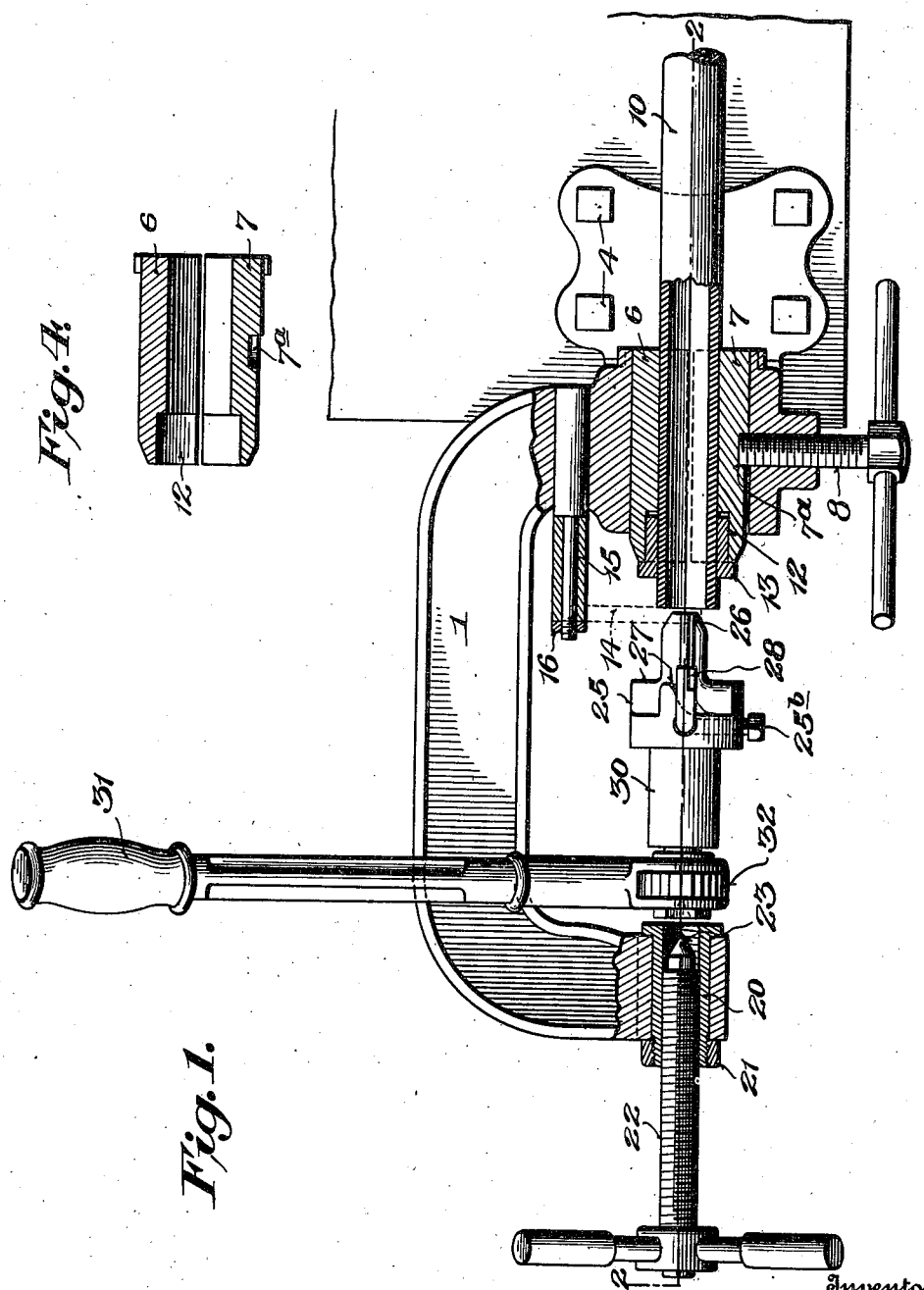
P. MUELLER, A. C. SCHUERMANN AND R. H. MUELLER.

