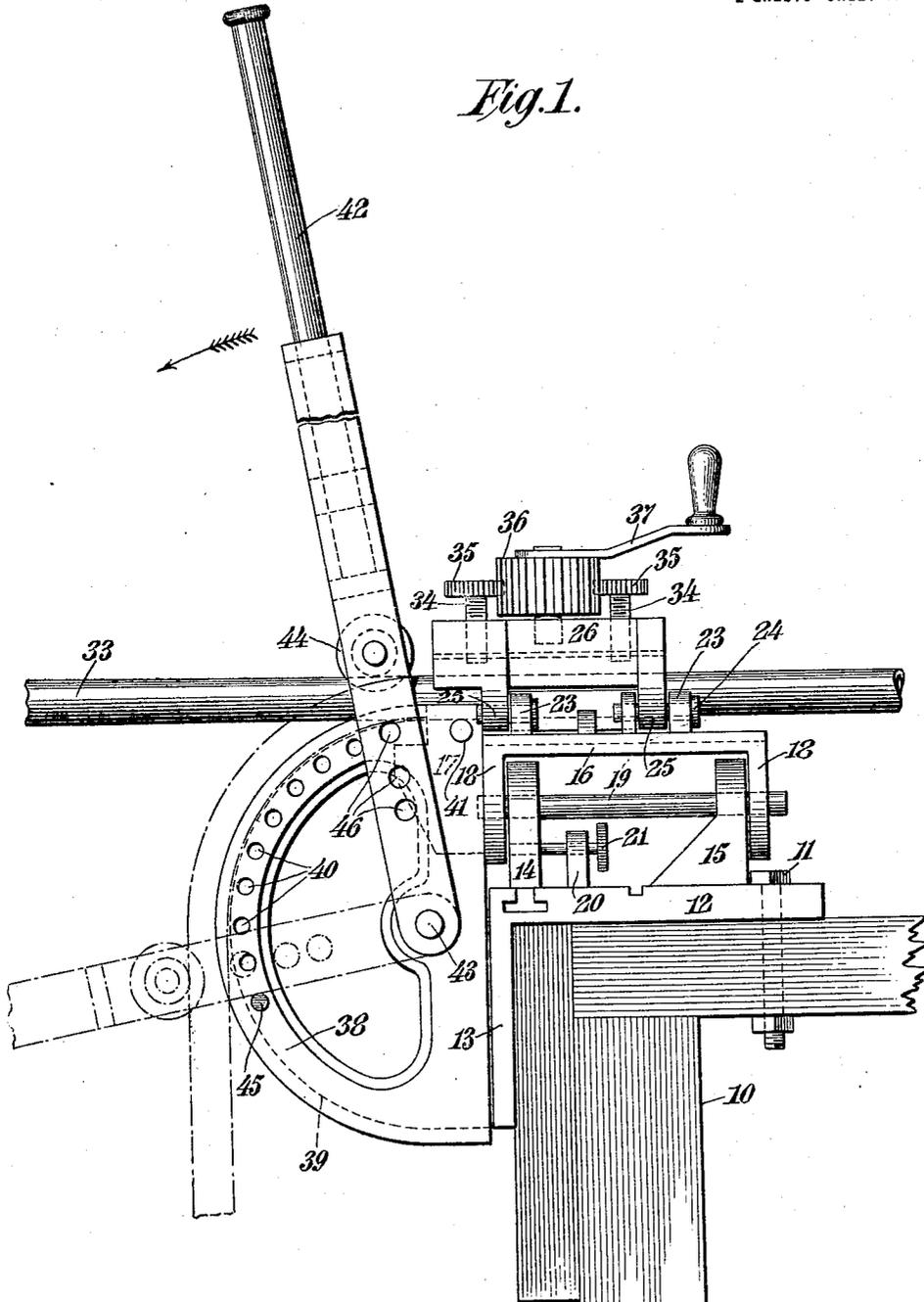


R. P. SPENCER.  
PIPE BENDING MACHINE.  
APPLICATION FILED JULY 31, 1917.

Patented July 16, 1918.  
2 SHEETS—SHEET 1.

1,272,552.

