(No Model.)

2 Sheets—Sheet 1.

R. NEILSON.

PIPE WELDING TONGS.

No. 432,211. Patented July 15, 1890.

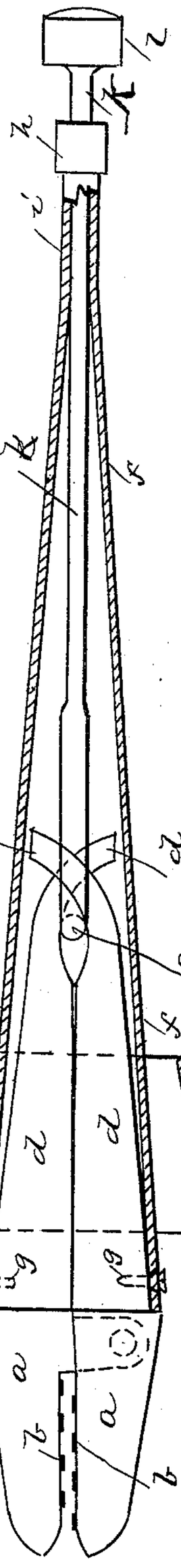

Fig. 1.

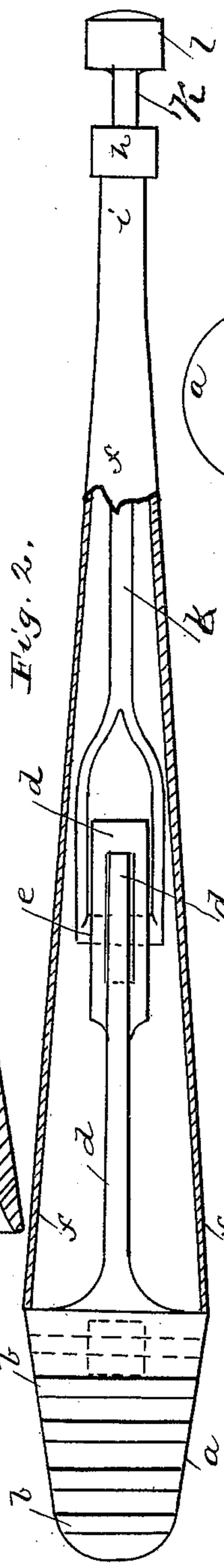

Fig. 2.

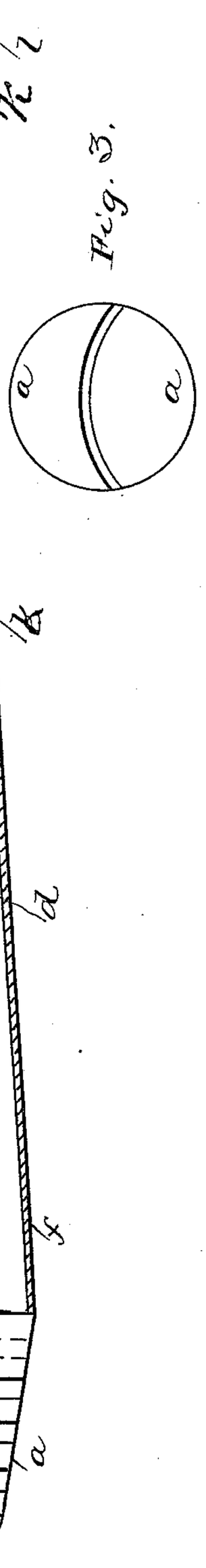

Fig. 3.

