(No Model.) 2 Sheets—Sheet 1.

H. K. TALLMAGE.

PORTABLE MACHINE FOR FORMING ELBOWS.

No. 577,083. Patented Feb. 16, 1897.

Fig. 1.

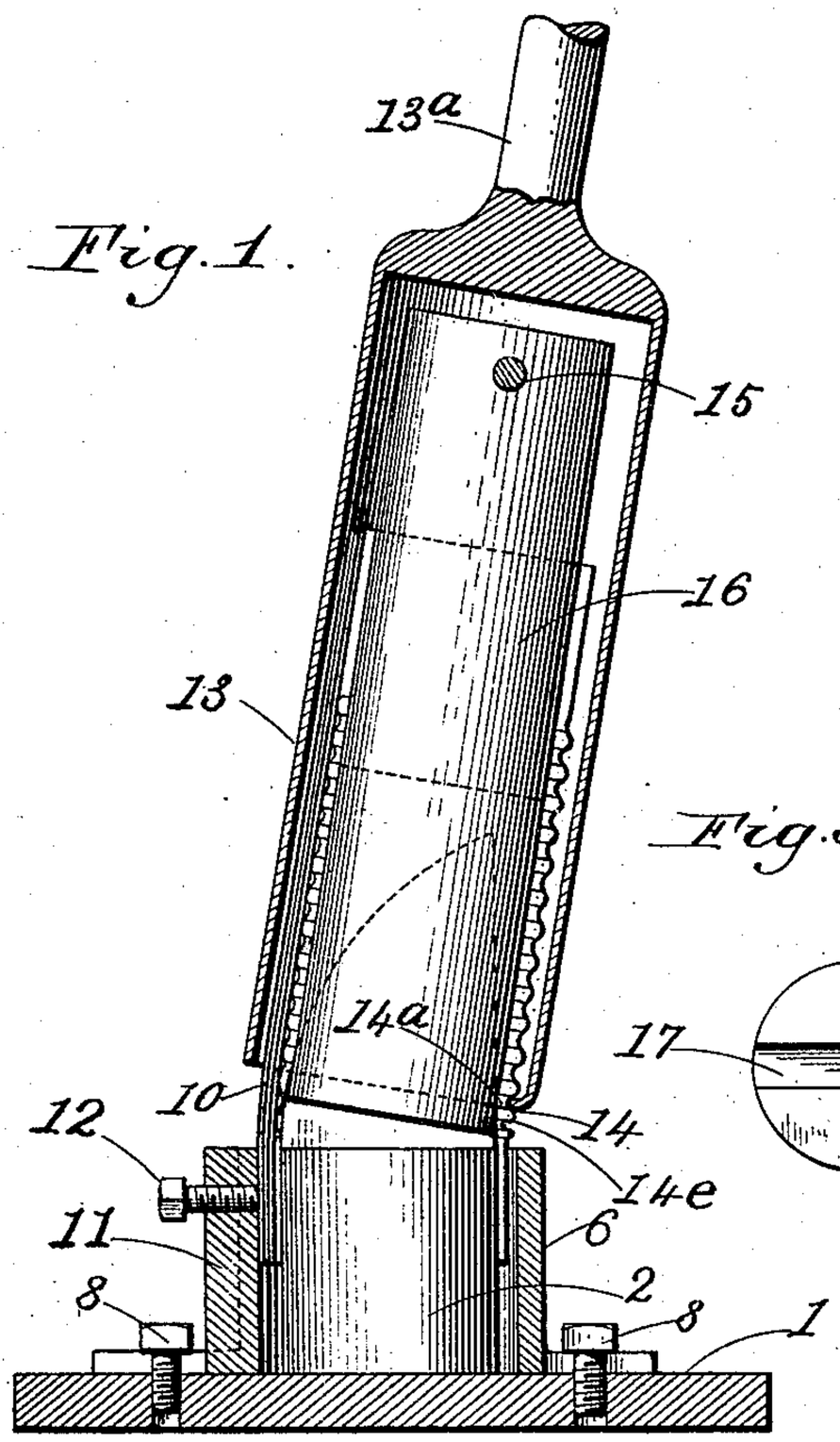


Fig. 2.

