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Patented Apr. 30, 1901.

E. E. QUIMBY.

SKELP DRAWING APPARATUS FOR BUTT WELDING.

(Application filed Dec. 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.

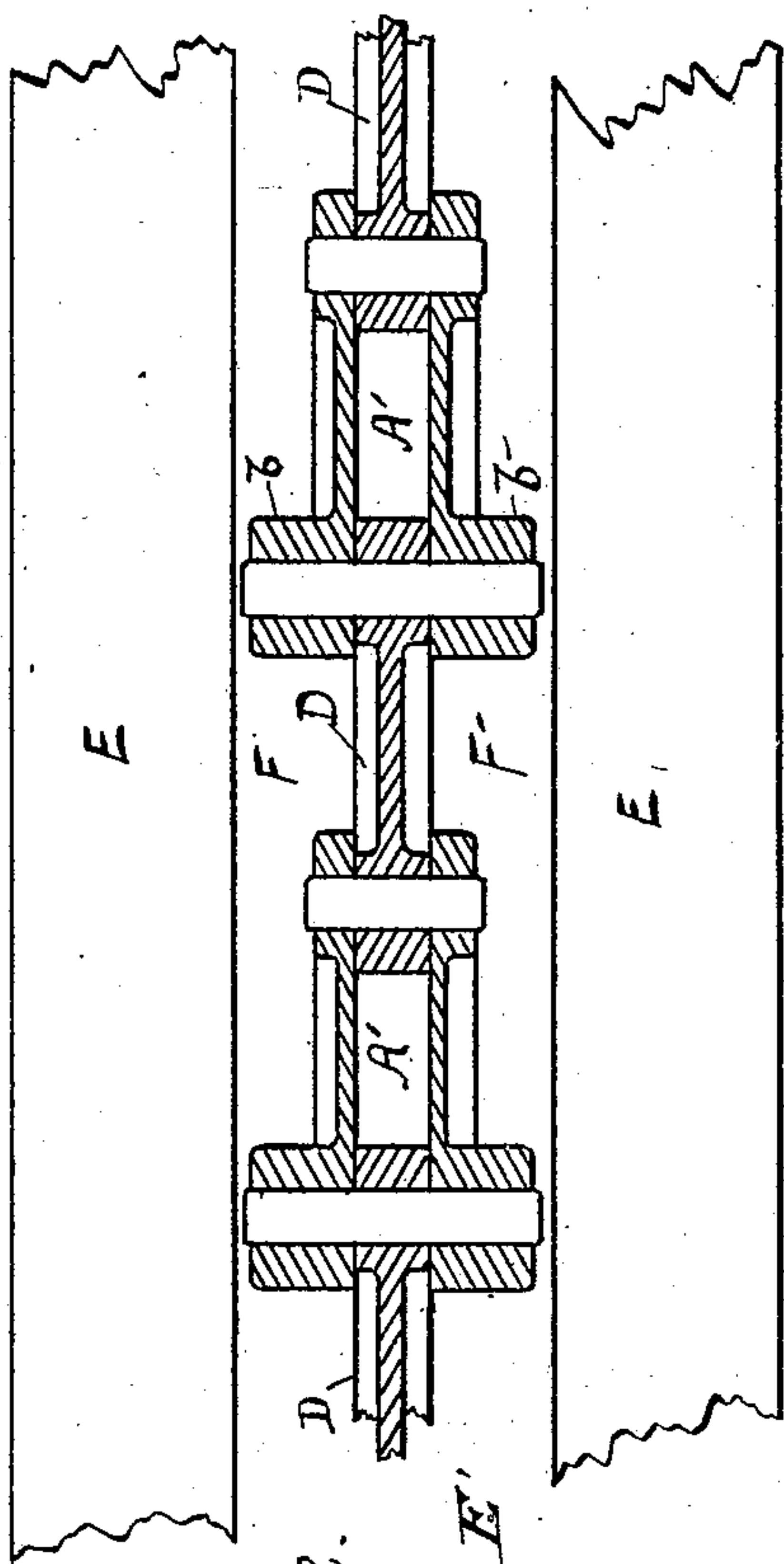


Fig. 2.

