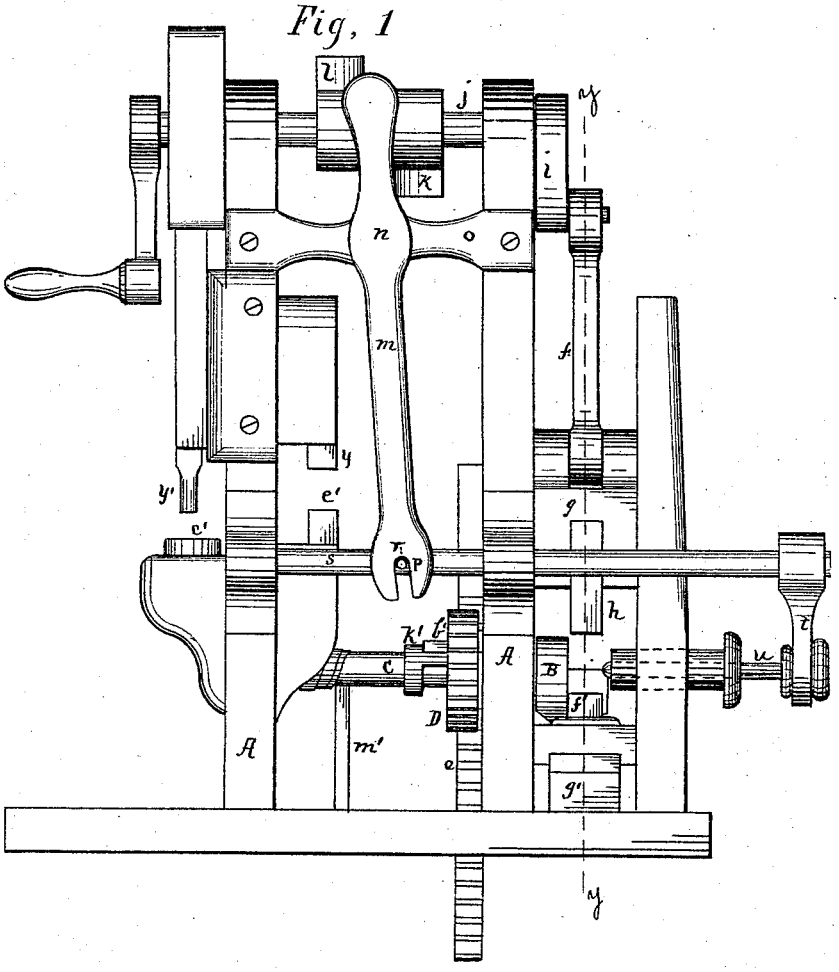
2 Sheets—Sheet 1.

C. LANZ.

MACHINES FOR FORMING STRAP HINGES.

No. 184,248. Patented Nov. 14, 1876.

Fig, 1



Witnesses

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Wesley Johnston

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By a C Johnston

His Attorney.

2 Sheets—Sheet 2.

C. LANZ.

MACHINES FOR FORMING STRAP HINGES.

No. 184,248. Patented Nov. 14, 1876.

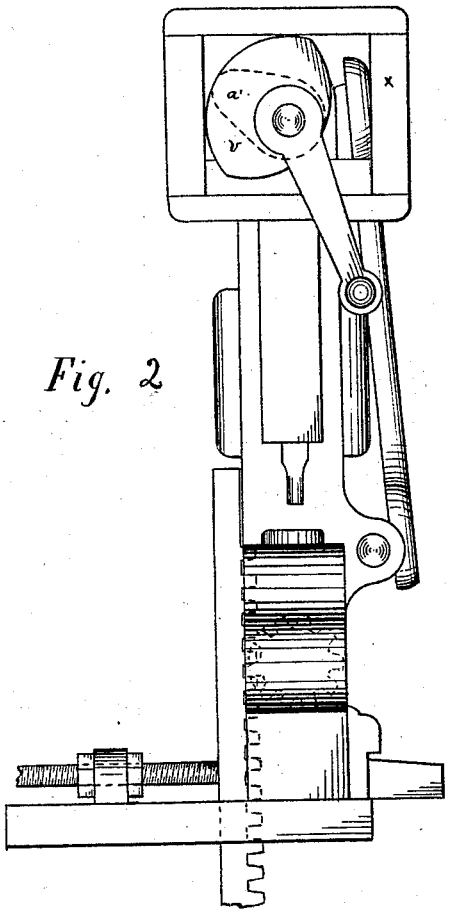

Fig. 2

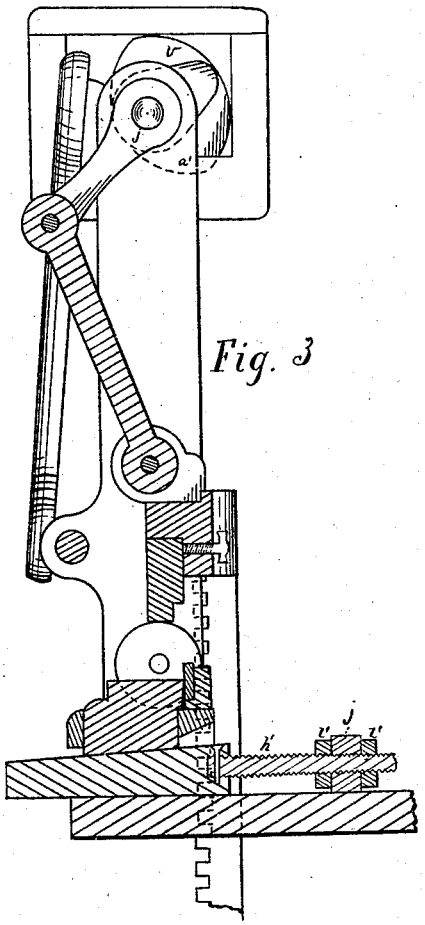

Fig. 3

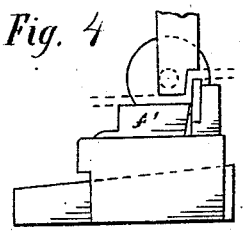

Fig. 4

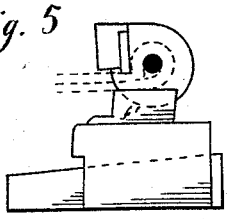

Fig. 5

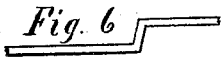

Fig. 6

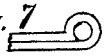

Fig. 7

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UNITED STATES PATENT OFFICE.

