

(No Model.)

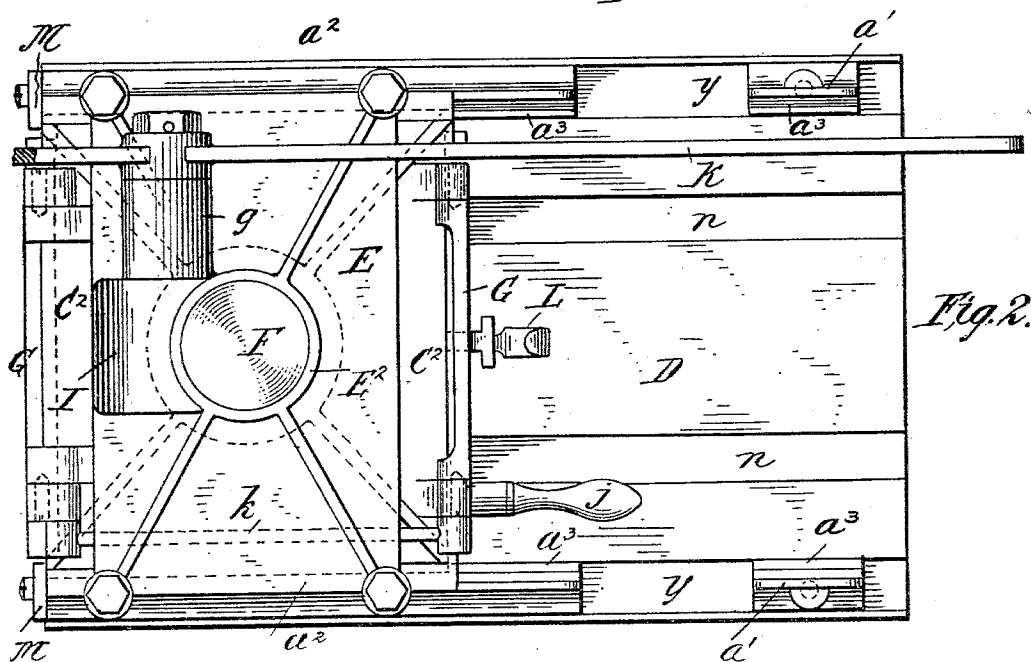
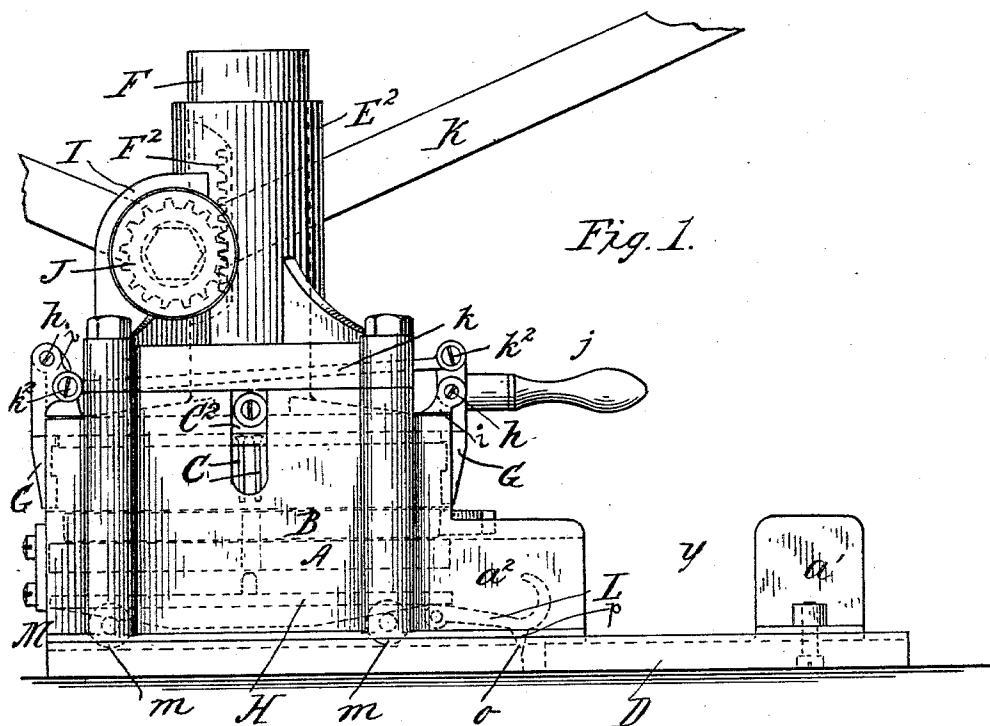
2 Sheets—Sheet 1.

