

(No Model.)

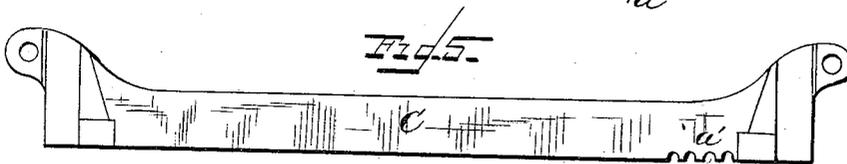
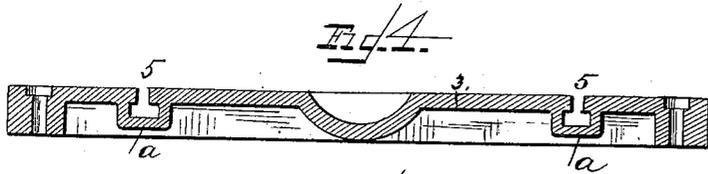
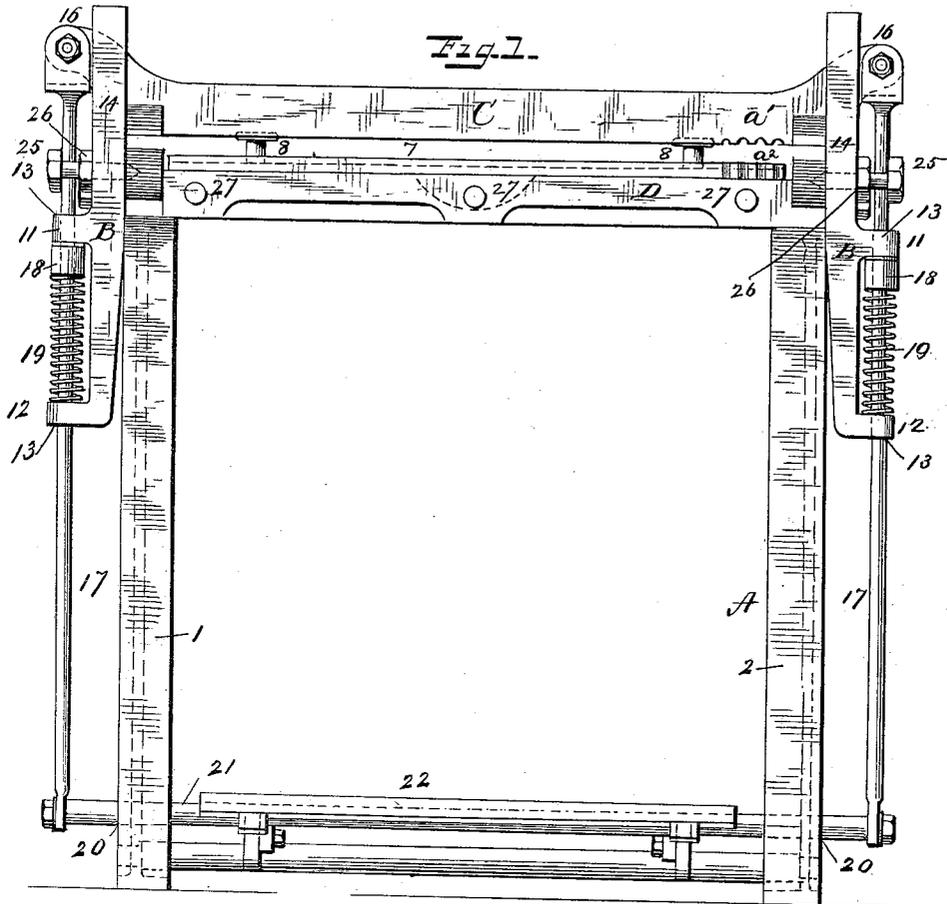
2 Sheets—Sheet 1.

P. KIMMEL.

MACHINE FOR BENDING SHEET METAL.

No. 366,486.

Patented July 12, 1887.



Witnesses  
Francis L. Curand  
S. F. Marshall

Inventor  
Phillip Kimmel,

By his Attorney  
A. G. Kuyler

(No Model.)

