

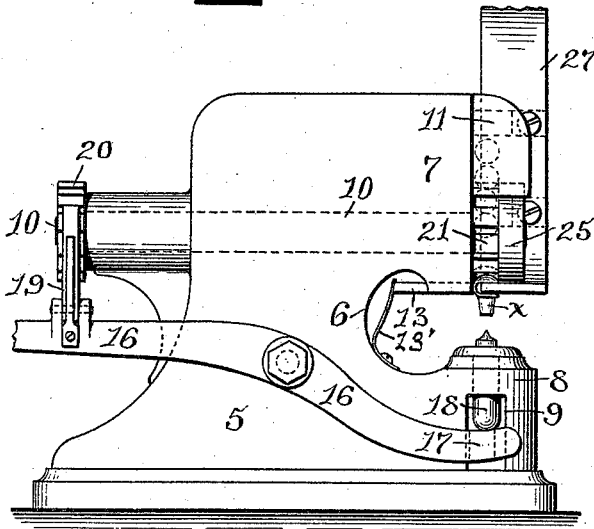
(No Model.)

I. E. CHANDLER.  
MACHINE FOR SETTING LACING HOOKS.

No. 526,295.

Patented Sept. 18, 1894.

### III. 1.



**Fig. 2.**

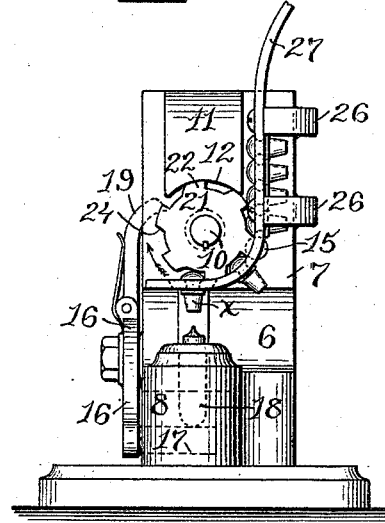


Fig. 3.

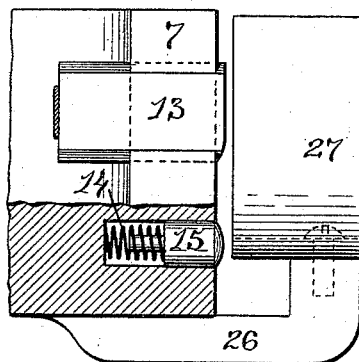
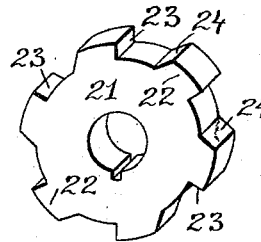


Fig. 4.



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# UNITED STATES PATENT OFFICE.

ISAAC E. CHANDLER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE  
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## MACHINE FOR SETTING LACING-HOOKS.

SPECIFICATION forming part of Letters Patent No. 526,295, dated September 18, 1894.

Application filed March 21, 1894. Serial No. 504,486. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC E. CHANDLER, of Providence, in the county of Providence and State of Rhode Island, have invented certain  
5 new and useful Improvements in Machines for Setting Lacing-Hooks; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming  
10 part of this specification.

This invention relates to machines for attaching lacing studs to boots and shoes or other articles, and it has for its object to provide a simple, durable, and effective means  
15 for feeding such studs to position for attachment, rigidly supporting and holding the studs while they are being attached, and positively moving each stud with the article to which it has been attached, forward from the  
20 point of attachment, before the next stud reaches said point, so that the studs will be properly spaced and each stud prevented from being injured by the setting devices.

To this end, the invention consists in the  
25 improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a machine embodying my invention, the stud reservoir being  
30 omitted. Fig. 2 represents an end view of the same. Fig. 3 represents a bottom plan view of the roadway, the yielding detent that secures the engagement of the studs with the  
35 spacing-wheel, and the yielding plate or presser which forces the necks of the studs against the anvil portion of the roadway, the spacing-wheel being omitted, and a part of the supporting frame shown in section. Fig.  
40 4 represents a perspective view of the stud spacing-wheel detached.

