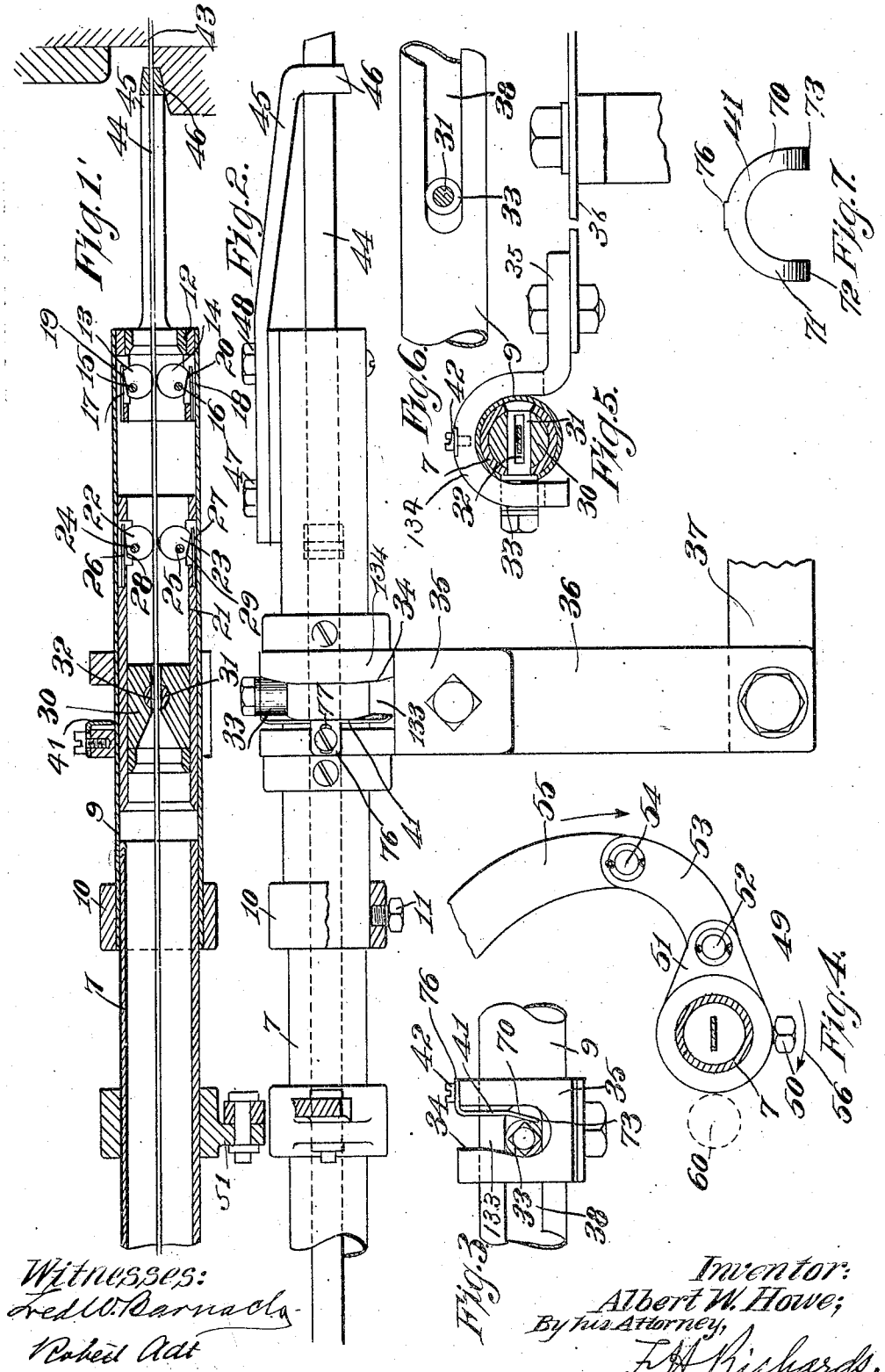
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A. W. HOWE.

