(No Model.)

N. E. SMITH.

DEVICE FOR UPSETTING METAL.

No. 599,266. Patented Feb. 15, 1898.

Fig. 1.

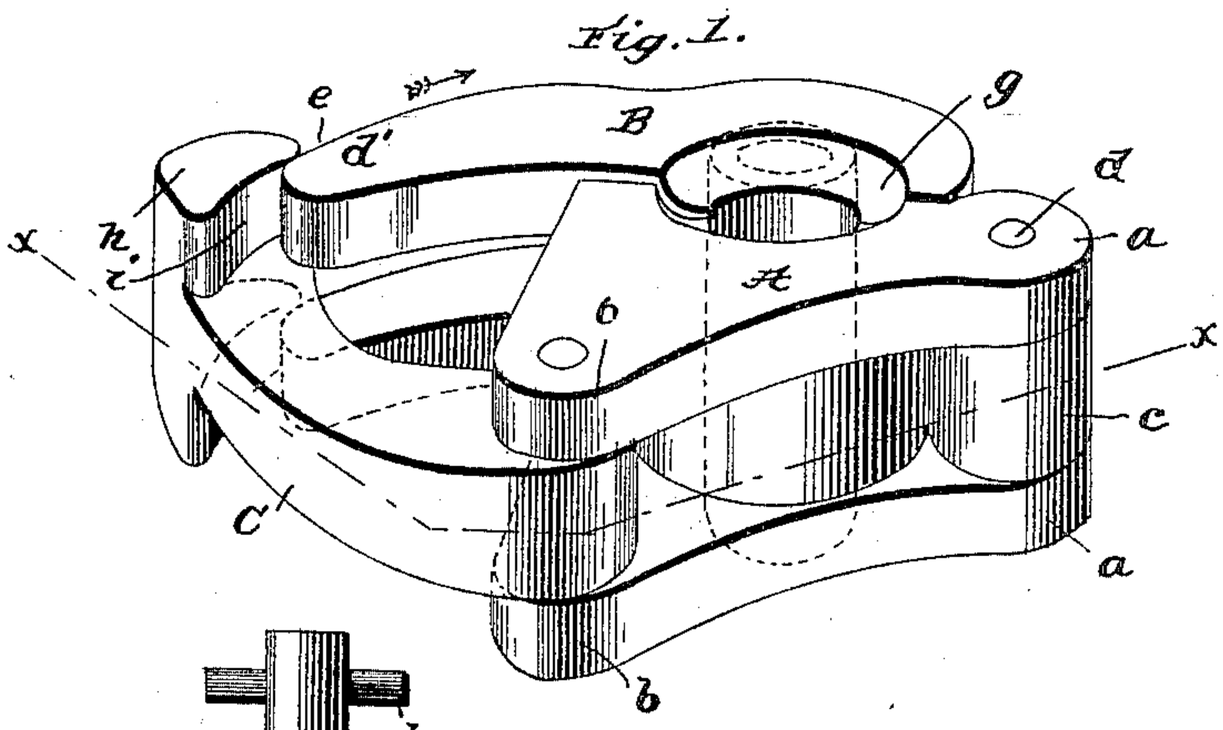


Fig. 3.

