

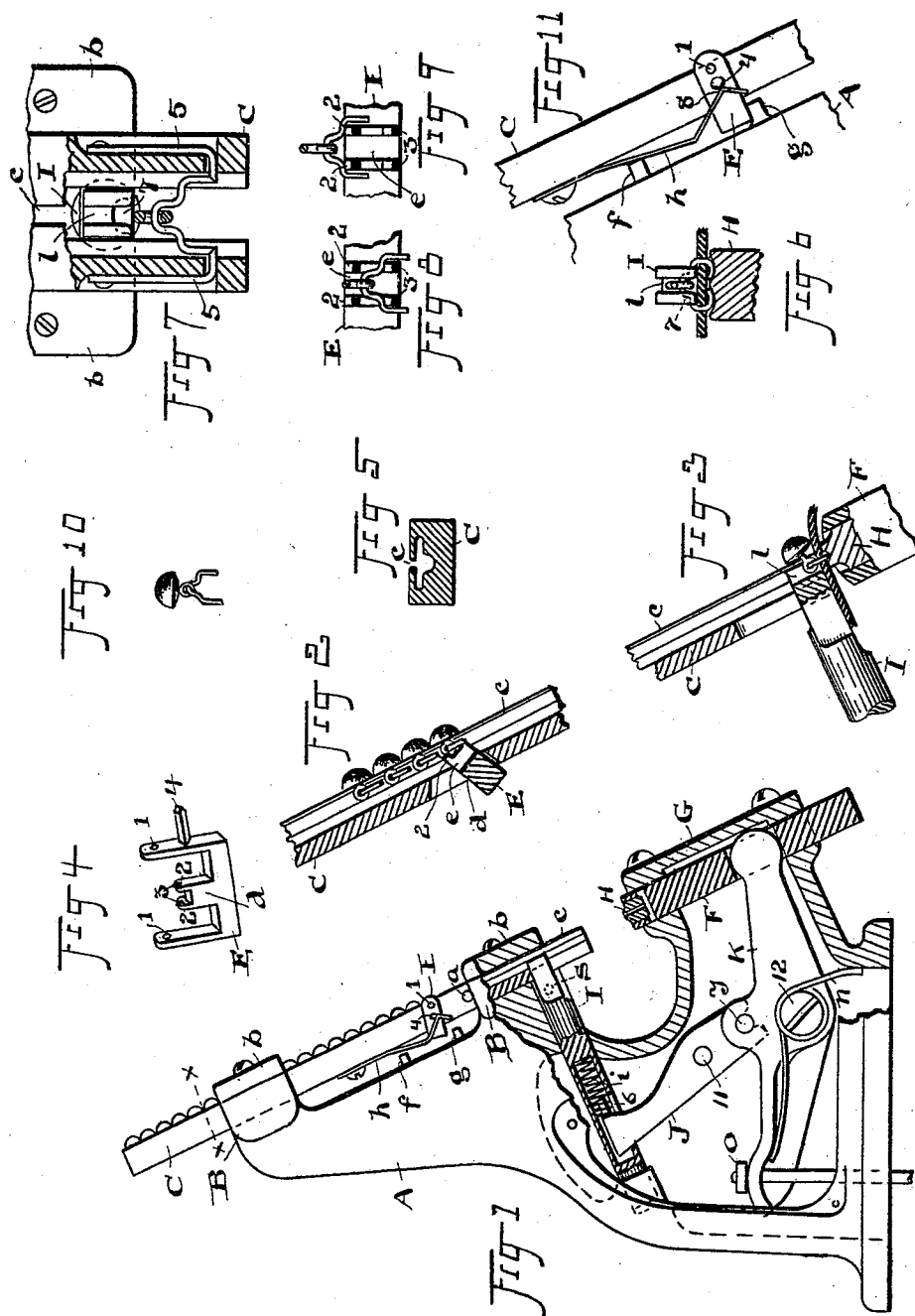
(No Model.)

E. N. BARBER & J. H. WHITEHEAD.

MACHINE FOR ATTACHING BUTTONS.

No. 516,959.

Patented Mar. 20, 1894.



WITNESSES

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# UNITED STATES PATENT OFFICE.

EMMET N. BARBER AND JOSEPH H. WHITEHEAD, OF KENT, OHIO, ASSIGNORS,  
BY DIRECT AND MESNE ASSIGNMENTS, TO THE HEATON PENINSULAR  
BUTTON FASTENER COMPANY, OF PROVIDENCE, RHODE ISLAND.

