

(No Model.)

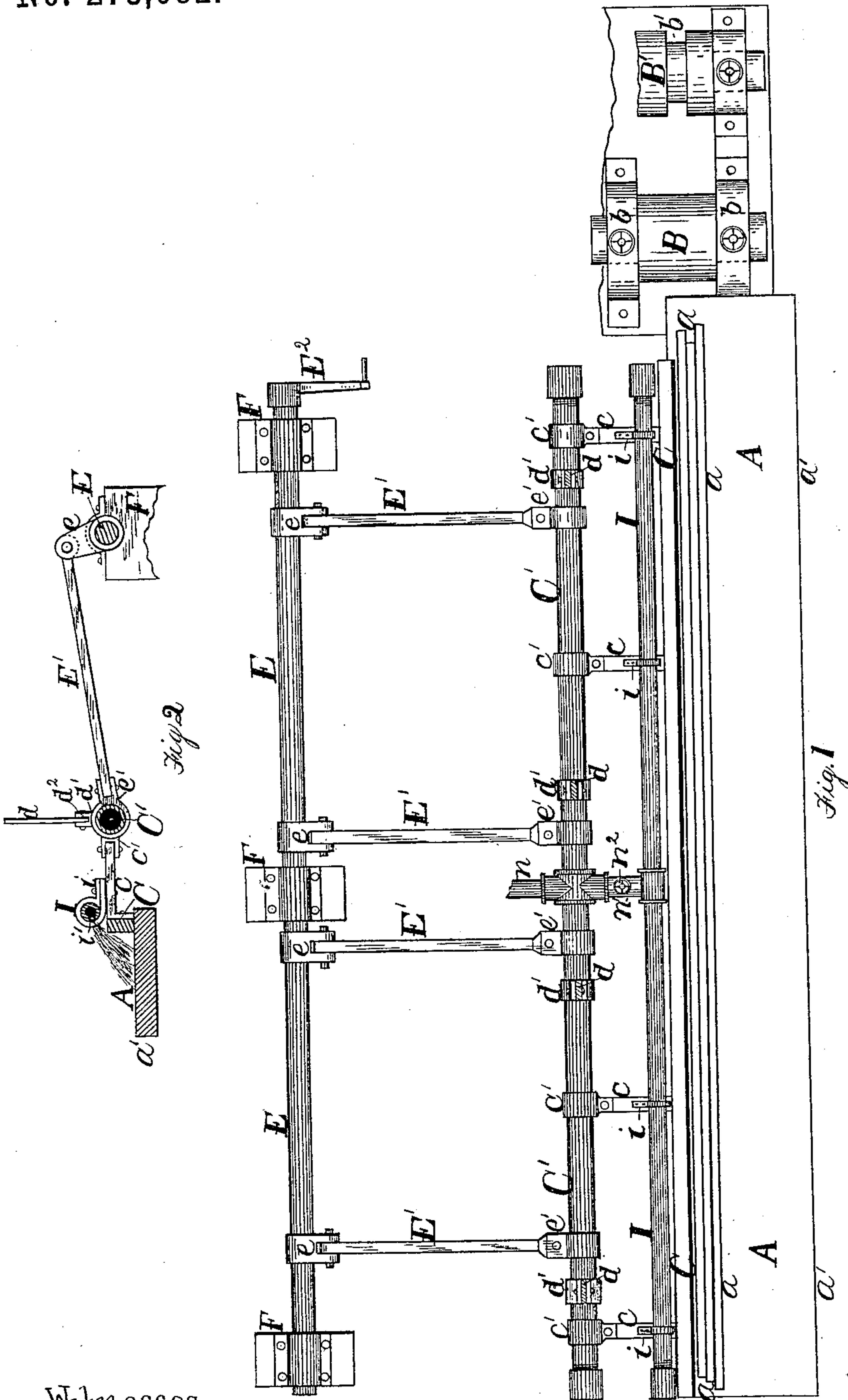
2 Sheets—Sheet 1.

U. HASKIN.

METAL STRAIGHTENING MACHINE.

No. 273,682.

