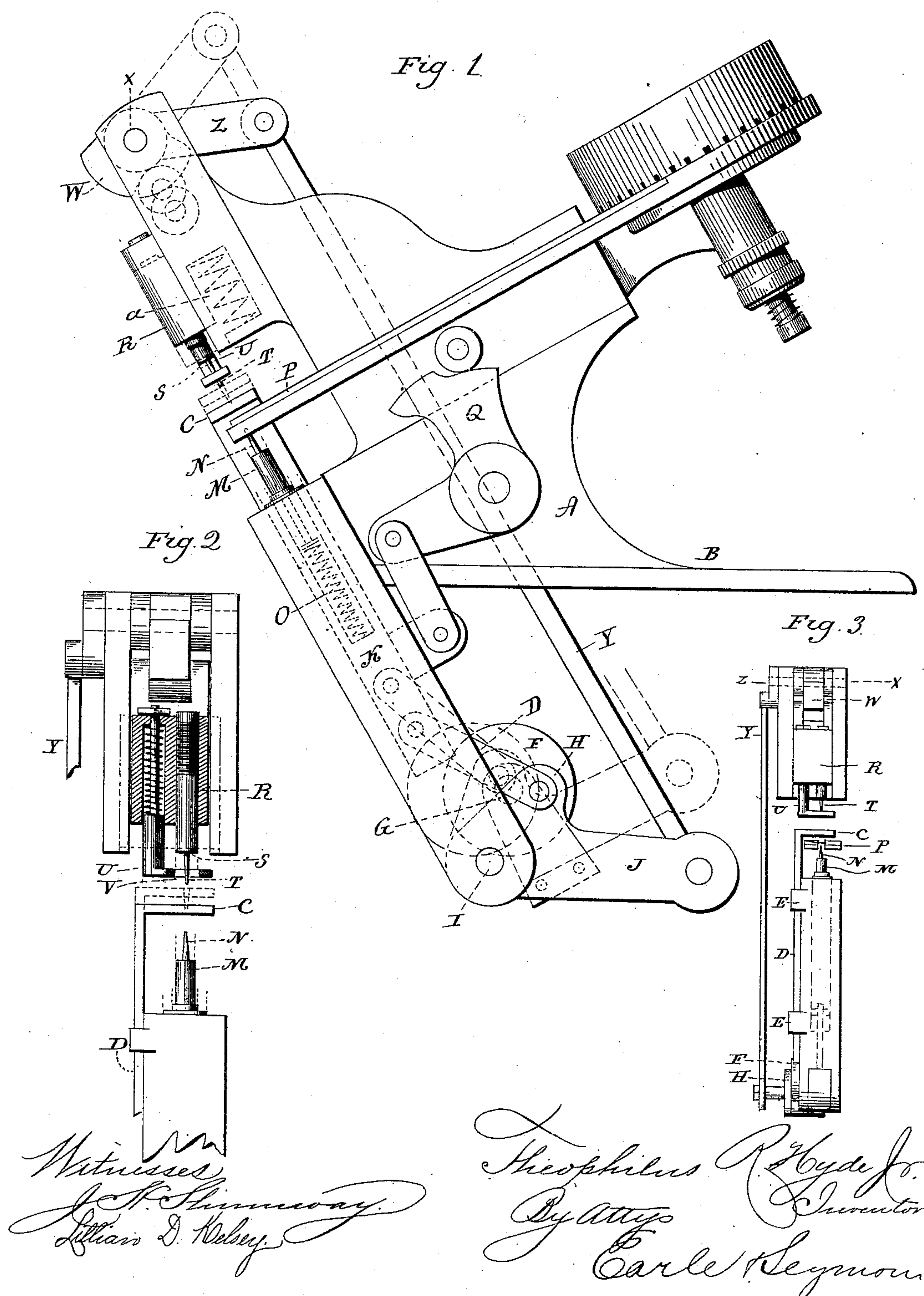


(No Model.)

T. R. HYDE, Jr.  
EYELET SETTING MACHINE.

No. 452,139.

Patented May 12, 1891.





