E. B. STIMPSON.

WASHER OR BUTTON FEEDING ATTACHMENT FOR SETTING MACHINES.

APPLICATION FILED JULY 2, 1908.

922,640. Patented May 25, 1909.

2 SHEETS—SHEET 1.

Fig. 1

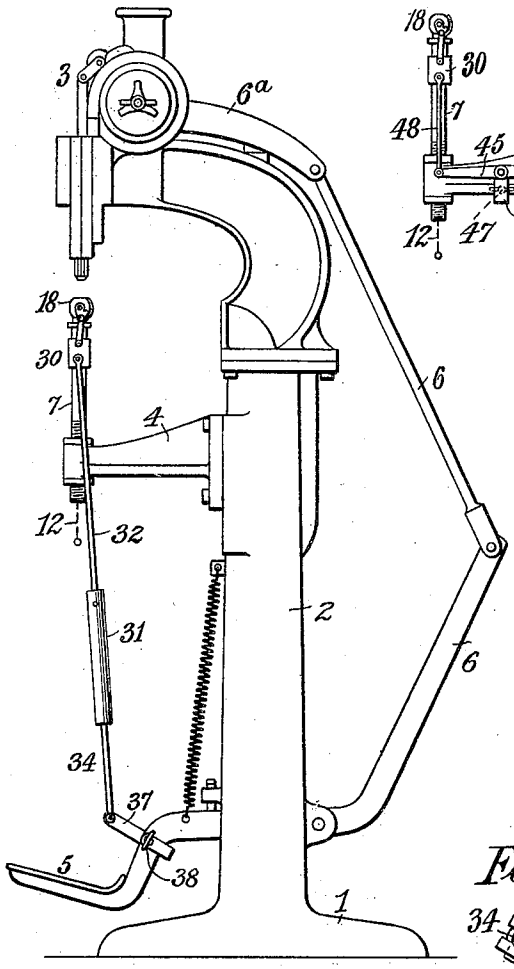


Fig. 2

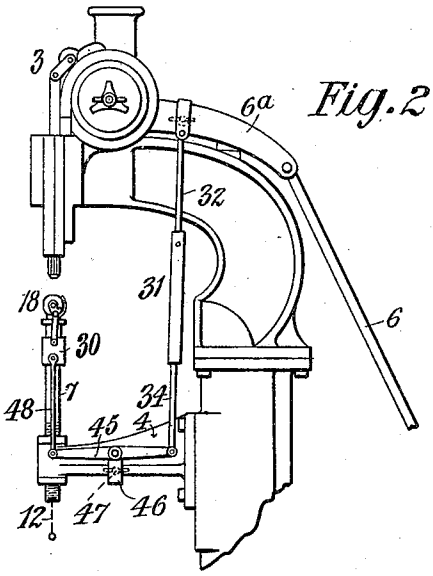


Fig. 3

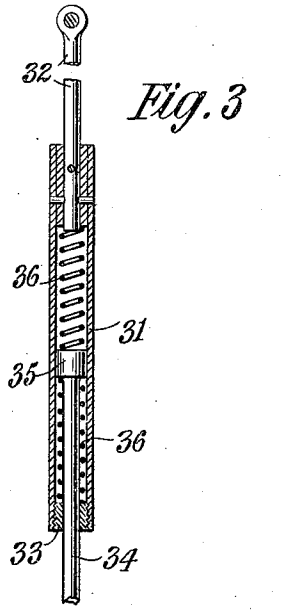
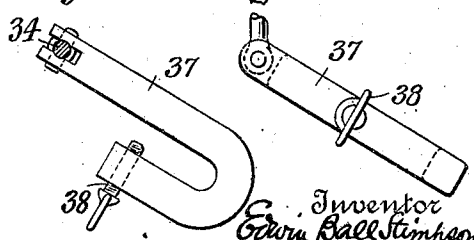


Fig. 4



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2 SHEETS—SHEET 2.