MACHINE FOR FLANGING SOFT METAL PIPES.

APPLICATION FILED DEC. 1, 1919.

1,383,840. Patented July 5, 1921.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

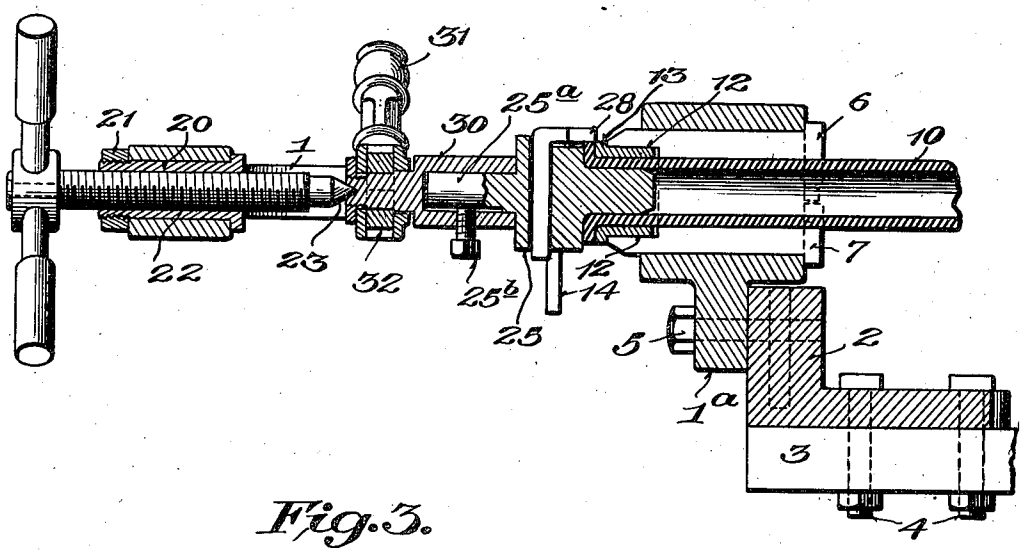
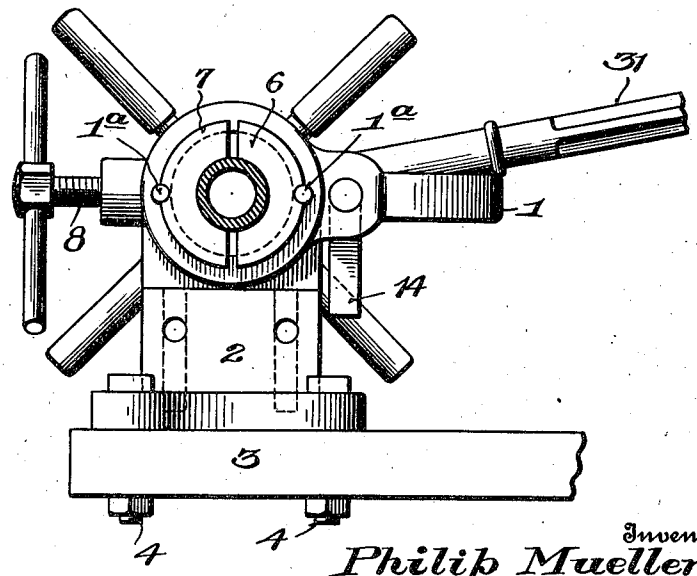


Fig. 3.



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Fig. 6.