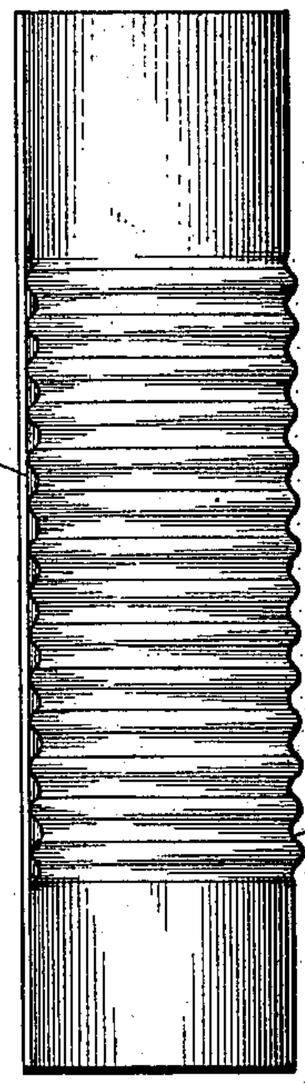


Fig. 3.

Fig 4.

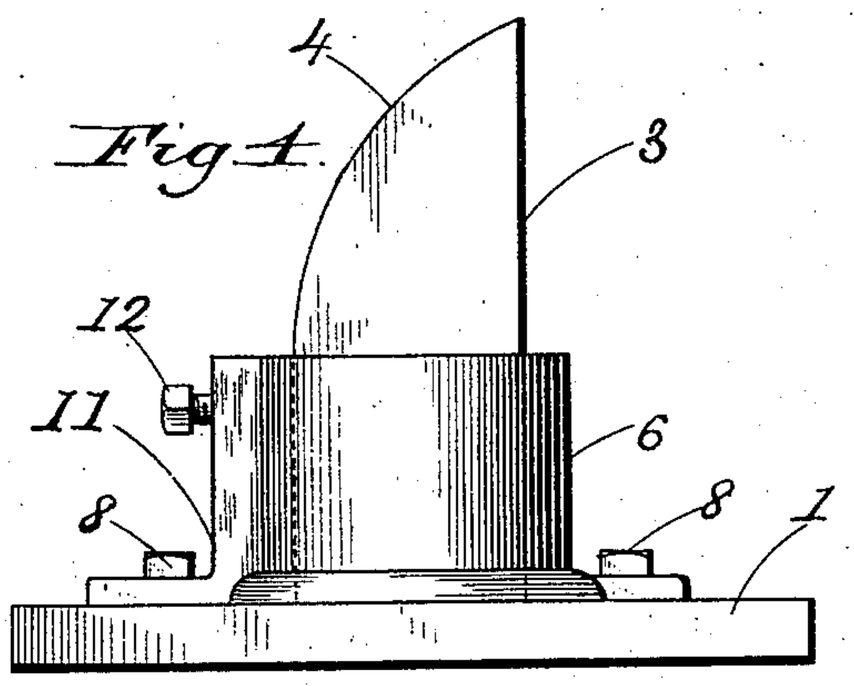
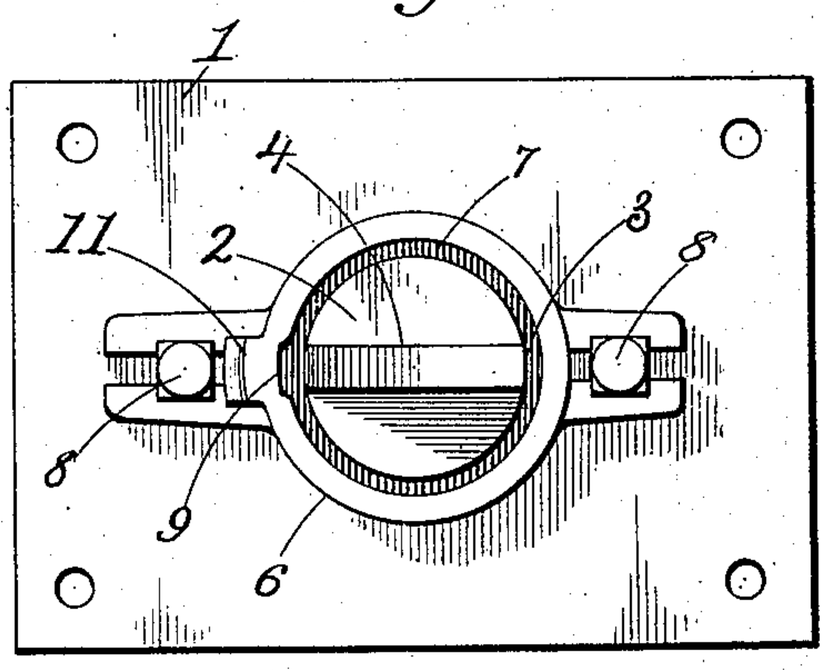


