

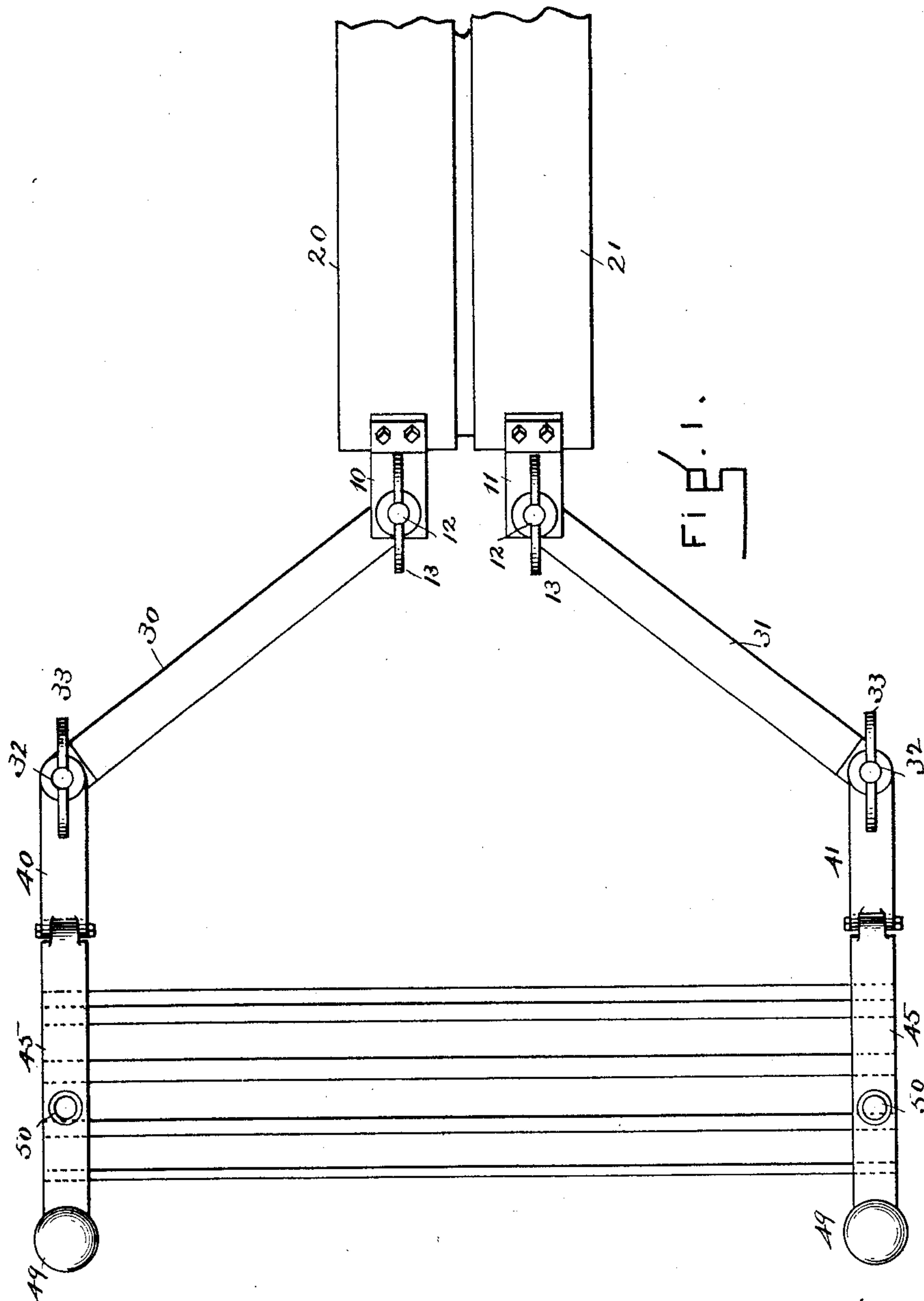
(No Model.)

4 Sheets—Sheet 1.

G. D. BURTON.  
ELECTRICAL FORGE.

No. 475,178.

Patented May 17, 1892.