Fig. 5

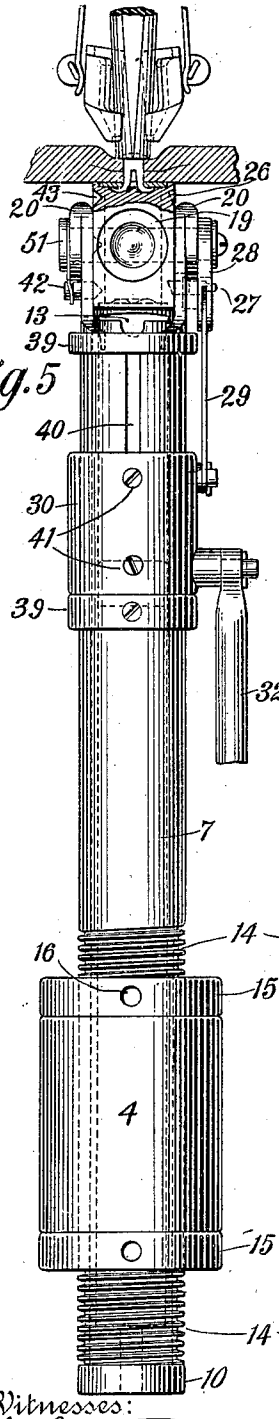


Fig. 6

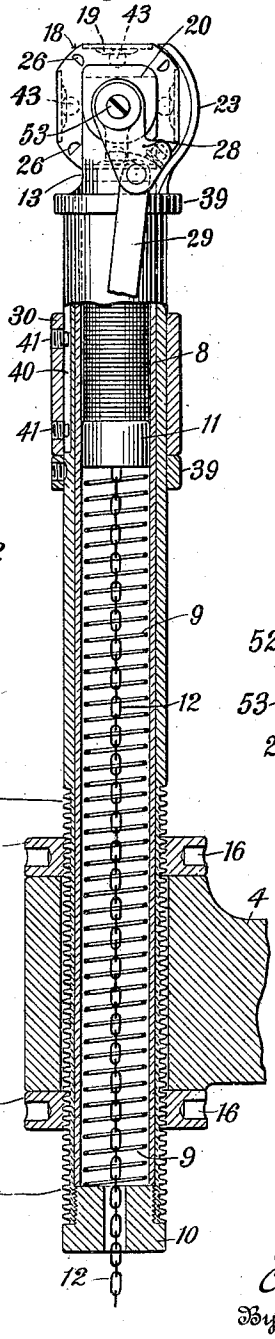


Fig. 7

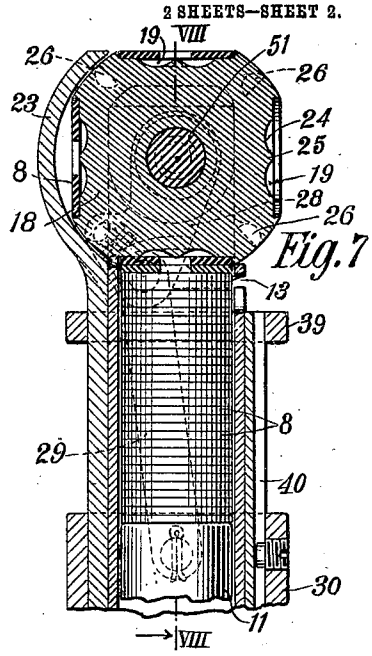
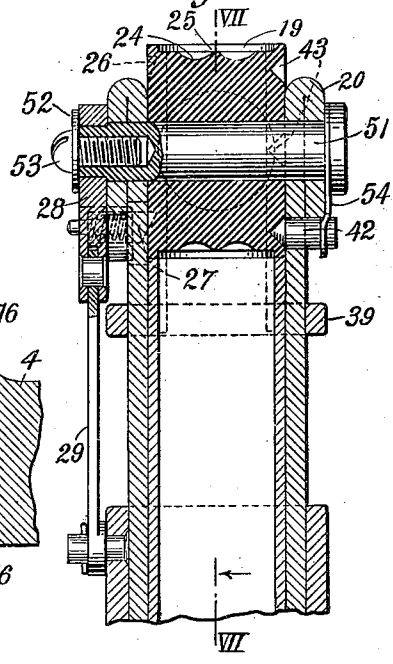


Fig. 8



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WASHER OR BUTTON FEEDING ATTACHMENT FOR SETTING-MACHINES.

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Application filed July 2, 1908. Serial No. 441,615.

To all whom it may concern:

Be it known that I, EDWIN BALL STIMPSON, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Washer or Button Feeding Attachment for Setting-Machines, of which the following is a specification.

My present invention relates to improvements in an attachment for setting machines adapted to feed washers, buttons and so forth, and the device is adapted to be removably attached to existing setting machines wherein the washer or button feed is by hand or is otherwise so slow and efficient as to make the present automatic feed attachment desirable.

