

No. 647,469.

Patented Apr. 17, 1900.

W. M. BROWN & G. H. McFEATERS.

TOOL FOR UNITING METAL ARTICLES.

(Application filed May 5, 1899.)

(No Model.)

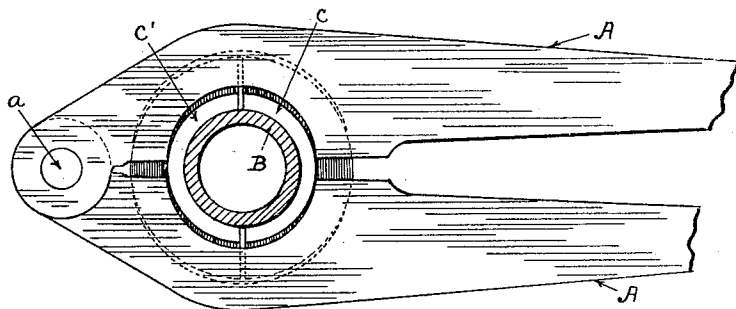


Fig. 1

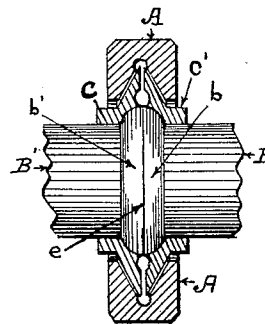


Fig. 2

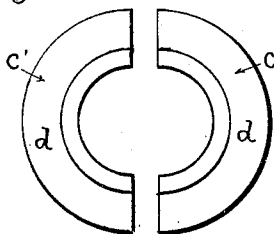


Fig. 3

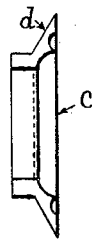


Fig. 4

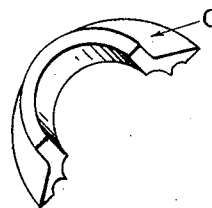


Fig. 5

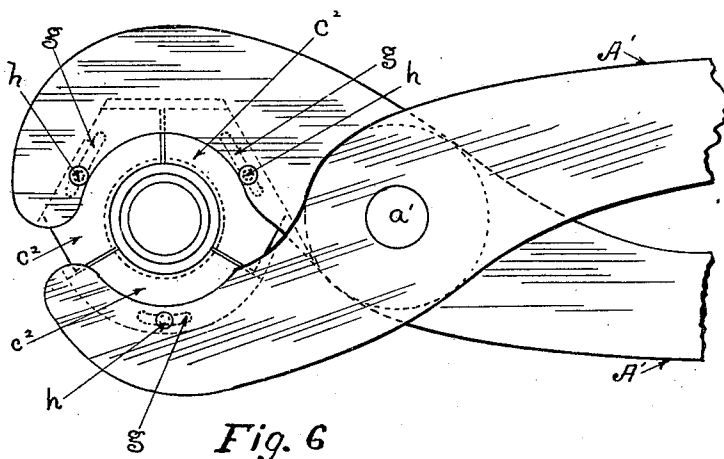


Fig. 6

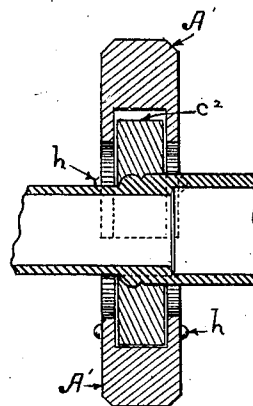


Fig. 7

WITNESSES:

Myrtle E. Sharpe.
Annie M. Mavor.

INVENTORS

W. M. Brown
G. H. McFeaters

BY

Richard Lynn
ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM MILT. BROWN AND GEORGE H. McFEATERS, OF JOHNSTOWN,
PENNSYLVANIA.

TOOL FOR UNITING METAL ARTICLES.

SPECIFICATION forming part of Letters Patent No. 647,469, dated April 17, 1900.

Application filed May 5, 1899. Serial No. 715,679. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM MILT. BROWN and GEORGE H. McFEATERS, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Tools for Uniting Metal Tubes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to a novel form of tool for compressing joints of lead pipes or cables or similar articles, the said tool being specially adapted for use with certain novel processes for uniting metal articles, for which we have filed an application for Letters Patent on an even date herewith, Serial No. 715,678.