FEEDING MECHANISM.

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FEEDING MECHANISM.

No. 833,460. Specification of Letters Patent. Patented Oct. 16, 1906.

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To all whom it may concern:

Be it known that I, ALBERT W. HOWE, a citizen of the United States, residing in Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Feeding Mechanisms, of which the following is a specification.

This invention has reference to mechanism for feeding stock, and while it may be applied to various purposes in the arts it is specifically directed to the art of tack-making. In this art the stock is usually fed along a given plane and projected toward a cutter which is so situated with respect to such plane that the cut which it will make will be at an angle to the longitudinal axis of the plane of projection of the stock. During the operation of the mechanism the stock is overturned after each severing operation of the cutter, so that the blanks of triangular form are produced, and from these blanks the tack is formed.

I provide an adjustable resilient mechanism by which the stock is not only fed, but by which the amount of feed may be varied. In this mechanism also there is provided means whereby the oscillating mechanism may in all cases complete its movement, whether or not the complete feed of the stock takes place.

An embodiment of the invention is illustrated in the accompanying sheet of drawings, whereon—

Figure 1 illustrates an elevation and sectional view of one form of device. Fig. 2 illustrates a top plan view thereof. Fig. 3 illustrates a cam device for simultaneously reversing and feeding the stock. Fig. 4 illustrates a mechanism for accomplishing the reversing operation of the mechanism. Fig. 5 illustrates an end elevation, partly in section, of the cam device. Fig. 6 is a detail elevational view of a slotted tube, and Fig. 7 illustrates a spring-cam used in connection with said mechanism.

Similar characters of reference designate corresponding parts throughout the figures.

In the form shown I provide a member, preferably in the form of a tube 7, to which is secured a tube 9 by means of a clamping-collar 10, which may be provided with a set-screw or other securing member 11. In the forward end of said tube 9 is a bearing 12, which carries two rollers 13 and 14, respectively, each eccentrically mounted on shafts 15 and 16, respectively, and the movement of these rollers is governed to a greater or less extent by resilient devices or springs 17 and 18, respectively, which bear upon flattened surfaces 19 and 20 of the respective rollers, and these rollers serve to grip and hold the stock after the same has been fed forward.

Within the tube 9 is a tube 21, into whose forward end is also mounted a construction similar to that just described—namely, two rollers 22 and 23, respectively, mounted eccentrically on axes 24 and 25, respectively, and which are likewise actuated by springs 26 and 27, which bear on flattened surfaces 28 and 29 of said rollers 22 and 23. This tube 21 is so mounted within the tube 9 that it may shift longitudinally with respect to the tube 9, and within such tube is a plug 30, transversely through which passes a stud 31, having a slot 32 and upon the outer end of which stud is provided a bearing member or roller 33, which projects through a slot 38 in said tube 9. (See Fig. 6.) This roller 33 is adapted to play in a slot 133, formed in a head-piece 134, which is secured, as at 35, to a spring 36, suitably mounted on a suitable portion of the frame 37 of the machine. This slot 133 is provided with a cam-face 34, and also situated in said slot is a spring 41, having legs 70 and 71, respectively, whose extremities are bent, as at 72 and 73, respectively, in the manner clearly shown in Fig. 2, and this spring is provided with a lug 76, having a slot 77, through which may pass a set-screw 42, so that such spring may be adjusted through various positions with respect to the cam-face 34.

For the purpose of suitably presenting to a suitable cutting device 43 the stock 44, which passes through the tubes and between the rollers 13 and 14, 22 and 23, I provide a guide 45, having a portion 46, through which the stock passes, and which guide is suitably mounted upon the tubing 9—for instance, by bolts 47 and 48, respectively.

