage the adjustment, the arm 24 is preferably formed with a pointer 31 movable, as the arm is adjusted, over scale bar 32, which may be linearly graduated, according to the different diameters of the buttons. For the same purpose, the runway 19 is made laterally extensible and contractile, this being accomplished in the present embodiment of our invention by having the ends of the bar 20 held by clamping bolts 33 that are received in longitudinal slots 34 formed in bar supporting arms 35, the outer edges of the extremities of the bar 20 being formed with graduated notches 36 corresponding to the graduations of the scale bar 32 and co-acting with spring pointers 37, which serve the function of not only indicating the proper adjustment of the bar 20, but also serve to initially hold the bar in its adjusted position until the clamping bolts 33 shall have been tightened.

From as much of the description as has preceded, in connection with the correlated views of the accompanying drawings, the operation of our improved blank feeding device will be apparent. In the practical use of the apparatus, the blanks to be formed into buttons are deposited in the tray 16 and are pushed down the inclined discharge edge 18 of the tray into the runway 19 which is not necessarily kept filled with blanks at all times, but which only needs attention sufficient to see that at no time does it become exhausted of its supply. The feeding disk 10 is intermittingly actuated for a partial rotary movement, by the successive and intermittent engagement of the pins 14 of the continuously rotating table 2 with the notches or teeth 13 of the wheel 12, and the blanks are deposited one at a time in the pockets 21 and are carried around underneath the tray and out from under the latter until they pass into the cut-away portion 38 of the base plate 8, at which point the path of one of the pockets will insersect the path of, and the pocket will coincide with, a subjacent chuck 3 which at that point is in open condition, the blank dropping into the chuck and the latter subsequently closing upon it.

It is to be particularly noted that the disk 10 is mounted by a screw and slot connection 39 for a limited circular adjustment about the shaft and with relation to the wheel 12, whereby, according to the exact diameter of the button being fed by the device, the button will be pushed off of the discharge edge of the plate 8 and be deposited in the chuck so as to exactly center in the latter. In the preferred adjustment of the parts, the disk 10 is so adjusted that the blank 15 will be discharged from the feeding device slightly in advance of the underlying center of the subjacent chuck 3, while the latter is in its open condition, as best illustrated in Fig. 5, so that as the chuck with the blank 15 in this position sweeps past the receiving point, the blank will be engaged by a spring pressing finger 39 and pressed down properly into the receiving recess of the chuck, being held therein in the sweep of the table 2 until the chuck shall have closed and effectually gripped the blank, as indicated in Fig. 6. This compressing and centering finger 39 is seen in plan view in Fig. 1.

While the foregoing description and accompanying drawings disclose what we believe to be the preferred embodiment of our invention, it is to be understood that the invention is not limited thereto, but that various changes may be made in the construction, arrangement and proportions of the parts without departing from the scope of the invention as defined in the appended claims.

Having thus described our invention, what we claim is:

1. A blank feeding device, including a movable feed disk, provided with blank engaging means, a tray extending transversely to the feed disk and discharging thereon, in combination with a chuck support disposed beneath said disk and movable in a direction to cause the intersection of the paths of movement of the chucks and the blank engaging means of said disk, and means for intermittingly actuating said disk, for the purpose specified.

2. A blank feeding device including a base plate having a discharge opening, a movable feed disk formed with open bottom pockets for the blanks, in combination with a chuck support movable beneath the under face of the base plate to bring its chucks in register with the discharge opening of the base

plate, and means carried by the chuck support for intermittently actuating said disk to effect a transfer of a blank from a pocket to a chuck.

3. A blank feeding device including a base plate having a discharge opening, a revoluble feed disk formed with downwardly opening pockets in its margin registering with the discharge opening, in combination with a chuck support movable underneath the base plate to bring its chucks one by one into register with said discharge opening, and means carried by said support for intermittently actuating said disk to effect the registry of a pocket with a chuck and the opening in the base plate to thereby effect the automatic transfer of a blank from a pocket to a chuck.

4. A blank feeding device, including a revoluble disk formed with a plurality of bottom opening blank receiving pockets, and a base plate on which the disk rests having a discharge opening, in combination with a revoluble chuck support, and chucks carried thereby, the parts being so mounted that the path of movement of the pockets will intersect the path of movement of the chucks, and means for automatically and intermittingly actuating said disk to effect the registry of a pocket with a chuck and said opening in the base plate.

5. A blank feeding device, including a base plate having a discharge opening and a revoluble disk resting upon said base plate and provided with bottom opening blank receiving pockets adapted to register with the discharge opening of the base plate, in combination with a chuck support and chucks carried thereby and adapted to pass underneath and into registry with said pockets, a toothed wheel mounted underneath said disk and movable therewith, and pins projecting from said support and engageable with the teeth of said wheel, for the purpose specified.

6. A blank feeding device, including a revoluble disk provided with blank engaging and discharging means, a blank runway extending diametrically across the disk and having side walls disposed above the face of the disk, means for imparting movement to said disk and for automatically working the blanks toward one end of the runway, and means for releasing the blanks, one at a time, at said end of the runway for reception in the blank engaging means.