WITNESSES.  
E. F. Philpson.  
R. W. Galt

INVENTOR:  
Geo. D. Burton.  
By J. C. Lones,  
Attorney

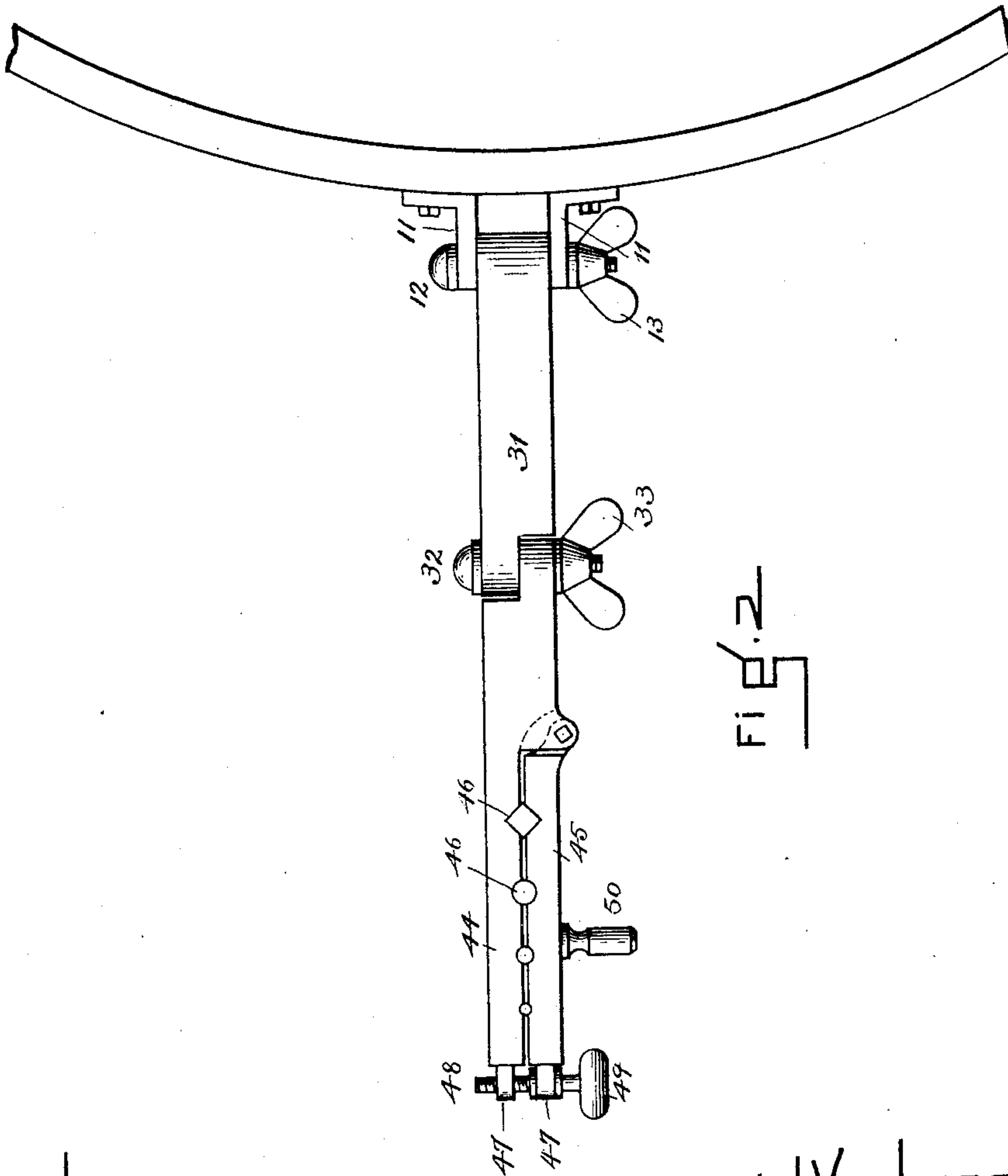
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No. 475,178.

Patented May 17, 1892.