A. LATHAM.

MACHINE FOR MANUFACTURING PLASTIC COVERED EYELETS.

No. 566,691.

Patented Aug. 25, 1896.



Witnesses:

W. G. Bellows.
J. H. Lombard.

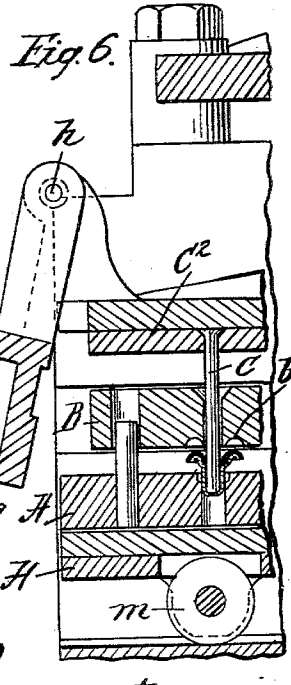
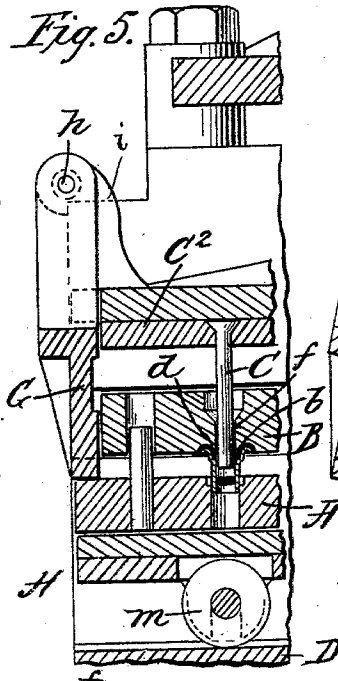
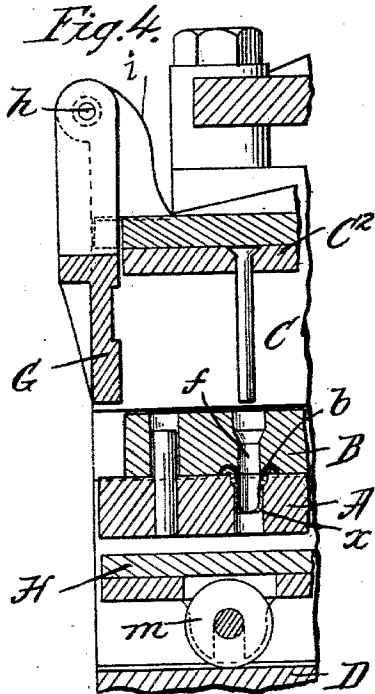
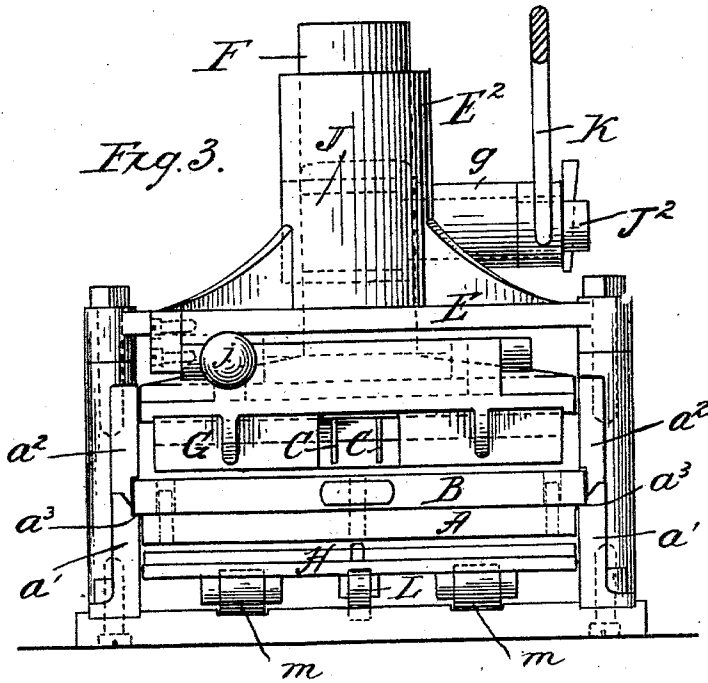
Inventor,
Albert Latham,
by W. G. Bellows, atty.