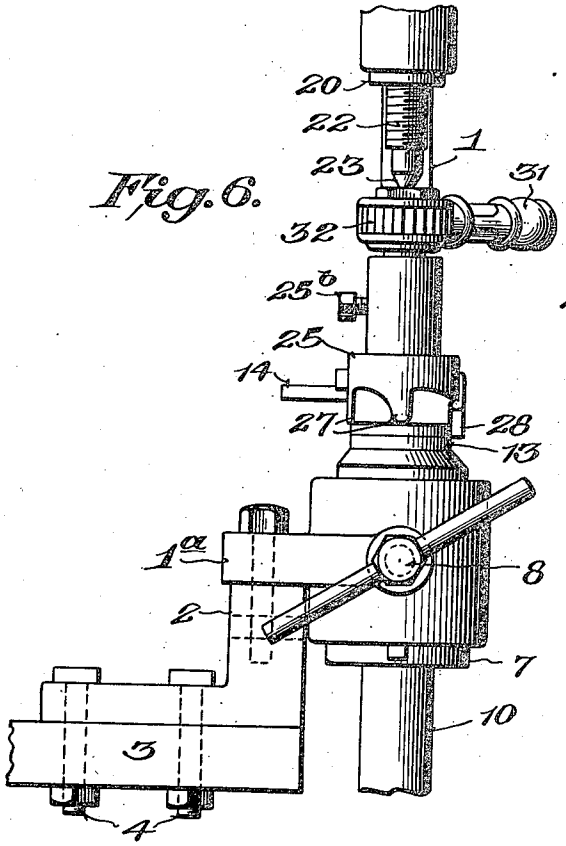


Fig. 5.

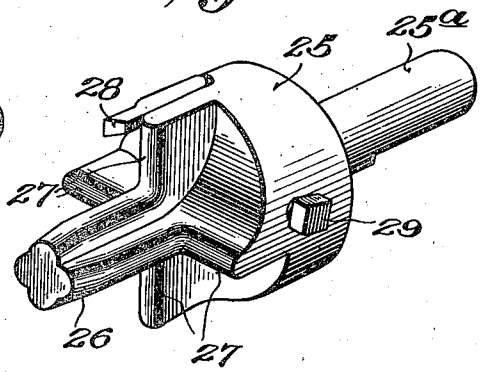
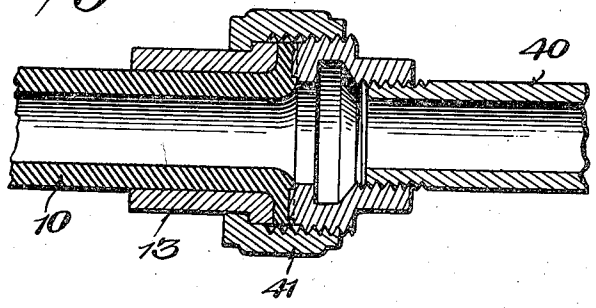


Fig. 7.



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UNITED STATES PATENT OFFICE.

PHILIP MUELLER, ANTON C. SCHUERMANN, AND ROBERT H. MUELLER, OF DECATUR, ILLINOIS, ASSIGNORS TO ADOLPH MUELLER, TRUSTEE, OF DECATUR, ILLINOIS.

MACHINE FOR FLANGING SOFT-METAL PIPES.

1,383,840. Specification of Letters Patent. Patented July 5, 1921.

Application filed December 1, 1919. Serial No. 341,835.

To all whom it may concern:

Be it known that we, PHILIP MUELLER, ANTON C. SCHUERMANN, and ROBERT H. MUELLER, citizens of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Machines for Flanging Soft-Metal Pipes, of which the following is a specification.

The present invention relates to improvements in machines for forming flanges on soft metal tubes, and particularly to devices for flanging lead pipe to adapt it for connection in "union lead flange couplings" such as are employed in connecting water supply mains with house service pipes.

The object of the invention is to provide a simple and durable apparatus for the purpose described which may be operated in either a vertical or horizontal position and be readily attached to a board or other support placed in or across the ditch containing the service pipe.

More especially, the subject matter of the present application is an improvement upon the apparatus shown in a co-pending case of Philip Mueller and Anton C. Schuermann, filed November 12, 1919, Serial No. 337,498, the present construction being less expensive than that of the application referred to.

In the accompanying drawings,—

Figure 1 is a plan view of an apparatus embodying the invention, some of the parts being shown in section.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is an end elevation.

Fig. 4 is a detail view of the bushing or linings of the pipe clamping jaws.

Fig. 5 is a detail view of the flanging tool.