For the purpose of oscillating the tube laterally with relation to the path of the feed I provide a member (designated in a general way by 49) which is secured to the tube, as 7, by a set-screw 50 and which in the present instance is provided with an arm 51, to which may be pivoted at 52 a link 53, secured at 54 to an arm 55, adapted to coöperate with any suitable cam mechanism best adapted for the purpose—such, for instance, as that shown and described in my United States Letters Patent No. 713,855. The arm 51 of said mem-

ber 49 is adapted to swing around in the direction of the arrow 56, during which operation the stock 44 is shifted laterally to its plane of feed or turned bottom side up, it being understood in this connection that the cutting-tool 43 is arranged at an angle to the line of feed of the stock, so that on each reverse movement of the stock a triangular blank is severed therefrom.

When the device is in operation and the arm 51 by suitable mechanism is shifted around, the roller 33 will travel around the cam-face 34 until such member has made, for instance, a quarter of a turn, which will be sufficient to retract the tube 21, so that the rollers 22 and 23 may take a fresh bite at some rearward point upon the stock 44. As the rotation of the tube is continued the roller 33 will be urged forward by the spring actuator or cam 41, which will in turn urge the tube 21 in a similar direction, and, as is obvious, the rollers 22 and 23 having grasped the stock 44 the same will be likewise urged toward the knife.

For the purpose of delivering the stock in a proper manner to a cutter—that is, projecting the stock a proper distance—the spring-actuator 41 may be adjusted to any suitable position by the set-screw 42, which plays in the elongated slots 77 of said actuator. One of the important features of this spring-actuator resides in the fact that if the forward movement of the stock should for any reason be interrupted the spring may yield, so that when such stock is allowed to complete its movement the spring will carry it forward.

It will now be observed that I provide a feeding mechanism so constructed as to maintain the stock rigid while presented to the tool and means for intermittently urging said stock forward and also means for turning the stock from one side to the other, so that it may be cut on an oblique line with respect to the longitudinal axis of the stock, whereby a blank of triangular form may be severed therefrom. It will be seen that although the strip rests on the angle when the same is caused to turn or oscillate by the member 55 the spring 36 will allow the entire mechanism to raise sufficiently to allow for the turning of said strip. It will also be observed that the spring-actuator is adapted to urge said stock forward by means of the roller 33 during each reverse movement of the mechanism and that it also yields in case the feed of the stock should be interrupted. It is also to be noted that the stock-feeding actuator or cam is adjustably mounted and that by moving the same a proper distance in either direction the length of the feed may be varied.

Having thus described my invention, I claim—

1. In a stock-feed mechanism the combination with a stock-guide, of a head-piece having a cam-slot, a feed device provided with a roller movable in said slot and which is retractable by one wall of said slot, means for imparting a relative movement between the head-piece and the roller, and a resilient member situated in said slot and adapted to bear against the roller and by which the forward movement of the feed mechanism is effected.

2. In a stock-feed mechanism the combination with a stock-guide, of a head-piece having a cam-slot, a feed device provided with a roller movable in said slot and which is retractable by one wall of said slot, means for imparting a relative movement between the head-piece and the roller, and a resilient member bearing against said roller situated in said slot and by which the forward movement of the feed mechanism is effected, said resilient member being adjustable.

3. In a device of the character specified the combination with a tube, of an inner tube carried thereby, stock-grippers carried by the inner tube, stock-grippers carried by a member in the outer tube, means for shifting the said tubes transverse to the plane of movement of the stock, and a yielding cam arranged to be effective upon the transverse movement for actuating said inner tube longitudinally of the outer tube whereby to move the stock forward, one set of stock-grippers being adapted to move the stock while the other set will hold the stock after it is moved.

4. In a device of the character specified the combination with a stock-tube of an inner tube carried thereby, stock-grippers carried by the inner tube for moving the stock, stock-grippers carried by the outer tube for holding the stock after it is moved, a head-piece mounted on the first tube with respect to which the tube is movable and provided with a cam-slot, a member connected with the inner tube and mounted in said slot, yielding means arranged to coöperate with said roller to push the same forward whereby to shift said inner tube forward and likewise shift the stock.