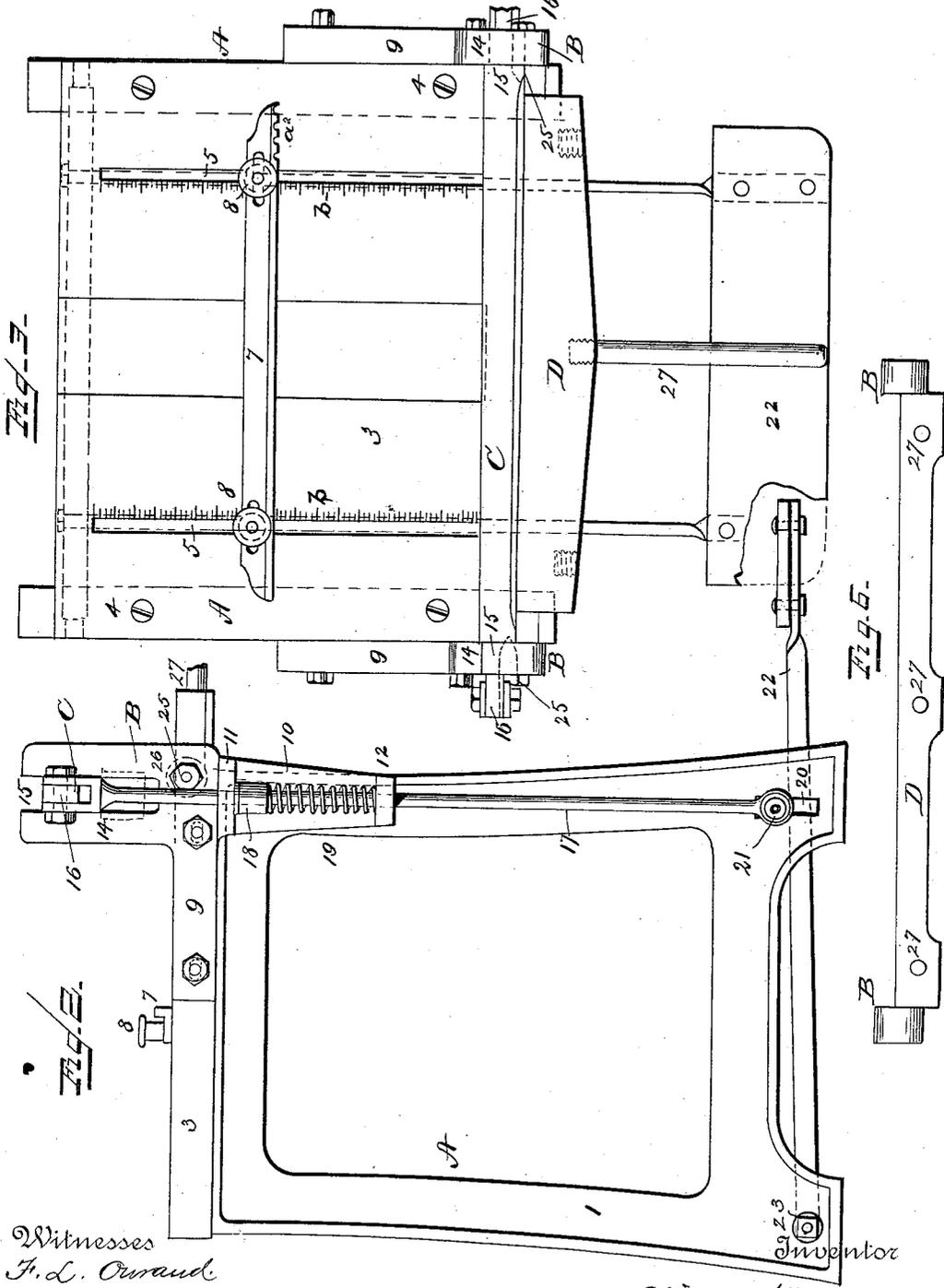
2 Sheets—Sheet 2.

P. KIMMEL.

MACHINE FOR BENDING SHEET METAL.

No. 366,486.

Patented July 12, 1887.



Witnesses  
*J. L. Orvand*  
*S. F. Marshall*

*Phillip Kimmel*  
 Inventor  
 By his Attorney  
*A. G. Heyman,*

# UNITED STATES PATENT OFFICE.

PHILIP KIMMEL, OF ALTOONA, PENNSYLVANIA.

## MACHINE FOR BENDING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 366,486, dated July 12, 1887.

Application filed March 7, 1887. Serial No. 230,004. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP KIMMEL, a citizen of the United States of America, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented a new and useful Machine for Forming Square Pipe and Boxes, of which the following is a specification.

My invention has relation to improvements in machines for making angular vessels or pipes from sheet metal; and the object is to improve the construction of existing mechanism of the art.

My invention consists in the novel construction of parts and their combination, as hereinafter will be fully specified, and specially as pointed out in the claims made hereto.

I have fully illustrated my improvements in the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a front view of the machine in elevation. Fig. 2 is a side view in elevation. Fig. 3 is top plan view. Fig. 4 is a transverse section through the bed-plate. Fig. 5 is a front view of the clamping-bar detached, and Fig. 6 is a front view of the "former."

In the drawings like notations denote similar elements or parts, and reference being thereto had, the letter A designates the frame which supports the platen or bed-plate and the "forming" mechanism. This frame consists of two substantial side pieces, 1 2, made of cast metal, and of duplicate construction. On the tops of the side pieces is secured the platen or bed-plate 3 by screws or bolts 4, having their heads countersunk in the bed-plate, substantially as shown. In the bed-plate are formed slots 5, arranged longitudinally, as seen, and in order that the bed-plate shall not be weakened by these openings the parts separated are connected below by a ridge-piece, *a*, having a chamber into which the slots open, the chamber forming with the slots a T-shaped receptacle, into which the head and neck of the set-screws of the gage-bar are inserted. The T-slots open at the front end of the plate. On the edge of each slot and arranged to register with each other is a graduated measurement, *b*, whereby the gage-bar may be set as desired. Transversely arranged on the bed-plate is the gage-bar 7, held in position by set-screws 8, projected through

it, the heads of which are seated, as stated, in the T-slots of the beds. By means of these screws the gage-bar may be set tight in any position on the plate desired. This gage-bar has on one end a series of transverse serrations or grooves, *a*<sup>2</sup>, to receive seams or other lines in the metal of the pipe or box.