Fig. 6 is a view showing the apparatus arranged for operating on a vertical pipe, and

Fig. 7 is a sectional view of a pipe union in which pipes flanged by the apparatus referred to may be employed.

Referring to the drawings, the apparatus comprises the main frame, shown as a U-shaped casting, 1 which has one limb adapted to be detachably but securely fastened to a base 2 which in turn is adapted to be secured to a board or other support 3 as by means of bolts 4. Alined bores are formed in the end members of the frame 1, and one of said members is provided with the depending flange 1^a which is secured to the base 2 by suitable screws 5. As shown in Figs. 1 to 3, the main frame casting 1 is arranged in a horizontal position, the lip or flange 1^a extending vertically and bearing against a vertical face of the base 2. Said base, however, as shown, is provided with vertical sockets adapted to receive the screws 5 so that the machine may be supported to operate on a pipe arranged in a vertical position, as shown in Fig. 6.

Within the bore formed in the main frame 1 adjacent the base 2 is arranged a sectional bushing constituting the pipe clamp. As shown, this bushing comprises two generally similar sections 6, 7, each being provided at one end with notched projections adapted to engage corresponding lugs 1^b on the main frame so that the bushing will be properly positioned within the bore in the frame 1 and the bushing member 7 is provided with a recess 7^a adapted to receive the inner end of a fastening screw 8 by means of which pressure can be exerted to cause the two bushing sections to firmly grasp the pipe 10 to be flanged. A suitable socket 12 is formed at one end of the sectional bushing to receive a coupling member or "tail piece" 13 against which the end of the tube 10 is adapted to be flanged.

A stop finger 14 is pivotally mounted on a pin 15 projecting from the frame 1, said finger being held in position on the pin by a nut 16 and said stop is adapted to be turned so that its end will project more or less across the passage through the bushings 6, 7, whereby it will act to limit movement of the pipe 10 when the latter is inserted in the machine.

Within the bore formed in the other limb of the U-shaped frame 1 is fitted an interiorly threaded bushing 20, held in place by a nut 21 and through said bushing is adapted to work a feed screw 22, having its inner end reduced and pointed, as at 23. The flanging tool comprises a head 25 having a tapering centering projection 26 and a plurality of flanging projections 27, said centering projection being adapted to extend into the tube to be operated on to prevent crushing of the walls thereof during the flanging operation. A trimmer or cutter 28 is mounted in the head 25, being held in the desired adjusted relation thereto by a suitable screw 29. The shank 25^a of the

flanging tool is held in a suitable socket formed at one end of a tool holder 30, as by a set screw 25^b, and with said holder 30 is adapted to coöperate a suitable lever 31 and ratchet wheel 32 by means of which the flanging and trimming tool may be rotated. At one end the tool holder 30 is provided with a recess to receive the reduced tapered end 23 of the feed screw 22.

It will be understood that the machine described is adapted for flanging pipe of any size, it merely being necessary to make bushings 6, 7 of the required thickness and to have the parts of the flanging tool properly proportioned.

To use the apparatus, the feed screw 22 will be turned to withdraw the pointed end thereof into the bushing 20, the flanging tool and means for rotating the same being removed from the frame. The lock screw 8 being suitably withdrawn, the pipe 10 to be flanged having placed thereon the sleeve or coupling 13 and the appropriate bushings 6, 7, is inserted in the frame and the lock screw actuated to clamp the parts therein. The extent to which the tube or pipe projects from the sleeve 13 is determined by the stop 14, which is turned to constitute an abutment; and sleeves of different lengths may be employed according to the extent which is desired to flange the tube. The clamps or jaws 6, 7 will be held from turning by the engagement of the lugs or pins 1^a, therewith.

The centering projection 26 is then inserted in the end of the tube of pipe 10 and the feed screw 22 actuated to bring the pointed end thereof into the socket provided for it in the end of the tool holder. Further actuation of the screw 22 will move the centering projection 25 into the tube and cause the flanging projections 27 thereon to flange one end of the tube against the sleeve 13. By means of the lever 31 and ratchet 32 the flanging tool will be given a continuous rotating movement, the end of the pipe flanged down and the cutter 28 thereof caused to trim the periphery of the flange. After the flange has been thus formed and trimmed the feed screw is retracted from the holder and the latter removed from the apparatus after which, by loosening the screw 8 the bushings 6, 7, and flanged pipe may be readily withdrawn through the bore in the frame 1, said bushings, of course, being easily removed from the pipe when it has been thus withdrawn.