5. In a stock-feeding mechanism, the combination with a stock-guide, of a head-piece provided with a guide, a feeding device, means carried by the feeding device for cooperating with the guide of the head-piece, means for imparting the relative movement between the head-piece and said means, and a resilient member on the head-piece adapted to bear against the means carried by the feeding device by which the forward movement of the feeding mechanism is effected.

6. In a stock-feeding mechanism, the combination with a stock-guide, of a head-piece provided with a guide, a feeding device, means carried by the feeding device for coöperating with the guide of the head-piece, means for imparting the relative movement

between the head-piece and said means, and a resilient member on the head-piece adapted to bear against the means carried by the feeding device by which the forward movement of the feeding mechanism is effected, said resilient member being adjustable.

7. In a stock-feeding mechanism, the combination of a head-piece, a feed device supported to oscillate relative to the head-piece, means for reciprocating the feed device relative to the head-piece upon the oscillation of the latter, comprising a projection on one of said members, an abutment on the other said member arranged to be engaged by the projection during said oscillation, and yieldable means carried by the member supporting the abutment arranged to press the projection toward the abutment, the engaging face of the abutment being shaped to cause the feed device to recede at the first part of the oscillating movement, and then permit the projection and feed device to be advanced by the yieldable member during the latter part of such movement.

8. In a stock-feed mechanism, the combination of a head-piece, a feed device supported to oscillate relative to the head-piece, means on the two said members causing the feed device to be retracted and then advanced during said oscillation comprising an abutment on one member having a double cam-face, a projection on the other member, and resilient means on the abutment-carrying member arranged to press the projection toward the double cam-face of the abutment.

9. In a stock-feeding mechanism, the combination of a head-piece, a feed device supported to oscillate relative to the head-piece, means for reciprocating the feed device relative to the head-piece upon the oscillation of the latter, comprising a projection on one of said members, an abutment on the other said member arranged to be engaged by the projection during said oscillation, and yieldable means carried by the member supporting the abutment arranged to press the projection against the abutment, the engaging face of the abutment being shaped to cause the feed device to recede at the first part of the oscillating movement, and then permit the projection and feed device to be advanced by the yieldable member during the latter part of such movement.

10. In a stock-feed mechanism, the combination of a head-piece, a feed device supported to oscillate relative to the head-piece, means on the two members causing the feed device to be retracted and then advanced during said oscillation comprising an abutment on one member having a double cam-face, a projection on the other member, and resilient means on the abutment-carrying member arranged to press the projection into engagement with the double cam-face of the abutment.

11. In a stock-feed mechanism, the combination of a head-piece, a feed device supported to oscillate relative to the head-piece, means on the two latter members causing the feed device to be retracted and then advanced during said oscillation, comprising an abutment on one member having a double cam-face, a projection on the other member, and resilient means on the abutment member arranged to press the projection into engagement with the double cam-face of the abutment, the resilient member being adjustable on its supporting member to and from the path of movement of said projection.

12. In a stock-feed mechanism, the combination of a head-piece, a feed device arranged to oscillate in the head-piece, means for retracting and advancing the feed device in the head-piece during such oscillation, comprising an abutment on the head-piece having a double cam-face, a projection on the feed device arranged to engage said cam-face during the oscillation of the feed device, and a forked spring member mounted on the head-piece adjacent the path of movement of said projection and opposite said cam-face of the abutment to engage said projection during oscillation of the feed device, the end portions of the spring being arranged to yieldably press the projection toward the cam-face of the abutment during the latter portion of each oscillation.

13. In a stock-feed mechanism, the combination of a head-piece, a feed device arranged to oscillate in the head-piece, means for retracting and advancing the feed device in the head-piece during oscillation, comprising an abutment on the head-piece having a double cam-face, a projection on the feed device arranged to engage said cam-face during oscillation of the feed device, and a forked spring member mounted on the head-piece adjacent the path of movement of said projection and opposite said cam-face of the abutment and arranged to engage said projection during oscillation of the feed device, the end portions of the spring being arranged to yieldably press the projection toward the cam-face of the abutment during the latter portion of each oscillation, the spring member being adjustable toward and from the cam-face of the abutment.

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