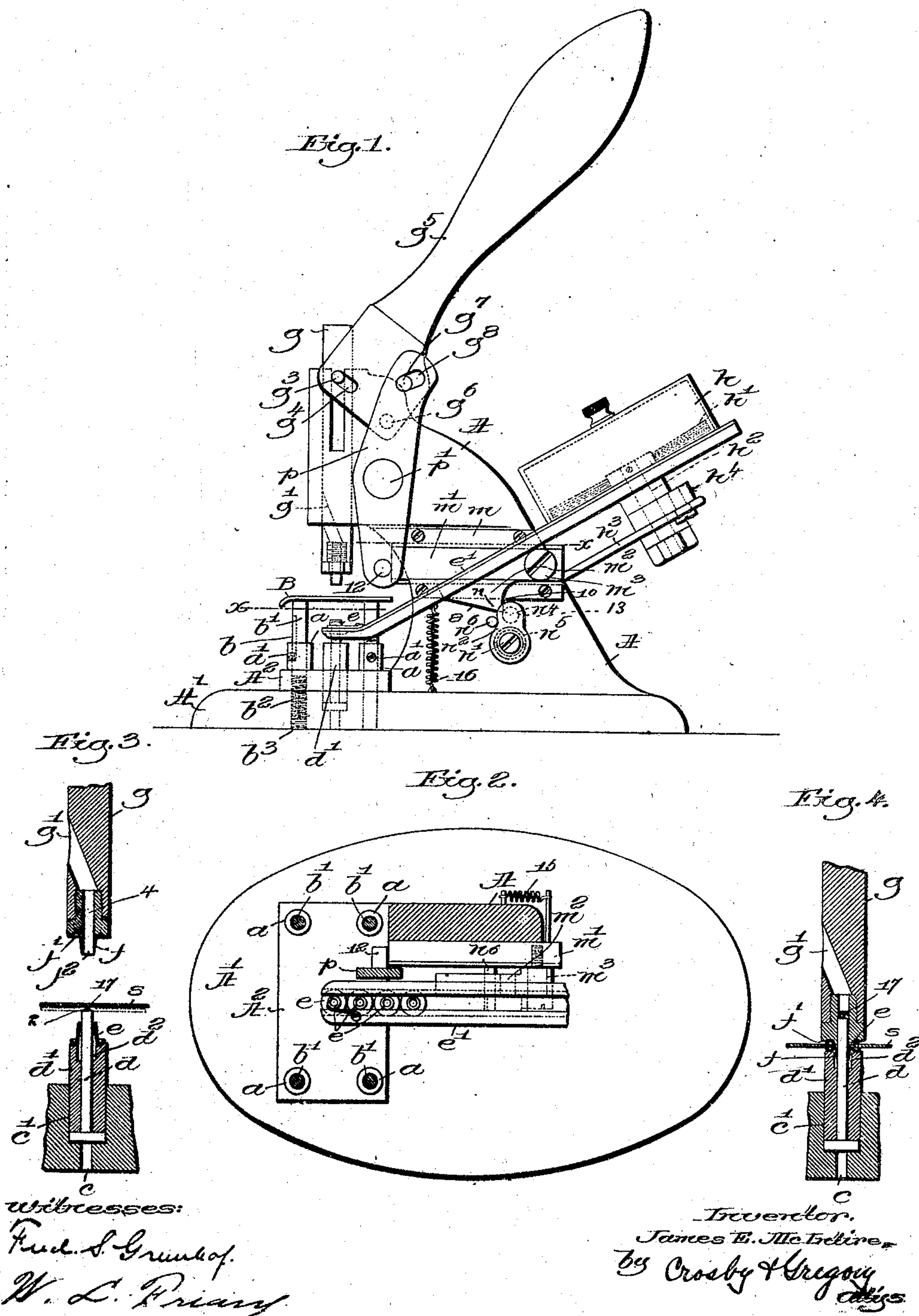


J. E. McINTIRE.  
EYELETING MACHINE.  
APPLICATION FILED JUNE 2, 1906.

915,996.

Patented Mar. 23, 1909.





# UNITED STATES PATENT OFFICE.

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## EYELETING-MACHINE.

No. 915,996.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed June 2, 1906. Serial No. 319,813.

*To all whom it may concern:*

Be it known that I, JAMES E. MCINTIRE, a citizen of the United States, residing in Dorchester, county of Suffolk, and State of Massachusetts, have invented an Improvement in Eyeletting-Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a novel machine for punching holes in and setting eyelets in stock.

My novel machine comprises a support for the head of the eyelet, said support having a central member rigid with relation thereto and serving as the male member of a punch, and also to retain the eyelet on said support and act as a guide for the female member of the punch, said female member having an upsetting shoulder to act on the end of the shank of the eyelet as the exterior of said female member on sliding over the male member enters the shank of the eyelet.

Prior to my invention many eyeletting machines have means for punching holes in stock, and thereafter the part of the stock is laid over one member of the eyelet setting devices and the eyelet is set.