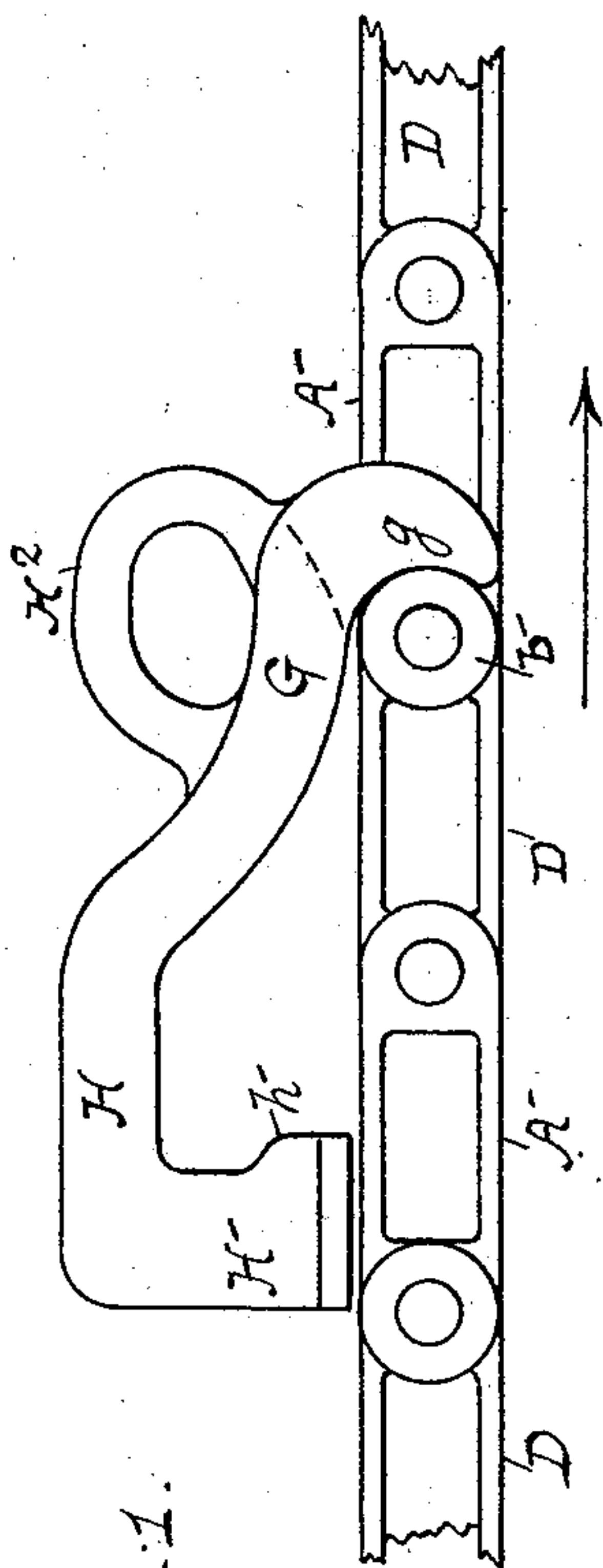


Fig. 1.

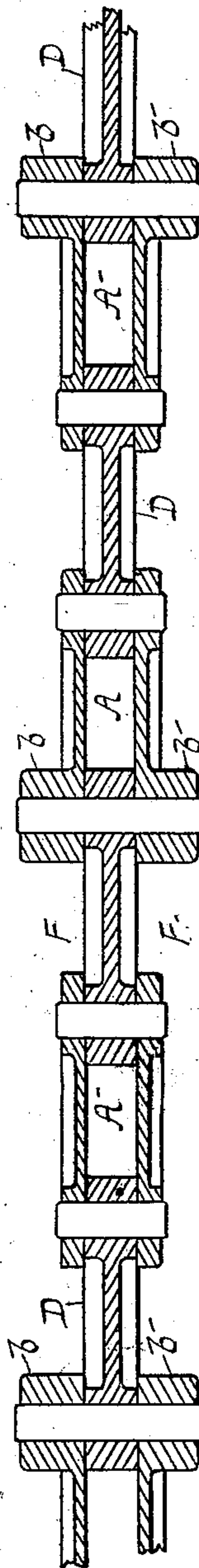


Fig. 3.