*Fig. 1.*



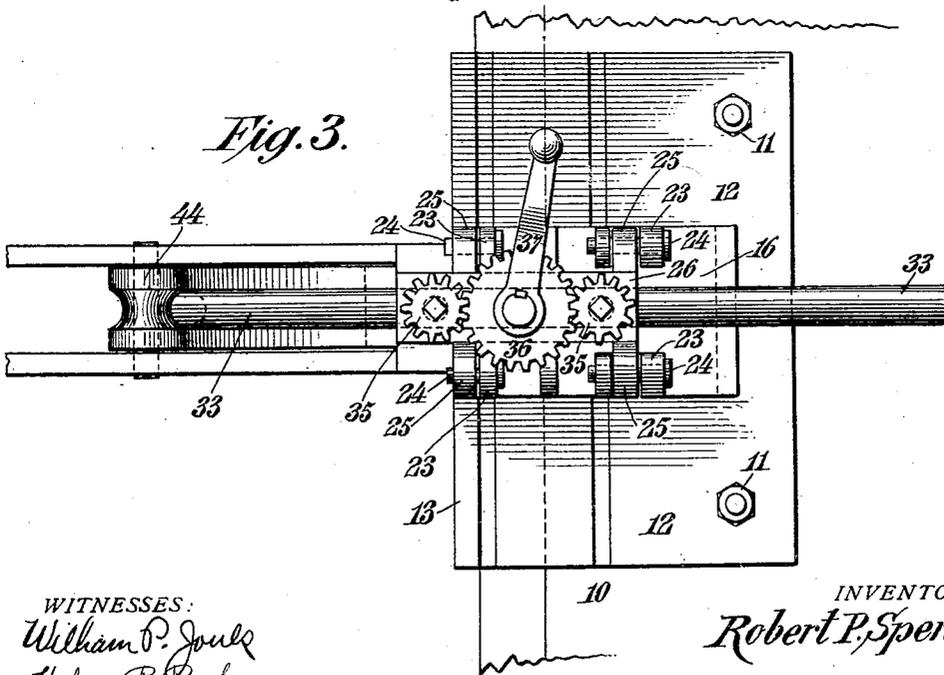
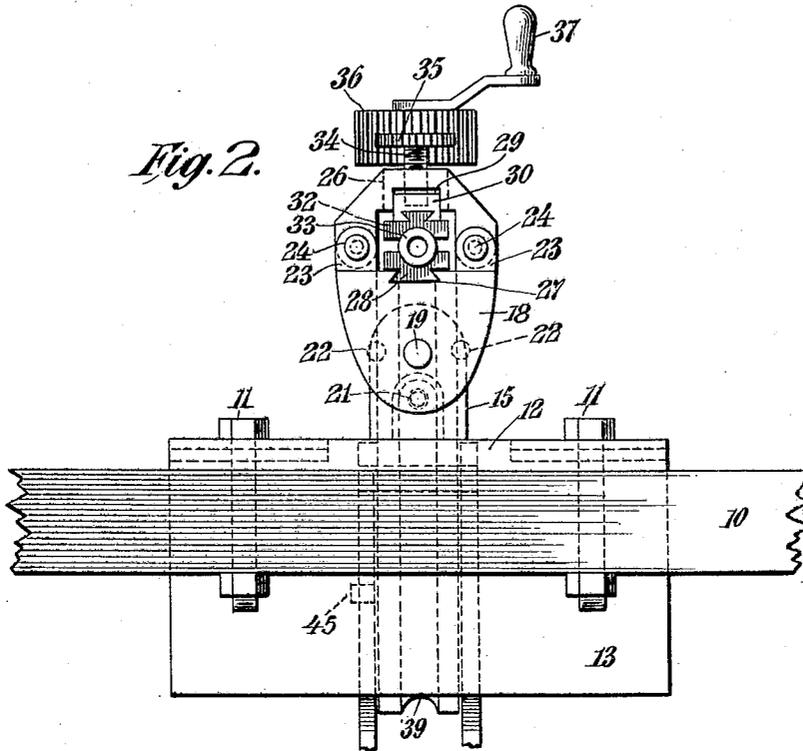
WITNESSES:  
*William P. Joubert*  
*Helen P. Robinson*

INVENTOR.  
*Robert P. Spencer*  
BY *Emad A. Petrich*  
his ATTORNEY

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# UNITED STATES PATENT OFFICE.