As shown in Fig. 7, a lead pipe flanged as thus described is adapted to be connected with a main 40 by means of a suitable coupling sleeve 41.

Having thus described the invention, what is claimed is:—

1. In a machine for flanging soft metal pipes, the combination of a frame provided with alined bores, pipe engaging bushings within one of said bores, a feeding screw movable through the other bore, and a flanging tool adapted to be supported on the end of said screw and in a pipe projecting from said bushings and to be moved by said screw, said tool being rotatable independently of any movement by the screw, and means for thus rotating the tool.

2. An apparatus for flanging soft metal pipes comprising in combination a U-shaped frame having alined passages extending through its limbs, means for securing a pipe in one of said passages with one end projecting therefrom toward the other limb of the frame, a supporting member extending through the passage in the last said frame limb, a flanging tool adapted to be positioned between and engaged by the end of said supporting member and the pipe between the limbs of the frame, means for moving the supporting member longitudinally to force the flanging tool into the pipe end, and means for rotating the tool independently of any longitudinal movement thereof or of said supporting member.

3. In an apparatus for flanging soft metal pipes, the combination of a suitable frame including a passage through which the end of a pipe to be flanged is adapted to be passed, means for securing a pipe in said passage with the end thereof to be flanged projecting from the passage, a stop pivotally mounted on the frame beyond the end of said passage from which the end of the pipe to be flanged projects and movable to determine the extent to which said pipe end shall project from said passage, and a flanging tool adapted to be supported to engage the said projecting end of the pipe, and to be actuated to form the said projecting end of the pipe into a flange.

4. In an apparatus for flanging soft metal pipes, the combination of a frame including a passage through which the end of a pipe to be flanged is adapted to be passed, bushings within said passage provided at the end from which the end of the pipe to be flanged projects with a seat adapted to receive a collar that will surround the pipe and extend beyond the ends of the bushings, a stop pivotally mounted on the frame and movable to determine the extent that the end of a pipe to be flanged shall project beyond the ends of the bushings in which said collar seat is formed, means for clamping said bushings upon a pipe extending through the passage in the frame, and a flanging tool adapted to be supported by the frame and to be actuated to form the projecting end of the pipe into a flange against a collar fitted in said seat in the clamping bushings.

5. In an apparatus for flanging soft metal

pipes, the combination of a frame including means for clamping a pipe, a feed screw mounted in the frame in axial alinement with a pipe engaged by said clamping means, and a flanging tool adapted to be supported by one end of said screw and a pipe engaged by said clamp and to be moved longitudinally of the pipe by rotation of the screw, said tool being rotatable to effect flanging of the pipe independently of the feed screw.

6. In a machine for flanging soft metal pipes, the combination of a U-shaped frame having alined passages extending through its limbs, pipe engaging bushings within one of said passages, an interiorly threaded bushing in the passage in the other limb, a feed screw extending through and engaging the last said bushing, a flanging tool adapted to be supported by said screw and a pipe to be flanged and to be moved by the feed screw longitudinally of the pipe, and means for rotating said tool relative to the feed screw and pipe.

7. In a machine for flanging soft metal pipes, the combination of a U-shaped frame having alined passages extending through its limbs, pipe engaging bushings within one of said passages, an interiorly threaded bushing in the passage in the other limb, a feed screw extending through and engaging the last said bushing, a flanging and trimming tool adapted to be positioned between the feed screw and pipe engaging bushings and to be moved by said screw into engagement with the end of a pipe, projecting from the pipe engaging bushings, and means for rotating said tool.

In testimony whereof we have hereunto set our hands.

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ANTON C. SCHUERMANN.
ROBERT H. MUELLER.