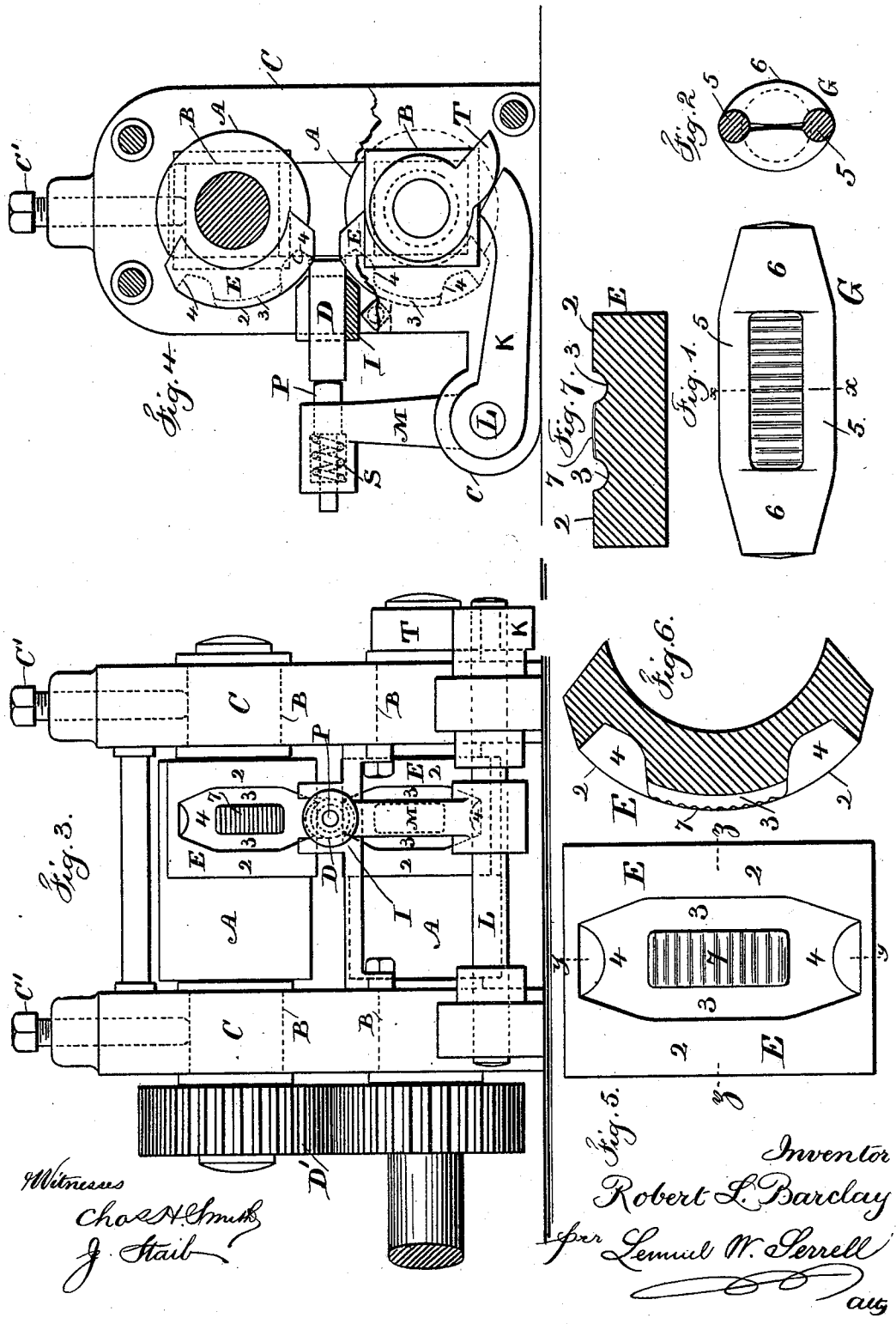
(No Model.)

R. L. BARCLAY.

MACHINE FOR MANUFACTURING TURN BUCKLES.

No. 404,152. Patented May 28, 1889.



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UNITED STATES PATENT OFFICE.

ROBERT L. BARCLAY, OF BROOKLYN, NEW YORK.

MACHINE FOR MANUFACTURING TURN-BUCKLES.

SPECIFICATION forming part of Letters Patent No. 404,152, dated May 28, 1889.

Application filed January 28, 1889. Serial No. 297,772. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. BARCLAY, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Machinery for Manufacturing Turn-Buckles, of which the following is a specification.

Turn-buckles have heretofore been manufactured with a nut at each end united by longitudinal straps or tie-rods, and these parts have been forged out of one or more pieces of iron; but their manufacture is expensive and it is difficult to obtain uniformity in the shape of the turn-buckle and in the quality of the iron throughout the blank turn-buckle.

