

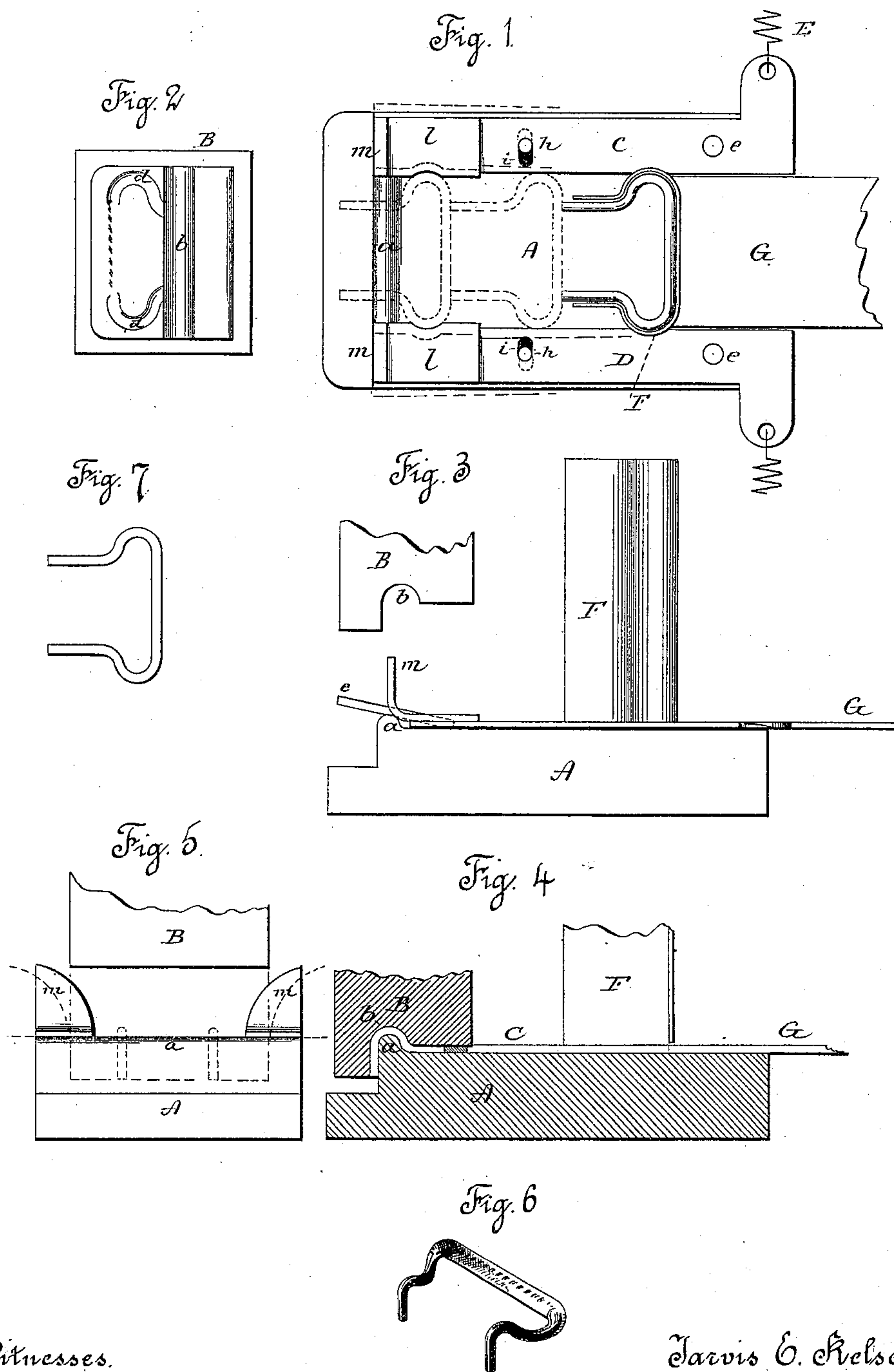
(No Model.)

J. E. KELSEY.

DIE FOR SWAGING BUCKLE FRAMES.

No. 323,156.

Patented July 28, 1885.



Witnesses.
J. H. Shumway
Fred C. Earle

Jarvis E. Kelsey.
Inventor.
By Atty.
J. H. Earle.