In the drawings which show only one of the forms which my improvements may take together with a modification of the connecting means between my attachment and a moving part of the setting machine, Figure 1 is a side elevation of a setting machine of a common type showing my attachment fitted thereto; Fig. 2 is a partial view of the same showing a modified connecting means between the attachment and a moving part of the machine; Fig. 3 is an enlarged view partly in vertical section and partly in elevation of the connecting means shown in Fig. 1; Fig. 4 is a plan view of the clamp shown in Fig. 3 and further comprises a horizontal section through the stem 34 of the piston; Fig. 5 is a front elevation on an enlarged scale of a portion of the machine and attachment shown in Fig. 1; Fig. 6 is the same except that the view is mostly in vertical section taken at right-angles to the view shown in Fig. 5; Fig. 7 is a view partly in elevation and partly in vertical section on the line 7—7 in Fig. 8, looking in the direction of the arrow; and Fig. 8 is a view partly in elevation and partly in vertical section on the line 8—8 in Fig. 7, both of said views, Figs. 7 and 8, being still further enlarged views of the barrel-end of my attachment.

I will now describe the devices of the drawings wherein my attachment is shown in connection with a post-machine, although it will be understood that the attachment is equally applicable to arm-machines, the difference being that in connection with the latter type of machine the attachment will ordinarily be clamped to the machine arm, its magazine tube running lengthwise or horizontally on the arm. Otherwise the attachment will be the same except for such slight modifications as may be necessary to conform it to its changed position on the machine arm. Thus, since the attachment is applicable to setting machines in general, the particular form or kind thereof in connection with which it is illustrated becomes unimportant, and consequently has been shown only in a general way, as comprising a base 1, a pillar 2, a head 3, a post-supporting arm 4, a treadle 5, and connecting rods 6 adapted to operate the machine head from the treadle through arm 6^a. Of course it will be understood that the machine head comprises suitable operative rivet or other setting devices.

Describing now my own attachment as illustrated, same comprises a tubular magazine 7 adapted to be inserted in existing post-machines in the post-opening in the arm. The tubular magazine is adapted to hold the washers 8 in a pile spring-pressed from below by spiral spring 9. A screw-plug 10 closes the bottom of the tube and acts as a rest for the spiral spring. Above, the follower 11 may be provided between the washers and the spring with a chain 12 depending from the follower and coming out of the tube through an opening in the screw-plug 10, said chain being well known and having for its purpose the removal of spring tension on the pile of washers during the filling of the magazine, the particular magazine shown being filled from the top through opening 13 or otherwise as may be desired. The magazine tube is adapted to be supported adjustably as to vertical height in the post-opening and has for this purpose external screw-threads 14 engaged by nuts 15, adapted to be located one on either side of the top and bottom of the machine arm 4. Suitable openings 16 in these nuts may be provided for engagement with a spanner-wrench.

At its upper or delivery end the magazine supports a rotatable barrel 18. This barrel has peripheral recesses 19, each adapted when presented over the mouth of the magazine to receive a washer or other part fed into it from the magazine, whereupon the barrel is adapted to be rotated to feed away said washer from the mouth of the magazine and to present another peripheral recess thereto. The barrel for this purpose is adapted to receive intermittent rotation by means herein-

after described and is conveniently supported between ears 20, conveniently formed integral with the magazine tube, on a hub 51 driven through opposite openings in said ears. It will be understood that the barrel is rotatable about the hub as an axis. The guard 23 formed out of an integral portion of the magazine tube, which by its close juxtaposition to the rotating barrel prevents the washer which has been fed into the barrel recess from dropping out as the barrel turns to present the recess in inclined and vertical positions, or until said recess reaches its horizontal or top position, which it will be noted is directly under or in line with the machine head. It is when the washer or other part is in this position that the riveting operation takes place by the action of the machine head, this usually consisting in the machine head delivering the shank of a rivet through the material, interposed for the purpose, and thence through the opening in the washer if it be a washer, until the rivet shank is upset by contact with the bottom of the washer recess and is clenched against the underside of the washer. For this purpose it will be noted that there is a space in each peripheral recess below the washer, the bottom 24 of which acts as an anvil. Moreover it will be noted that the particular recesses shown have a central projection 25 especially adapted to spread the shanks of bifurcated or tubular rivets, but this feature will of course vary.