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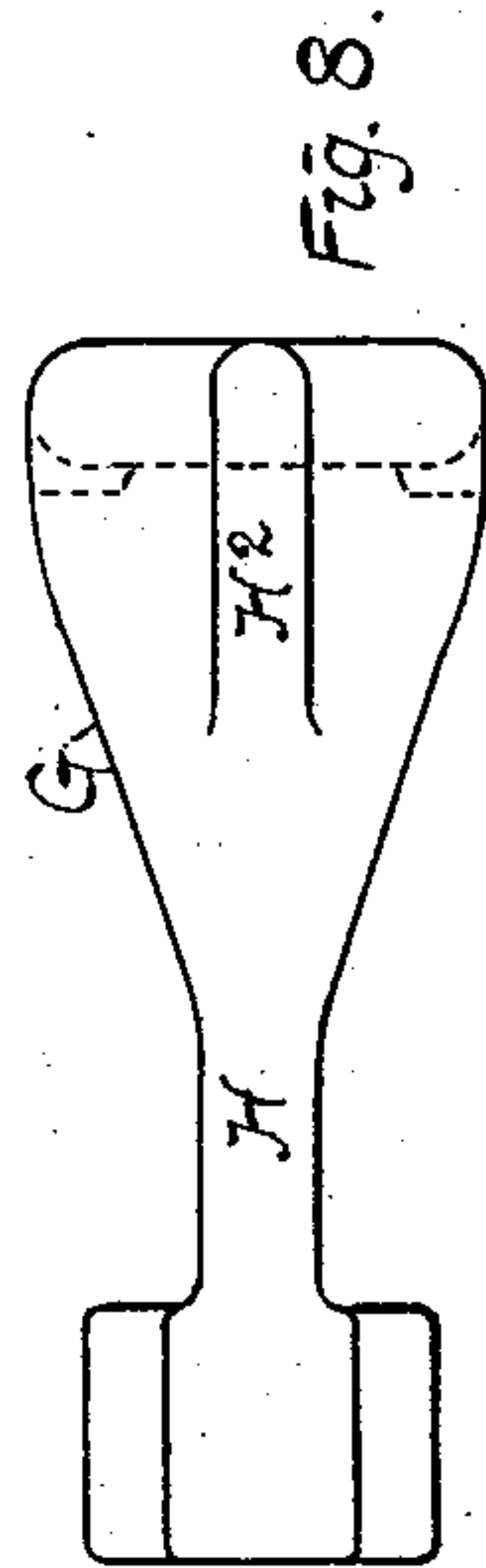