A. LATHAM.

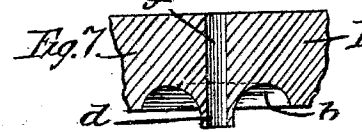
MACHINE FOR MANUFACTURING PLASTIC COVERED EYELETS.

No. 566,691.

Patented Aug. 25, 1896.



Witnesses
M. S. Bellows
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UNITED STATES PATENT OFFICE.

ALBERT LATHAM, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JAMES WILLIAM NOURBOURN, OF SAME PLACE.

MACHINE FOR MANUFACTURING PLASTIC-COVERED EYELETS.

SPECIFICATION forming part of Letters Patent No. 566,691, dated August 25, 1896.

Application filed January 6, 1896. Serial No. 574,499. (No model.)

To all whom it may concern:

Be it known that I, ALBERT LATHAM, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Machines for the Manufacture of Plastic-Covered Eyelets, of which the following is a full, clear, and exact description.

This invention relates to improvements in dies for applying plastic coverings to the heads of eyelets, and to means operating in conjunction with the dies for ejecting the covered eyelets therefrom, and to improved machinery in which the covering-dies may be introduced and in which the ejector may be embodied for facilitating the manipulation of the dies and ejector and for securing avoidance of violent poundings and other rough treatment of the die-plates which have heretofore been in vogue and which have resulted after a while in serious distortion and injury to the die-plates.

The improvements are illustrated in the accompanying drawings, described somewhat minutely in conjunction therewith, and set forth and covered in the claims.

In said drawings, Figure 1 is a side elevation of the machine embodying the ejector and with the pair of covering-dies indicated therein. Fig. 2 is a plan view. Fig. 3 is a front-end elevation of the same. Figs. 4, 5, and 6 are sectional views, drawn on a larger scale showing principal portions of the machine in different positions as occurring at different stages in the operation thereof. Fig. 7 is a sectional view of the head-forming die on a large scale.

Eyelets having heads or tops of varying constructions may be advantageously operated upon by the exercise of the present improvements.

In the drawings, A represents the eyelet-receiving die-plate, having (in multiple series usually) the hole or socket for the reception of the tubular shank of the eyelet.

B represents the plate comprising the head-forming die, having also in multiplicity, as well understood in this art, the annular concave head-forming depression *b*, with the cen-

tral boss or stud *d*, of an approximately conical form for forming or shaping the flaring mouth or upper opening of the eyelet. The die B with the boss *d* has the central perforation *f*, through which the ejector-pin C moves. The ejector-pin is mounted on a suitable plate or carrier C² therefor.

Assuming that a ring or washer of celluloid or other plastic material is interposed between the head of an eyelet which is in die A and the head-forming die B, the lower end of the eyelet being inwardly crimped or turned, as seen at *x*, and the ejector-pin C is passed through the die-plate B and its boss centrally of the latter and down into the eyelet, when die-plates A and B are slightly separated such pin will, by contacting against the inturned or contracted lower portion of the eyelet, force the latter from the head-forming die B, in which it has the greatest tendency to adhere; but, on the other hand, assuming that a strip, sheet, or flat piece of celluloid or suitable plastic material is placed between the top of the eyelet and the head-forming die and the dies are pressed together and then separated, the ejector-pin then in contacting against the portion of the celluloid which is pressed down within the eyelet-tube will, by such contact, force the eyelet from its adhesion in the head-forming die B, and therefore, while the capabilities for operation of the ejector relative to the dies are not limited to either provision for affording a forcing contact for the ejector-pin C—that is, the inturned portion *x* of the eyelet or the plastic material in the eyelet—it will be seen that when the former mode is practised the result of ejection is derived by the simple and practical expedient of inturning an end portion of the eyelet-tube and with a corresponding saving of the plastic stock. These dies A B, in combination with the ejector-pin C, may be operated advantageously in a machine of which they may be regarded as a part and which will be now described.