ROBERT P. SPENCER, OF SEATTLE, WASHINGTON.

## PIPE-BENDING MACHINE.

1,272,552.

Specification of Letters Patent. Patented July 16, 1918.

Application filed July 31, 1917. Serial No. 183,750.

To all whom it may concern:

Be it known that I, ROBERT P. SPENCER, a citizen of the United States, residing in Seattle, King county, in the State of Washington, have invented certain new and useful Improvements in Pipe-Bending Machines, of which the following is a full, clear, and exact specification.

My invention relates to improvements in apparatus for bending pipes and analogous bodies, and the same has for its object more particularly to provide a simple, reliable and efficient machine for bending pipes of different diameters, and which may be so adjusted as to operate in either a vertical or horizontal plane.

To the attainment of the aforesaid objects and ends my invention consists in the novel details of construction and in the combination, connection and arrangement of parts hereinafter more fully described, and then pointed out in the claims.

In the accompanying drawings forming part of this specification wherein like numerals of reference indicate like parts.

Figure 1 is a side view showing one form of a machine constructed according to, and embodying my invention, secured to a bench;

Fig. 2 is a rear end view of the same; and Fig. 3 is a top or plan view.

In said drawings 10 designates a bench or other suitable support upon which is secured by means of bolts 11, 11 a base 12 having a depending front portion 13 adapted to bear against the side of the bench 10. Upon the upper surface of the base 12, near the center, are provided upwardly projecting lugs or bearings 14, 15. 16 denotes a plate which constitutes the bottom member of a vise, and which is provided at its forward end with a projection or horn 17. The plate 16 is also provided with depending lugs or ears 18, 18 adapted to receive a pin 19 which also extends through the lugs 14, 15 on the base 12 and serves to hold said parts pivotally united.

Intermediate the lugs or bearings 14, 15 on the base 12 is provided a smaller bearing 20 having an aperture therein to receive a pin 21 which is adapted to extend through an aperture in the lug or bearing 14, and into one of the apertures 22 provided in the depending lug or ear 18 at the front end of the plate 16, by means of which said plate 16 and its connected parts, which constitute

the vise, may be secured to a horizontal or vertical position.

Upon the upper surface of the plate 16 are provided upwardly projecting lugs 23, 23 to which are secured by pins 24, 24 the lugs 25, 25 of the top 26 which constitutes the upper part of the vise. The lower part or plate 16 is provided with a centrally located, longitudinal dove-tail slot 27 adapted to receive a removable jaw 28, and the underside of the top 26 is provided with a central, longitudinal recess 29 in which is located a vertically movable bar or member 30 provided upon its under side with a longitudinal dove-tail slot 31 adapted to receive the removable jaw 32 which is adapted to cooperate with the jaw 28 to hold the pipe 33 in position in the vise.

The vertical movement of the bar or member 30 is effected by means of vertical screws 34, 34 which extend through the top 26 and engage the bar or member 30. To the upper ends of said screws 34, 34 are fixed gears 35, 35, which mesh with a larger gear 36 mounted to rotate intermediate the same, and 37 denotes a handle secured upon said gear 36 by means of which the bar or member 30 may be raised or lowered as the gears 36, and 35, 35, and the screws 34, 34 are rotated in one direction or the other.

Upon the projection or horn 17 of the plate 16 is secured the die or form over which the pipe is bent and the same consists of a semi-circular anvil 38 having a substantially semi-circular groove 39 in its outer or rounded surface, and a series of apertures 40 in its side adjacent to its rounded edge. The rear vertical edge of said anvil 38 is recessed and adapted to be fitted at its upper end to the projection or horn 17; and secured in position thereon by means of a pin 41 extending transversely through said anvil 38 and the projection or horn 17 extending into the same.