## MACHINE FOR ATTACHING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 516,959, dated March 20, 1894.

Application filed February 27, 1893. Serial No. 463,816. (No model.)

*To all whom it may concern:*

Be it known that we, EMMET N. BARBER and JOSEPH H. WHITEHEAD, of Kent, county of Portage, and State of Ohio, have invented a new and useful Improvement in Machines for Attaching Buttons, of which the following is a specification, reference being made to the accompanying drawings.

Our invention relates to machines for automatically feeding button fasteners with buttons attached, to an anvil and die, by which the button fastener is clinched in the desired material, and the objects of our invention are to provide a simple and effectual device for feeding the button fasteners and connected buttons, and attaching the same to a shoe or other desired article directly from the receiver or raceway in which they are held.

In our machine the fasteners, with buttons connected therewith, are placed in a reciprocating chute or raceway and dropped automatically to the lower end of the chute, where each fastener is in turn engaged below by a die attached to a movable bar or support and projected against a movable anvil above, and the legs of the fastener thereby driven into the leather or other desired material and clinched in the same.

The staples are dropped to the position for being clinched by means of a feeding device attached to the movable chute, which device is operated by the alternate upward and downward movement of the chute as hereinafter more fully described.

Our invention is illustrated in the accompanying drawings in which like letters and figures refer to like parts.

In the drawings, Figure 1, represents a side elevation of the machine, one side wall of the frame being partially broken out for the purpose of showing the movable die and anvil, and the means of operating the same. Fig. 2, represents a vertical section of a part of the chute, with buttons and fasteners engaging the same, and showing in section the device for successively dropping the button fasteners. Fig. 3, is a vertical section of the lower part of the chute, the die and the end of the anvil bar, showing the position of these

parts when the fastener is clinched. Fig. 4, is an enlarged perspective view of the attachment to the chute for feeding the fasteners. Fig. 5, represents a section of the chute at the line *x x* in Fig. 1. Fig. 6, is a sectional view of the die, showing the end of the anvil, with fastener clinched, in this figure the eye only of the button being shown. Fig. 7, is an enlarged front view of the lower part of the chute showing the guides employed for holding the chute in the frame of the machine, and with a part of the chute removed, the upper part of the figure showing the vertical slot which admits the eye of the button. In this figure the end of the anvil is shown. Figs. 8 and 9, are enlarged front views of the prongs of the staple feeding attachment, showing a button fastener engaging the prongs, and showing the eye only of the button attached to each staple. Fig. 10, represents a button and staple of ordinary form. Fig. 11, is a view of a part of the chute showing the feeding device engaged by its operating spring.

In the drawings A in Fig. 1 represents the frame of the button attaching machine. The frame A is adapted to be secured to a table, bench or other suitable support. The frame A is provided with arms B. B. which are channeled to receive the chute C. The chute C is held in the channels of the arms B. B. by means of the guides *b. b.* attached to the arms as is shown in Fig. 7, and moves freely upward and downward in its channel thus formed. The chute is prevented from dropping below the desired position by a pin *a.* or other suitable means of resistance in the chute, the pin coming in contact with the arm B. of the frame. The interior of the chute C is of suitable form to admit and hold the button fastener with the legs or prongs of the same pointing downward, and to allow the free passage of the fastener to the lower end of the chute. The exact form of the interior of the chute is however not material. In feeding the buttons and fasteners the button is suspended from the fastener by its eye, and is guided in the machine solely by the fastener passing along the inside of the chute, the chute having a longitudinal cut or slot *c*

on its face shown in Figs. 5 and 7, which admits the eye of the button, and allows the button to move freely outside of the chute as is shown in Figs. 1 and 2. The chute is raised 5 by the die H when the same is thrown forward as hereinafter described, and when the die is dropped the chute returns to its original position by its gravity or is forced back by a suitable spring (not shown) bearing on the chute. 10