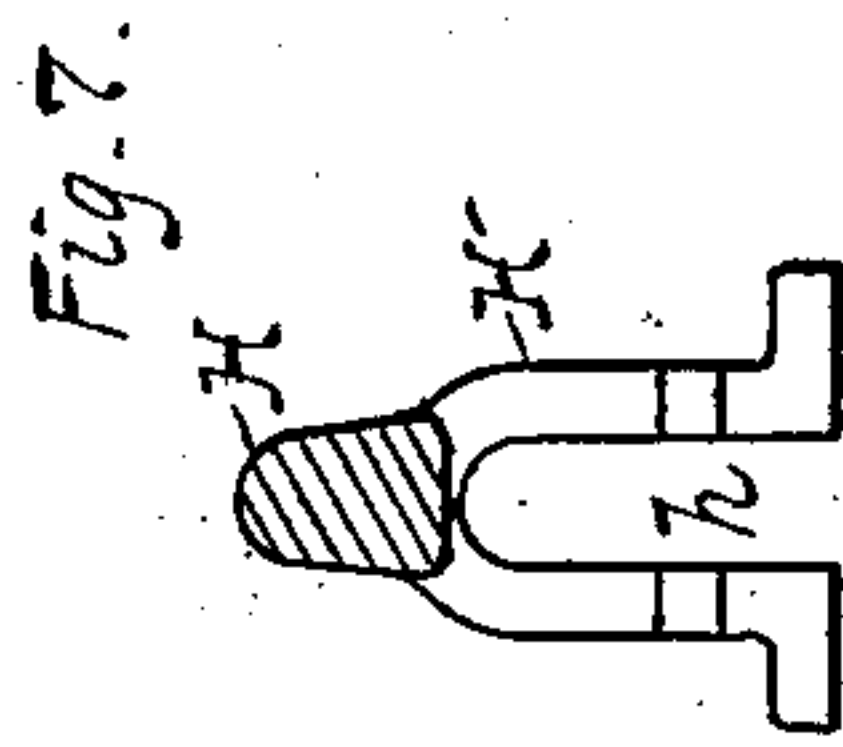
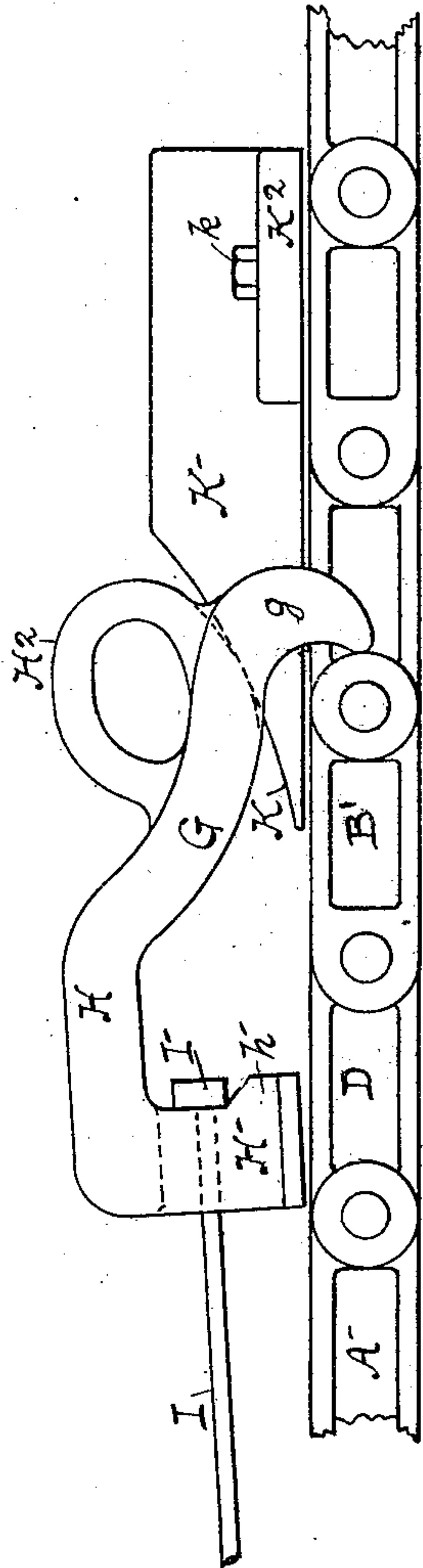
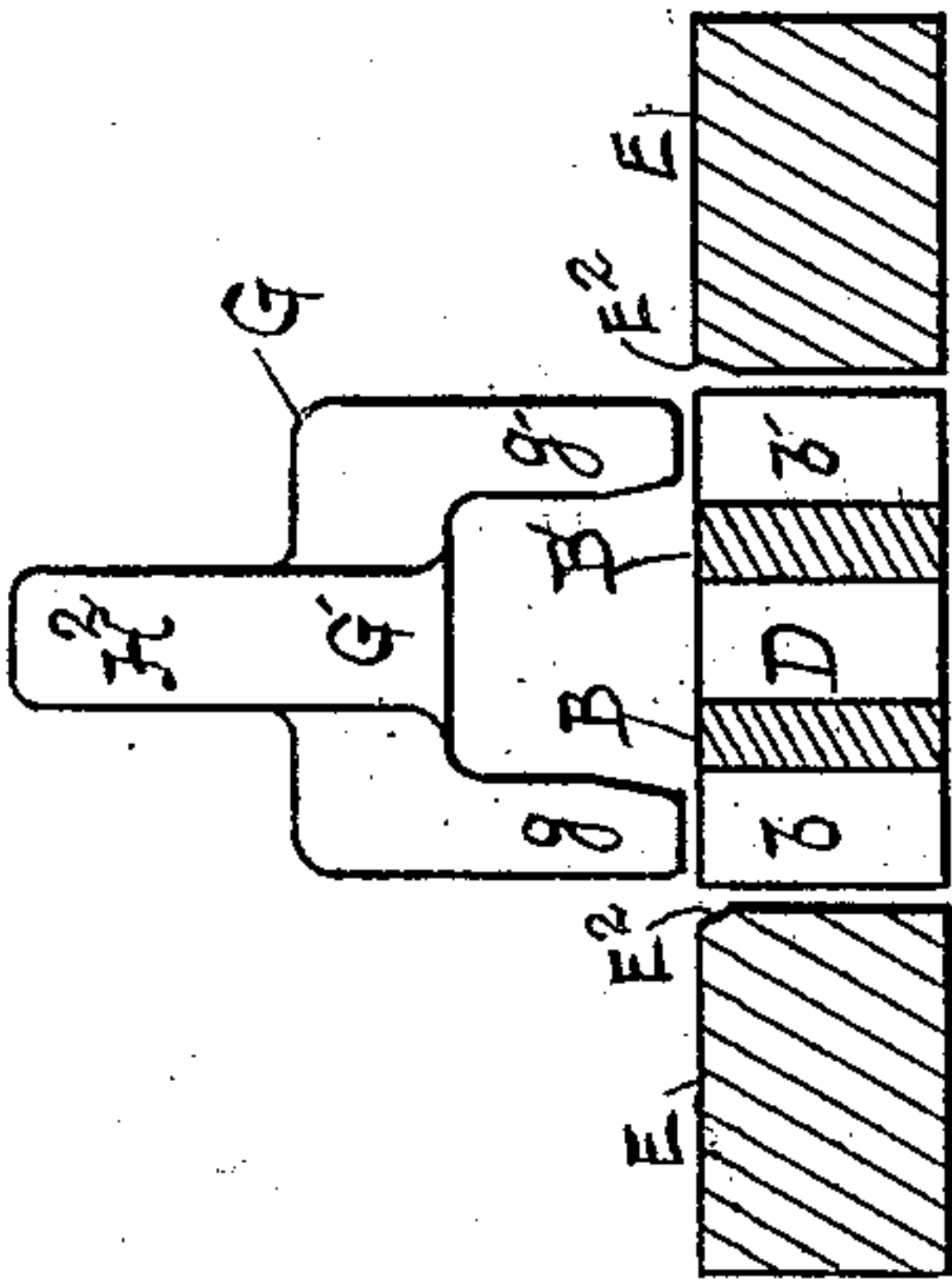