# UNITED STATES PATENT OFFICE.

THEOPHILUS R. HYDE, JR., OF WATERBURY, CONNECTICUT, ASSIGNOR TO  
THE SCOVILL MANUFACTURING COMPANY, OF SAME PLACE.

## EYELET-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,139, dated May 12, 1891.

Application filed March 24, 1890. Serial No. 345,079. (No model.)

*To all whom it may concern:*

Be it known that I, THEOPHILUS R. HYDE, Jr., of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Eyelet-Setting Machines; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the machine, parts in section for convenience of illustration; Fig. 2, a partial front view, parts in section for convenience of illustration; Fig. 3, a front view of the machine complete on a reduced scale.

This invention relates to an improvement in that class of machines for setting eyelets in which the eyelets are successively delivered through a channel at a point below the work-plate on which the material to receive the eyelet rests, and in which there is combined a piercing device above the work-plate adapted to pierce the hole, a punch below adapted to force the eyelet from the channel up through the work-plate and through the material, with an anvil above adapted to upset the eyelet upon the reverse side of the material. In some cases the piercing device and anvil are stationary above the work-plate, the punch and work-plate being movable toward and from the piercing device, so that the material being laid upon the work-plate, the plate is forced upward, clamping the work between the said work-plate and the yielding presser-foot, and so as to carry the work onto the piercer. The punch below, moving upward, takes the eyelet from the channel and forces it up through the work-plate, through the material, over the piercing-punch, and against the stationary anvil. In other cases the work-plate is stationary and the piercing device, with the anvil above, movable downward toward the work-plate, so that the yielding presser-foot, moving with the piercer, will grasp the material and the piercer pass down through the material on the work-plate, while the punch from below takes the anvil from

the channel and forces it up through the hole pierced in the material and against the anvil. In this case the work remains stationary and the parts move toward and from the work-plate.

The object of my invention is to divide the movement between the work-plate and the piercing device, so that while the machine shall have the advantages of the movable piercing device it will require less movement of the piercing device, and thereby attain other advantages due to a substantially stationary work-plate; and the invention consists in the construction as hereinafter described, and particularly recited in the claim.

A represents the frame of the machine, which in the illustration is made as a part of a base B, adapted to be secured to a table for the support of the machine. At the front of the frame the work-plate C is arranged upon or as a part of a vertical slide D, working in guides E E, and to which an up-and-down reciprocating movement is imparted by means of a roller F upon an axle G on the arm H of a lever hung upon a pivot I below, the said arm H being a part of a bell-crank lever, of which J is the other arm, and to which a foot-lever and spring or weight may be attached, so that the vibrating movement may be imparted to the said lever H J in a vertical plane, and which movement will be communicated to the slide D to give to the work-plate a corresponding up-and-down movement. (The spring and foot-pedal not shown.) The work-plate is constructed with an opening through it corresponding to the size of the flange of the eyelet, and so that the eyelet may pass upward through it, as usual in eyelet-setting machines.

In the frame below the work-plate and in guides at right angles to the plane of the work-plate a slide K is arranged, to which a vertically-reciprocating movement is imparted by means of a link L, connecting said slide with the said lever H J, and so that the slide K will receive a reciprocating movement in the same direction as the reciprocating movement of the work-plate. In the upper end of the slide K the punch M is arranged in line with the opening through the work-plate,



its upper end adapted to receive the flanged end of the eyelet, and centrally in this punch is a spring-spindle N, as usual in this class of machines. It normally projects above the upper end of the spindle; but as it rests upon a spring O below it readily yields to a downward force.

P represents the channel through which the eyelets are delivered. This channel terminates between the work-plate C and the punch below, and has imparted to it a reciprocating movement by means of a lever Q, in connection with the slide K, so that when the punch N is in the down position the forward end of the channel will stand directly over the punch, and so that as the punch rises the spindle will pass through the eyelet at the mouth of the channel, and when the eyelet has been so taken by the spindle the channel, under the operation of the lever before mentioned, is moved rearward away from the eyelets, and so as to leave an eyelet upon the spindle N, as usual in eyelet-setting machines. The particular arrangement of the channel in this illustration is the same as that in the application for patent, Serial No. 319,799, and for which any known channel for delivering eyelets may be substituted.