In this machine, D represents a suitable base having at opposite sides the uprights *a'* at the forward end and the uprights *a²* *a³* at the rear end which latter are upwardly ex-

tended, supporting in a stable manner the platform-like part E, having the central upwardly-extended hub E², through which operates the plunger F, on the lower end of which, beneath the said elevated platform, is mounted the carrier C² for the depending ejection-pin C, or the multiple series thereof. On the side of the hub E² is a boss I, which is hollowed out to receive therein the pinion J, which meshes with the rack-teeth F² on the plunger. The pinion is carried on the arbor J², for which suitable bearings are provided, and the arbor has the operating-lever K, whereby the ejector may be operated.

The uprights a' a' a² a² have the ledges or rests a³. The head-forming die B is, as seen in Fig. 3, a little wider than die A, overlying the latter at opposite edges. The dies A B, with the eyelets and plastic in and between them, are pressed together as usual in a hydraulic press before being subjected to the ejecting operation contemplated by the present improvement, and there is such a natural adhesion of the dies that they remain in the close relations indicated in Figs. 3 and 4. It will also be observed that while the die B is wider than die A, overhanging it at the sides, said die B is shorter than die A, the latter extending, step-like, beyond the ends of the upper die, as will be seen in Figs. 1 and 4.

The ejector-carrier C², which is operated by the rack and pinion described, (it may be otherwise moved,) has pivotally hung at h h in the ear-pieces i i thereon the transverse-bars G G, which move bodily vertically in conjunction with the said carrier, and also are susceptible of swinging movements in the direction of the length of the machine.

One of the swinging bars G has the handle j by which to operate it, and both of these bars are united by a medium of connection whereby when one is swung in one direction the other will be oppositely swung; and as here shown the connection consists in the link k, which is simply pivotally connected at opposite ends, as seen at k² k², Fig. 1, respectively, above and below the pivotal supports h h on which the said bars G G are hung.

H represents a carriage or conveyer movable longitudinally on the base D of the machine and preferably mounted on rollers m m, which run in the longitudinal ways n n therefor.

The carriage has the pivoted handle L, which has the depending latching projection p, that engages in an aperture o in the base of the machine.

The dies A B, lying closely together with the eyelets and plastic covering material therein, as coming from the hydraulic press, are placed in the machine, the lateral edges of die B resting on the ledges a³ a³, and the dies are slid along said ledges under the ejector-carrier so that the ejector-pins will register with the perforations in the dies. A stop as constituted by the cross-bar M, Fig. 1, or as otherwise pro-

vided without involving invention, will properly limit the endwise movements of the dies as they are introduced for registry under the ejector.

The lever K is swung downward a certain distance, the bars G G contacting against the ends of the receiving-die A, which extend beyond the ends of the head-forming die B, thereby forcing die-plate A down away from die B and onto the carriage H. (See Figs. 4 and 5.)

The eyelets (or the greater portion thereof) remain somewhat firmly adhering in the head-forming die B.

Up to this stage in the operation the ejector-carrier and ejector-pins C have not been moved down sufficiently to cause the ends of the pins to exert a forcing contact within and against the intumed lower ends of the eyelets, or against the plastic material therein. The forcing action on the lever K is temporarily discontinued; the handle j is moved to spread the bars G' G', so that they and the ejector may further move downward, and such further and final movement is imparted by a resumption of the swing of the lever K, the ejector-pins detaching and forcing the eyelets from the die B, they dropping onto or loosely into the sockets of the receiving die-plate A. (See Fig. 6.) The ejector is then elevated, and should any of the eyelets adhere or bind on the ejector-pins they would be stripped therefrom as the ejector-pins retreat upwardly through the upper die B. The bars G resume their normal vertically depending positions by gravity or may be restored thereto by a manipulation of the handle j. The carriage H is drawn out endwise, carrying the die A which is on it therewith, and causing the endwise slide, in unison therewith, of the now partially separated covering-die B by reason of the dowel-and-socket engagement between the dies. The gap seen at y enables with the utmost facility the introduction and final withdrawal of the die-plates from the machine.

When the partially separated dies A B are forwardly withdrawn from under the ejector, the upper die B is lifted away from the die A, which is on the carriage, leaving the eyelets in die A exposed for inspection.