UNITED STATES PATENT OFFICE.

JARVIS E. KELSEY, OF WEST HAVEN, CONNECTICUT, ASSIGNOR TO WEST HAVEN BUCKLE COMPANY, OF SAME PLACE.

DIE FOR SWAGING BUCKLE-FRAMES.

SPECIFICATION forming part of Letters Patent No. 323,156, dated July 28, 1895.

Application filed May 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, JARVIS E. KELSEY, of West Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Dies for Swaging Buckle-Frames; 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 descrip-
10 tion of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top view of the lower die, showing the guides, feed-tube, and follower or slide;
15 Fig. 2, an under face view of the upper die; Fig. 3, a side view of the two dies, together with the tube and guides; Fig. 4, a vertical central section showing the upper die as closed upon the lower in the operation of forming
20 the frame; Fig. 5, a front view showing the upper die as raised, the guides in their closed position, and the legs of the frame as bent over the rib of the lower die; Fig. 6, a perspective view of the frame after bending; Fig. 7, a per-
25 spective view of the blank preparatory to bending.

This invention relates to an improvement in the manufacture of that class of buckle-frames known as the "Hartshorn" buckle, in
30 which the frame is made from wire bent to form a leg at each end of the frame, the ends of the legs bent around the tongue to form a hinge upon which the tongue may turn.

In the more general construction of this
35 class of frames the hinged portion of the legs has been flattened and then bent into U shape, and finally the ends bent around the tongue. The body or bar of the frame upon which the points of the tongues rest requires to be flat-
40 tened. In the usual operation of manufacturing these buckles the frame is first struck so as to flatten the bar and flatten the hinged portions, and then before the hinged portions can be bent they are required to be annealed.
45 After annealing the blanks must be pickled and cleaned; then the legs bent into the U shape.

The object of my invention is to construct the frames so as to avoid the annealing opera-
50 tion and the operations consequent upon annealing, and thereby to a considerable extent cheapen the manufacture of the buckle; and the invention consists in the dies constructed

as hereinafter described, and more particularly recited in the claims, whereby the blank
55 for the frame is swaged and the legs bent at one and the same operation and without flattening the legs.

A represents the bed or lower die, which is adapted to be attached to the bed of a press,
60 and B the movable die, which is attached to the slide of the press in the usual manner, and so that the die B may move up and down toward the lower die, as from the position in Fig. 3 to that in Fig. 4, and return.
65

On the upper surface, and at the front edge of the die A, a rib, *a*, is formed transversely across the bed, the shape of the rib corresponding to the bend to be made in the legs. The die B has across its face a corresponding cav-
70 ity, *b*, but as much larger than the rib as the diameter of the wire of the frame to be bent, and as seen in Fig. 4.

On the under or working face of the die B recesses *d* are formed, extending back from
75 the cavity *b*, as seen in Fig. 2, and in shape of the end portions of the buckle-frame; but these recesses extend only around the curved end portion of the frame, the surface between the ends of the recesses being substantially flush;
80 and upon that flush surface any ornamentation which it is desired to impress upon the frame, as seen in Fig. 2. The recesses *d* are of such a depth that when the dies are together, as seen in Fig. 4, the die B will have no effect
85 upon the bent portions of the frame.

The frame is first bent, as seen in Fig. 7, from wire of uniform diameter throughout. It is placed upon the lower die, A, and so that its legs project over the rib, as seen in Fig. 3,
90 *e* indicating the projecting legs. In this position the upper die, B, is brought down upon the blank. The forward edge of the die B extends below its rear face and strikes the projecting legs, bends them down over the
95 rib, while the rear portion bends the frame down back of the rib, and so as to give to the legs of the frame the U shape required, and as seen in Fig. 6. Because of the recesses *d* in the upper die the natural rounded shape of
100 the wire is unchanged; but the back or bar of the frame is flattened by the face of the die, and as indicated in Fig. 6, which is the usual form required for that portion of the frame.

By thus bending the legs without flattening
105 I avoid the before-mentioned necessity of an-

nealing the frame, and the work which has heretofore required two operations in addition to annealing and the operations attending the annealing is performed at a single operation.

