D. DALZELL.

Dies for Making Axle-Boxes.

No. 216,837. Patented June 24, 1879.

Fig. 1.

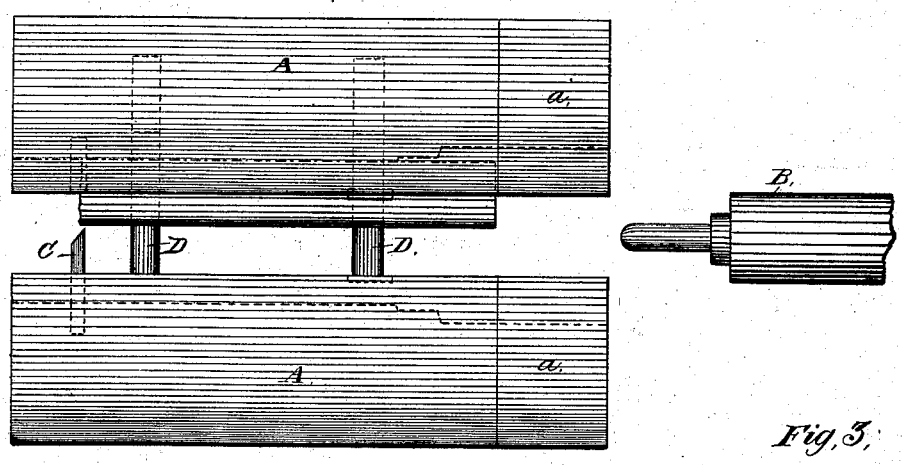


Fig. 3.

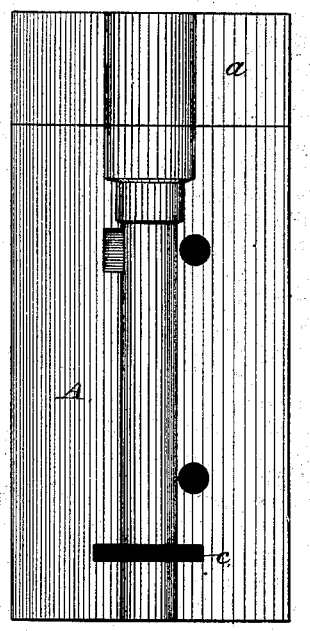
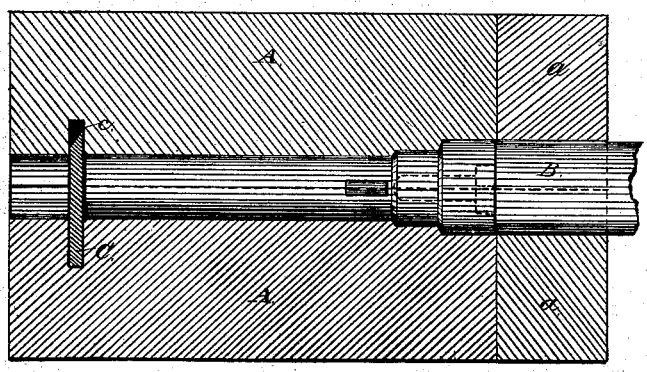


Fig. 2.



Attest:

Geo. T. Smallwood Jr

Walter Allen

Inventor:

David Dalzell.

By Chas. A. Gorby

Atty.

UNITED STATES PATENT OFFICE.

DAVID DALZELL, OF SOUTH EGREMONT, MASSACHUSETTS.

IMPROVEMENT IN DIES FOR MAKING AXLE-BOXES.

Specification forming part of Letters Patent No. **216,837**, dated June 24, 1879; application filed December 5, 1878.

To all whom it may concern:

Be it known that I, DAVID DALZELL, of South Egremont, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Dies for Making Axle-Boxes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan view; Fig. 2, a horizontal central sectional view, and Fig. 3 a face view of one of the partible die-blocks.

The object of this invention is to form a wrought axle-box from a solid bar or rod of metal by subjecting such bar or rod to a forging heat, and clamping the same between partible die-blocks of the desired conformation, and then forcing a plunger centrally through or at such distance within the heated metal as to produce by displacement the desired internal and exterior shape of the box, as hereinafter described.

In order that others may understand and use my invention, I will first proceed to describe the same in connection with the accompanying drawings, in which are illustrated devices designed to produce a box particularly adapted for use in connection with the well-known rubber cushion, so that the advantages attending this invention may be fully appreciated, as this special form of box referred to cannot be wrought from tubing by the upsetting process heretofore practiced in the formation of ordinary boxes, for the reason that the projecting ear required to secure the rubber cushion in place is so situated and of such extreme length that sufficient metal to produce it by displacement is not available at or near its location.

In the drawings, A A represent the partible die-blocks, which are designed to be connected with a mechanism for effecting a closing and receding horizontal movement of the same in the usual manner.

B represents the plunger, which is directed centrally within the die-blocks when closed by its connected reciprocating cross-head, and is steadied and guided by the extension-blocks *a a*, secured to the respective die-blocks.

The form of the penetrating portion of the plunger B should be in accordance with the interior of the box, and of such length as to pass entirely through the heated bar or rod, or at such distance within the same as to displace sufficient stock to produce the enlarged and projecting parts.

In the present instance I have shown a plunger adapted to effect the latter result, the remaining solid portion of the box being subsequently bored out.

C represents a shearing or trimming knife, arranged transversely to the path of the plunger B, and at a point to cut the heated bar or rod to the required length, and to subsequently act as a support or stop to the end of the same. This knife is firmly secured in this instance to one of the die-blocks, and in the closing movement of the same shears off the end of the heated bar or rod to the proper length to form the box, and enters a recess, *c*, in the opposite block. After the knife has performed this function, and the die-blocks have simultaneously closed and clamped the heated bar or rod, it then serves the purpose of a firm support to the end of the heated bar. When subsequently acted upon by the plunger, and when the plunger is designed to pass the entire length of the die-blocks, the knife may be perforated to permit the passage of the extreme end of the plunger.

D D′ represent detachable steadying-pins or rests for supporting and maintaining the heated bar or rod in a proper position for the action of the die-blocks and knife. These pins or rests are arranged horizontally and transversely of the die-blocks, and located beneath and near either end of the matrix that forms the box, as shown in Fig. 1, one end of each pin being connected with one of the die-blocks, and their free ends caused to enter corresponding recesses in the opposite die-blocks in the closing movement.

Having thus fully described my invention, in connection with such operative parts of a machine for practicing it, and sufficiently to direct those skilled in the art to which it appertains to use the same, what I claim, and desire to secure by Letters Patent, is—

The partible die-blocks A A, provided with the intermediate rests or steady-pins, D D, and the knife C, in combination with the reciprocating plunger B, substantially as described.

DAVID DALZELL.

Witnesses:

FRED. W. SANBORN,

R. C. TAFT.