CHARLES LANZ, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR FORMING STRAP-HINGES.

Specification forming part of Letters Patent No. **184,248**, dated November 14, 1876; application filed April 17, 1876.

To all whom it may concern:

Be it known that I, CHARLES LANZ, of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Machine for Forming Strap-Hinges; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in a machine for forming the eye, punching the screw-holes, and strengthening the strap part of the eye part of a hook-and-eye hinge; and consists in bending-dies, movable mandrel, hammer, punch, and necessary anvils, arranged and operating substantially as hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a front elevation of my improvement. Fig. 2 is an end elevation. Fig. 3 is a vertical section at line *y* of Fig. 1. Fig. 4 is a detailed view representing the position of the bending-die in making the first bend in the blank. Fig. 5 is a detailed view representing the position of the bending-die in making the second bend, which completes the formation of the eye of the hinge. Fig. 6 represents the blank having the first bend made in it. Fig. 7 represents the blank having the second bend made in it, which completes the formation of the eye of the hinge.

In the accompanying drawings, A represents the frame of the machine; B, the bending-die placed on the end of the shaft C, which is provided with a wheel, D, operated by a rack, *e*, to which is imparted a reciprocating motion through the medium of the pitman *f*, the lower end of which is attached to the sliding head *g*, in which is placed a bending-die, *h*. The upper end of the pitman *f* is attached to a crank, *i*, on the end of the shaft *j*, which is furnished with cams *k l*, which impart to lever *m* a reciprocating motion, which lever is pivoted at *n* to a cross-bar, *o*. The lower end of the lever *m* is provided with a recess, *p*, in which is placed a pin, *r*, projecting from a sliding rod, *s*, to the outer end of which is secured an arm, *t*, the lower end of which is secured to the mandrel *u*, the inner end of which enters a recess in the bending-die B, which recess is concentric with the axis of the shaft C. On the end of the shaft *j* is a compound cam, *v*, the part *v* of which raises the cam-yoke *x*, which raises the hammer *y* and punch *y'*. The part of the cam marked *a'* (represented by dotted lines) is for imparting the downward motion to the punch *y'*, the hammer and punch being secured in a sliding head attached to the cam-yoke *x*. *c'* represents the anvil for the punch *y'*, and is furnished with an opening corresponding to the size of the punch, the punch and anvil being removable for adapting the machine for punching different-sized openings in the strap of the hinge. *e'* represents the anvil of the straightening-hammer *y'*. *f'* represents an adjustable anvil, used in combination with the bending-dies, which anvil is adjusted through the medium of the wedge base-piece *g'*, which is adjusted through the medium of the screw *h'* and the screw-nuts *i'*, arranged on each side of the projecting lug *j'*. The adjusting of the anvil *f'* is to adapt it and the bending-dies to the different thicknesses of iron which may be used in the construction of the strap part of the hinge. The wheel D is loose upon the shaft C, which is furnished with a clutch, *k'*, which operates against a projection, *b'*, on the side of the wheel D. When the shaft has been rotated so as to rotate the bending-die, the motion of the shaft C is reversed through the medium of the spring *m'*. The iron is inserted over the anvil *f'*, with a portion of it resting upon the bending-die. The downward stroke of the bending-die *h*, striking upon the iron, bends it, as indicated in Fig. 6; the die then rises, and the cam *l* moves the upper end of the pivoted lever *n* to the right, which moves the lower end of it to the left, which causes the sliding bar *s* to travel in the same direction, which will, through the medium of the arm *t*, cause the mandrel *u* (over which the eye of the hinge is formed) to move over, bringing it over the blank at this point. The projection on the side of the wheel D comes in contact with the clutch on the shaft C, and turns the bend-

ing-die B, so that the die will bend the blank around the mandrel, as indicated in Fig. 5. At this point the upper end of the pivoted lever *m* is moved to the left by means of the cam *k*, which will move the lower end of the lever to the right, which will withdraw the mandrel *u*. At this point the downward movement of the rack reverses the motion of the wheel D, which allows the spring *m'* to reverse the motion of the shaft C, thereby throwing back the dies, and allows the operator to remove the blank from the machine, which may be straightened, if necessary, by the hammer *y* and anvil *e*, the necessary opening for screws being made through the medium of the punch.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention, and desire to secure by Letters Patent, is—

1. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable anvil *f'*, and the reciprocating bending-die *h*, and die B, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

2. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable anvil *f'*, reciprocating bending-dies B *h*, and mandrel *u*, operated by the rod *s*, lever *m*, and cams *l* and *k*, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

3. In a machine for forming the strap part of hook-and-eye hinges, the combination of the reciprocating bending-dies B *h*, the hammer *y*, punch *y'*, and anvil *e' e'*, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

4. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable base-piece *g'* with the anvil *f'* and reciprocating bending-die B, substantially as herein described, and for the purpose set forth.

CHARLES LANZ.

Witnesses:
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D. I. K. RINE.