WITNESSES  
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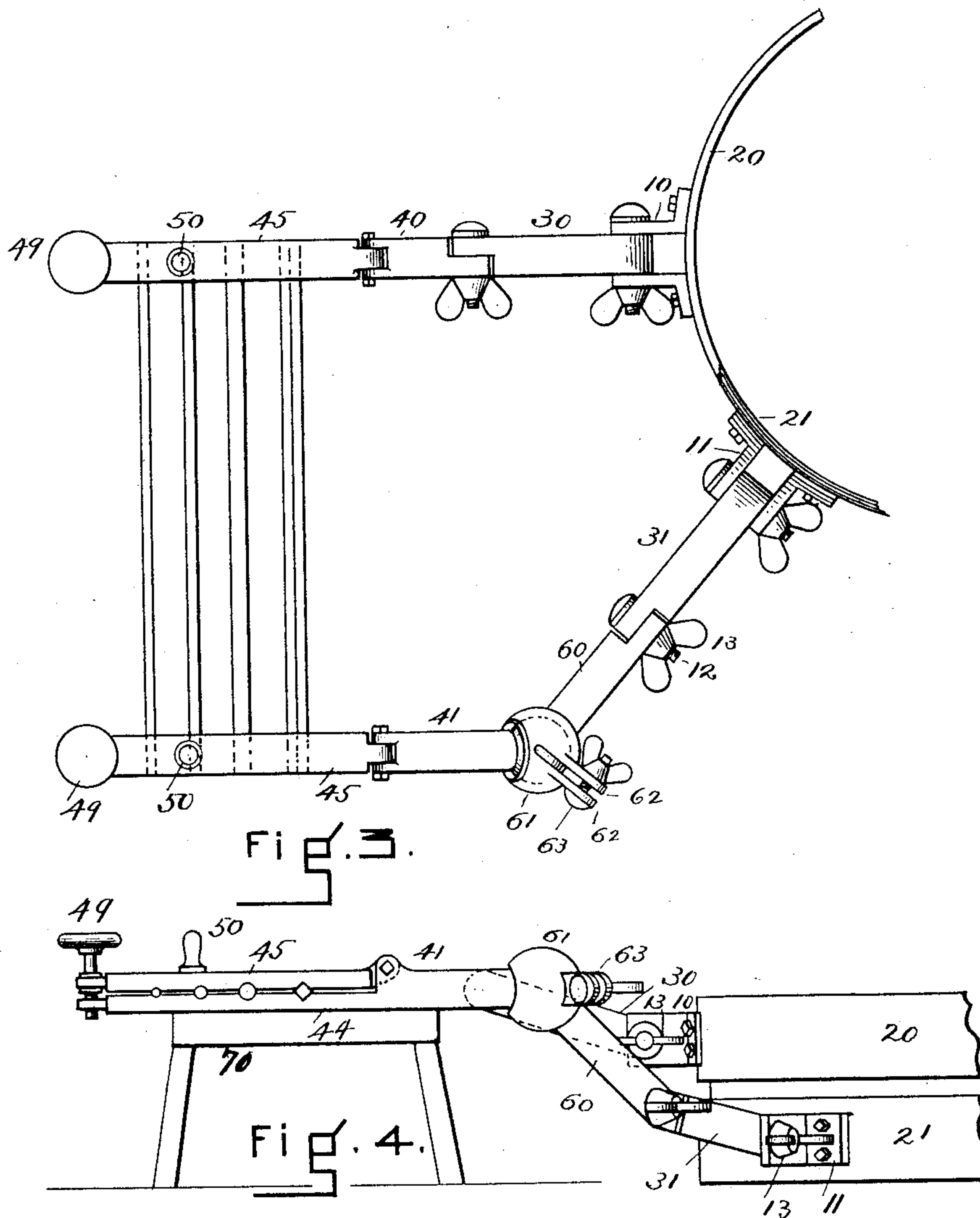
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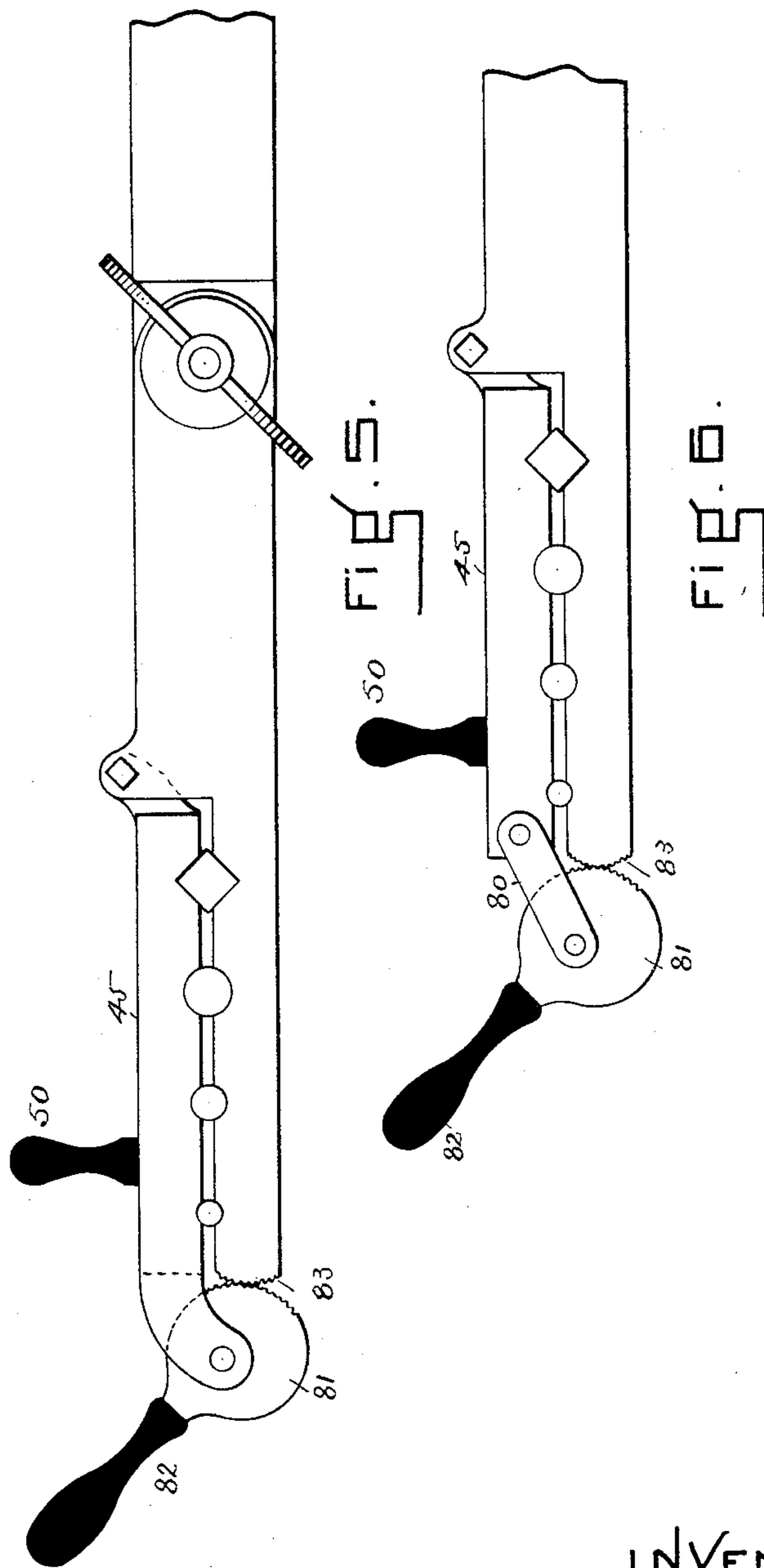
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G. D. BURTON.  
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WITNESSES:

*E. F. Phillips on.*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE  
ELECTRICAL FORGING COMPANY, OF MAINE.

## ELECTRICAL FORGE.

SPECIFICATION forming part of Letters Patent No. 475,178, dated May 17, 1892.

Application filed May 6, 1891. Serial No. 391,705. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE D. BURTON, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented certain new and useful Improvements in Electric Forges, of which the following is a specification.

This invention relates to an electric forge for heating bars of metal for forging or tempering purposes.

The object of the invention is to provide an electric forge in which the electrodes for supporting the bars to be heated may be adjusted with facility to receive bars of different lengths and readily opened and closed for receiving and discharging a bar.

Figure 1 of the accompanying drawings represents a front elevation of this improved electric forge attached to an electric-current converter, and the same figure may also represent a plan of the electric forge when arranged in horizontal position. Fig. 2 represents a plan view thereof, and it may also represent a side elevation when the forge is disposed in a horizontal position. Fig. 3 represents a plan view of this improved electric forge disposed in horizontal position, one of the electrode-arms being swung on a universal joint. Fig. 4 represents a side elevation of the forge illustrated in Fig. 3. Fig. 5 represents a portion of one pair of the electrode-jaws provided with a clamping device of a different species at their outer ends. Fig. 6 represents a similar view showing another species of clamp.