Patented Mar. 6, 1883.



Witnesses.
C. L. Parker
R. H. Whittlesy

Inventor.
U. Haskin,
by George H. Olmsted
his Atty.

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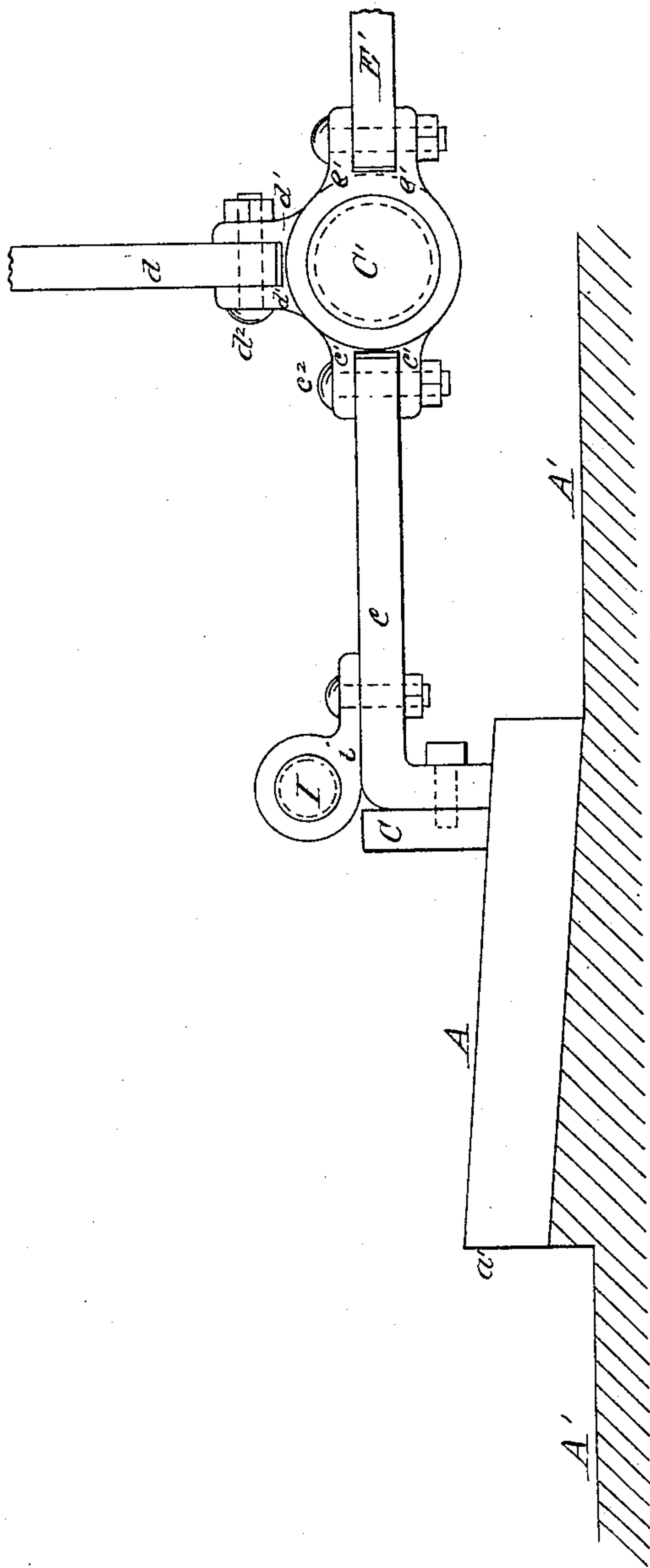
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Witnesses
C. L. Parker
D. P. Cowley

Inventor. Uri Haskin
By Attorney. George H. Christy

UNITED STATES PATENT OFFICE.

URI HASKIN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO JOHN H. DALZELL, OF SAME PLACE, AND FRANCIS G. BATES, OF PHILADELPHIA, AND GEORGE H. CHRISTY, OF SEWICKLEY, PA.

METAL-STRAIGHTENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,682, dated March 6, 1883.