Figure 1, in side elevation, illustrates an eyeletting machine embodying my invention; Fig. 2, a plan view below the dotted line  $x$ , Fig. 1; Fig. 3 shows the male and female members of the punch and setting members separated with an eyelet sustained on the eyelet support in position to be clenched on the stock after the same has been provided with a hole; and Fig. 4 shows the eyelet as set.

In the drawing A represents the framework of the machine. The forwardly projecting portion  $A'$  of the frame has a raised ledge  $A''$  forming, as shown, an integral portion of the framework and provided with four bosses  $a$  bored through axially to the bottom of the portion  $A'$ . Each boss receives a stop-screw  $a'$  that enters a groove  $b$  in a leg  $b'$ , there being four such legs depending from a table or stock-support B, the ends of said legs resting each on a spring  $b^2$  controlled as to its pressure by and sustained on a screw  $b^3$ , said springs acting normally to raise the table, as shown in Fig. 1. This table B is provided with an opening (not shown) for the passage of the punch in

operation, and sustains the stock  $s$ , and as the female portion of the punch descends and exerts pressure on the stock the table is depressed, the springs  $b^2$  yielding.

The thicker portion  $A''$  of the framework has a bore, see Figs. 3 and 4, of two diameters, the smaller bore  $c$  entering the bottom of the larger bore  $c'$ . In these bores I locate the male punching member  $d$ , it having an enlargement  $d'$  at its lower side that is sustained by the bottom of the bore  $c'$ . The member  $d$  is surrounded by a tubular portion  $d'$  having its upper end shaped to present a concaved portion to sustain the head or enlarged end of the eyelet  $e$ , the bore through said tubular portion being largest at its upper end or of a diameter in excess of the diameter of the male punching member, as shown at  $d^2$ , to leave a space to be entered by the free end of the female punch member  $f$  as the latter in co-acting with the other parts of the apparatus completes the setting of the eyelet, as shown in Fig. 4. The female portion  $f$  of the punch is composed of a piece of steel having a boss depending from a setting shoulder  $f'$ , there being a central hole through the punch that is a fit to the exterior of the male portion  $d$ , the upper end of the female portion having a screw-thread to be screwed into a threaded hole in the end of the plunger  $g$ , the latter being fitted to slide in a suitable bearing of the framework and having a passage  $g'$  for the discharge of punchings formed at each operation of punching a hole in the stock and setting an eyelet therein.

The end of the male portion has a reduced extremity 2 to facilitate the entrance of said male portion into the endmost eyelet  $e$  of the raceway  $e'$ . The central passage  $f^2$  of the female portion is of such diameter as to fit the exterior of the male portion  $d$ , and as the thin circular end of the female portion passes below the shoulder 2 near the end of the male portion, said end and shoulder act to cut a hole in the stock, the punching being forced into the central passage 4 of the female portion, and as the relative position of the two portions are changed the female portion slides over the male portion which it hugs closely, and the tapered exterior of the end of the female portion enters the space between the end of the shank of the eyelet and the male portion, said space being shown in Fig. 3, and acts gradually to expand said small end, so that the end of the shank of the eyelet as it



meets the concaved setting shoulder  $f'$ , overhangs that end as the larger end of the eyelet rides on the concaved end of the sustainer  $d'$ , the tapered part of the female portion entering the space  $d^2$  as the tubular eyelet sustaining portion and the shoulder of the female punch act finally to fully set the eyelet.

The eyelets to be set are deposited in bulk in a hopper  $h$  provided with a suitable agitator, which may be a brush  $h'$ , on a rock-shaft  $h^2$  that may be oscillated in any usual manner through a link  $h^3$  attached to an arm  $h^4$  of said rock-shaft.