Similar numerals of reference indicate corresponding parts in the different figures.

Two fixed brackets 10 are bolted or otherwise attached to or connected with the positive ring 20 of an electric converter, and similar brackets 11 are fixed to the negative ring 21 of said converter. Bolts 12 pass through said brackets, and clamping-nuts 13 on said bolts cause the brackets of each pair to spring toward each other, forming clamping-jaws.

Two intermediate arms 30 and 31 are pivoted at their inner ends on said bolts between said jaws or brackets. Two electrode-arms 40 and 41 are hinged at their inner ends to the outer ends of said intermediate arms by means of bolts 32, having clamping-nuts 33. The inter-

mediate arms may be adjusted at any angle in the same plane after loosening the clamping-nuts 13, and may be held in the desired position by tightening said nuts, and the electrode-arms may be adjusted parallel with each other by the clamping-nuts 33.

The outer ends of the electrode-arms are provided with clamping-jaws for holding the opposite ends of the bar of metal to be heated. Each pair of clamping-jaws comprises a fixed jaw 44, constituting an extension of the electrode-arm, and a movable jaw 45, hinged to said arm. The jaws are provided on their inner faces with notches 46 of different shapes and sizes to receive bars of various cross-sections and diameters. The fixed and hinged jaws are also provided at their outer ends with ears 47, and an adjusting-screw 48 passes through said ears and locks the jaws. This clamping-screw has an insulated head 49. The hinged jaws are also provided with insulated handles 50 for opening and closing them.

The means for pressing the jaws toward each other to clamp a bar may consist of links 80, pivoted to the outer end of one of the jaws, and a toothed wheel or segment 81, journaled in said links and pivoted with an actuating handle-lever 82. The companion jaw is provided at its outer end with teeth 83, which are engaged by said wheel or segment to close or clamp the jaws.

In Fig. 4 the forge is illustrated in horizontal position, and one of the electrodes is connected with the current through two intermediate arms, a second intermediate arm 60 being interposed between the intermediate arm 31 and the electrode-arm 41. The arm 60 is hinged to the outer end of the arm 31, and the electrode-arm 41 is connected with the outer end of the arm 60 by a universal joint 61. (Shown in the form of a ball and socket.) The ball is split and provided with ears 62, through which a bolt 63 passes. A clamping-screw in said bolt serves to close the socket in the ball and fixes the electrode-arm in the desired position. The second intermediate arm 60 and the universal joint enable the electrode-arm 41 to be elevated and adjusted on the same plane with the electrode-arm 40. A



bench 70 or benches may be placed under the electrode-arms to aid in supporting them.

In the use of the apparatus the hinged jaws 45 are swung open, and the ends of the bar to be heated placed in the proper notches in the fixed electrode-jaws 44. The hinged jaws 45 are then closed and clamped. The current from the positive ring of the electric converter passes through one of the bracket-supports 10 into and through the intermediate arm 30, and thence into the electrode-arm 40, whence it enters one end of the bar to be heated and passes therethrough to the negative electrode-arm 41, thence through the intermediate arm 31 and through the other bracket-support 11 to the negative ring 21 of the current-converter. The current is allowed to pass through the bar for a number of seconds until it is properly heated, and then it may be turned off or broken by opening the hinged jaws and discharging the bar.

When the forge is disposed in horizontal position, the clamping or locking devices at the ends of the clamping-jaws of the electrodes may be dispensed with.

The electrode-arms are composed wholly or in part of copper, or other suitable conductive material.

I claim as my invention—

1. In an electric forge, the combination of an electric-current converter, two pivoted intermediate arms separately connected with opposite terminals thereof, means for adjusting said arms on their pivots, a second intermediate arm pivotally connected with one of the first intermediate arms, an electrode-arm connected to the outer end of said second intermediate arm by a universal joint, and an electrode-arm connected with the outer end of one of the first intermediate arms.

2. In an electric forge, the combination of an electric-current converter provided with two rings constituting the positive and negative poles thereof, two pivoted intermediate arms mounted, respectively, on said rings, means for adjusting said arms on their pivots, two electrode-arms pivoted to said intermediate arms, and means for adjusting said arms on their pivots.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. D. BURTON.

Witnesses:

F. C. SOMES,  
CHESTER MARR.