

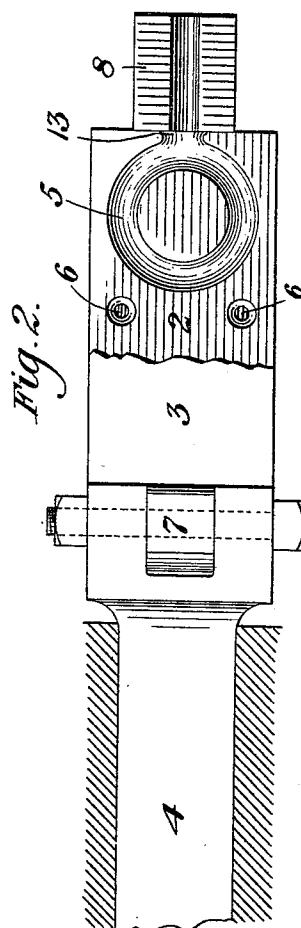
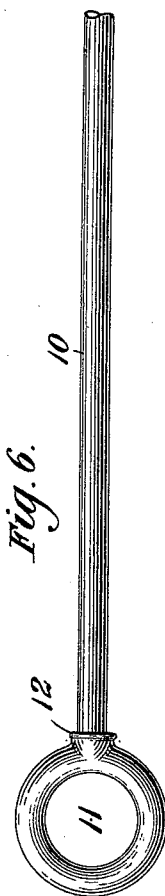
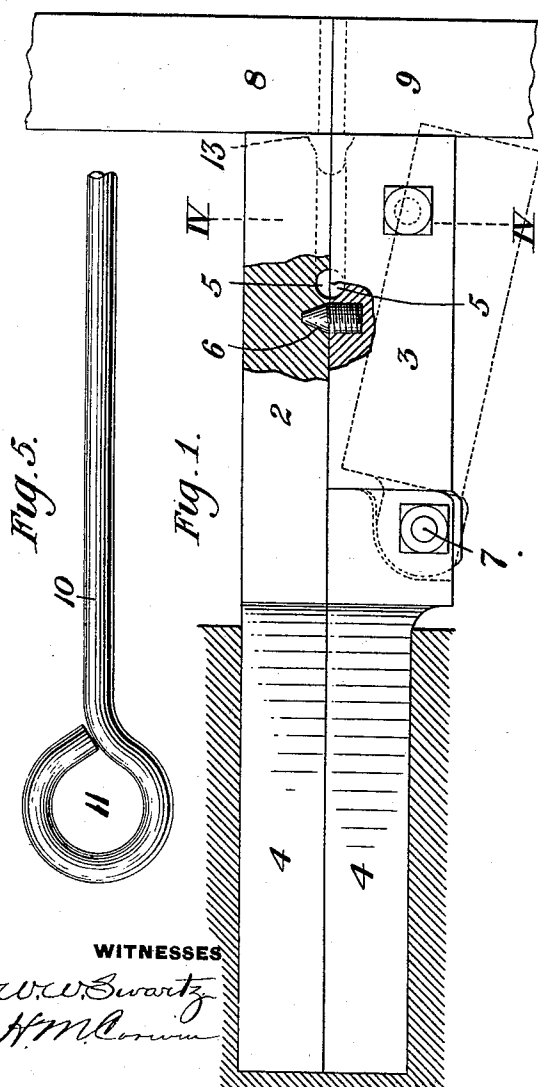
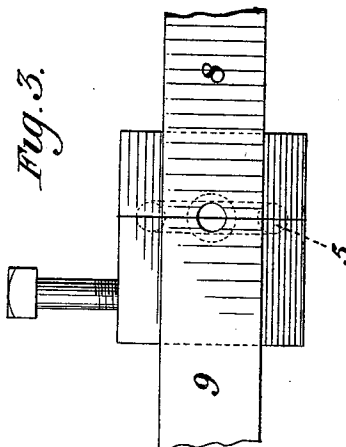
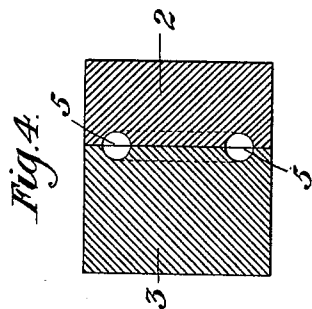
(No Model.)

T. W. SMITH & J. G. PRICE.

DIE FOR MAKING END GATE RODS FOR WAGONS.

No. 520,837.

Patented June 5, 1894.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS W. SMITH AND JOHN G. PRICE, OF PITTSBURG, PENNSYLVANIA,
ASSIGNORS TO THE OLIVER IRON AND STEEL COMPANY, OF SAME
PLACE.

DIE FOR MAKING END-GATE RODS FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 520,837, dated June 5, 1894.

Application filed February 10, 1894. Serial No. 499,744. (No model.)