7. A blank feeding device, including a revoluble disk formed with blank receiving pockets and said device provided with a blank receiving runway extending transversely across said disk, and having side walls disposed above the face of the disk, means for moving said disk to automatically work the blanks toward one end of the runway, and means for releasing the blanks at said end of the runway so as to permit them to drop into said pockets.

8. A blank feeding device, including a disk provided with marginal blank receiving pockets, the feed device being provided with a runway extending transversely of said disk, the disk forming part of the runway, whereby a revoluble movement of the disk will automatically work the blanks toward one end of the runway, and means for automatically depositing the blanks at said end of the runway in said pockets.

9. A blank feeding device, including a revoluble disk formed with blank receiving pockets, the feeding device being provided with an angular runway extending transversely across the upper surface of the disk, the upper face of the latter forming the bottom of the runway, whereby the revoluble movement of the disk will automatically work the blanks toward one end of the runway, and means for automatically depositing the blanks at said end of the runway in said pockets.

10. A blank feeding device, including a feeding disk, a transverse blank receiving runway superposed upon said disk and having opposed parallel spaced walls disposed above the face of the disk, and means operable by and upon the movement of the disk for automatically releasing said blanks from one end of the runway.

11. A blank feeding device, including a feeding disk and a transverse runway, adjustable as to width and arranged to discharge blanks into the disk.

12. A blank feeding device, including a feeding disk formed with blank receiving pockets, a tray superimposed upon the disk, a gage bar co-acting with the edge of said tray to form a blank receiving runway, the bottom of which is defined by the adjacent face of the disk, and means for intermittingly releasing the buttons, successively, from the runway into the pockets of the disk.

13. A blank feeding device, including a feeding disk formed with blank receiving pockets, a tray superimposed upon the disk and formed with a downwardly inclined edge meeting the upper surface of the disk and forming one wall of a blank receiving runway, a gage bar spaced from said edge and forming the opposite wall of said runway, the adjacent face of the disk forming the bottom of the runway, and means at one end of the runway for automatically releasing the blanks from the runway intermittingly and one at a time.

14. A blank feeding device, including a feeding disk formed with blank receiving pockets, a runway extending transversely across the disk, a detent and blank releasing arm movable into the runway in front of the blanks therein, and means controlled by

the movements of the disk for automatically releasing said arm from in front of said blank.

15. A blank feeding device, including a feeding disk formed with blank receiving pockets, a transversely extending runway, a detent and blank releasing arm movable into the runway and engageable with a blank therein, means controlled by the movements of the disk for automatically releasing said arm from said blank, and means for varying the initial position of said detent and releasing arm.

16. A blank feeding device, including a disk formed with blank receiving pockets, a blank receiving runway extending transversely to the disk, the disk forming the bottom of the runway, an arm adapted to extend into the runway and engageable with and in front of one of the blanks therein, and a spring pressed bar carrying said arm and bearing against the edge of the disk, said disk being formed in its edge at intervals with notches, for the purpose specified.

17. A blank feeding device, including a disk formed with blank receiving pockets, a runway adapted to register with said pockets and to receive blanks so as to discharge them to the pockets, an arm projecting into the runway and engageable with one of said blanks, and a pivoted bar on which the arm is adjustably mounted, a relatively stationary scale bar, a pointer carried by said arm, and means co-acting with said bar to intermittingly move the arm in a direction to free the blank which it engages.

18. A blank feeding device, including a disk formed with blank receiving pockets, a blank receiving runway extending transversely across the disk, the disk forming the bottom of the runway, said runway being adapted to hold the blanks preparatory to their transfer therefrom into the pockets and extending across above the upper face of the disk, a gage bar forming one side of said runway, and means for holding said gage bar at different distances from the opposite side of said runway.

19. A blank feeding device, including a disk formed with blank receiving pockets, a blank receiving runway adapted to hold the blanks preparatory to their transfer therefrom into the pockets and including a wall disposed above the disk, a gage bar forming one side of said runway, supporting arms formed with slots, and clamping bolts received in said slots and secured to said gage bar.

20. A feeding device, including a feed disk and a runway adapted to hold the blanks preparatory to transferring them to the disk, said runway having two walls disposed in spaced relation to each other above the disk, the disk forming the bottom of said runway, a gage bar forming one wall of said runway, means for holding said gage bar at different distances from the opposite side of said runway, the ends of said gage bar being formed with graduated notches, and spring pointers engaging said notches.

21. A blank feeding device, including a movable feed disk provided with blank receiving pockets, the side walls of which are rearwardly convergent, in combination with a series of chucks, the path of movement of said chucks intersecting the path of movement of said pockets and the axis of each chuck intersecting the longitudinal axis of each pocket.

22. A blank feeding device, including a feed disk formed with pockets, in combination with a chuck support movable across the disk, means for transferring a blank from the disk to the chuck, and a presser finger carried by the feeding device and adapted to press the blank down into the chuck.

In testimony whereof we affix our signatures in presence of two witnesses.

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