The same figures of reference indicate the same parts in all the views.

In the drawings—5 represents the supporting frame, which may be of any suitable form, and as here shown has a recess 6 to receive a  
45 portion of the work or article to which the lacing studs are to be attached, and a head 7 above said recess. The lacing studs to be  
50 set move down a roadway 27 from a reservoir (not shown) said reservoir being preferably

provided with automatic means for delivering the studs to the roadway in such position that the hook portions of the studs will bestride one edge of the roadway, the heads of  
the studs being at one side, and the shanks  
55 (here shown as eyelet-shaped) at the opposite side of the roadway. The roadway is a metal plate attached to a suitable support, as by arms 26 26 affixed to the head 7, and extends downwardly from the reservoir, so that  
60 the studs will slide downwardly on the roadway by gravitation to the spacing-wheel hereinafter described, suitable means being employed to prevent the hooks from leaving the  
65 roadway during their downward movement. In the present case, the roadway is located in such proximity to the vertical face of the head 7 that said face constitutes a guard to keep the studs in place on the roadway during  
70 their downward movement, there being a narrow space between said face and the inner edge of the roadway of sufficient width to accommodate the necks which connect the heads with the shanks of the studs, as shown  
75 in Fig. 1.

The supporting frame is provided with a horizontal bearing in which is journaled a shaft 10, to one end of which is affixed the stud-feeding and spacing-wheel 21. Said  
80 wheel has pockets in its periphery, as shown in Fig. 4 formed to engage the heads of the studs which pass down the roadway, the wheel being rotated step by step as hereinafter described, and located so that each partial rotation  
85 will bring one of the pockets into engagement with the head of one of the lacing studs on the roadway, and cause a positive movement of said stud onto or toward the anvil portion of the roadway hereinafter described.  
90

The head 7 is provided with a yielding detent 15, adapted to arrest the column of studs on the vertical portion of the roadway and hold the lowest stud of the column in such  
95 position that it will be engaged by the next advancing pocket, said detent being here shown as a bolt or stud having a convex outer end and fitted to slide in a socket in the head 7, a spring 14 being employed to project said  
100 detent into the path in which the necks of the hooks move from the roadway.

The rear end 23 of each pocket is preferably substantially at a right angle with the bottom of the pocket, so as to form a square shoulder adapted to positively engage and  
 5 force forward a lacing stud, while the forward end 24 of each pocket is preferably beveled, as shown in Figs. 2 and 4. A part of the roadway is curved to conform to a portion of the periphery of the spacing-wheel, as  
 10 shown in Fig. 1, and the curved portion terminates in a substantially horizontal extension of the roadway located below the spacing-wheel. Said horizontal portion I term the  
 15 anvil, because it co-operates with the setting-die hereinafter described, in setting or clinching the shanks of the studs against the under side of the work. The studs are moved onto the said anvil by the spacing-wheel, and their  
 20 necks are at the same time pressed against the inner edge of the anvil, to insure the correct position of the shanks upon the anvil, by means of a presser 13, which is a plate fitted to slide in a dovetail guide in the head 7 and pressed outwardly by a spring 13', said plate  
 25 being arranged to bear against the necks of the studs that are moved by the spacing-wheel onto the anvil.

18 represents the setting-die, which co-operates with the anvil above mentioned, in  
 30 clinching or setting the shanks of the lacing hooks. Said die is fitted to move vertically in a socket in the projecting portion 8 of the supporting frame, and is located below the anvil. Means are employed for vertically reciprocating the setting-die, said means as here  
 35 shown being a lever 16 pivoted at 16' to the supporting frame and provided at one end with an arm 17 which enters a slot 9 in the projection 8 and supports the setting-die 18. Said lever is oscillated by any suitable mechanism, and is provided with a pawl 19 which  
 40 engages a ratchet 20 affixed to the spacing-wheel shaft 10, the arrangement being such that when the lever is moved in one direction it raises the setting-die without rotating the spacing-wheel; and when moved in the opposite  
 45 direction, it depresses the setting-die and at the same time imparts a partial rotation to the spacing-wheel.

