J. P. HAYES.

MOLD FOR MAKING PLUMBERS' JOINTS.

No. 28,750. Patented June 19, 1860.

Fig. 1.

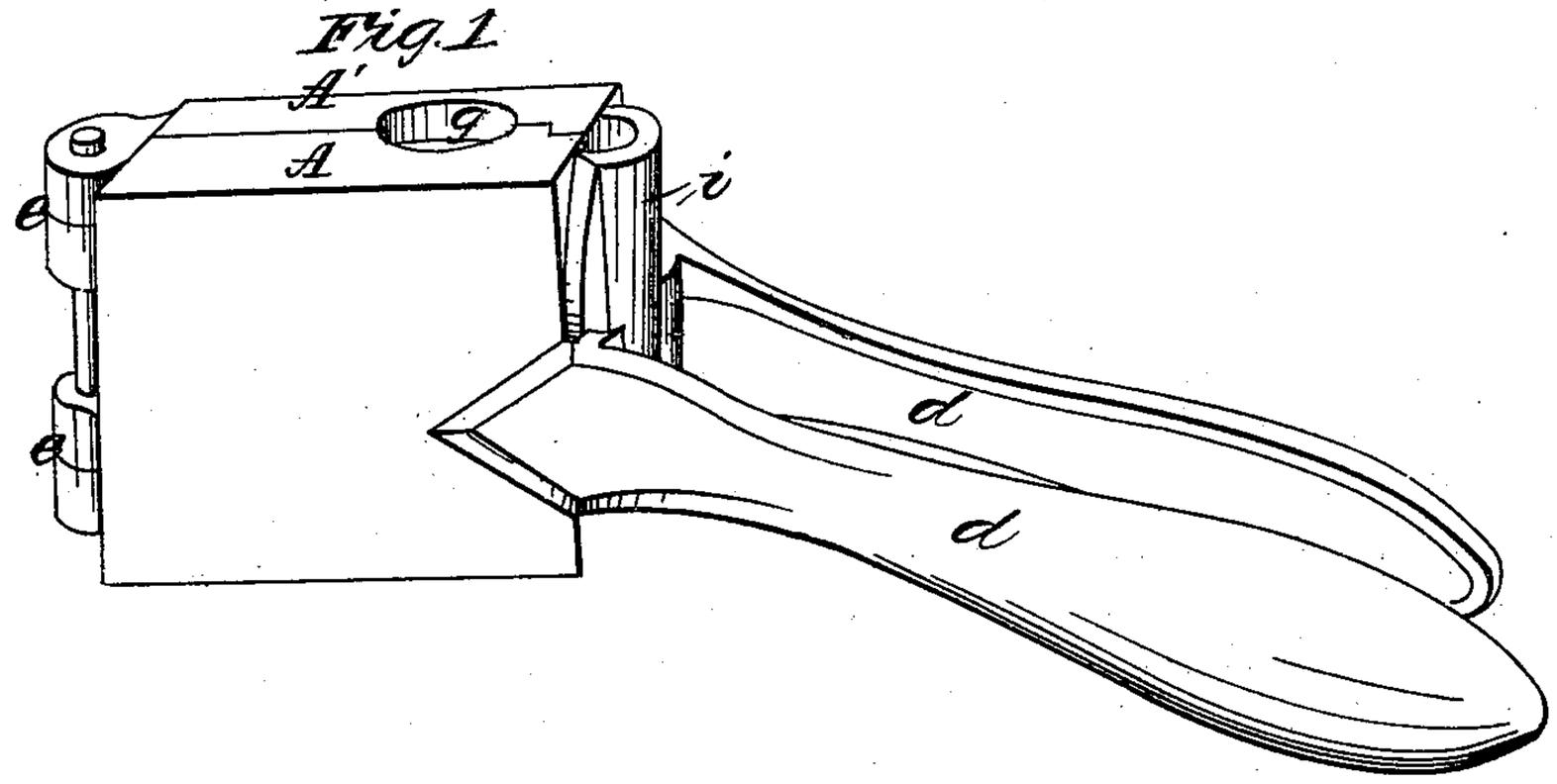


Fig. 2.

