

(No Model.)

J. TAYLOR.  
MANUFACTURE OF AXES, &c.

No. 500,084.

Patented June 20, 1893.

Fig. 1.

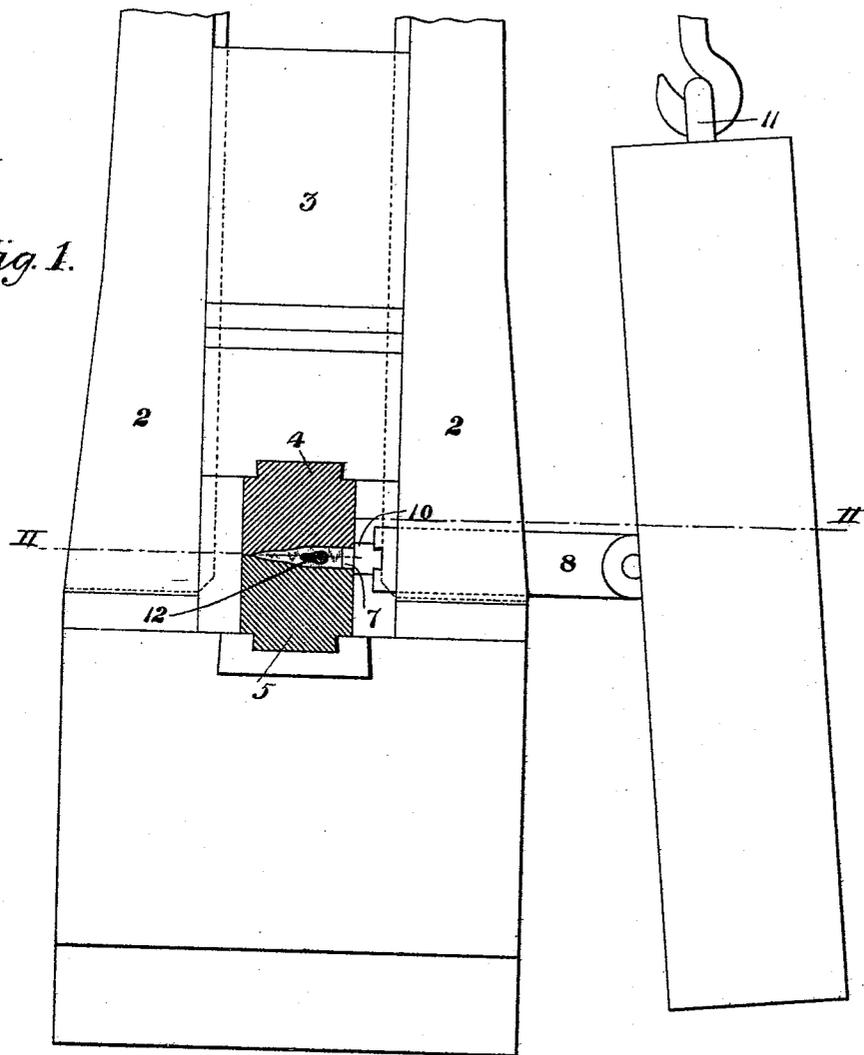
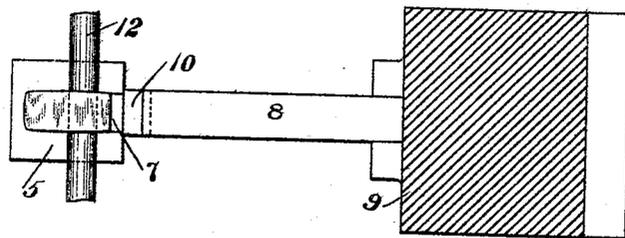


Fig. 2.



WITNESSES

Warren W. Swartz  
H. M. Brown

INVENTOR

James Taylor  
by W. Casswell Ross  
his Attorneys -

# UNITED STATES PATENT OFFICE.

JAMES TAYLOR, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO CHARLES W. HUBBARD, JR., OF SAME PLACE.

