

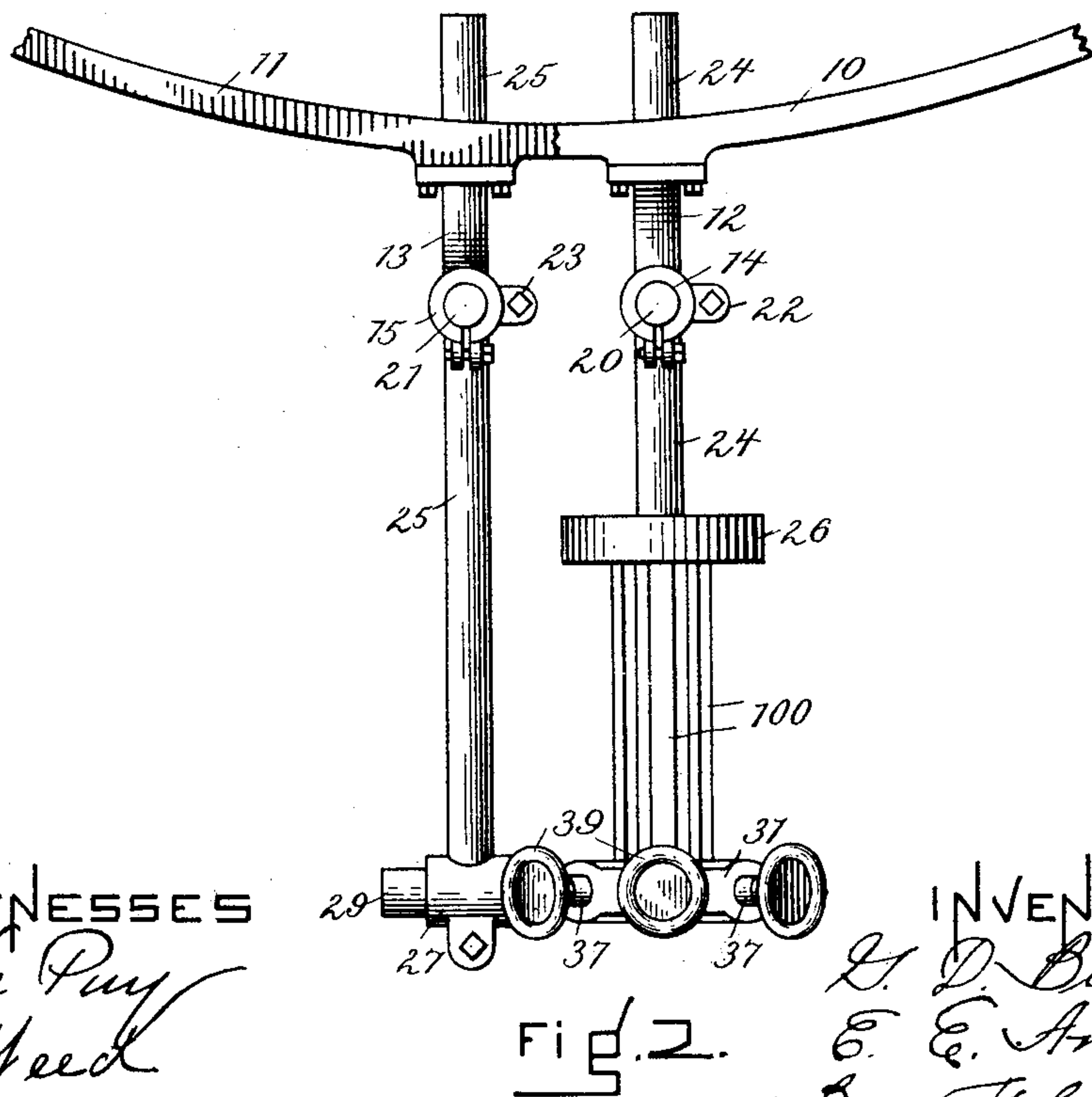