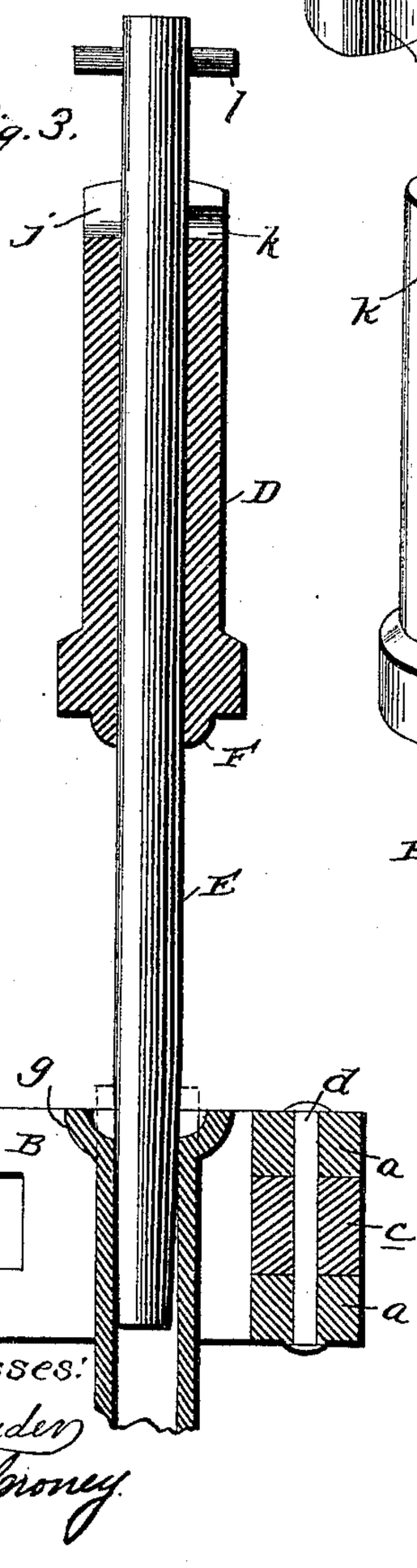


Fig. 4.

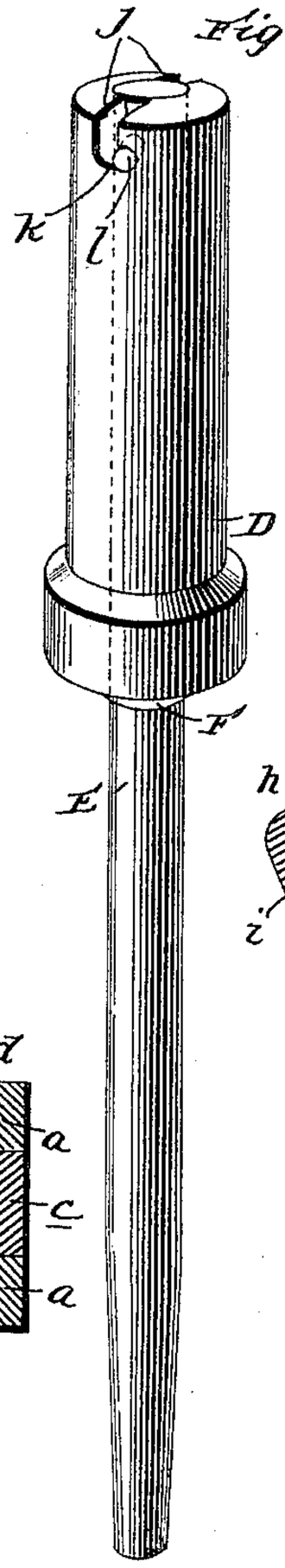
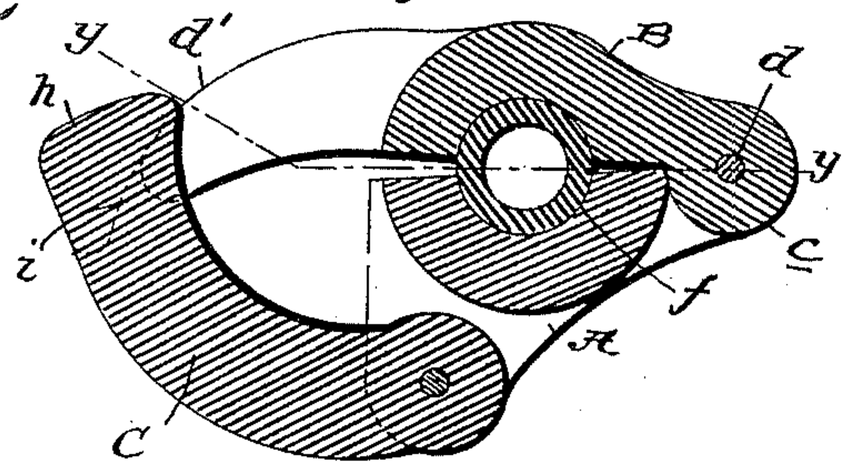


Fig. 2.