E in Figs. 1, 2 and 4 represents the feeding attachment which is pivoted to the chute C at the points I—I or attached in any suitable manner. The attachment is provided with 15 an extension *d* and the extension *d* is provided with suitable prongs 2—2 and 3—3 as shown in Figs. 4, 8 and 9. When the staple feeding attachment E is attached to the chute C, as stated its part *d* extends into the chute 20 through a suitable opening in the chute shown in Fig. 2. The extension *d* is grooved at *e* to allow the free passage of the eye of the button in the chute C. When the chute C is raised, the attachment E comes into contact 25 with a pin or other suitable point of resistance in the frame A at *f*, and the attachment is swung downward, and the lower prongs 3—3 of the extension *d* come sufficiently close to the inner wall of the chute to prevent the 30 fastener from passing the lower prongs while in that position, as is shown in Fig. 2. When the chute is again dropped, the attachment comes in contact with the pin or other suitable point of resistance in the frame at *g*, and the 35 attachment is again swung upward and the upper prongs 2—2 of the extension *d* come sufficiently close to the inner wall of the fastener chute to prevent the fastener from passing the same while in this position. The attachment 40 E is held in its upward or downward position by means of the spring *h*, which is attached to the staple chute and which bears upon a pin 4 in the attachment E. In moving in either direction, the escapement or feeding 45 attachment E is operated by the resistance points *f* and *g* until the pin 4 of the attachment passes the angle 8 of the spring *h* (as shown in Fig. 11), when by the action of the spring *h* bearing on the point 4 the attachment 50 E is instantly thrown forward to the limit of its movement and strikes against the chute with a slight but sharp jar, and is retained in this position by the spring *h* as before stated. The jar produced by the movement mentioned 55 has a tendency to free the fasteners, when from any cause they lodge or fail to drop in the chute. We prefer to use the spring, *h*, shown, but do not wish to be limited to the use of this spring for this purpose, it being evident that other 60 forms of spring might be used.

The operation of the fastener feeding attachment will be readily seen by a reference to Figs. 1, 2, 8 and 9. When the chute C is at its lowest position the upper prongs 2—2 65 of the extension *d* come close to the inner wall of the chute and hold the fastener as shown in Fig. 9. When the chute is raised the feed-

ing attachment swings downward, and the upper prongs 2—2 are withdrawn and the lower prongs 3—3 then come close to the inner wall 70 of the chute, and the fastener then drops to the lower prongs as shown in Figs. 2 and 8. When the chute C is again dropped to its original position the attachment E is again thrown upward and the button fastener is 75 dropped to the lower end of the chute ready for being clinched, and another fastener is engaged by the upper prongs 2—2 of the attachment. The chute C is provided with spring 80 stops 5—5 attached to the chute at its lower end as is shown in Fig. 7, or in any other suitable manner, which prevent the fastener from dropping farther until the die H comes in contact with the chute in clinching the fastener, 85 when the fastener is driven past the springs in the upward movement of the chute. In the lower arm G of the frame A, is a bar F which moves freely in a channel in the arm and forms a support for a die H of suitable form 90 to turn the legs of the fastener and clinch the same. The bar F is operated by a lever K entering the bar or connected with it in any suitable manner.

In a suitable recess in the frame A is held a movable bar I, which is adapted to move 95 freely in its recess and its end being of suitable form to project into the staple chute C, through an opening at its lower end as shown in Figs. 3 and 7. The end of the bar I is 100 grooved at *l* to allow the passage of the eye of the button and also has a suitable concavity at 7 to fit the back of the staple when the staple is projected against the same from below, as shown in Figs. 3 and 6. The end of 105 the bar I thus forms an anvil which, when projected into the chute engages the back of the fastener and holds the same while the legs of the same are being clinched by the die H below. In the drawings the bar I is slotted at 6 to admit the end of the lever J, and 110 a cushion spring *i* is placed in a suitable recess of the bar as shown in Fig. 1. The spring *i* operates with the lever J in projecting the end of the anvil bar into the chute. We prefer that the anvil consist of a single bar projecting 115 into the chute as shown, but do not wish to limit our invention to a movable anvil constructed in one piece or to the specific means shown for projecting the anvil into the chute and withdrawing the same. The 120 anvil bar is prevented from bearing against the inner wall of the chute when its end is projected into the chute by a suitable stop in the frame which engages the bar at *s* when the end of the same reaches the proper position 125 in the chute. The frame has a suitable opening between the anvil and movable die H to admit the material to which the buttons are to be fastened. The levers J and K are 130 connected at *y* and are provided with fulcrums respectively at 10 and 11. The machine is operated by foot power or other desired power applied to the lever K at O in any desired manner. The lever K is thrown

back after being depressed by a spring *n* or other suitable spring applied to the lever K or J.