To all whom it may concern:

Be it known that we, THOMAS W. SMITH and JOHN G. PRICE, both of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Dies for Making End-Gate Rods for Wagons, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of our improved dies, partly in vertical section. Fig. 2 is a plan view, the forward part of the die 2 being broken away for the purpose of illustration. Fig. 3 is an end view of the dies when closed. Fig. 4 is a vertical section on the line IV—IV of Fig. 1. Fig. 5 shows the blank before it has been treated with the dies, and Fig. 6 shows the finished article.

Our invention relates to dies for making end-gate rods for wagons and other rods having integral eyes or rings at the ends.

With reference to the dies, the invention consists in dies for gripping the looped portion of the rod, and dies for gripping the shank, said sets of dies being movable toward each other for the purpose of producing the welding upset. It also consists in a gripping die having a hinged portion; and it consists in certain constructions and combinations of parts, hereinafter described and specified in the claims.

In the drawings, 2, 3, represent the parts of the ring-gripping die. These parts are divided longitudinally, and their stems 4, 4, are fixed or clamped together in any suitable manner, or these stems may be made integral with each other. They are secured to a suitable reciprocating die-stock or holder, not shown. The meeting faces of the parts 2, 3, are formed with half-recesses 5, which, when conjoined, constitute a cavity of suitable size and shape to receive the ring at the end of the rod to be treated; and in order to hold the die parts from longitudinal movement when they are in contact, they may be provided, respectively, with interfitting pins and recesses 6. The die-part 3 is laterally movable to and from its companion die 2 by means of suitable mechanism, not shown, and to permit such motion it is preferably hinged at

7 to its stem 4, so that when moved on said hinge it will approach or recede from the die 2. In advance of the dies 2, 3, are stem-gripping dies 8, 9, one or both of which are adapted to move transversely to the plane of the ring-gripping dies and to grip the stem of the rod to be treated. The position of these stem-gripping dies is somewhat separated from the end of the ring-gripping dies when the latter are in their most retracted position.

When thus constructed, the operation is as follows:—The rod 10 to be treated is bent by suitable means into the form shown in Fig. 5, so that it shall be ring-shaped at its end, and this ring-portion 11, having been heated to a welding heat, is placed on the die 3 when the dies 2 and 3 are retracted and when the die 2 is separated from the die 3; then the mechanism, in which the dies 2 and 3 are set, operates to force these dies together and to confine the ring within the recess 5, and the stem-gripping dies are brought together so as to seize and hold the stem of the rod a short distance in advance of the end of the ring-gripping dies. The ring-gripping dies are then projected by their reciprocating mechanism toward the stem-gripping dies, and the effect of this relative approach of the two sets of dies is to upset the metal at the juncture of the ring with the stem, thus welding and closing the end of the ring and, by spreading the metal thereat, forming the shoulder or collar 12, as shown in Fig. 6. For this purpose the ring-gripping dies at the forward end of the ring cavity are provided with a recess 13 of proper form to give the desired shape to the shoulder. The operation being now completed, the ring-gripping dies and stem-gripping dies are opened, the finished article is removed, and the ring-gripping dies are retracted for a new operation.

By the method and apparatus above described, the manufacture of end-gate rods is conducted rapidly and cheaply, a neat shapely and strong article is produced, and the manufacture is thus greatly improved.

The invention, so far as the apparatus is concerned, unless otherwise stated in particular claims, is not limited to the hinging of the movable part of the ring-gripping dies nor

to the longitudinal movement of these dies, since the necessary upsetting may be obtained by longitudinal motion of the stem-gripping dies or otherwise.

5 We claim—

1. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, 10 in combination with stem-gripping dies adapted to grip the stem, and means whereby said two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem; substantially 15 as described.

2. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, 20 in combination with stem-gripping dies adapted to grip the stem, said two sets of dies being set transversely to each other, and means whereby they are caused to approach and to form a welding upset on the blank at the 25 juncture of the ring and stem; substantially as described.

3. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, 30 in combination with stem-gripping dies adapted to grip the stem, and means whereby the

ring-gripping dies are moved toward the stem-gripping dies; substantially as described.

4. Apparatus for making rods having eyes 35 or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, in combination with stem-gripping dies adapted to grip the stem; and means whereby said 40 two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem, said ring-gripping dies having an end-recess 13 for forming an enlargement on the metal blank to be 45 treated; substantially as described.

5. Apparatus for making rods having eyes or rings at the ends, said apparatus comprising ring-gripping dies having a cavity adapted to receive and hold the ring of the blank, 50 in combination with stem-gripping dies adapted to grip the stem, and means whereby said two sets of dies are caused to approach and to form a welding upset on the blank at the juncture of the ring and stem, said ring-grip- 55 ping dies being constituted of hinged parts; substantially as described.

In testimony whereof we have hereunto set our hands.

THOS. W. SMITH.
J. G. PRICE.

Witnesses:

ROBERT GARLAND,
A. B. CAMERON.