The letters B designate brackets secured to each side piece, which are designed to hold and direct the clamping-bar, the treadle-rods, and the coil-springs. These brackets are duplicate in form, and are composed of a horizontal arm, 9, projected rearward, and having bolt-holes, with bolts to secure it to the side pieces of the frame, a vertically depending arm, 10, having side extensions, 11 12, with passages 13, to receive the treadle-rods of the clamping-bar, and the upper extension, 14, formed with open-end slot 15, to take and guide the ends of the clamping-bar. The lower part, 10, preferably stands slightly outward from the frame, substantially as seen in Fig. 1 of the drawings.

The letter C designates the clamping-bar. This consists of a substantial metal bar having its ends 16 formed to project through and fit in the open-end slots of the brackets B. The projecting ends of the clamping-bar are formed with holes, through which bolts are passed, and to these are pivotally attached and suspended the treadle-rods 17, which are passed through the side extensions of the brackets, and have secured thereon between the side extensions an adjustable sleeve, 18, or other proper seat, and a coil-spring, 19, one end of which sets on the lower side extension of the bracket, with the upper end set against the sleeve, as shown, the function being to lift the clamping-bar when drawn down on the metal sheet or bed-plate. The lower front portions of the side pieces of the frame are vertically slotted, as at 20, and in these slots is disposed a bar, 21, to the outer ends of which are attached the lower ends of the treadle-rods. This bar 21 is secured to the treadle 22, which is fulcrumed to the back part of the frame, as at 23. The clamping-bar is thus drawn down by the downward motion of the treadle, and then returned or lifted when the power is removed by the force of the coil-springs.

The letter D designates the former. This consists of a heavy metal bar substantially of

the form seen in Fig. 6 of the drawings. The ends are countersunk and fitted to pivot on the pivot-screws 25, let through the brackets in the frame, fastening-nuts 26 being on the stem of the pivot-screws to secure them. In one edge of the former are two or more screw-pits, in which handles 27 are screwed, by which the former is tilted and brought up to turn the projecting sheet of metal up against the face of the clamping-bar. The former is pivoted so that its upper inner corner turns on the line of the bed-plate, and so that by a quarter-turn the upper face will stand erect and turn the metal sheet at right angles to the part on the bed-plate. This former has on one end a series of transverse serrations or grooves *a'* on a line with and to correspond with those on the gage-bar.

The operation may be stated as follows: The size of the box or piping having been determined by adjustment of the gage-bar, a sheet of metal is laid on the bed-plate with the part to be bent up extending under the clamping-bar and over the former. Now, by pressing down the treadle the clamping-bar is drawn down and clamps the sheet, and then by turning the former up and against the face of the clamping-bar the sheet is turned up and the angle formed. A repetition of this action applied to other measurements of the sheet forms the box or pipe.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the frame and the bed-plate secured thereon, of the side brackets having a horizontal arm, 9, extended rearward to secure the bracket to the frame, a vertically-depending arm, 10, having side extensions, 11 12, with passages, and the vertical extension 14 with open-end slot, the clamping-bar arranged in said slots of the side brackets, treadle-rods connected to said clamping-bar and passed through the side extensions of the side brackets, and provided with coil-springs seated in the said side extensions, and a treadle fulcrumed in the base of the machine, substantially as described, and for the purpose specified.

2. The combination, with the frame and the bed-plate secured thereon, said frame being provided with vertically-arranged slots 20 in the lower front part, of the side brackets formed with a horizontal arm, 9, to secure them to the frame, a vertically-depending arm, 10, having side extensions, 11 12, with passages, and the vertical extension 14 with open-end slots, the clamping-bar arranged in said slots of the side brackets, a treadle fulcrumed to the side pieces of the frame and provided with a cross-bar arranged with its ends projecting through the slots in base of the frame, and treadle-rods connected to the ends of the clamping-bar and the cross-bar of the treadle, and provided with springs seated in the side brackets to lift the clamping-bar, substantially as described.

3. The combination, with the frame and the bed-plate secured thereon, said frame being provided with vertically-arranged slots 20 in the lower front part, of the side brackets formed with a horizontal arm, 9, to secure them to the frame, a vertically-depending arm, 10, having side extensions, 11 12, with passages, and the vertical extension 14 with open-end slots, the clamping-bar arranged in said slots of the side brackets, a treadle fulcrumed to the side pieces of the frame and provided with a cross-bar arranged with its ends projecting through the slots in the base of the frame, treadle-rods connected to the ends of the clamping-bar and the cross-bar of the treadle and provided with springs seated in the side brackets to lift the clamping-bar, and the former hung on pivots projected through the side brackets, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

PHILIP KIMMEL.

Attest:

J. D. HICKS,  
W. D. COUCH.