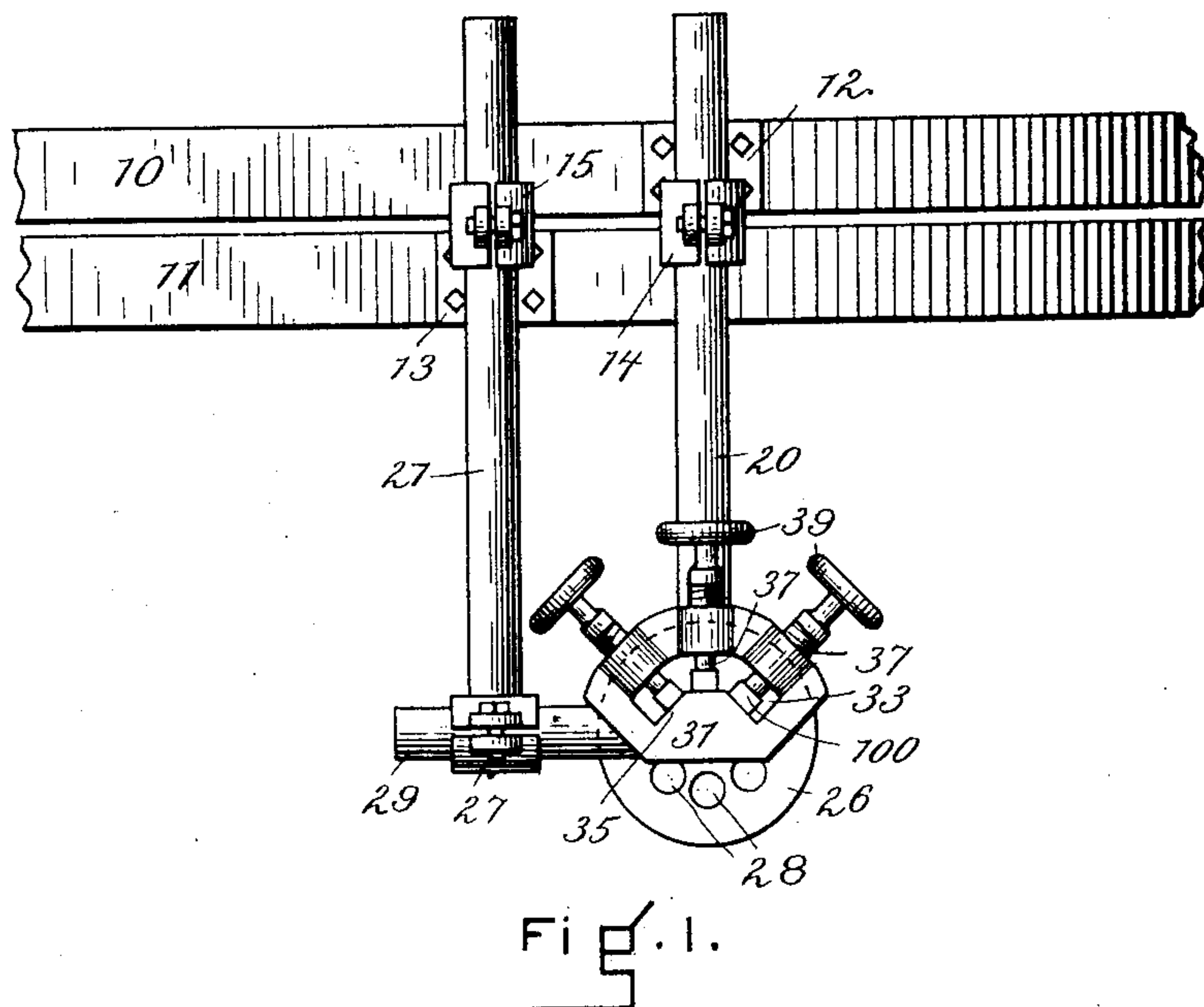
(No Model.)