Application filed October 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, URI HASKIN, a citizen of the United States, residing at Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Metal-Straightening Machines; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a plan view of my improved metal-straightening machine. Fig. 2 is a transverse sectional view of the same; and Fig. 3, Sheet 2, is an enlarged end view of a portion of the machine illustrative of the inclination of the bed.

My invention relates to certain improvements in mechanism for straightening, cooling, and removing ordinary merchant-bar and other forms of iron or steel as it is delivered from the finishing-rolls; and it consists in certain combinations of a straightening-bed with a transversely-movable pushing mechanism, mechanism for cooling the article to be straightened, and rolls for delivering the article upon the bed straight, or practically so, in one direction, as hereinafter more fully described and claimed.

In the ordinary methods of straightening and disposing of rods, bars, and other forms of merchantable iron or steel, especially of the smaller sizes, as the same are delivered from the finishing-rolls, several men or boys are employed, who grasp the ends of the heated article with suitable tongs, draw it to one side into a cooling-bed, and by repeated turnings and stretching remove crookedness sufficiently for practical purposes of the trade. More or less danger attends this work, and it is also expensive, owing to the numbers necessarily employed.

The purpose of my invention is to provide for doing this work with the requisite accuracy and speed by mechanical appliances which may be operated by one person, and without exposing him to danger of injury.

In the drawings, A represents a bed resting on floor A', on which bed the rods, bars, or other articles, *a*, are delivered from the rolls B B'. For convenience, the length of this bed is made a little greater than the rods or bars to be straightened, and its width is sufficient to permit of the accumulation of several such articles, side by side, on the bed. At one edge of this bed is made a drop, as at *a'*, over which the articles are discharged onto the floor A' by a reciprocating pusher or scraper, C, which is made straight along its face edge, and is extended through the whole or greater part of the length of the bed. It is secured in any suitable way to the ends of arms *c*, which extend backward, and have a pivot-connection, as at *c*², with straps or collars *c'*, which latter encircle loosely, so as to permit of longitudinal movement upon, a swinging pipe or trunk, C'. This pipe is suspended by vibrating rods *d*, which are attached above to any suitable support, and are connected at their lower ends to encircling straps or collars, *d'*, by a pivot-connection, *d*². The purpose of the arms *d* is to support the pipe and permit of a reciprocating or swinging motion, which is imparted at the pleasure of the operator by means of a rock-shaft, E, which is journaled on pillow-blocks F, and is connected with the pipe by arms E' and cranks *e*, the arms having a pivot-connection at one end to such cranks and at the other end to straps or collars *e'*, which, like the straps *c'* and *d'*, encircle the pipe loosely, so as to provide for movement caused by unequal expansion and contraction of the several parts of the device by heat. As presently described, the pipe C' is supplied with water, which keeps it cool while the pusher C is in direct contact with the heated rods or bars on the bed. Consequently it will be exposed to much greater expansion than the pipe, and by providing the automatically-adjustable connections *c'* such unequal expansion can take place without danger of straining the parts or of warping or bending the pusher. This is an important feature, as it insures a straight edge or working-face on the pusher, and, together with the other strap

and pivot-connections described, permits entire freedom of movement of the swinging pipe and pusher. This movement may be imparted by turning the shaft E either by hand-crank E² or by suitable power mechanism, depending upon the size, length, and weight of the articles to be moved upon the bed. The side or lateral pressure of pusher C upon the article *a* thus secured moves it out of the line of delivery from the rolls, and also straightens it by removing twists and horizontal bends. This straightening operation is aided, however, by the resistance to lateral movement caused by an accumulation of articles *a a a* on the bed between the line of delivery from the rolls and the drop *a'*; and for this reason I have provided a bed wide enough to permit of such accumulation, and have given the pusher a reciprocating stroke across the line of delivery on the bed less in extent than the width of the bed; and to the same end I prefer to give the bed an upward slope or inclination toward the drop, (see Fig. 3,) so as to insure a compact arrangement of the articles (rods, bars, &c.,) thereon, and thereby secure their united resistance to assist in straightening in connection with the movement of the pusher. Another object in view in providing for the width of bed described is to secure a proper reduction of temperature in the article to insure permanence of form before it is discharged from the bed; also, as a further means to this end I, make use of a water-spray pipe, I, which is secured by straps *i* to the upper edges of arms *c*, in proper position to throw a water-spray or line of jets through small openings *i'* upon the bed, as represented in Fig. 2.

