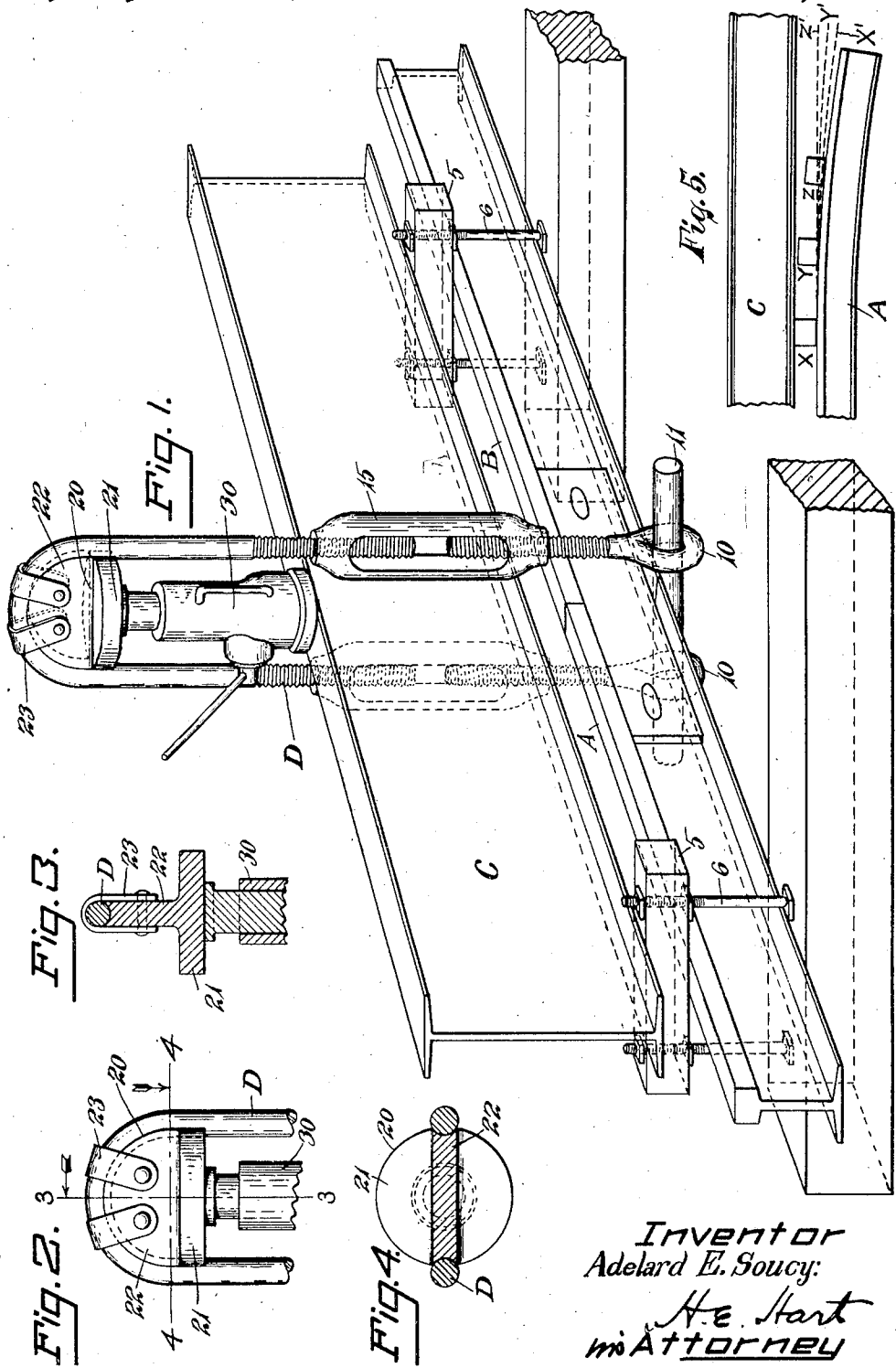


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 RAIL STRAIGHTENING DEVICE.
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1,358,035.

Patented Nov. 9, 1920.



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UNITED STATES PATENT OFFICE.

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RAIL-STRAIGHTENING DEVICE.

1,358,035.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADELARD E. SOUCY, a citizen of the United States, and a resident of Springfield, in the county of Hampden, State of Massachusetts, have invented certain new and useful Improvements in Rail-Straightening Devices, of which the following is a specification.

The object of this invention is to provide an apparatus particularly adapted for straightening traction rails.

In the drawings—

Figure 1 is a perspective view of the apparatus in place.

Fig. 2 is a detail side view of the top of the yoke.

Fig. 3 is a sectional view on the line of 3—3 of Fig. 2.

Fig. 4 is a sectional view on the line of 4—4 of Fig. 2.