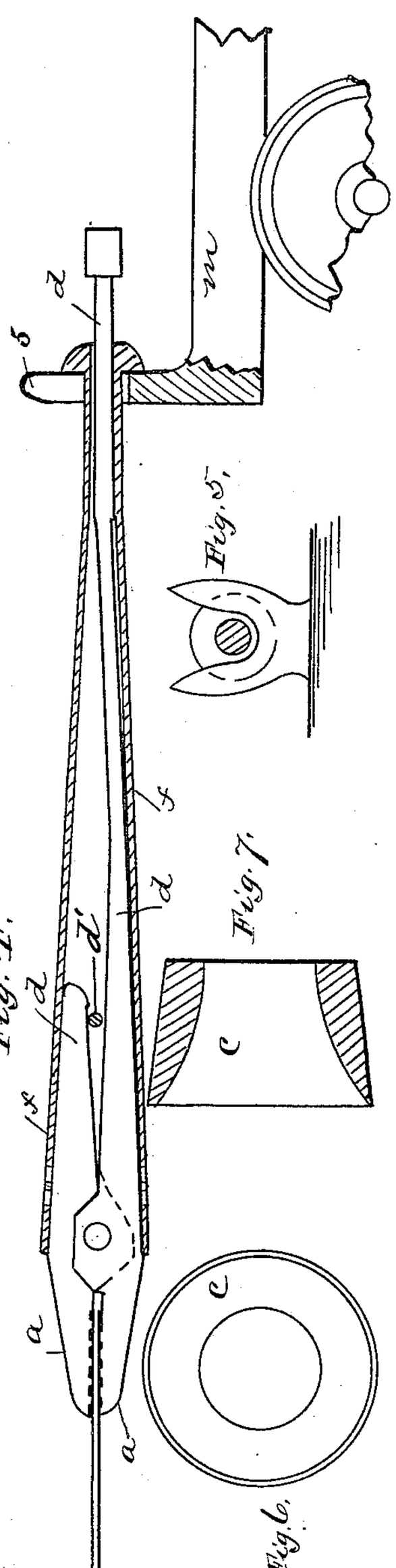

Fig. 4.

Fig. 5.

Fig. 7.

Fig. 6.

Witnesses;
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Inventor,
Robert Neilson
by O. D. Lewis
Atty.

(No Model.)

2 Sheets—Sheet 2.

R. NEILSON.

PIPE WELDING TONGS.

No. 432,211. Patented July 15, 1890.

Fig. 8.