The water-supply may be obtained from any convenient source by supply-pipe *n*, which opens into the swinging trunk-pipe C', such supply-pipe having a flexible joint-connection in its line to permit of the reciprocating movement of the apparatus. The trunk-pipe C' is connected with the spray-pipe I by one or more pipes, *n'*, in which any suitable valve, *n*², may be arranged to regulate the pressure of water and the amount of discharge at the spring. Owing to the movement of the spray-pipe with the pusher across the bed, the whole or a considerable part of its surface will be wet by the spray, and the articles thereon will be cooled quickly, sufficiently to permit of their safe discharge, one by one, over the drop *a'* as the pusher is moved back and forth. The strap-fastenings *i*, like the straps *c'*, permit of endwise movement along the pipe. Consequently the arms *c* will be free to move with the expanding pusher C, as before described with relation to the pusher and pipe C'.

The length of stroke of the pusher may be varied, as required in different cases, by varying the extent of rotary movement of shaft E.

In order to deliver articles upon the bed as

free as possible from vertical bends or crookedness, I make use of a pair of stretching-rolls, B, which may be either plain faced or grooved, depending upon the form of article operated upon. These rolls are mounted in suitable housings, *b b*, in line with the bed A and the finishing-pass *b'* of the reducing-rolls B', which latter may be of any suitable form and construction adapted to the desired work. The rolls B B' are by preference separated some little distance, the former being at or near the end of the bed. The rolls B are adjusted to press lightly upon the article, sufficient for feeding purposes, but not for reduction, and they are geared to rotate at proper speed to pass the article somewhat faster than the finishing-rolls B'. Consequently they will exert more or less of a pulling action upon the article, removing bends and delivering it straight, or nearly so, upon the bed, though in its endwise passage across the bed it may take more or less of a serpentine course, thus producing horizontal bends, which, with any twisting that may occur, will be removed by the pushing mechanism, as before described.

This apparatus is inexpensive, can be operated easily by a single person, and will straighten, cool, and dispose of the rolled articles with little care or labor at any desired speed, and for many kinds of iron and steel products will be a great improvement upon the ordinary methods of hand-manipulation commonly practiced.

I claim herein as my invention—

1. In a straightening-machine, the arrangement of the flat and unobstructed receiving-bed A in a slightly-inclined position, substantially as and for the purpose set forth.

2. The receiving-bed A, in combination with reciprocating pusher C and spray-pipe I, substantially as set forth.

3. In combination with a reciprocating straight-edge pusher, C, a receiving-bed, A, having an unobstructed discharge, *a'*, along one edge, and an upward inclination toward such discharge, substantially as and for the purposes set forth.

4. The receiving-bed A, having the unobstructed discharge edge *a'* along one side, over which the bars may fall, in combination with a straight-edge pusher, C, and mechanism, substantially as described, for giving such pusher reciprocating movement across the receiving-line on the bed, the range of stroke being less than the width of the bed.

5. The combination of bed A, reciprocating pusher C, spray-pipe I, trunk-pipe C', pipe-connection *n'*, and valve *n*², substantially as set forth.

6. The combination of bed A, pusher C, arms *c*, swinging trunk C', suspending-arms *d*, rock-shaft E, and connections E' *e*, substantially as set forth.

7. The combination of bed A, pusher C, re-

reciprocating trunk C', movable straps c', encircling the trunk, and arms e, connecting the straps and pusher, substantially as set forth.

8. The combination of bed A, reciprocating
5 pusher C, trunk-pipe C', adjustable straps c', arms e, spray-pipe I, and strap-fastenings i, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

URI HASKIN.

Witnesses:

R. H. WHITTLESEY,
C. L. PARKER.