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UNITED STATES PATENT OFFICE.

NATHANIEL E. SMITH, OF JERSEY CITY, NEW JERSEY.

DEVICE FOR UPSETTING METAL.

SPECIFICATION forming part of Letters Patent No. 599,266, dated February 15, 1898.

Application filed August 31, 1897. Serial No. 650,192. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL E. SMITH, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Devices for Upsetting Metal; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices for upsetting metal, and contemplates the provision of an upsetting device designed more especially for enlarging the ends of soft-metal pipes and forming seats in the same so as to adapt them for use in connection with couplings of the type disclosed in an application for Letters Patent of the United States filed by me on June 17, 1897, Serial No. 641,166.

The invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a perspective view of the pipe-holder of my improved device with the jaws or members thereof partly open and a piece of soft-metal pipe, illustrated by dotted lines, in its proper position therein. Fig. 2 is a section taken in the plane indicated by the line *x x* of Fig. 1 with the piece of pipe shown in full lines. Fig. 3 is a section illustrating the upsetting-tool or hammer and its guide-rod in conjunction with the pipe-holder, and Fig. 4 is a perspective view illustrating the upsetting-tool or hammer secured against endwise movement on the guide-rod.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A indicates one of the jaws of the pipe holder or clamp, which has pairs of apertured lugs *a b* at its opposite ends, and B designates the other jaw, which has an apertured lug *c* at one end interposed between and connected by a hinge-pintle *d* to the lugs *a* of the jaw A, and also has its opposite end bifurcated, the outer sides of the branches *d'* thus formed being rounded, as designated by *e*, for the engagement of the fastener presently described. In their inner faces, which are flat, as shown, the said jaws A B have semicircular grooves *f*, designed to coincide and form a socket for the piece of pipe to be upset, and they also have the upper ends of said grooves flared, as indicated by *g*, (see Fig. 3,) so as to form a seat for the upset portion of the piece of pipe, the said seat being preferably of concave form in cross-section, although it may be of any other suitable shape, if desired.

C designates the fastener of the pipe holder or clamp. This fastener has one end interposed between and pivotally connected to the lugs *b* of the jaw A, and at its opposite end it is provided with the T-head *h*, rounded on its inner side *i* in conformity to the curvature of the outer sides of the branches *d'*, as shown. In using the holder thus formed the jaws A B are opened and the piece of pipe to be upset is interposed between the same, so as to rest in the socket formed by the grooves *f*, after which the jaws are swung together to the extent shown in Figs. 1 and 2. The fastener C is then swung into engagement with the branches *d'* of the jaw B and is forced in the direction indicated by arrow, (see Fig. 1,) when its T-head *h*, riding up the curved surface *e* of said branches, will draw the jaws together and securely hold the piece of pipe between the same, any tendency of the jaws to move apart only serving to bind the branches *d'* more securely against the T-head of the fastener. When it is desired to release a piece of pipe from the holder, it is simply necessary to move the headed end of the fastener C in a direction opposite to that indicated by arrow out of engagement with the branches *d'* of jaw B.

D designates the tubular upsetting-tool or hammer of my improved device, and E indicates the guide-rod on which the tool or hammer is designed to be reciprocated. The tubular tool or hammer D is provided at its upper end with notches *j*, terminating at their lower ends in oppositely-directed offsets *k*, and the guide-rod E is provided adjacent to its upper end with lateral projections *l*, which are designed to enter the notches *j* of the tool D and be seated in the offsets *k*, when the tool is partly turned, so as to fix said tool against endwise movement on the rod. This permits of the tool or hammer being conveniently used as a handle in forcing the lower end of the rod E, which is preferably tapered, as

shown, into the pipe to be upset when the said pipe is secured in the holder. When the rod E is so inserted in the pipe, it serves to prevent the pipe from giving inwardly when subjected to the blows of the hammer and at the same time is secured in position, leaving the mechanic free to hold the pipe-holder with one hand and reciprocate the upsetting-tool or hammer with the other.