To deliver the blanks and hold them in a proper relation to the rib and the die B, I arrange upon the upper face of the dies two guides, C D, one upon each side, hung at the rear upon a pivot, *e*, and so that they may swing out and in a plane parallel with the face of the die, as indicated in broken lines, Fig. 1. In the face of the die a stud, *h*, is arranged for each guide through a slot, *i*, in the guide, the slot and stud limiting the swinging movement of the guides. The guides are held to their inward position by springs E, or otherwise, so that they may be held to their inward position, but yield to a force applied upon their inner edge. The width between the guides is substantially that of the length of the frame.

Over the die and between the guides a vertical tube, F, is arranged in transverse section corresponding to the shape of the blanks, and so that the blanks may lie in a column therein one upon another, the lower end of the tube F standing above the face of the die A slightly more than the diameter of the wire of the frame, and so that a slide, G, may be passed between the bottom of the tube and the upper face of the die, as seen in Fig. 4, and by which slide the bottom blank in the tube may be forced forward toward the rib, as indicated in broken lines, Fig. 1. One frame having been delivered and the slide withdrawn, the column will fall and a second frame be presented in front of the slide G then the slide, again moving forward, the preceding frame will be again advanced until its legs properly project over the rib, and as indicated in broken lines, Fig. 1, and so continuing each movement of the slide will deliver a frame to the rib.

The slide G may be moved by hand or in connection with the slide of the press, so that the feed will be automatic and substantially the same as in various machines of this character.

Upon the inner face of the guides C D, and adjacent to the rib *a*, a recess, *l*, is formed, corresponding to the shape of the extreme outer ends of the frame. These recesses are formed in slight projections in the guides, so that as the slide advances the guides will open to permit the ends of the frame to pass into the said recesses, and having arrived at that point, as indicated in broken lines, Fig. 1, the guides return under the action of their respective springs, so as to embrace the ends of the frame and hold it in that position while the die B descends and performs the bending.

To take the guides out of the way of the working-face of the die while the operation of bending and flattening is being performed, each of the guides has its outer end turned upward, as at *m*, Figs. 3 and 5, and both incline outward and upward on their inner edge,

so that as the die B descends it passes between the inclined edges and forces the guides away from each other and from the die, as indicated in broken lines, Fig. 5; but so soon as the die rises the guides return under the action of their respective springs, ready to grasp the frame. Each movement of the slide G advancing one frame, throws the previously bent frame from the die, and presents the next for a like bending.

I claim—

1. The combination of the two dies A B, the one constructed with a flat face and a rib, *a*, at its front edge corresponding to the internal curve required for the bend of the legs, the die B, constructed with a longitudinal groove forming a cavity, *b*, in transverse section corresponding to the exterior of the bend required for the legs, and with recesses extending from said groove *b* corresponding to the end portions of the frame, the edge of the die B forward of the groove extending downward below the face in front of the groove, substantially as described.

2. The combination of the two dies A B, the one constructed with a flat face and a rib, *a*, at its front edge corresponding to the internal curve required for the bend of the legs, the die B, constructed with a longitudinal groove forming a cavity, *b*, in transverse section corresponding to the exterior of the bend required for the legs, and with recesses extending from said groove *b* corresponding to the end portions of the frame, the edge of the die B forward of the groove extending downward below the face in rear of the groove, the swinging guides C D, each constructed with a recess, *l*, upon its inner face, said recesses adapted to embrace the ends of the blank when in the proper condition for bending, substantially as described.

3. The combination of the two dies A B, the one constructed with a flat face and a rib, *a*, at its front edge corresponding to the internal curve required for the bend of the legs, the die B, constructed with a longitudinal groove forming a cavity, *b*, in transverse section corresponding to the exterior of the bend required for the legs, and with recesses extending from the said groove *b* corresponding to the end portions of the frame, the edge of the die B forward of the groove extending downward below the face in rear of the groove, the swinging guides C D, each constructed with a recess, *l*, upon its inner face, said recesses adapted to embrace the ends of the blank when in the proper condition for bending, a vertical feeding-tube, F, over the said die A, adapted to deliver the blanks between the said guides C D, and a slide, G, adapted to pass between said guides and below the mouth of the tube F, substantially as and for the purpose described.

JARVIS E. KELSEY.

Witnesses:

ELIAS T. MAIN,

WALTER A. MAIN.