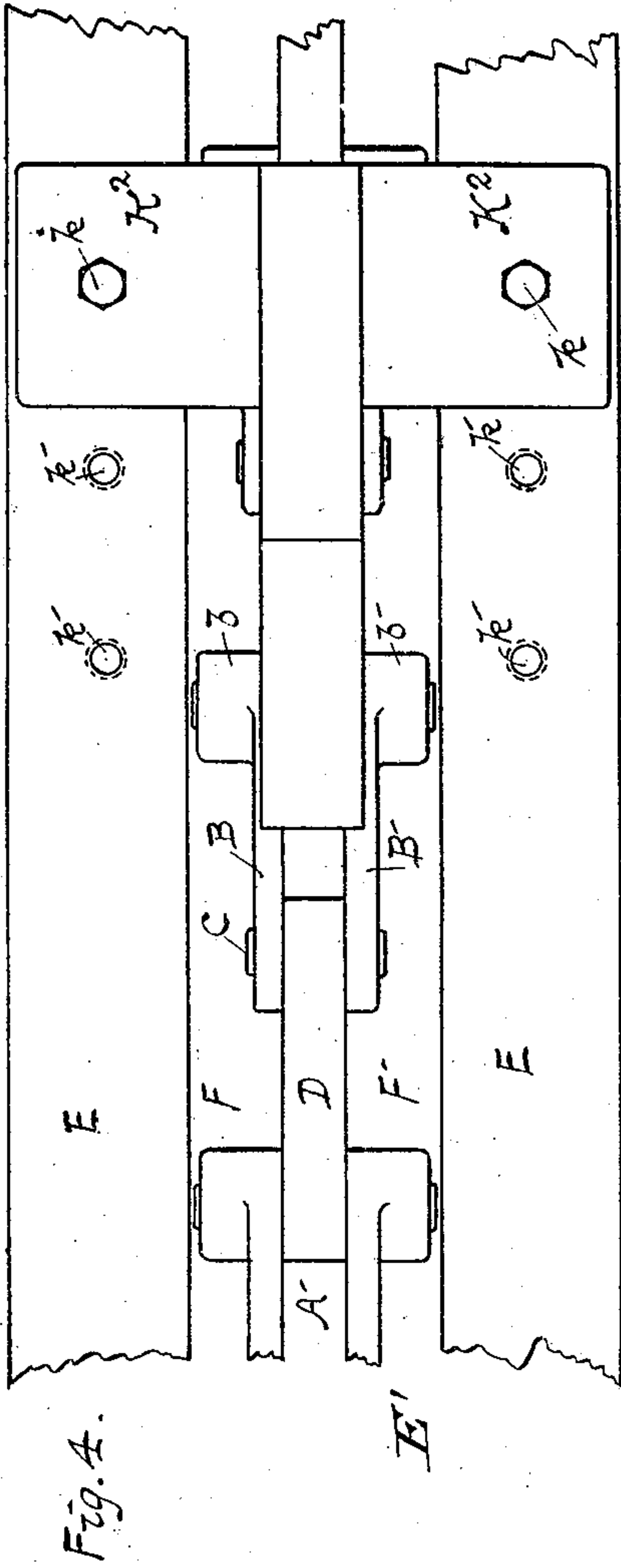
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# UNITED STATES PATENT OFFICE.