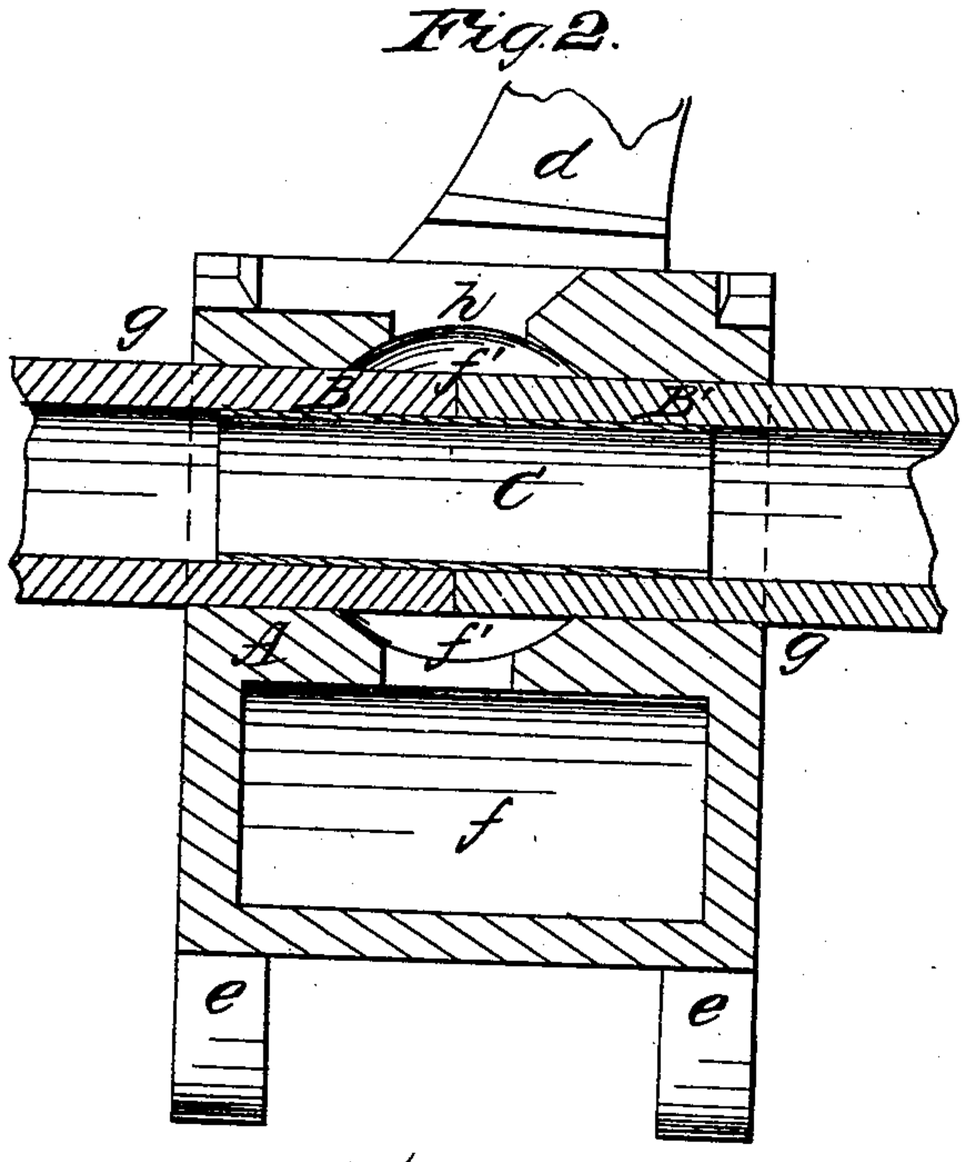
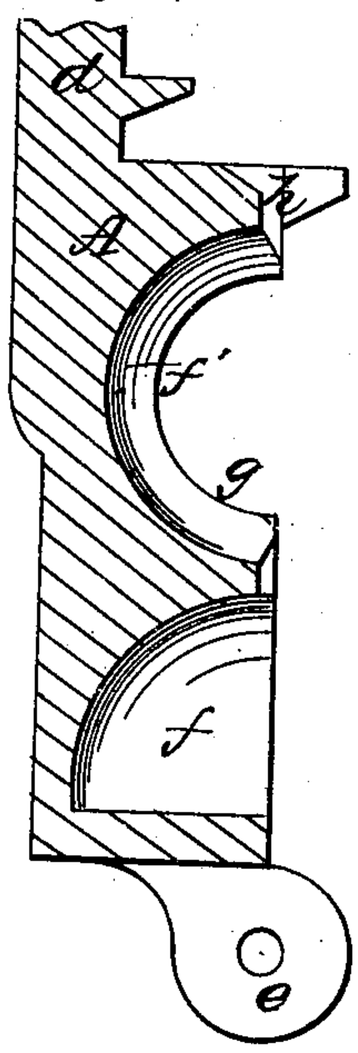


Fig 3.