Fig. 5 is a detail view illustrating the means for gradually bending the rail to avoid the formation of humps.

In rails used for instance in street car work, the abutting ends of rail sections, which are joined together either by bolts or welded joints, are apt to be bent down or "dipped" as the expression is, under the continual hammering of the wheels passing over them. This not only shortens the life of the rail but very seriously disturbs the surrounding pavement. Heretofore it has usually been necessary to cut off the dipped portion and set in a new section of rail in order to overcome the difficulty. It has been heretofore proposed to straighten these rails but no practical apparatus is at the present time in use. While my invention is simple, an extremely effective apparatus is provided by which the dipped ends of rails can be brought back to normal plane in a satisfactory and efficient manner. The apparatus is obviously adapted for use whenever a heavy metal member is to be bent for any purpose.

Referring to the drawings—A, B, denote the butted ends of rails connected in the instance shown by a welded joint. My improved device when applied in the operation of straightening a rail includes, properly positioned at the end of each rail beyond the point where the dip starts, the spacing blocks 5, 5, steadied in position as by the bolts 6, and upon which rests a heavy I-

beam C. D, denotes generally a U-shape yoke having eyes 10, 10, at the ends of its arms to receive a bar 11, which is passed through the eyes underneath the rail which is to be bent. Said arms are preferably adjusted as to length through suitable means as the turn buckles 15. Within the upper end of the yoke at the bend is fitted a cap 20, having a circular base 21, and a body 22, which closely fits the bend, distributing pressure evenly on the bend and thus avoiding any distortion of the U-shape end of the yoke. This cap is held in place by the straps 23. Between the cap and the I-beam is positioned a jack 30, of any desired construction, for instance a hydraulic jack, the members of which contacting with the I-beam and the base of the cap are non-rotatable. The operation of the jack will tend to lift the yoke D, drawing up the bent rail ends into normal plane. Of course the force to be exerted is a very large one. The I-beam C, must be stiff enough to stand the pressure without yielding; the yoke must be supported so that it will not be distorted; and the power must be applied through parts which are non-rotatable in their contact with the I-beam and yoke.

The use of a removable member such as a jack greatly facilitates the use and operation of the device, and the adjustability of the arms of the yoke makes possible the ready adjustment of the device to different conditions and to different size rails.

In bending rail ends back to the normal plane, and because of a certain spring in the metal, it is customary to force the metal a little beyond the normal plane in order to allow it to spring back. If it be attempted to straighten a rail in a single operation with the spacing blocks at the point where the bend commences a hump in the rail would result. It is therefore advisable to bring the rail back to the normal plane by a series of bends, using a series of spacing blocks each one of less depth than the one previously used, and positioning these blocks nearer and nearer to the end of the rail. This permits bending the rail up gradually or in steps and results in producing a good, level surface without humps.

In Fig. 5 this method of procedure is indicated diagrammatically. The block α shown is in position for the initial bend

which will bring the rail up to the line x' ; the block y is in position for the second bend which will bring the rail up to the position y' ; the block z may be the final bend which will bring the rail up to the normal indicated at z' .

I have described that part upon which the jack is set and which takes the pressure as an I-beam, but it is to be understood that this term does not imply a limitation to any particular cross section since any member may be used which is sufficiently strong and stiff to withstand the pressure needed to be exerted for the purpose of the bending operation.

In accordance with the provisions of the patent statutes I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

I claim as my invention:—

1. In a device of the character described, spacing blocks adapted to be supported on the member to be bent, bolts carried by said blocks and engaging the supports on which the member to be bent rests whereby said blocks are steadied, a beam mounted on the said spacing blocks, a yoke the arms of which lie at opposite sides of said beam and member, a bar connecting the ends of said yoke beneath the member, and a removable

power producing element positioned between said yoke and beam.

2. In a device of the character described, spacing blocks adapted to be mounted on a member to be bent at the opposite sides of the part thereof to be bent, a beam supported by said spacing blocks, a U-shaped yoke provided with arms which lie at opposite sides of said beam and member, means for changing the length of said arms to permit the device to readily accommodate itself to different conditions, a cap having a body portion closely fitting the bend of the yoke and a flat base, a bar connecting the ends of said arms beneath the member, and a jack removably positioned between said beam and base and operable to exert pressure to move said yoke and bend said member.

3. In a device of the character described, a beam, a yoke the arms of which lie at opposite sides of said beam and the member to be bent, a bar connecting the ends of said yoke beneath the member, and a power producing element positioned between said yoke and beam, in combination with a set of spacing blocks of different heights adapted to be positioned between said member and beam at different points from the application of power to the member to be bent, the different points being determined by the relative height of the blocks, and operative one after another to permit the restoring of the member back to normal plane by a succession of bends.

ADELARD E. SOUCY.