2 Sheets—Sheet 1.

G. D. BURTON & E. E. ANGELL.  
ELECTRICAL FORGE.

No. 475,195.

Patented May 17, 1892.



WITNESSES  
*E. De Puy*  
*C. H. Reed*

Fig. 2.

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(No Model.)

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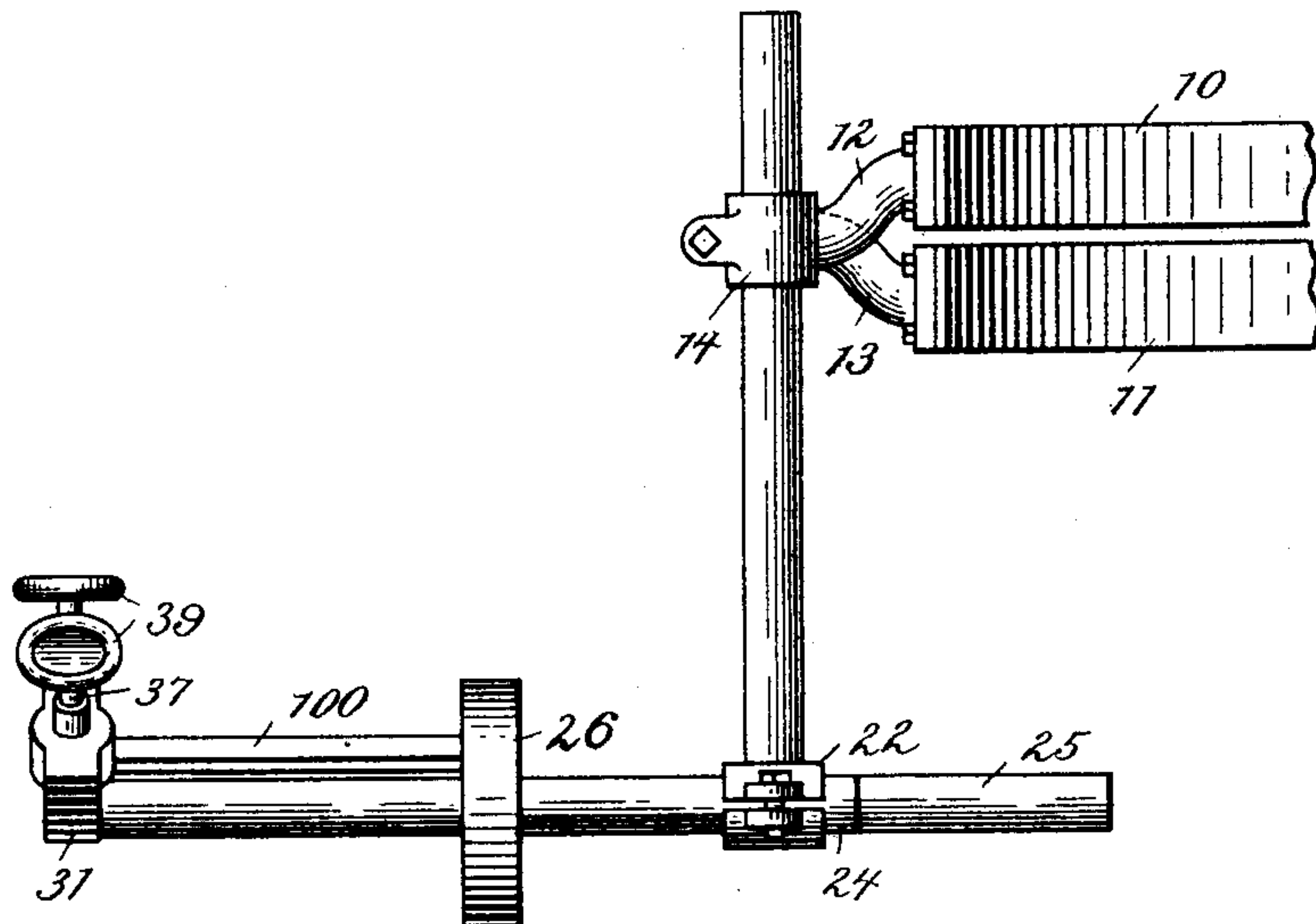


Fig. 3.