## MANUFACTURE OF AXES, &c.

SPECIFICATION forming part of Letters Patent No. 500,084, dated June 20, 1893.

Application filed August 17, 1892. Serial No. 443,291. (No model.)

### *To all whom it may concern:*

Be it known that I, JAMES TAYLOR, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Axes and other Eye-Tools, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a front view of my improved machine with the dies partially broken away. Fig. 2 is a plan view of the bottom die.

15 My invention relates to the manufacture of axes and other similar eye-tools, and is designed to produce a much truer, neater and better finished article than has hitherto been possible, and to that end it consists in a pair of dies having a hole therethrough, and a plunger or hammer head which enters this 20 hole and is yieldingly pressed against the ax as it lies in the mold.

It also consists in the construction and arrangement of the parts, as hereinafter more fully described and set forth in the claims.

25 In the drawings, 2, 2, represent the vertical guides of a die-press, the cross-head 3 of which reciprocates between these guides and bears the upper die 4. The lower die 5 is carried upon the bed of the machine, and at 30 one end of the dies their meeting faces are correspondingly recessed to form a hole within which fits the plunger or hammer-head 7, which is carried at the inner end of a sliding-bar 8 passing through one of the guides 35 2 and pivoted at its outer end to a weight 9, which bears against the same and presses it inwardly. A shoulder 10 is formed upon the plunger which prevents it entering too far into the mold-cavity, and as seen in Fig. 2 40 the hole through which it passes is of about the same size as the end of the matrix or cavity. The weight is suspended and held in place by a link 11 and serves to press the squared inner end of the plunger against the rear end of the ax lying in the dies. The 45 dies have the usual side recesses to receive the mandrel 12, around which the ax-poll is

formed, and with the exception of the end recesses for the plunger, are similar to those commonly employed. 50

The operation is as follows:—The ax with the mandrel still passing therethrough is placed in the cavity in the lower die with the plunger butting against the rear end of the poll, and the upper die is reciprocated. As the 55 ax lies in a box die, it is compressed in all directions by the blow of the upper die and is forced into the exact form desired, with a finely finished surface and a squared end to the poll, while the formation of fins between the dies 60 is prevented by the plunger, which will give sufficiently to allow the flow of the metal endwise. The plunger or hammer head will not, however, allow sufficient endwise flow of the metal to distort the ax on account of the 65 quickness of the blow, it acting in the manner of an anvil. The plunger will adjust itself automatically to an ax having too little or too much metal therein, and finish the same as perfectly as one having exactly the right 70 amount, and a spring may be employed to hold the same in place, though I prefer the weight shown.

The advantages of my invention will be appreciated by those skilled in the art. The 75 flowing of the metal sidewise and the lengthening of the eye portion, which always takes place when open dies are used in finishing, are entirely obviated, as well as the fin formation which always occurs when ordinary 80 box dies are employed. The surface of the ax is compressed and given a high polish, and its edges are made sharp and exact.

Many variations will suggest themselves to those skilled in the art without departure 85 from my invention, since

What I claim is—

1. A pair of dies having a hole, a plunger movable within the hole, and means for continuously forcing in said plunger with a 90 yielding pressure; substantially as described.

2. A stationary die and a reciprocatory die having mating recesses at one end forming a hole opening into the die cavity, a plunger

within the hole, and means for exerting a continuous yielding pressure upon said plunger; substantially as and for the purposes described.

5 3. A stationary die and a reciprocatory die having mating matrix cavities, a hole leading through the die to the matrix, a plunger in the hole and a weight arranged to exert a

constant pressure upon said plunger; substantially as described.

In testimony whereof I have hereunto set my hand this 12th day of August, 1892.

JAMES TAYLOR.

Witnesses:

H. M. CORWIN,

F. P. SPROUL.