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## SKELP-DRAWING APPARATUS FOR BUTT-WELDING.

SPECIFICATION forming part of Letters Patent No. 672,914, dated April 30, 1901.

Application filed December 31, 1900. Serial No. 41,604. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. QUIMBY, of Orange, county of Essex, State of New Jersey, have invented a certain Improvement in Skelp-Drawing Apparatus for Butt-Welding, of which the following is a specification.

The object of this improvement is to facilitate the use of rapidly-running draw-chains in the art of butt-welding. The draw-chains heretofore used are endless sprocket-chains the alternate links of which present openings a few inches in length. In practice the forward end of the metal skelp or ribbon when properly heated in the furnace is grasped by slender tongs, the handles or "reins" of which extend through a flaring hollow die or so-called "welding-bell." The forward ends of the reins are bent laterally or have collars forged on them, adapting them for being engaged by the rear end of a pulling-hook, the forward end of which consists of a downwardly-projecting curved prong which it is the attendant's duty to insert at the proper time into a link of the draw-chain. The result is that the hot skelp is drawn forward endwise into and through the welding-bell, wherein its welding hot edges are made to progressively curve over toward, abut against, and weld fast to each other.

The necessity for manually inserting the prong of the pulling-hook into the comparatively short space which the open link of the draw-chain presents for it, which requires the exercise of considerable alertness by the attendant, constitutes one of the limitations imposed upon the speed of the draw-chain. In the present invention this limitation is removed by constructing the forward end of the pulling-hook with two parallel prongs, adapting it to straddle the draw-chain, and by providing the chain at any desired intervals with pairs of laterally-projecting bosses for engaging the prongs constituting the bifurcated forward end of the pulling-hook. By thus enlarging the longitudinal dimensions of the spaces presented for the reception of the prongs of the pulling-hook the manual insertion of the prongs is so greatly facilitated that the speed of the draw-chain may be greatly increased.

Another feature of the invention consists

in the combination of the draw-chain with an inclined switch arranged immediately above the draw-chain at the required point in the path of the pulling-hook, whereby the forward end of the pulling-hook after encountering the inclined switch rides upward until the prongs are lifted out of engagement with the chain.

As endless draw-chains and driving mechanism therefor are common and well known, it is not deemed necessary to herein show the entire chain or the chain-driving mechanism.