Fig. 5.



Witnesses,
L. M. Spong.
A. J. Sangster

Horace K. Tallmage, Inventor.
By James Sangster, Attorney.

(No Model.) 2 Sheets—Sheet 2.

H. K. TALLMAGE.

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Fig. 6.

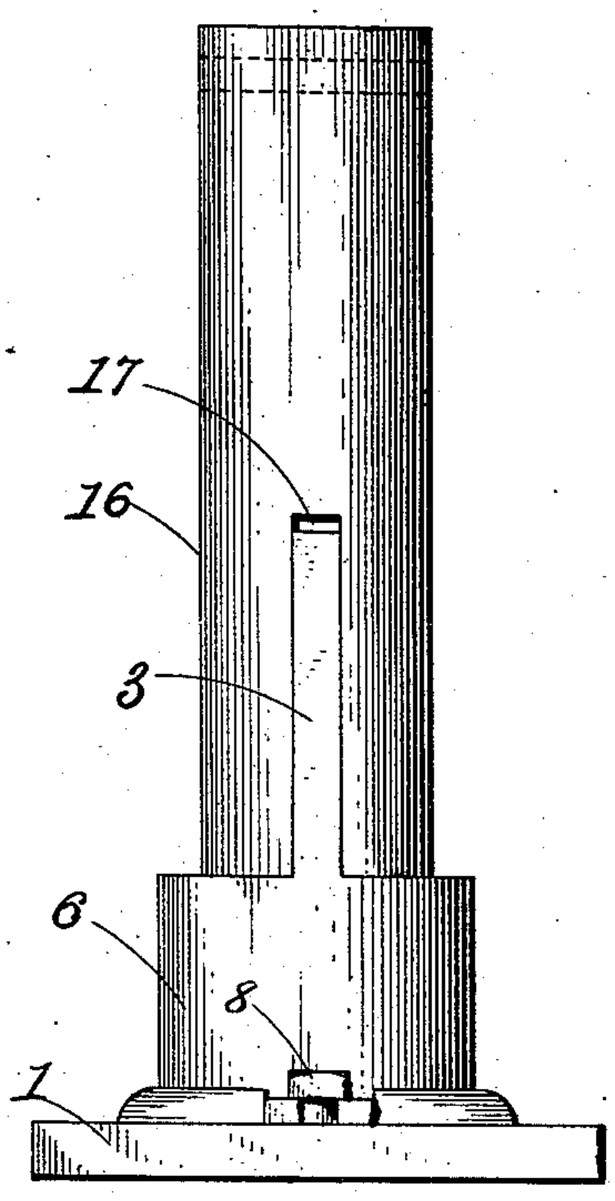

Fig. 7.