Both the rod E and upsetting-tool D are preferably of hard metal, and the latter is provided at its lower end with a protuberance F, which serves to upset the end of the pipe and thereby enlarge such end and form a seat therein as desired. This protuberance F may be of any shape in cross-section, according to the shape desired for the seat in the end of the pipe. I prefer, however, to have it convex, so as to enable it to form a concave seat in the end of the pipe, as I have found from experience that such a seat is preferable to any other.

In using my device the pipe to be upset is secured in the holder in the manner described. The upsetting-tool or hammer D is then placed in engagement with the projections *l* of the guide-rod and is used as a handle to force the said rod into the pipe. The operator now holds the pipe-holder in one hand, and after disengaging the tool from the projections *l* of the guide-rod reciprocates said tool with his other hand, so as to strike the end of the pipe with the lower end thereof. In this way the end of the pipe will be quickly upset and caused to assume the shape shown in Fig. 3, when the rod is withdrawn and the holder is opened to release the pipe.

When intended for use in a shop, it is obvious that, if desired, the pipe-holder may be connected to or form part of a suitable frame, which may be connected in turn to a workbench.

Having thus described my invention, what I claim is—

1. A device for upsetting the ends of soft-metal pipes comprising a pipe-holder having a pipe-receiving socket enlarged at one end, a rod adapted to be inserted in the pipe to be upset, and a hammer or upsetting-tool loosely mounted on said rod and having a protuberance at one end, substantially as specified.

2. A device for upsetting the ends of soft-metal pipes comprising a pipe-holder having a pipe-receiving socket, a rod adapted to be inserted in the pipe to be upset, and a hammer or upsetting-tool loosely mounted on said rod; the said hammer and rod being provided with coacting means whereby the hammer may be detachably connected to the rod so as to be fixed against endwise movement and rotation thereon, substantially as specified.

3. A device for upsetting the ends of soft-metal pipes comprising a pipe-holder having a pipe-receiving socket enlarged at one end, a rod adapted to be inserted in the pipe to be upset, and a hammer or upsetting-tool loosely mounted on said rod and having a protuberance at one end, said hammer and rod being provided with coacting means whereby the hammer may be detachably connected to the rod so as to be fixed against endwise movement and rotation thereon, substantially as specified.

4. A device for upsetting the ends of soft-metal pipes comprising a pipe-holder having a pipe-receiving socket, a rod adapted to be inserted in the pipe to be upset and having a lateral projection and a hammer or upsetting-tool loosely mounted on said rod and having a notch in one end terminating at its inner end in an offset; said notch being adapted to receive the projection of the rod, substantially as specified.

5. A pipe-holder for the purpose described comprising jaws A, B, connected in a hinged manner and having grooves in their meeting faces adapted to form a pipe-receiving socket; said jaw B, also having its free end bifurcated and the branches formed thereby rounded on their outer side, and the fastener pivotally connected to the jaw A, and having the T-head, substantially as specified.

6. In a device for upsetting soft metal, a pipe-holder comprising jaws A, B, connected in a hinged manner and having grooves in their meeting faces enlarged at one end and adapted to form a pipe-receiving socket with a flared end; said jaw B, also having its free end bifurcated and the branches formed thereby rounded on their outer side, and the fastener pivotally connected to the jaw A, and having the T-head, a rod adapted to be inserted in the pipe to be upset, and a hammer or upsetting-tool loosely mounted on said rod and having a protuberance at one end, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL E. SMITH.

Witnesses:
HUDSON TOWNLEY,
ALIDA LAPPIN.