50 The operation is as follows:—At each partial rotation of the spacing-wheel, a pocket therein engages the lowest stud of the column supported by the detent 15, and separates said stud from the column and moves it along  
 55 the curved portion of the roadway. The extent of each movement of the spacing-wheel may be such as to bring the engaged stud at once to position over the setting-die; but as here shown, two movements of the wheel are required. When the wheel stops, the setting-die rises and upsets the shank of the stud held over it by the wheel upon the anvil, thus  
 60 attaching the stud to the work, the latter having been previously inserted between the setting-die and the anvil. The setting-die then descends, and the spacing-wheel is given another partial rotation, which causes it to

move forward the attached stud with the work from the path of the setting-die, and to bring  
 70 another stud into said path, so that the studs are properly spaced, and injury to an attached stud by subsequent contact of the setting-die therewith is prevented. The movement imparted to the work by the spacing-wheel causes the studs to slide off from the anvil.  
 75

It will be seen that the anvil, which being an extension of the roadway is necessarily somewhat slender, is supported by the spacing-wheel against the upward pressure exerted by the setting-die, and is thus prevented  
 80 from yielding to said pressure. I prefer to attach a disk or collar 25 to the shaft of the spacing-wheel at the outer side of the latter, the periphery of said collar being flush with that of the spacing-wheel between the pockets, the collar affording additional bearing  
 85 and support for the anvil. I also prefer to provide the head 7 with a rigid projection or bearing 11 located over the spacing-wheel, with its under side in close proximity to the  
 90 periphery of said wheel, said projection being adapted to support the spacing-wheel against upward pressure from the setting-die.

It will be seen that by forming the roadway to serve both as a roadway and an anvil, and arranging the spacing-wheel so that  
 95 it not only properly locates the studs upon the anvil but also removes them therefrom and supports the anvil against the pressure of the setting-die, I materially simplify the construction of the machine.  
 100

I claim—

1. The combination of a chute or roadway having its lower portion formed to serve as an anvil; a stud-spacing wheel located at one  
 105 side of the anvil and provided with pockets to engage the heads of the studs of the roadway; means for rotating said wheel step by step, whereby it is caused to first advance a stud to the anvil, then hold it rigidly upon  
 110 said anvil in position to be set, and finally remove it from said position; and a reciprocating setting-die or plunger which co-operates with the anvil in setting the shank of a lacing stud thereon, the anvil being supported by the spacing-wheel against the pressure of the setting-die.  
 115

2. The combination of a chute or roadway having its lower portion formed to serve as an anvil, a stud-spacing wheel located at one  
 120 side of said anvil and provided with pockets to engage the heads of studs on the roadway, means for rotating said wheel step by step, a reciprocating setting-die or plunger which co-operates with the anvil in setting  
 125 the shank of a lacing stud thereon, and a rigid bearing on the frame of the machine arranged to support the spacing-wheel and anvil against the pressure of the setting-die.

3. The combination of a chute or roadway  
 130 having its lower portion formed to serve as an anvil, a stud-spacing wheel located at one side of said anvil and provided with pockets to engage the heads of studs on the road-

way, means for rotating said wheel step by step, a yielding detent arranged to arrest the studs on the roadway and cause their engagement with the pockets of the spacing-wheel, and a reciprocating setting-die or plunger which co-operates with the anvil in setting the shank of a lacing stud thereon.

4. The combination of a chute or roadway having its lower portion formed to serve as an anvil, a stud-spacing wheel located at one side of said anvil and provided with pockets to engage the heads of studs on the road-

way, means for rotating said wheel step by step, a yielding presser adapted to press the necks of the studs against one edge of the anvil, and a reciprocating setting-die or plunger which co-operates with the anvil in setting the shank of a lacing stud thereon.

In witness whereof I have hereunto set my hand.

ISAAC E. CHANDLER.

Witnesses:

HENRY J. MILLER,  
M. F. BLIGH.