The accompanying drawings of apparatus illustrating the invention are as follows, viz:

Figure 1 is a side elevation of a portion of the upper horizontal section of the endless sprocket-chain, showing in elevation the pulling-hook with its forward end engaged with the chain and its rearward end engaging in the usual way the forward ends of the reins of the tongs. Fig. 2 is a top view of a table and sprocket-chain, showing every open link provided with a pair of laterally-projecting bosses. Fig. 3 is a top view of the sprocket-chain, showing a modified arrangement of the bosses in which every third open link is without a boss. Fig. 4 is a top view of the table, showing another modification of the chain in which the bosses are provided on every other open link, also affording a top view of the switch, showing the manner in which the switch is fastened to the table. Fig. 5 is an elevation of the sprocket-chain, switch, and pulling-hook, showing the operation of the switch in causing the forward end of the pulling-hook to rise out of engagement with the chain. Fig. 6 is an elevation of the front end of the pulling-hook and a transverse section of the table and chain. Fig. 7 is a transverse section of the rear end of the pulling-hook, showing the vertical slit for engaging the reins of the tongs. Fig. 8 is a top view of the pulling-hook.

The drawings show portions of a familiar form of endless sprocket-chain A, the alternate or open links A' of which are composed of parallel bars B B', which overlap the ends of and are connected by the pivots C with intermediate links, each composed of a single bar D.

In the practice hitherto obtaining the en-



gagement of the pulling-hook was effected by inserting the single prong of the old pulling-hook into the receiving-space afforded by one of the open links A' of the draw-chain. In the present improvement the pairs of parallel bars B B', or any desired proportion of the whole number of such pairs, are provided upon their outer sides with the laterally-projecting bosses b b'. The usual feed-table E is employed, but its slot E' is made wide enough to admit of being traversed by the chain provided with the laterally-projecting bosses b b'.

The receiving-spaces F F' for admitting the prongs of the pulling-hook are between the opposite sides of the chain and the opposite walls of the slot E', and are bounded at their ends on one side by the adjacent bosses b b' and on the other side of the chain by the corresponding adjacent bosses b' b'. The longitudinal dimensions of these receiving-spaces may therefore be varied, as may be desired, by appropriately varying the construction of the bossed links. For example, each of the open links A' may have its bar B B' provided with the bosses b b' at its forward end, as illustrated in Fig. 2, in which case the receiving-spaces F F' for the reception of the prongs of the hook will be slightly more than double the length of the available receiving-spaces in the open links A', into which, according to the old practice, the single prong of the old pulling-hook had to be inserted.

By the arrangement shown in Fig. 2 the speed of the draw-chain can be doubled without giving rise to any difficulty in connecting with the draw-chain the pulling-hook of the present invention.

If it should be desired to still further increase the length of the receiving-spaces F F', the bosses may be arranged as in Fig. 3, showing one pair of bosses arranged at the forward end of one open link A' and the next pair at the rear end of the next following open link, in which case every third open link will be unprovided with any projecting bosses. It is not essential that the successive "receiving-spaces" shall be of precisely the same length. They will be of the same length, however, if every open link is provided with pairs of bosses, as illustrated in Fig. 2, or if every alternate open link be provided with bosses, as illustrated in Fig. 4. These modes of arranging the bosses with reference to providing receiving-spaces of greater or less length are herein shown and described merely for the purpose of illustrating the fact that by appropriately proportioning the lengths of the receiving-spaces the draw-chain may be speeded up more or less without impairing the facility with which it may be connected with the pulling-hook provided with the bifurcated forward end, which constitutes another feature of the present invention.

The contour of the new pulling-hook G in side elevation, as shown in Fig. 1, is substantially the same as that of the old single-

pronged pulling-hook; but its forward end, as shown in Fig. 6, is widened and is provided with two downwardly-projecting prongs g and g', adapted to straddle the open link A' and to be engaged by the bosses b b' when dropped into either of the pairs of receiving-spaces F F'.

As will be seen in Fig. 6, the lower extremities of the prongs g g' are slightly rounded, and the upper parts of the walls of the slot E' of the table are formed with the flares E<sup>2</sup> E<sup>2</sup>, by means of which they are made to act as guides which facilitate the introduction of the prongs g g' into the receiving-spaces F F'.