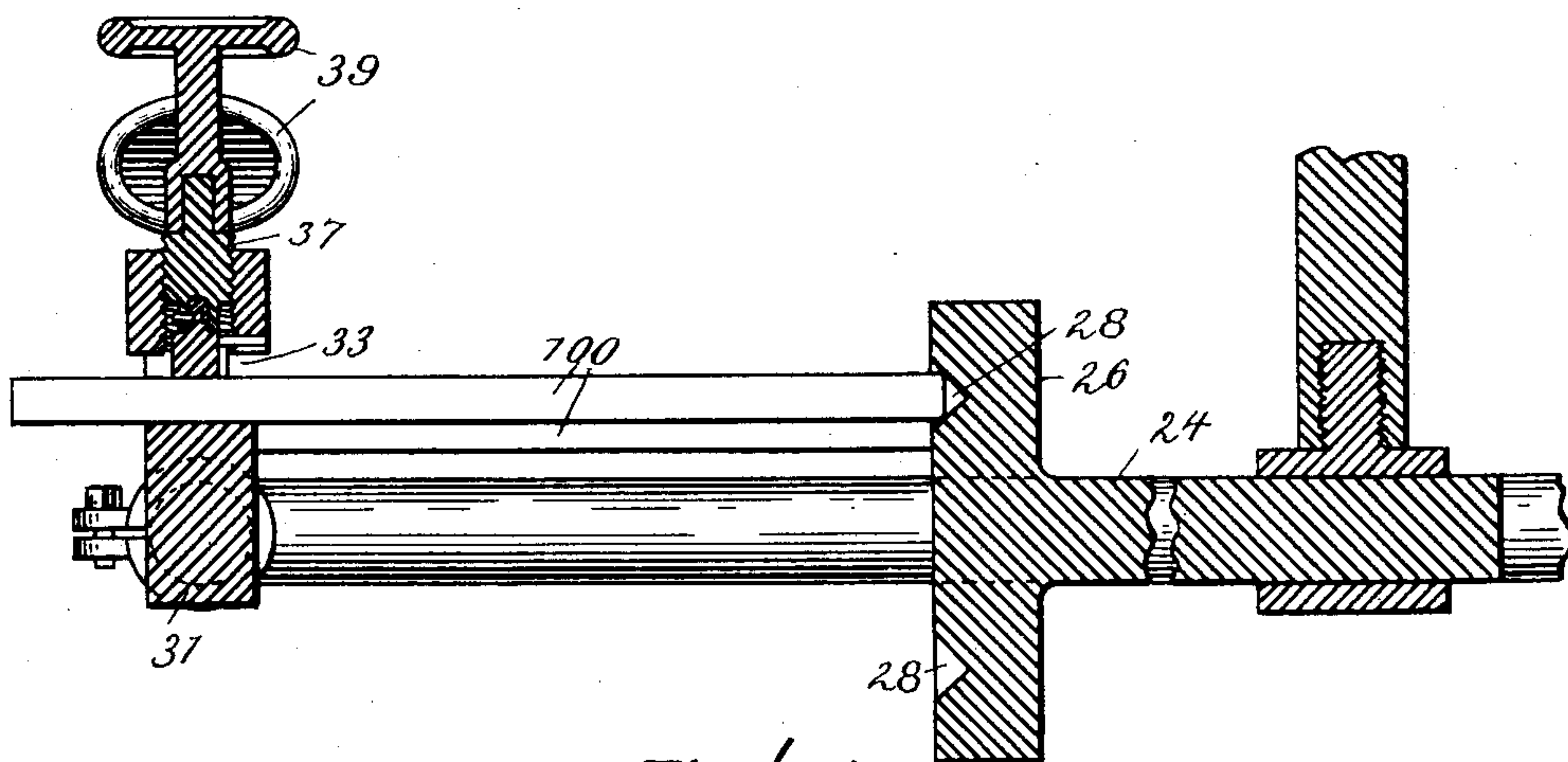


Fig. 4.

WITNESSES  
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# UNITED STATES PATENT OFFICE.

GEORGE D. BURTON, OF BOSTON, AND EDWIN E. ANGELL, OF SOMERVILLE,  
MASSACHUSETTS, ASSIGNORS TO THE ELECTRICAL FORGING COMPANY,  
OF MAINE.

## ELECTRICAL FORGE.

**SPECIFICATION** forming part of Letters Patent No. 475,195, dated May 17, 1892.

Application filed August 25, 1891. Serial No. 403,734. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE D. BURTON, residing at Boston, in the county of Suffolk, and EDWIN E. ANGELL, residing at Somerville, in the county of Middlesex, State of Massachusetts, citizens of the United States of America, have invented certain new and useful Improvements in Electric Forges, of which the following is a specification.

10 This invention relates to an electric forge for heating to a forging temperature the ends of bars from which articles are to be forged.

The object of the invention is to provide an electric forge for the convenient and economical heating of the ends of bars to be worked.

15 Figure 1 of the accompanying drawings represents a front elevation of this improved electric forge in connection with an electric-current converter. Fig. 2 represents a plan thereof. Fig. 3 represents a side elevation thereof. Fig. 4 represents a vertical longitudinal section thereof disconnected from the converter.