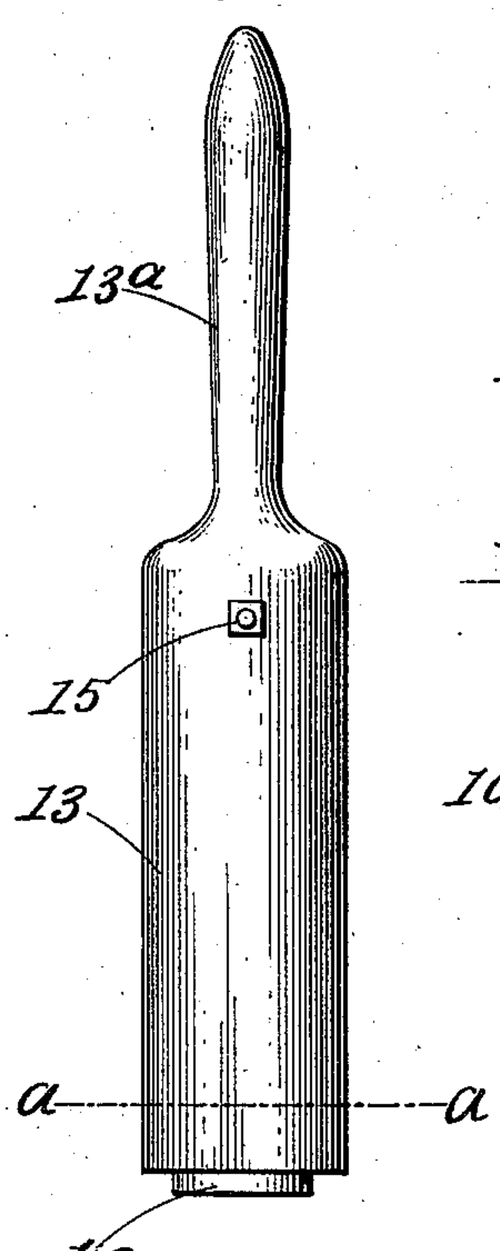

Fig. 8.

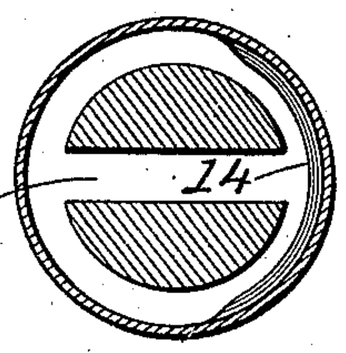

Fig. 9.

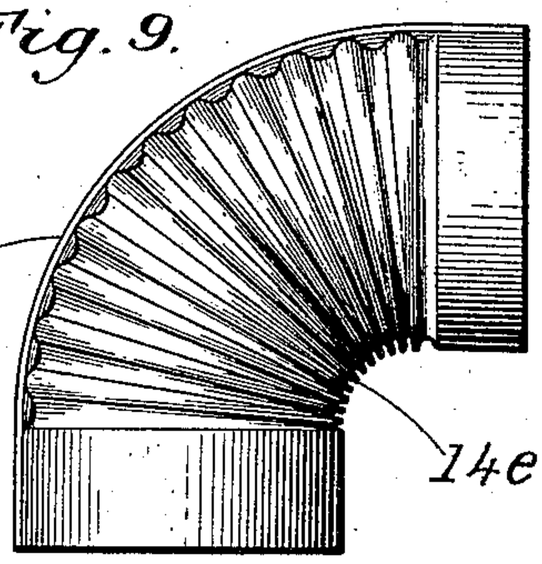

Fig. 10.