The means shown for intermittently rotating the barrel 18 comprises ratchet teeth 26 formed in one end of the barrel in position to be engaged by a spring-pressed pin or pawl 27 mounted at the end of a swinging arm 28 having bearing on an end of the hub 51 and being retained against endwise displacement between a shoulder on the hub and a washer 52 held against the end of the hub by a screw 53. This pawl arm 28 connects by a link 29 with sleeve 30 slidable up and down on the magazine tube, said sleeve in turn being adapted to be reciprocatingly driven from a suitable moving part of the machine as for example directly from the treadle 5 or indirectly from the arm 6^a that operates the machine head. The former arrangement is shown in Fig. 1 and the latter in Fig. 2. In both cases the operative connections between my attachment and the machine comprise a yielding connection which in the particular form shown consists of a tube 31 having a rod 32 secured to one end and an apertured plug 33 in the other end through which projects the stem 34 of the piston 35, the piston having on either side of it within the tube spiral springs 36. Thus describing first the arrangement shown in Fig. 1, the reciprocating sleeve on the magazine tube is connected directly with the treadle by a yielding connection consisting of the parts just described in which the rod 32 is pivotally connected with the sleeve and the stem 34 of the piston pivotally connects with a clamp 37 which in the form shown comprises a U shaped member with a set screw 38 through one of its limbs to engage against the arm of the treadle when the latter is located within the U as indicated in Fig. 1. The arrangement shown in Fig. 2 differs from that in Fig. 1 to the extent of securing the clamp to the arm 6^a that operates the head and connecting the rod 32 pivotally with one end of a walking beam 45 pivoted to a supporting clamp 46 which likewise may consist of a U shaped member adapted to receive between its limbs the machine arm and to be clamped thereto by taking up on a set screw 47. The other end of the walking beam connects by a link 48 with the reciprocating sleeve on the magazine tube. Describing now the operation of these mechanisms to intermittently rotate the barrel, it will be noted in the first place that said barrel has four peripheral recesses, although of course it may be provided with an additional number should the conditions make it desirable. Moreover there being four recesses, the intermittent rotation of the barrel comprises four quarter turns to the revolution. Thus each upward throw of the pawl arm 28 advances the barrel a quarter turn, the said upward throw being derived from the upstroke of the sleeve 30 on the magazine tube brought about through its connecting members with the machine, said upward throw taking place preferably as shown upon the upward motion or release of the treadle. Reversely it will be noted from an inspection of Figs. 1 and 2 that depressing the treadle gives the sleeve on the magazine tube a downstroke which in turn swings the pawl arm downward until its spring-pressed pin or pawl 27 engages with the next ratchet tooth behind preparatory to giving the barrel its next forward quarter turn by its pushing engagement with said tooth.

Whereas the attachment of my present invention is intended to be used with various setting machines wherein the stroke of the treadle and of the arm 6^a will of course vary, and whereas the length of the swing of the pawl arm of the attachment is a more or less fixed factor, I arrange to confine the reciprocation of the sleeve 30 on the magazine tube between stops 39 and take up the excess and the variations in the length of treadle and arm stroke by the described connections between the sleeve and the machine. Thus when the upper stop 39 is reached during the upward stroke of the sleeve 30, the described connections with the treadle or arm 6^a permit said parts to continue on their motion in spite of the fact that the sleeve 30 is at rest because the piston 35 and tube 31 can telescope on each other with the only result of compressing one of the springs 36 and with-

out any possible injury being done to any of the parts of my attachment. The same thing is true on the down-stroke of the sleeve 30, this likewise being independent of whether the treadle or the arm continues to move after the sleeve is in contact with the lower stop 39 because of the same elastic piston and tube connection.

It may be noted that means is preferably provided to make the sleeve 30 reciprocate on the magazine tube in a straight line, said means comprising in the particular form shown a vertical groove 40 in the wall of the tube adapted to receive two lugs, depressions or screws 41 formed on the inside of the sleeve, one vertically over the other.

In order to center the washer recesses under the machine head in proper riveting or operating position and prevent backward motion of the barrel 18 when the pawl arm 28 is on its back stroke, a spring-pressed pin 42 is provided to engage suitable spaced openings or depressions 43 in the end of the barrel, said pin being conveniently supported at the end of a leaf-spring 54 the other end of which surrounds the hub 51 and is held between the head of the latter and the adjacent ear 20 of the magazine tube.