In operation the fasteners with buttons suspended therefrom are introduced into the chute with the legs of the fasteners projecting downward, with the eyes of the buttons sliding in the longitudinal slot *c* in the chute. Each fastener in turn engages the upper and lower prongs of the feeding attachment E and is dropped with its connected button to the lower end of the chute. The material to which the button is to be fastened is placed upon the die H, the lever K is depressed at O and the die H and its support are thrown upward, and by the same movement the lever J projects the end of the movable anvil I into the staple chute. The fastener is engaged below by the die H and above by the anvil I, the legs of the fastener are driven through the material and clinched as shown in Figs. 3 and 7. The reverse movement of the levers withdraws the anvil from the staple chute, lowers the die to its original position, thereby allowing the chute to drop. The chute in dropping reverses the feeding attachment allowing another button fastener to drop from the lower prongs of the attachment down in the chute to the point where it in turn is engaged by the die and anvil. Thus by the reciprocating action of the die H, movable anvil I and chute C each fastener is in turn dropped into position and clinched in the material. The end of the anvil bar I is projected into the chute before the latter starts in its upward movement, and thus is in place to hold the fastener from being pushed upward by the die H. After the anvil is in this position the cushion spring *i* holds the anvil in the chute while the lever J withdraws. If by any means two or more fasteners are dropped to the bottom of the chute, and the machine operated no damage will be done to the machine, as the end of the anvil operated by the cushion spring *i* as described, would come in contact with the obstructing fastener in the chute and would not enter the chute. The cushion spring *i* would take up the motion of the lever J and the fasteners in the chute would be driven past the end of the bar I, by the upward movement of the die H. If desired the lever J may have a friction connection with the anvil bar I.

We do not wish to limit our invention to the use of the specific combination of levers shown for operating the die and anvil as other combinations of levers might be readily substituted for those shown which would accomplish the same purpose.

What we claim, and desire to secure by Letters Patent, is—

1. In a button attaching machine, in combination with a movable fastener chute, the fastener feeding attachment E, attached to the chute and having extension *d*, provided with prongs 2, 2, and 3, 3, the fastener feeding at-

tachment being projected to its extremities of movement by contact with suitable pins in the frame of the machine at *f* and *g*, substantially as and for the purposes described.

2. In a button attaching machine, in combination with a movable fastener chute, the fastener feeding attachment E, attached to the chute and having extension *d* provided with prongs 2, 2, and 3, 3, and the spring *h* attached to the chute and having angle at 8, the spring bearing on a suitable pin in the attachment E to throw the attachment to its extremities of movement, substantially as and for the purposes described.

3. In a button attaching machine, in combination with a movable fastener chute and a movable die and the operating levers J and K, the movable anvil bar, having its end adapted to project into the fastener chute through a suitable opening in the same, having near its end a suitable concavity to engage the back of the fastener in the chute, and having spring *i* interposed in a suitable recess in the bar, between the bar and its operating lever, substantially as shown and for the purposes described.

4. In a button attaching machine, in combination with a movable fastener chute and a movable die and the operating levers J and K, a movable anvil bar, having its end adapted to project into the chute through a suitable opening in the same, and having its end slotted suitably to admit the passage of the eye of the button in the chute, substantially as and for the purposes described.

5. In a button attaching machine, in combination with a movable button and fastener chute and a movable die and suitable operating levers, the reciprocating anvil bar I, having its end slotted to admit the passage in the chute of the eye of the button and having a suitable concavity at 7 to engage the back of the fastener in the chute and having a spring *i* interposed in a suitable recess in the anvil bar, between the anvil bar and its operating lever, substantially as shown and for the purposes specified.

6. In a button attaching machine, a movable fastener chute, having attachment E attached to the chute and provided with extension *d* having escapement prongs 2—2 and 3, 3, and spring *h* attached to the chute and bearing on the pin 4 of the attachment E, a movable die H and support F, the operating levers J and K, the anvil bar I slotted to admit the end of the lever J, and having the spring *i* in a suitable recess in the bar interposed in the line of movement between the bar I and its operating lever, substantially as shown and described.

7. In a button attaching machine, in combination with a movable fastener chute and a movable die and operating levers J and K, the movable anvil bar I, having its end adapted to project into the chute through a suitable opening in the same, and having a spring *i* in a suitable recess in the bar interposed be-

tween the anvil bar and its operating lever, substantially as shown and for the purposes described.

8. In a button attaching machine, in combination with a movable fastener chute and movable die and suitable operating levers, of the movable anvil bar having its end adapted to project into the chute through a suitable opening in the chute, and having its end suitably slotted to admit the passage of the eye of the button in the chute, substantially as and for the purposes described.

9. In a button attaching machine, in combination with the movable fastener chute and

movable die and the operating levers J and K, 15 of the movable anvil bar having its end adapted to project into the chute through a suitable opening in the same and having near its end a suitable concavity at 7 to engage back of the fastener in the chute, substantially as 20 shown and for the purposes described.

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