The object of the present invention is to manufacture turn-buckle blanks out of a bar of iron with great rapidity and uniformity; and to accomplish this object I make use of segmental dies upon rolls that act to give to the metal bar the required shape at one operation, and in consequence of the end of the turn-buckle being tapering the segmental dies tend to force the bar backwardly and prevent it properly entering such segmental dies, and to overcome this difficulty the heated bar is pressed automatically endwise and into such segmental dies, so that the advancing end of the turn-buckle blank is formed perfectly by the action of the segmental dies.

In the drawings, Figure 1 is a side view of the turn-buckle blank complete. Fig. 2 is a cross-section of the same at the line *x x*. Fig. 3 is an elevation of the dies and rolls made use of. Fig. 4 is an elevation, partially in section, showing the rolls, dies, and automatic mechanism for forcing in the heated bar. Fig. 5 is a detached view of the segmental die. Fig. 6 is a longitudinal section at the line *y y*. Fig. 7 is a cross-section at the line *z z*.

I make use of suitable rolls, A, the journals of which are in boxes B, within the frames C, and these rolls are geared together by gear-wheels D′, and pressure is applied to keep the boxes B and rollers in position by the set-screws C′. These parts are to be of any usual or desired character, and the rolls are driven by any suitable power.

Upon the rolls A there are segmental dies. I have shown a single pair of such dies; but there may be two or more pairs of such dies around the periphery of the rolls, and it is only necessary to describe one pair of such segmental dies. The segmental dies E have faces corresponding to arcs of cylinders, so that the faces 2 2 come together as the rolls revolve, and there are longitudinal recesses 3 3 in the respective dies, each recess being of a depth and shape corresponding to half of the section of the side pieces or straps, 5 5, of the turn-buckle G, and in the segmental dies there are end recesses, 4 4, each corresponding to half the thickness of the end portions, 6 6, of the turn-buckle, and these recesses 4 are tapering toward their ends, as usual in turn-buckles.

The central portion, 7, of each segmental die E is corrugated, and its surface is nearly at the same level as the faces 2 of the dies. Hence in the manufacture of the turn-buckle the central corrugated portions, 7, of the segmental dies grasp the heated blank or bar and compress the central portion thereof, powerfully spreading the metal widthwise into the side recess, 3 3, and so reducing the central portions of the blank that only a thin web with corrugated faces is left in the middle portion of the turn-buckle blank as the same emerges from between the rolls, and this web or central portion is to be subsequently removed from the turn-buckle blank by suitable dies or cutters. In grasping the heated blank or bar the central corrugated portion, 7, in compressing such bar tends to force the metal forward to more thoroughly fill the recess at the advancing end of the segmental dies; but in practice this alone is not sufficient to cause the heated bar to thoroughly fill the conical end portion of the recess 4, because the heated blank has to be slightly wider than the narrowest portion of the end recess 4, and to insure a perfect filling up of the recess in the segmental dies during the rolling operation of the blank I make use of the automatic devices next described for forcing the heated blank or bar D in between the recesses of the segmental dies E.

The blank D is preferably laid upon a trough-shaped table or support, I, so as to occupy the correct position relatively to the segmental dies.

The lever K is upon a rock-shaft, L, and the arm M on this rock-shaft is provided with a pusher, P, at its upper end, which pusher is

preferably in the form of a plug having a helical spring, S, around its smaller portion, and this pusher is in line with the heated blank or bar D, and there is a cam, T, upon the shaft of one of the rolls A, and of the proper shape and so placed that it acts upon the lever K at the right time to move the rock-shaft L, arm M, and pusher P to force the heated blank endwise into the recesses 4 at the advancing ends of the segmental dies E, as such dies are revolved with the rolls A. Thereby the end of the heated blank A is caused to conform to the tapering ends of the recesses 4 4 and to remain in such recesses during the movement of the dies, as the rolls cause such dies to approach each other and compress the heated bar and roll out or form the blank turn-buckle as the heated blank is passed through between the rolls and forced out of the dies upon the opposite side in the form shown in Fig. 1, and complete at one operation ready for the central web to be cut out and the turn-buckle bored endwise and screw-threaded in the ordinary manner, so as to complete the same.

I claim as my invention—

1. The segmental dies E, and rolls A, for receiving the same, such segmental dies having end recesses, 4 4, side recesses, 3 3, and central corrugations, 7, for grasping and drawing in the heated blank in the manufacture of turn-buckles, substantially as set forth.

2. The combination, with the rolls A and segmental dies E, having end recesses, 4 4, and side recesses, 3 3, corresponding to the shape of the turn-buckle, of an automatic pusher adapted to act upon the heated blank and force the same endwise in between the segmental dies as such dies are carried around by the rolls, substantially as set forth.

3. The combination, with the rolls and the segmental dies, of the lever K, rock-shaft L, arm M, spring-pusher P, and the cam T, for automatically forcing in the heated blank between the dies and rolls, substantially as set forth.

Signed by me this 23d day of January, A. D. 1889.

ROBERT L. BARCLAY.

Witnesses:
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