While the design and mechanical construction of the machine here shown is very simple, satisfactory, and efficient, it may be departed from considerably in respect of detail and form without departure from the new features of invention as considered in their broader aspect.

The combination, with a head-forming die having an axial perforation and an eyelet-receiving die, of an ejector movable through said perforation and operating to exert a pressure internally against a covered eyelet adhering in said head-forming die for dislodging it therefrom, herein described and shown, but not herein claimed, constitutes

the subject-matter of and is claimed in an application for patent filed by me July 14, 1896, Serial No. 599,070.

I claim—

1. The combination with a die-plate having an aperture for receiving the shank of an eyelet, leaving the head thereof exposed, of a covering and head-forming die having a circular depression corresponding to the desired form of the head and having the approximately conical stud or projection to enter within and form the flaring mouth of the covered eyelet, substantially as described.

2. The combination with a die-plate having an aperture for receiving the shank of an eyelet, leaving the head thereof exposed, of a covering and head-forming die having a circular depression corresponding to the desired form of the head and having the approximately conical stud or projection to enter within and form the flaring mouth of the covered eyelet, said head-forming die having a perforation through it in the direction of its axis, substantially as described.

3. The combination with an ejector-piece and the pair of eyelet-covering dies, of means for supporting them in operative proximity to the ejector and a mechanism for imparting a reciprocatory movement to the ejector relative to and within perforations which are in the dies, substantially as described.

4. In a machine of the character described the combination with a pair of removable eyelet-covering dies, an ejector, an ejector-carrier, and means for imparting a reciprocatory movement to the ejector-carrier, a rest or support for maintaining one of the dies in coöperative proximity to the ejector, and means for separating one of the dies from the other, substantially as described.

5. In a machine of the character described the combination with an eyelet-covering die, an ejector, and carrier therefor having means for operating it, a rest for supporting the die in coöperative proximity to the ejector, and a carriage or conveyer located beneath the ejector and die substantially as described.

6. In an eyelet-ejecting machine the combination with the ejector-pin thereon, a pair of eyelet-covering dies and a rest on which one of said dies is supported, means for moving the ejector relatively to the die, and a part on the ejector-carrier for forcing one of said dies away from the other, substantially as described.

7. The combination with a pair of eyelet-covering dies, the rest for supporting one only of the dies, the ejector-carrier and ejector-pin, means for moving said carrier, one or more bars G G mounted on the ejector-carrier and movable therewith and adapted to engage the non-supported die, the same being independ-

ently movable on the carrier to disengage said non-supported die, substantially as described.

8. In a machine of the character described the combination with the pair of removable and separable eyelet-covering dies, of a rest for one only of said dies, the ejector-carrier and ejector-pin, the paired bars or members G G pivotally mounted on the ejector-carrier, means for imparting reciprocatory movements to the carrier, the link pivotally connecting said paired members respectively above and below the pivoted supports of the latter, and an appliance for manually operating one of said members, substantially as described.

9. In a machine of the character described the combination with the pair of separable matching-dies, one being wider than the other, of the opposite uprights having rests on which the edges of the wider die may be supported, the ejector and carrier therefor and means for operating the ejector, substantially as described.

10. In a machine of the character described the combination with the ejector-carrier, and ejector carried thereby, means for imparting a reciprocatory movement to the carrier and opposing uprights having the ledges on which a die may be supported, of an eyelet-covering die adapted to be supported, on said ledges, under the ejector, and a conveyer movable under and away from under the ejector, substantially as described.

11. In combination the ejector and reciprocatory carrier therefor, the movable members G G on the carrier, the opposing rests for a die, the pair of separate dies, the upper one of which is wider than its fellow, while the under one is longer than the upper die, the conveyer, means for operating the reciprocatory carrier, and means for moving the said member G, substantially as and for the purposes set forth.

12. In combination, a support on which an eyelet-covering die may rest, the plunger having the rack-teeth and the ejector, at its lower end, which is provided with the ejector-pins, the pinion, meshing with the rack, a lever for operating the pinion and a removable eyelet-covering die, substantially as described.

13. In a machine of the character described the combination with the reciprocatory ejector, a rest for one of a pair of dies, whereby it may be supported under the ejector, a carriage movable under the position of support of the said die, and a latch for detachably confining the carriage in its position under the die and ejector, substantially as described.

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Witnesses:

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