The rear end of the pulling-hook is of the usual construction. Thus the rear end of the shank H is provided with the downwardly-projecting lug H', the lower part of which is formed with the channel h for receiving the reins I of the tongs. The lower part of the lug H' is formed with the usual forward offsets h' h', the tops of which incline upwardly and backwardly to the lug and serve as stops for engaging the under side of the bends or collars I' on the forward ends of the reins, and thus preventing the dropping out of the reins from the channel h when the pulling-hook is in operation.

As will be seen in Fig. 8, the shank H gradually widens from the rear to the front end of the pulling-hook and is provided with the handle H<sup>2</sup>.

The forward end of the shank of the pulling-hook between the prongs g g' is chamfered or rounded, as indicated in dotted lines in Fig. 1, and forms what for convenience may be called the "breast" G'. This chamfering or rounding of the breast G' adapts it for engaging and riding upward over the inclined tongue K of the fixed switch-block K'. The resultant upward travel of the forward end of the pulling-hook effects the disengagement of the prongs g g' from the bosses, which prior to such disengagement have been imparting forward motion to the pulling-hook. The switch-block K' is provided with flanges K<sup>2</sup> K<sup>2</sup>, adapting it to be supported upon the top of the table E, to which it may be secured in any convenient manner—as, for example, by the screws k k, passing through perforations in the flanges and screwed into holes k' k', tapped in the table. The table may be provided with a multiplicity of such holes, or any other convenient means may be employed for adjusting the switch-block in such predetermined position as will make it operate to effect the disengagement of the pulling-hook from the chain after the plate or skelp has been drawn far enough to complete the butt-welding operation. Other expedients may be employed for automatically effecting the disengagement of the hook from the draw-chain at the desired stage in the travel of the pulling-hook; but the organization shown is preferred by reason of its simplicity. This part of the invention, however, will be present if the described pulling-hook and draw-chain are combined with means for automat-



ically effecting the disengagement of the pulling-hook from the draw-chain at any prescribed stage in the path of travel of the pulling-hook.

5 It will be seen that the described apparatus, broadly considered, is adapted to facilitate the use of rapidly-running endless draw-chains employed for driving-tongs or other instrumentalities for grasping a plate or other  
10 object to which it is desired motion shall be forcibly imparted.

What is claimed as the invention is—

1. In apparatus for imparting endwise motion to tongs adapted to grasp an object requiring to be forcibly moved, the combination, as herein set forth, of a draw-chain provided on its sides with outwardly-projecting bosses arranged at prescribed distances apart, with a pulling-hook provided with prongs  
20 adapting it to straddle the draw-chain between adjacent pairs of said bosses and adapted to engage the tongs or other instrumentality for grasping the object to be operated upon.

25 2. In apparatus for imparting endwise motion to tongs adapted to grasp an object requiring to be forcibly moved, the combination, as herein set forth, of the following instrumentalities, namely—a draw-chain provided on its sides with outwardly-projecting bosses arranged at prescribed distances apart; a pulling-hook adapted to engage the tongs, or other instrumentality, for grasping the object to be operated upon and provided with

prongs adapting it to straddle the draw-chain 35 between adjacent pairs of bosses, and guides for facilitating introduction of said prongs into the receiving-spaces between said adjacent pairs of bosses while said draw-chain is in motion. 40

3. The combination, as herein set forth, of an instrumentality for grasping an object requiring to be forcibly moved endwise, a pulling-hook adapted for connection with said instrumentality, an endless draw-chain for engaging and imparting motion to said pulling-hook, and a switch arranged immediately above the draw-chain for automatically lifting said pulling-hook from said draw-chain at a predetermined stage in the path of travel 50 of said pulling-hook.

4. In apparatus for imparting endwise motion to tongs, or other instrumentality requiring to be forcibly moved, a laterally-bossed draw-chain; a two-pronged pulling-hook 55 adapted to transversely straddle said chain and adapted for connection with said tongs, and a switch arranged at a predetermined stage in the path of travel of said pulling-hook for engaging the breast of said pulling-hook between said prongs, thereby causing 60 said pulling-hook to ride upwardly out of operative engagement with said draw-chain.

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Witnesses:

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