The side of the frame has a guideway  $m$  that receives a slide  $m'$  having a depending cam-plate  $m^2$  pivoted thereon by a stud screw  $m^3$ , said cam-plate sustaining the raceway  $e'$ . The cam-plate has a projection  $n$  tapered at its underside, at 8, and having a heel 10. The framework has a rock-shaft  $n'$  provided at one end with an arm  $n^2$  having an inwardly projecting stud  $n^4$ , said rock-shaft being surrounded by a spring  $n^5$  that acts normally to turn said shaft until said arm meets the stop  $n^6$ . The plunger  $g$  is moved up and down by a pin  $g^3$  that enters a slot  $g^4$  in a lever  $g^5$  pivoted at  $g^6$  to frame-work A, said lever having a pin  $g^7$  that enters a slot  $g^8$  in a raceway moving lever  $p$  pivoted at  $p'$  to frame-work A and having at its lower end a stud 12. As the upper end of the lever  $g^5$  is turned to the left from the position Fig. 1 to depress the plunger, the stud 12, as shown in Figs. 1 and 2, will meet the left hand end of slide  $m'$  and push the same toward the right in the guideway, such movement of the slide causing the cam-plate  $m^2$  to be moved to the right against the spring 15 (see Fig. 2), and with it the raceway, the latter leaving its endmost eyelet on the male portion  $d$ . As the female portion descends the heel 10 of the cam-plate in its movement meets the stud  $n^4$  of the arm, turning the same in a direction to coil the spring  $n^5$ , and by the time that the female portion of the punch completes the setting of the eyelet, as shown in Fig. 4, the slide and raceway complete their movement to the right, and the toe 13 of the cam-plate passes beyond the stud  $n^4$  letting the spring  $n^5$  move the shaft until the arm meets the stop  $n^6$ . Now as the lever is moved backwardly, into the position Fig. 1, the slide  $m'$  and cam-plate are moved to the left, the inclined lower end of said plate acting on the stud  $n^4$  and turning said plate about the stud screw  $m^3$  and lifting the free end of the raceway so that as it is moved forwardly said free end with its eyelets will be raised above the end of the stationary male portion  $d$  of the punch, stretching the spring 16, and as the heel 10 of the cam-plate passes said stud, said spring 16 acts, the cam-plate drops, and the endmost eyelet of the raceway is deposited on the stationary upper end of the male portion  $d$  stationary always with relation to the eye-

let sustaining member  $d'$ . The upper end of the male member  $d$  of the punch has around it a projection 17 integral therewith and the stock when laid on the table when struck at its upper side as the female portion of the punch descends and meets the stock, forces the under side thereof on to said projection, the latter stretching the stock and forcing a part thereof into the opening of the prolongation thereof stretching the stock before the end of said prolongation passes the shoulder at the upper end of the portion  $d$  to punch the hole in the stock, the stock in a further descent of the female portion being forced on to the shank of the eyelet surrounding the upper end of the male portion. The projection 17 forms a tapering hollow in the stock and by stretching the stock insures a hole of the proper shape and size to receive readily the eyelet.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. An apparatus of the character described, comprising an eyelet support, a male punch fixed with relation to said support, a spring-controlled raceway, a pivoted lever for moving said raceway against the tension of its spring, a pivoted cam plate sustaining said raceway, and a device co-acting with said cam plate to raise the free end of said raceway as the same approaches said male punch, whereby the endmost eyelet of said raceway is placed at a level above the upper end of said punch.

2. An apparatus of the character described, comprising an eyelet support, a male punch fixed with relation to said support, a spring-controlled raceway, a pivoted lever for moving said raceway against the tension of its spring, a pivoted cam plate sustaining said raceway, and a device co-acting with said cam plate to raise the free end of said raceway as the same approaches said male punch, whereby the endmost eyelet of said raceway is placed at a level above the upper end of said punch, said cam plate being provided with a heel so positioned as to permit the raceway to drop and deposit said endmost eyelet on the upper end of said punch member.

3. In a machine of the class described, a stationary eyelet support and a male portion of a punch fixed with relation thereto, and a plunger, combined with a female portion of a punch having a setting shoulder, a slide mounted in the framework of the machine, a raceway, a cam plate pivoted to said slide and sustaining said raceway, and operating lever for said plunger, and means operated by said lever for moving said slide, cam plate and raceway laterally away from and toward said male portion.

4. In a machine of the class described, a stationary eyelet support and a male portion



of a punch fixed with relation thereto, and a plunger, combined with a female portion of a punch having a setting shoulder, a slide mounted in the framework of the machine, a raceway, a cam plate pivoted to said slide and sustaining said raceway, and operating lever for said plunger, and means operated by said lever for moving said slide, cam plate and raceway laterally away from said male portion, and means for automatically moving said parts toward said male portion after the setting operation.

5. In a machine of the class described, a stationary eyelet support and a male portion, of a punch fixed with relation thereto, and a plunger, combined with a female portion of a punch having a setting shoulder, a raceway, a pivoted cam plate provided with a heel portion and sustaining said raceway, operating lever for said plunger, and means operated by said lever for moving said raceway laterally away from and toward said male portion, a co-acting device co-acting with said cam plate to raise the free end of said raceway as it approaches said male portion to thereby place the endmost eyelet in said raceway at a level above the upper end of

said male portion and means for automatically lowering the raceway after said co-acting device has passed the heel of said cam plate whereby said eyelet is deposited on the stationary upper end of the male portion.

6. In an apparatus of the class described, an eyelet support, a male portion for punching stock fixed with relation to said support, a raceway, a pivoted lever for moving said raceway laterally away from and toward said male portion, a cam plate sustaining said raceway, and a co-acting device co-acting with said cam plate to raise the free end of said raceway as it approaches said male portion to thereby place the endmost eyelet in said raceway at a level above the upper end of said male portion, and means for automatically lowering the raceway whereby said eyelet is deposited on the stationary upper end of the male portion.

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

JAMES E. MCINTIRE.

Witnesses:

JOHN C. EDWARDS,  
ELIZABETH R. MORRISON.