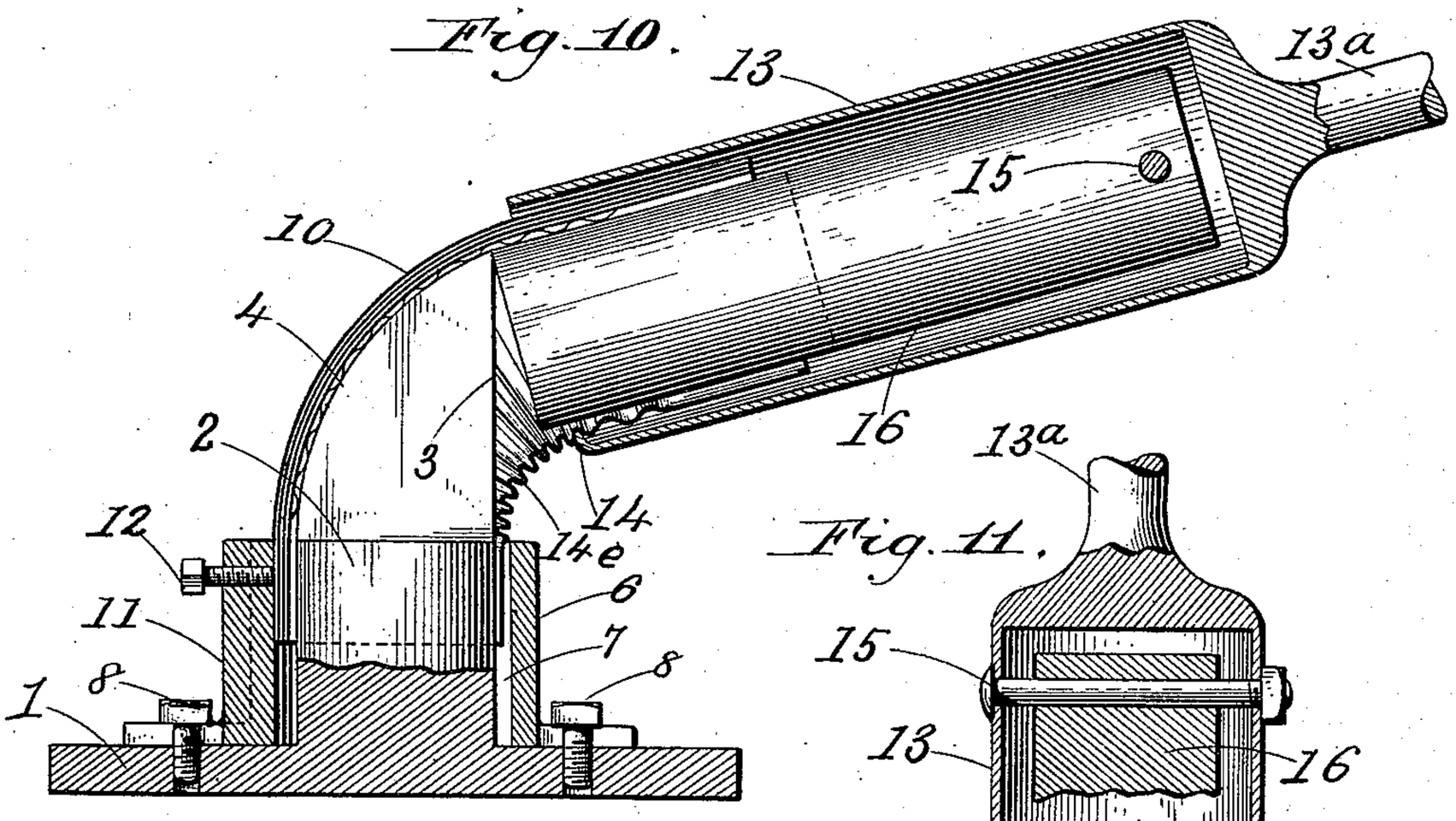

Fig. 11.

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By James Sangster Attorney.

UNITED STATES PATENT OFFICE.

HORACE K. TALLMAGE, OF BUFFALO, NEW YORK.

PORTABLE MACHINE FOR FORMING ELBOWS.

SPECIFICATION forming part of Letters Patent No. 577,083, dated February 16, 1897.

Application filed May 27, 1896. Serial No. 593,283. (No model.)

To all whom it may concern:

Be it known that I, HORACE K. TALLMAGE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Portable Machines for Forming Elbows, of which the following is a specification,

My invention relates to a new and useful hand-tool for crimping sheet-metal pipe and forming crimped elbows, and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical central section through the tubular crimping-tool and outer portion of the holding-base, showing also a side elevation of the inner part of the holding-base and a similar elevation of the inner forming-bar within the tubular crimping-tool. Fig. 2 represents a side elevation of a piece of pipe crimped preparatory to forming an elbow. Fig. 3 is a bottom view of the inside forming-bar, showing the slot in the lower part of it. Fig. 4 represents a side elevation of the holding-base of the machine. Fig. 5 represents a top plan view of the holding-base. Fig. 6 represents a front elevation of the outer portion of the holding-base and the inside forming-bar, showing its position on top of the inner holding-base preparatory to forming an elbow. Fig. 7 is a side elevation of the tubular crimping-tool, showing also the lower end of the inside forming-bar. Fig. 8 is a horizontal section on or about line *a a*, Fig. 7, looking downward. Fig. 9 represents a side elevation showing a completed elbow as made by my improved crimping device. Fig. 10 is a vertical longitudinal central section cutting centrally through the tubular crimping-tool, an elbow, and the outer portion of the holding-base, showing the elbow nearly completed. Fig. 11 represents a vertical central section through an upper portion of the tubular crimping-tool and inside forming-bar, showing the bolt upon which the forming-bar swings.