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

25 The rings 10 and 11, whereof segments only are represented in the drawings, constitute the positive and negative poles of an electric-current converter for transforming a current of small volume and high voltage into a current of low voltage and large volume. The construction of this converter does not constitute a part of this invention, and therefore need not be herein shown or described. Any  
35 suitable current-converter or source of electric heating-currents may be used in connection with this improved forge. A short bracket 12, provided with a clamp 14, projects downward and outward from the ring 10, and a  
40 short bracket 13, provided with a clamp 15, is attached to the ring 11 and projects upward and outward therefrom, terminating in the same horizontal plane as the bracket 12. These brackets are composed of copper or  
45 other suitable conductive material or composition. A vertical bar 20 is supported in its upper end in the clamp 14 of the bracket 12, being vertically adjustable therein, and a vertical bar 21 is supported in the clamp 15 of  
50 the bracket 13, being vertically adjustable

therein. These bars are provided, respectively, at their lower ends with clamps 22 and 23. A short horizontal arm 24 is adjusted at its inner end in the clamps 22 of the vertical bar 20, and a long horizontal arm 25 is adjusted at its inner end in the clamp 23 of the vertical bar 21. The arm 24 is provided at its outer end with a head or disk 26, which constitutes one of the electrodes of the forge. This electrode is provided on its outer face  
55 with sockets 28 for receiving the ends of bars to be heated. The horizontal arm 25 is provided at its outer end with a clamp 27, and a short horizontal arm 29 is adjusted in the clamp 27 at right angles to the arm 25 and  
60 extends laterally to a point in front of the disk 26 on the arm 24. A clamping-head 31, which constitutes the other electrode of this improved forge, is disposed on the arm 29 opposite the electrode 26. This electrode is provided with a slot 33, having cheeks 35, and  
65 with a number of clamping-screws 37, having hand-wheels 39, the inner ends of said screws being disposed opposite said cheeks. These clamping-screws serve to clamp the outer ends  
70 of the bars to be heated against said cheeks. The hand-wheels of these clamping-screws are preferably insulated from the bodies of the screws.

The parts above described are composed of  
80 copper or other material adapted to convey the electric current, and any equivalent conductors may be employed.

In the use of this apparatus one or more bars, as 100, are passed through the slot 33 of  
85 the clamping-head 31 and their inner ends made to butt against the electrode 26 or to rest in the sockets 28 of said disk. The outer ends of said bars are then clamped against the cheeks 35 of the electrode 31 by means of the  
90 clamping-screws 37. The current being turned on passes from the positive ring 12, through the bracket 14, thence through the rod 20, thence through the horizontal arm 24, thence through the electrode 26, thence into the ends  
95 of the bars 100 to be heated, which rest in the sockets 28 thereof, thence through said bars to the electrode 31, thence through the arms 29 and 25 to the vertical rod 21, thence through said rod to the bracket 13, and thence through  
100



said bracket to the negative ring 11 of the current converter. The bars being of a higher electrical resistance than the parts of the apparatus, heat is developed in that portion of the bar between the electrode-disk 26 and the electrode clamping-head 31, and the bar is heated to its extremity at its inner end. The bar is heated in a few seconds or moments, according to its size, to a forging temperature, and is then withdrawn from the apparatus and subjected to the desired forging operation.

This apparatus is especially useful in heating bars for roll-forging, balls, and other articles from the end thereof. It is obvious that the current may be reversed and that parts of the apparatus may be varied without a departure from the scope of the invention.

We claim as our invention—

1. In an electric forge; the combination of an electrode-head provided with a number of sockets for receiving the ends of the bars to be heated, another electrode consisting of a slotted head provided with a number of

cheeks and with adjustable clamping-screws opposite said cheeks for clamping said bars therein, and conductors connecting said electrodes with the source of a heating-current.

2. In an electric forge, the combination of an electric converter, brackets attached to the positive and negative poles thereof, vertical bars supported in said brackets, a short horizontal arm adjustable in one of said bars and provided with an electrode-disk at its outer end having sockets for receiving the ends of the bars to be heated, a long horizontal arm connected with the other vertical bar, and a third horizontal arm adjustable in said long arm at right angles thereto and provided with a clamping-head for holding the opposite ends of the bar, substantially as described.

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Witnesses:

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