Having thus described my invention, what I claim is:

1. An attachment for feeding washers and the like, adapted to be removably secured to a setting machine with operative connection therewith, said attachment comprising a magazine adapted to contain a supply of washers and the like, an intermittently rotatable barrel mounted at the delivery opening of the magazine and having peripheral recesses adapted successively to aline with the magazine opening to receive each a washer therefrom and carry same into a position in line with the head of the machine, where said washer is adapted to be taken up out of the peripheral recess by the operation of the machine head, means adapted to intermittently rotate said barrel including connecting parts on the attachment operatively connected on one hand with the barrel, and on the other hand adapted to be operatively connected with a moving part of the machine, and securing means adapted to secure the attachment to the setting machine.

2. An attachment for feeding washers and the like adapted to be removably secured to a setting machine with operative connection therewith, said attachment comprising a magazine tube for holding the washers and the like in a pile spring-pressed from below toward the upper and delivery end of the tube, means adapted to secure said magazine tube in various positions of vertical adjustment in the post-opening in the machine arm, an intermittently rotatable barrel mounted at the delivery end of the magazine tube having peripheral recesses adapted successively to aline over the mouth of said tube to receive each a washer therefrom and carry same into a position under the head of the machine, each washer so carried being adapted to be taken up out of the recess by the operation of the machine head, and means adapted to intermittently rotate said barrel including connecting means forming part of the attachment adapted to be connected with a moving part of the machine to operate the barrel from the machine.

3. An attachment for feeding washers and the like adapted to be removably secured to a setting machine with operative connection therewith, said attachment comprising a magazine adapted to contain a supply of washers and the like and deliver same at its mouth, an intermittently rotatable barrel with peripheral recesses adapted to successively aline with the mouth of the magazine to receive washers therefrom and carry same into a position in line with the machine head to be taken up by the operation of said head, means adapted to operate said barrel from a moving part of the machine comprising a reciprocating member on the attachment having on the one hand a connecting rod adapted to be removably secured to the moving part of the machine, and having on the other hand a ratchet and pawl connection with the barrel adapted to give it a partial rotation to feed a washer away from the magazine mouth toward its taking up position by the machine head preparatory to the operation of said head.

4. An attachment for feeding washers and the like adapted to be removably secured to a setting machine with operative connection therewith, said attachment comprising a magazine adapted to contain a supply of washers and the like and deliver same at its mouth, an intermittently rotatable barrel with peripheral recesses adapted to successively aline with the mouth of the magazine to receive washers therefrom and carry same into a position in line with the machine head to be taken up by the operation of said head, means adapted to operate said barrel from a moving part of the machine comprising a reciprocating member on the attachment having on the one hand an extensible and contractible connecting rod adapted to be removably secured to the moving part of the machine and having on the other hand a ratchet and pawl connection with the barrel adapted to give it a partial rotation to feed a washer away from the magazine mouth toward its taking up position by the machine head preparatory to the operation of said head.

5. A tubular magazine adapted to contain a pile of washers and the like and to be received in upright position in the post-opening of a setting machine, said tube being externally screw-threaded and provided with

nuts to engage the machine arm above and below.

6. In combination, a tubular magazine adapted to contain a pile of washers and the like and to deliver same toward one end of the tube, said tube at its delivery end having integral ears adapted to pivotally support between them a rotating barrel and further having a guard-lug in juxtaposition with the periphery of said barrel; and said barrel having peripheral recesses adapted successively to aline with the delivery end of the magazine to receive washers therefrom, said barrel being adapted to be intermittently rotated and the guard-lug being adapted to prevent the washers from dropping out of the recesses as said recesses assume inclined positions.

7. In combination a magazine consisting of a tube adapted to hold washers and the like in stacked relation and to give said washers a normal tendency toward one end of the tube; delivery means at the delivery end of the tube adapted to deliver washers successively from the tube in line with the setting devices of the machine; means adapted to secure the magazine tube removably on the machine; a sleeve slidable on the magazine tube and having operative connection with the delivery means to operate said means from the reciprocation of the sleeve; and a connection adapted to be made between said sleeve and a moving part of the machine to reciprocate said sleeve from the moving part, said connection comprising a tube, a piston working within the tube, and a spring on either side of the piston confined between it and the sleeve.

8. In combination with a setting machine, a tubular magazine adapted to hold washers and the like in stacked relation and to give said washers a normal tendency toward one end of the tube; and means movable across the delivery end of the tube, having spaced-apart seats adapted to receive washers from the tube and deliver same to the setting devices.

In witness whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

EDWIN BALL STIMPSON.

Witnesses:

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ROBERT H. THOMSON.