Referring to the drawings in detail, the base 1 of the machine is provided with an upward-extending cylindrical portion 2, (either formed in one piece with it or rigidly secured to it,) having a flat or substantially flat top, and extending across and up from the center of the top is a flat plate having one of its narrow sides 3 extending vertically upward from one side of the cylindrical portion and its opposite narrow side 4 curved and extending upward in the arc of a circle from the opposite side of the cylindrical portion to the top of the vertical side 3. (See Fig. 4.)

Over the portion 2 is fitted an outer holding portion 6, forming the outside holding-case. It is made sufficiently large to leave an annular opening 7 to enter the end of a piece of pipe from which an elbow is formed, as shown in Figs. 1 and 10.

The outside holding portion 6 is secured to the base 1 by screw-bolts 8, and is therefore easily removable.

At the back of the inner side of the portion 6 is a slight depression 9, (see Fig. 5,) which extends vertically downward to leave room for the seam 10 of a piece of pipe when entered in place to be formed into an elbow. Back of the depression 9 is a strengthening-rib 11, through which is passed a set-screw 12 for securing and holding a piece of pipe when put in place to form an elbow.

The tubular crimping-tool 13 is provided at its lower end with an inward-extending lip or crimping edge 14, (see Figs. 1, 8, and 10,) the use of which will appear farther on. The upper end of the crimping-tool is provided with an operating-handle 13ª. (Shown in Fig. 7.) At the top inner side of the crimping-tool is pivoted by a pin 15 a cylindrical inner forming-bar 16, the object of which is to protect and keep in shape the inside of the elbow as it is being crimped into form.

The bottom of the inner forming-bar is provided with a slot 17, (see Figs. 3, 6, and 8,) which fits over the flat vertical portion having the narrow sides 3 4. The object of the slot 17 and flat portion which fits into it is to prevent the crimping-tool from turning around and moving the crimping-lip 14 out of its true position, while at the same time it allows the crimping-tool to be moved forward and back in the proper direction for crimping an elbow.

The operation of the device is as follows: A piece of pipe being double-seamed together, as at 10, in the usual and well-known way, is put into a crimping-machine, between

grooved rollers of well-known construction, and crimped, as in Fig. 2, and is then put into the holding-base portion of the machine and secured by the set-screw 12. The crimping-tool is then put on, as shown in Fig. 1, the tubular portion 13 passing over the outside of the pipe, and the former 16 passing inside of the pipe, its lower slotted end passing over the flat portion, located centrally on the inner cylindrical portion 2. The crimping-tool is now adjusted so that its crimping-lip 14 is in the groove 14^a. By means of the handle 13^a the tool is turned forward, as in Fig. 1. This operation bends the crimping portion 14^c together, and thereby partly forms the elbow. The same process is again repeated from one groove to another until an elbow is completed, as in Fig. 9.

This machine is simple in construction, it is not liable to get out of order, it is not expensive, and it is easily operated by hand. Consequently it is well adapted for use in large or small shops in which it is an advantage to have the means at hand for quickly producing such elbows when required.

I claim as my invention—

1. In a machine for forming elbows, a holding-base consisting of an inside cylindrical portion, an upward-extending plate having its base extending across the cylindrical portion from front to rear, its narrow rear side extending in the arc of a circle to the top of its vertical narrow side, a base portion surrounding the cylindrical portion leaving a narrow annular space between the two, means for securing it to the base-plate, and means for securing a piece of pipe when entered in place to be bent, substantially as described.

2. In a machine for forming elbows, a base-holding portion provided with a vertical plate having a curved edge over which the elbow is bent and with an annular space in which the pipe to be formed is entered, in combination with a tubular hand crimping-tool provided with an inward-extending crimping portion, and inner, former pivoted loosely within the crimping-tool and provided with a slot in its lower end adapted to fit over the vertical plate, substantially as described.

3. In a machine for forming elbows, a hand crimping-tool, consisting of a tubular crimping-bar provided with an inward-extending crimping portion 14, in combination with a forming-bar having its upper end secured within the tubular crimping-bar, for the purposes described.

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Witnesses:

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L. M. SPONG.