The process set forth in the aforementioned application consists, broadly, in applying a coat of mercury to the surfaces to be united and then heating and compressing said surfaces. The tool which we will describe in the following application is adapted to supply the heat to the joint and also the necessary pressure, our object being to provide a simple form of tool for this purpose which may be used to form joints between pipes which are in positions which are not readily accessible.

To this end our invention consists in a certain novel form of dies fitting into recesses in the pivoted arms of the tool.

Our invention also consists in certain more specific features which will more fully appear hereinafter.

Referring to the drawings, Figure 1 is a side view of the tool and the pipes in position therein. Fig. 2 is a transverse section of the same. Figs. 3, 4, and 5 are different views of the dies used in Figs. 1 and 2. Figs. 6 and 7 are views similar to Figs. 1 and 2, but using a modified form of tool.

A A represent two arms pivoted together at *a*. B B' represent lead pipes to be united, having the flanges *b* and *b'*. C C' represent the split members of one of the dies. These dies are in the main of tubular form, their internal surfaces being straight for a portion of the distance, while at their inner ends they are curved to fit the flanges *b* *b'*. The outer

surfaces of the dies above the portion where they fit the flanges are tapered, so as to have converging surfaces *d*. The recesses in the arms A are formed with similarly-tapered walls, as clearly shown. The recesses are of course placed near the pivotal point *a*, so that the operator may have considerable leverage upon the dies when he presses the outer ends of arms A together. Upon doing this it will be seen at once that the split dies C and C' move toward each other, compressing the flanged ends of the pipe, so as to allow of their union on the line *e* of Fig. 2. The dies, as shown in these figures, are not secured to the arms A; but this is not a matter essential to our broad invention.

In Figs. 6 and 7, as will be shown hereinafter, the dies are loosely secured to the pivoted arms. In making a joint with the tool of Figs. 1 to 5 the surfaces of the flanged ends of B and B' are coated with mercury, the dies placed about them in the position shown, the jaws of the pivoted arms heated to about a dull red in the dark, (to about the heat of an ordinary heated soldering-iron,) and the arms then placed about the dies, a gentle pressure being given until sufficient heat has been given and then finally the pressure increased.

In Figs. 6 and 7 we have shown a modified form of tool which is more especially adapted for the welding together of lead cables or other tubular articles which are more desirably united by joints from the internal surface of one tube to the external surface of the other tube. In this case there is only one set of dies, but it is split into three members instead of two. This we have done because the pressure being in this case a radial one instead of a longitudinal one a semicircular member will to some extent cut and deface the metal of the tube.

In the tool of Figs. 6 and 7 arms A' are pivoted at *a'*, the recessed jaws of the tool being at one side of the pivotal point, while the handles for the operator are at the other side of the pivotal point. The dies are represented by C² and are each provided with slots *g*, through which pass pins *h*, which loosely secure the dies in the recesses of the arms. It will be understood that if desirable longi-

tudinally-movable dies may be loosely connected to the arms, as well as radially-movable dies.

We do not desire to be limited to the specific details herein shown and described, as our invention is broader than the mere embodiment thereof which we have shown for illustration, and the specific details may be varied in many ways without departing outside the scope of the appended claims.

Having thus described our invention, what we claim, and desire to protect by Letters Patent, is—

1. In a tool for the purpose described, the combination with a pair of arms pivoted together and having recessed jaw portions, split tubular dies seated in the recesses of the said jaws, and means whereby as said jaws are brought together the dies are forced toward each other in a direction at right angles to the movement of the jaws, substantially as described.

2. The combination of a pair of arms pivoted together, a pair of split tubular dies having a portion of their internal surface straight and another portion thereof curved, and hav-

ing, above said curved portion, their outer surfaces convergently tapered, and recesses in said arms having tapered walls engaging said tapered surfaces of said dies, substantially as described.

3. The combination of a pair of tubular split dies having a portion of their outer walls convergently tapered, a pair of arms pivoted together, and recesses in said arms having correspondingly-tapered walls.

4. In a tool for making metal joints, the combination with a pair of arms or members pivoted together and formed with recessed jaw portions, of split tubular dies seated in said recesses, and pin-and-slot connections between the said dies and the walls of the recesses, whereby the dies are capable of a sliding movement in said jaws, substantially as described.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

W. MILT. BROWN.

GEORGE H. McFEATERS.

Witnesses:

H. W. SMITH,

M. E. SHARPE.