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IMPROVEMENT IN MAKING PLUMBERS' JOINTS.

Specification forming part of Letters Patent No. **28,750**, dated June 19, 1860.

To all whom it may concern:

Be it known that I, JOHN P. HAYES, of the city of Philadelphia and State of Pennsylvania, have invented a new and Improved Mold for Making Plumbers' Joints in Metal Pipes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the said mold; Fig. 2, an inner side view of the one-half part of the same, with sections of the pipes to be united as arranged therein for the purpose; and Fig. 3, a transverse section of the said one-half part of the mold, like letters, when on the different figures, indicating the same parts.

The nature of this invention consists in providing a mold or case with a secondary chamber, substantially as hereinafter described, whereby the melted metal which is used in making the required joint is caused to pass in contact with the pipes therein, so as to first strongly heat or partially melt, and thus prepare them for intimate union or combination when both the chambers in the mold become filled with the said metal, and also in the employment, in combination with a mold adapted for making plumbers' joints by melting the ends of the pipes together, of a tubular protector within the said pipes, substantially in the manner hereinafter described, whereby lead or other easily-fusible metal pipes can be more perfectly, expeditiously, and economically united together than heretofore by any appropriate metal more fusible than the said tubular protector.

In the drawings, A and A′ represent the respective half parts of the molds; B and B′, sections of two fusible metal pipes as adjusted within the said mold preparatory to their being united, and C the tubular protector within the same.

The two parts A A′ are each provided with a handle, *d*, and are connected together by hinged joints *e e*, so that the two said parts may be readily and accurately closed together or parted, as occasion may require. When the mold is closed, as in Fig. 1, there are two communicating chambers, *f* and *f′*, produced therein, the one, *f*, being close, the other, *f′*, open at each end *g g*, for the reception of the ends of the pipes which are to be joined therein. These end openings, *g g*, are made of the same diameters as the pipes, so as to fit closely around the same when applied thereto. The chamber *f′* is somewhat of a spherical form between its open ends *g g*, and has an opening or mouth, *h*, for the admission of the melted metal required in making the joint in the pipes. The outer side of this opening *h* is provided with a curved or concave plate, *i*, which is made to slide in grooves between the handles *d d*, so that it can be inserted, as seen in Fig. 1, or removed, as indicated in Fig. 2, as either vertical or horizontal pipes are to be united in the said mold.

The tubular protector C consists of a short piece of tin-plate or other difficultly-fusible sheet metal, bent into a hollow cylinder to fit accurately the bores of the pipes which are to be united in the mold. The chamber *f′* of the mold is in this instance constructed for receiving the ends of two pipes only; but it will be obvious that the insertion of branch pipes may be provided for by making this chamber *f′* with additional cylindrical openings for the purpose.

Operation: The fusible pipes B B′, which are to be united by melting, are abutted together, with the tubular protector C inserted in their respective bores, as seen in Fig. 2. The mold is then closed around them and held by its handles *d d*, so as to keep the abutting ends of the pipes B B′ in the middle of the chamber *f′*. Lead or other fusible metal suitable for the purpose being melted, and also highly heated, is now poured into the mouth *h* of the chamber *f′*, where, passing in contact with the parts of the pipes in the said chamber on its way to the secondary chamber *f*, it heats the said pipes and eventually melts the ends of the parts which are within the chamber *f′*, and as the said chamber becomes filled the mass of melted metal becomes incorporated together with the said pipes B B′ around the protector C, and on cooling or "setting" therein there results a perfect union or combination of the metal and the two said pipes. The mold is now opened, and the superfluous lump of metal formed by the secondary chamber *f* cut off. Cast-iron pipes may be thus united, even by melted cast-iron, if so required. Copper pipes and pipes of other difficultly-fusible metal, if required to

be united by solder, lead, or other easily-fusible metal, of course will not require the employment of the tubular protector C in connection with this mold, because the end of one such pipe being inserted in the end of the other, as heretofore, the melted cementing-metal cannot pass into the same.

As common lead can, by means of this mold, be used to join lead pipes, the economy of the mold is on this ground alone, or irrespective of the time saved, equal to the difference between the cost of lead and solder, which is about one to five in favor of the lead.

Having thus fully described the construction and operation of my improved mold and pointed out its superior utility, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A mold or case provided with a secondary chamber, *f*, to operate substantially in the manner and for the purpose set forth and described.

2. In combination with a mold or case adapted for making plumber's joints in pipes by the process of melting the ends of the said pipes, as described, the employment of a tubular protector, C, as and for the purpose specified.

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