Above the work-plate and in suitable guides is a slide R, working in a plane parallel with the plane of movement of the slide K and work-plate, and in this slide, directly over the punch M, the anvil S is set, the face of this anvil being adapted to receive the end of the eyelet and turn the edge outward, as usual in eyelet-setting machines. Centrally from this anvil the piercer T extends downward and directly in line with the spindle N of the punch M. In the same slide R the spring presser-foot U is arranged, as seen in Fig. 2, which normally stands below the anvil, but is constructed with an opening V through it sufficient in size to permit the anvil to pass through it. The presser-foot stands directly over the work-plate. To the slide R a downward movement is imparted by means of a cam W, hung upon an axis X above, and to which a swinging movement in a vertical plane is imparted by means of a connecting-rod Y from the foot-lever to an arm Z on the hub of the cam, and so that the descent of the slide R is produced while the slide K ascends. In the descent of the slide R a spring *a* is compressed, which reacts when the downward force is removed from the slide R, and so as to cause that slide to rise. The shape of the cam W is such, as shown, that after it has received its downward movement the surface of the cam is concentric, and so that the further movement of the cam will simply hold the slide R in the down position for a predetermined length of time. This completes the construction.

In operation, the parts standing in the normal position, as seen in Fig. 1, the material in which the eyelet is to be set is placed upon

the work-plate and then movement imparted to the machine. The work-plate will rise, and the piercer descend and pass through the material. The presser-foot, coming upon the upper surface of the material, will clamp such material between the presser-foot and the rising work-plate, the presser-foot yielding under the rise of the work-plate, so as to maintain a proper clamp upon the work. The punch M rises, the spindle readily passing through the eyelet at the mouth of the channel, and the channel retreating leaves the eyelet upon the spindle, its flange resting on the punch M, and, the punch M continuing its ascent, the end of the spindle strikes the point of the piercer and stands, while the punch rises. The punch, continuing its movement, forces the eyelet which it carries through the material and against the face of the anvil, and so as to upset the end of the eyelet against the anvil and down upon the upper side of the material, while the flange of the eyelet stands below. The anvil-carrying slide comes to its state of rest, as before mentioned, when the work shall have been properly clamped and the anvil brought to the position to receive the rising eyelet.

In the illustration I have represented the punch, anvil, and work-plate as in an inclined position with relation to the support of the machine. This is a convenience not essential to the invention, as they may be in a position at right angles to the support, so that they will stand in a positive vertical position. I have therefore described the movement of the punch, anvil, and work-plate as vertical. Under this construction, all the parts—that is, the work-plate, punch, and anvil—moving, the extent of movement is distributed throughout, so that less extent of movement is required than in either of the constructions before referred to.

While I prefer to employ the spring-presser foot to clamp the material upon the work-plate, the presser-foot may be omitted, the anvil being sufficient for the resistance upon the material in the setting of the eyelet.

The arrangement of the slide R, the anvil, and the presser-foot, with the mechanism for moving them, is the invention of another, and I make no specific claim upon the construction and arrangement of those parts; neither do I claim either of the elements going to make up the combination of this machine, individually or broadly, as such, I am aware, are not new; but I am not aware that the elements going to make up my invention have ever before been combined to produce an organized machine; but

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

In an eyelet-setting machine, the combination of a vertically-reciprocating work-plate, a vertically-reciprocating punch below said work-plate and adapted to pass through an opening prepared for it in the work-plate, a



yielding spindle in said punch, and a channel  
adapted to deliver eyelets between the said  
work-plate and said punch and spindle, with  
a vertically-reciprocating slide above, an an-  
vil and piercer stationary in the said slide  
and in line with said punch and spindle, and  
a spring presser-foot, also arranged in said  
slide, said presser-foot being adapted to clamp

the material in which the eyelet is to be set  
upon the work-plate, all substantially as de- 10  
scribed.

THEOPHILUS R. HYDE, JR.

Witnesses:

C. M. DE MOTT,  
J. H. PILLING.