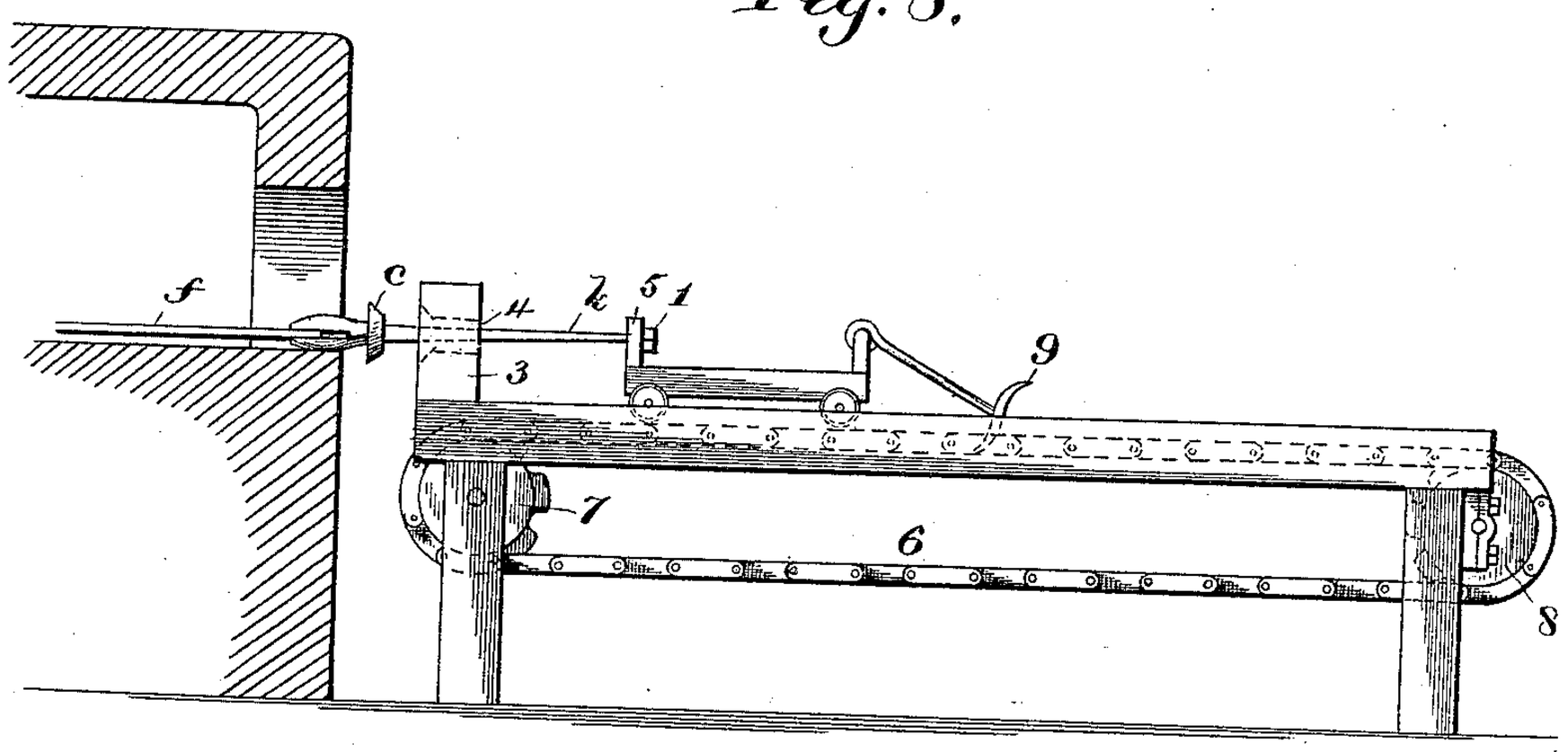


Fig. 10

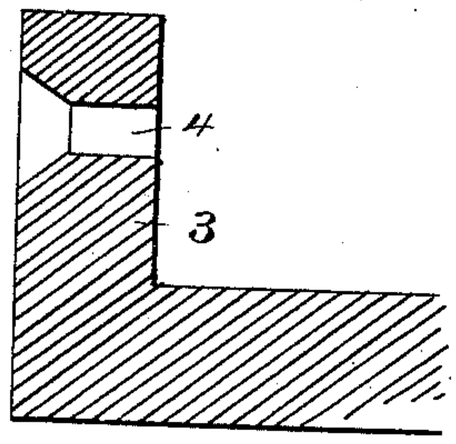
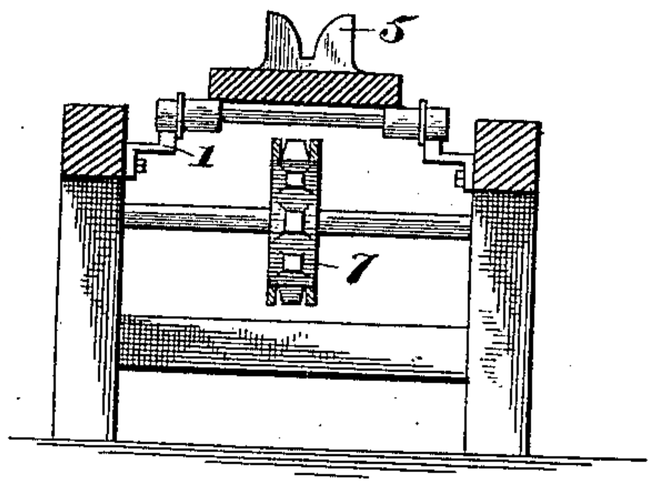


Fig. 9.



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT NEILSON, OF REYNOLDTON, PENNSYLVANIA.

PIPE-WELDING TONGS.

SPECIFICATION forming part of Letters Patent No. 432,211, dated July 15, 1890.

Application filed July 23, 1889. Serial No. 318,411. (No model.)

To all whom it may concern:

Be it known that I, ROBERT NEILSON, a citizen of the United States, residing at Reynoldton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Welding Tongs; and I do hereby 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved device for drawing butt-weld tubing through the bell; and it consists of a pair of tongs surrounded by a casing or cover, a means for operating the said tongs, together with certain other details of construction and combination of parts, as will be fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a side sectional elevation of my improved tongs constructed in accordance with my invention. Fig. 2 is a sectional plan view of the same. Fig. 3 is an end elevation of my improvement, showing the circular jaws of the tongs. Fig. 4 is a side sectional elevation of a modification, showing the same connected to the buggy or means for drawing the sheets through the welding-ring. Fig. 5 is a face view of the "fork" of the buggy. Fig. 6 is a face view of the welding-ring. Fig. 7 is a sectional elevation of the same. Fig. 8 is a side elevation showing my improved tongs mounted on a carriage, the track therefor, and a part of a furnace in section. Fig. 9 is a transverse section through the track, showing the carriage in end elevation. Fig. 10 is a detail view.

To put my invention into practice, I provide a pair of tongs having circular jaws *a* and interlocking ridges *b*, in order to obtain a firm hold of the blank or sheet of metal which forms the tube. These circular jaws *a* are of a less diameter than the opening in the welding-bell *c*, and are capable of passing through the same. These tongs are provided with interlocking handles *d*, in a manner that will admit a bar *e* between the same, which bar *e* when drawn back closes the jaws *a* of the tongs. The rear ends of the handles *d* are bent toward each other, and one of the handles is provided with a longitudinal slot, which receives the extreme rear end of the other handle, as shown in Figs. 1 and 2. Between the opposing edges of the bent part of the handles, at a point in front of the interlocking part thereof, I arrange a cross-bar *e* of an endwise-movable rod *k*, whereby as the rod is drawn rearward the bar *e* rides against the bent part of the handles and operates to force the jaws with a firm grip upon the plate it is desired to withdraw from the furnace. Surrounding the handles *d* of the tongs is a tapering tubular casing or cover *f*, which is loosely attached to the said handles *d* by small set-screws *g*, which are fitted loosely in the jaws or the case, so that the jaws can play or move a limited distance necessary for opening or closing the same; and said casing or cover *f* is provided at the small end with a nut or collar *h* and a straight cylindrical portion *i*, which is used for handling the tongs. This tube *f* serves as a means for conveniently handling and supporting the gripping jaws, which are inclosed therein, and as the tube passes through the welding-bell prior to withdrawing the plate from the furnace, the gripping-jaws inclosed in the tube are prevented from coming in contact with the bell, which is advantageous, as it prevents the bent part of the jaws, or the jaws themselves, from coming in contact with the welding-bell. Attached to the cross-bar *e* is a rod *k*, having an enlargement *l* formed on one end of the same.