42 denotes a handle which is forked at its inner end and straddles the die 38 and has the ends of its forked members pivotally secured by a pin 43 to said die. 44 denotes a roller, mounted in one of a series of apertures 46 in the forked portion of the handle 42 above the anvil 38, adapted to bear upon, and press the pipe 33 into the groove 39 in said anvil 38, as the handle 42 is rotated thereon, and thus bend the pipe to the desired angle. When a number of pipes are to be bent to the same angle, it simply becomes

necessary to insert a pin or stop 45 in one of the apertures 40 in the anvil 38 whereby the downward movement of the handle will be arrested at the required point, and the pipe in that way bent to a predetermined angle.

It will of course be understood that for different sizes of pipe a different size anvil 38, and roller 44 must be employed.

The operation of the apparatus is as follows:—

In order to bend pipe to an angle ranging from 1° to 90° the apparatus may be used adjusted as shown in the drawings, and after the pipe 33 has been properly clamped between the jaws 28, 30 of the vise, and the anvil 38 and roller 44 of the lever 42, it simply becomes necessary to force the lever down as indicated by dotted lines at Fig. 1, until its further movement is arrested by the pin 45. When the pipe is to be bent at a greater angle than 90° the pin 21 must be partly withdrawn and the plate 16 and the parts thereon swung to a position at right angles to that shown at Fig. 1, thereby bringing the anvil 38 parallel with the bench 19, and permitting the pipe to be bent entirely around the same to the form of a semi-circle, or 180°, in either direction.

Having thus described my said invention, what I claim and desire to secure by Letters Patent is:—

1. A machine of the character described comprising a base, a vise having a bottom member and a top member, said bottom member being mounted upon said base, said top member being hinged to said bottom member, a jaw supported by said bottom member, a jaw movably supported by said top member, means mounted upon said top member for moving said movable jaw, an anvil carried by said vise, and means to engage a pipe to conform the same to said anvil, substantially as specified.

2. A machine of the character described comprising a base, a vise having a bottom member and a top member, said bottom member being mounted upon said base and being provided with upwardly extending lugs, said top member being hinged to said lugs on said bottom member, a jaw supported by said bottom member, a jaw movably supported by said top member, means mounted upon said top member for moving said movable jaw, an anvil carried by said vise, and means to engage a pipe to conform the same to said anvil, substantially as specified.

3. A machine of the character described comprising a base, a vise having a bottom

member and a top member, said bottom member being mounted upon said base and being provided with upwardly extending lugs, said top member being provided with downwardly extending lugs registering with said lugs on said bottom member, pins extending through said registering lugs whereby said top member is hinged to said bottom member, a jaw supported by said bottom member, a jaw movably supported by said top member, means mounted upon said top member for moving said movable jaw, an anvil carried by said vise, and means to engage a pipe to conform the same to said anvil, substantially as specified.

4. A machine of the character described comprising a base having lugs thereon, a vise pivotally supported by said lugs, a bearing on said base intermediate said lugs, a pin supported in said bearing and extending through one of said lugs and adapted to engage said vise, an anvil carried by said vise, and means to engage a pipe to conform the same to said anvil, substantially as specified.

5. A machine of the character described, comprising an L-shape base having lugs thereon, a platform pivotally supported by said lugs, a bearing on said L-shape base intermediate said lugs, a pin supported in said bearing and extending through one of the lugs on said base and adapted to engage said platform, a projection at the front end of said platform, a member mounted on said platform, a jaw arranged on said platform above said jaw, a jaw carried by said bar, screws extending through said member and engaging said bar, gears fixed upon the upper ends of said screws, a gear revolvably mounted upon said member intermediate and engaging the gears on said screws, an operating handle on said intermediate gear, a semi-circular anvil having a recessed portion adapted for securement to the projection on said platform, a series of apertures in said anvil adjacent to its edge adapted to receive a pin, a lever having a forked end pivotally secured to said anvil, and a roller carried by said forked end adapted to engage a pipe and conform the same to said anvil, substantially as specified.

Signed at the city of Seattle, in the county of King, State of Washington, on this 13th day of July, one thousand nine hundred and

seventeen. ROBERT P. SPENCER.

Witnesses:

M. J. COSTELLO,

JOSEPH M. TAYLOR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."