Heretofore it has been the custom to weld a thin or narrow strip of sheet metal to one end of the blank, which is used as a means of securing the sheet to the carriage *m*, or means for drawing the same through the welding-bell *c*. With this device the jaws *a* are given a grip on the sheet and the enlarged end *l* of the rod *k* placed in engagement with the V of the carriage *m*, the welding-ring *c* being, in the first place, slipped over the tapering cover *f* and held stationary by a fixed bell-support, hereinafter described. The carriage *m*, moving back, draws the sheet through the ring *c* and butt-welds the two edges in a manner well known to the art.

In Figs. 8 and 9 of the drawings I have

shown the carriage and the means for supporting and operating the same. The carriage is mounted on a track 1, the rails of which are supported at a suitable elevation by a frame or trestle work. At the rear end of the frame or trestle work, adjoining the furnace, I provide an upright or vertical support 3, which is perforated at 4 to permit of the passage of the tongs and their inclosing-tube *f* through the same; and this perforation is enlarged or flared at its rear extremity to adapt the welding-bell *c* to be fitted snugly therein as the carriage is drawn backward, the movement of the bell being arrested by the support, and the bell is held in a fixed position thereon while the carriage continues to move away from the support and to draw the sheet-metal plate through the bell and thus butt-weld the tube. The rear end of the carriage is provided with an elevated recessed or slotted grip 5, (see Figs. 4, 8, and 9,) in which the forward headed end *l* of the endwise-movable rod *k* is fitted, whereby the movement of the carriage first operates the tongs to firmly grip the plate and draw the tongs and plate away from the furnace. Motion is imparted to the carriage by means of a traveling belt or chain 6, which is supported by pulleys 7 and 8 at opposite ends of the frame or trestle work, and the carriage can be connected to this traveling belt by a hook 9, which is pivoted to the front end of the carriage.

At Fig. 4 on the drawings I have shown a modification of my invention, which consists in a pair of tongs *a* and cover *f*, constructed in a manner that when the small end of the cover *f* is attached to the carriage *m* and moved backward the cover *f* will press the handles *d* together, thereby tightening the jaws *a* of the tongs on the sheet. In this construction the jaws are fitted snugly within the open front end of the tube *f*, and the rear ends of the jaws are inclined in opposite directions. Between the inclined edges of the jaws is interposed a stop-pin or rod *d'*, secured in the casing or tube *f*, and which serves to separate the rear ends of the jaws and to force the gripping-surfaces thereof firmly upon the sheet-metal plate. One of the jaws is provided with an extension that runs clear through the tube and is headed at its rear extremity, so that the tongs are connected to the tube to move therewith and with the carriage when the latter is drawn away from the furnace, the jaws being held firmly gripped on the plate by the stop-pin on the tube, which prevents the jaws from becoming separated.

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

1. The herein-described tongs, consisting of the circular jaws *a*, pivoted together, the tapering tube *f*, inclosing the handles *d* of the said tongs, and a device whereby the jaws *a* may be automatically closed on the sheet and drawn through the welding-ring.

2. In a device for the purpose set forth, the tongs having circular jaws *a*, the interlocking handles *d*, the rod, and loop *e*, for operating the jaws, and a casing or covering *f*, surrounding the handles *d* of the tongs, and an enlargement *l*, whereby the same may be attached to the drawing buggy, substantially as set forth.

3. The combination, with a carriage, of a pair of gripping-jaws pivotally connected together and connected to the carriage, and a support for the gripping-jaws, which permits the latter to firmly grip the work by a movement of the carriage, as and for the purpose described.

4. The combination, with a carriage, of a tube connected thereto and the gripping-jaws supported within the tube.

5. The combination, with a carriage, a fixed bell-support, and a welding-bell, of a pair of gripping-jaws, which are pivotally connected together, and a supporting case or tube connected with the carriage, and in which the gripping-jaws are supported, whereby movement of the carriage operates to force the gripping-jaws firmly on the work, for the purpose described, substantially as set forth.

In testimony that I claim the foregoing I hereunto affix my signature this 3d day of June, A. D. 1889.

ROBERT NEILSON. [L. S.]

In presence of—
M. E. HARRISON,
C. C. LEE.