

No. 702,836.

Patented June 17, 1902.

C. WEBER.

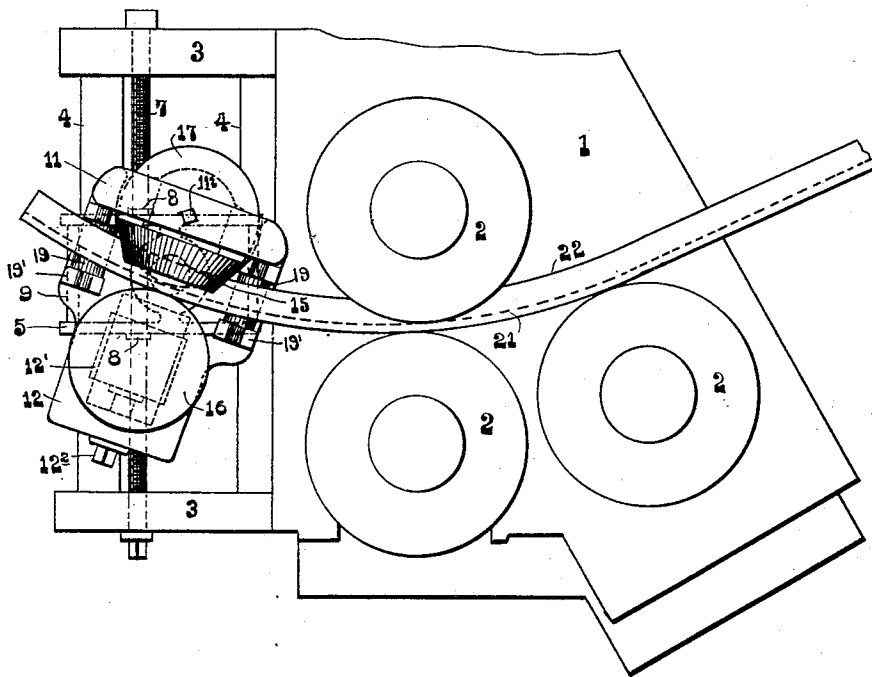
GUIDE FOR METAL BENDING MACHINES.

(Application filed Mar. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



WITNESSES

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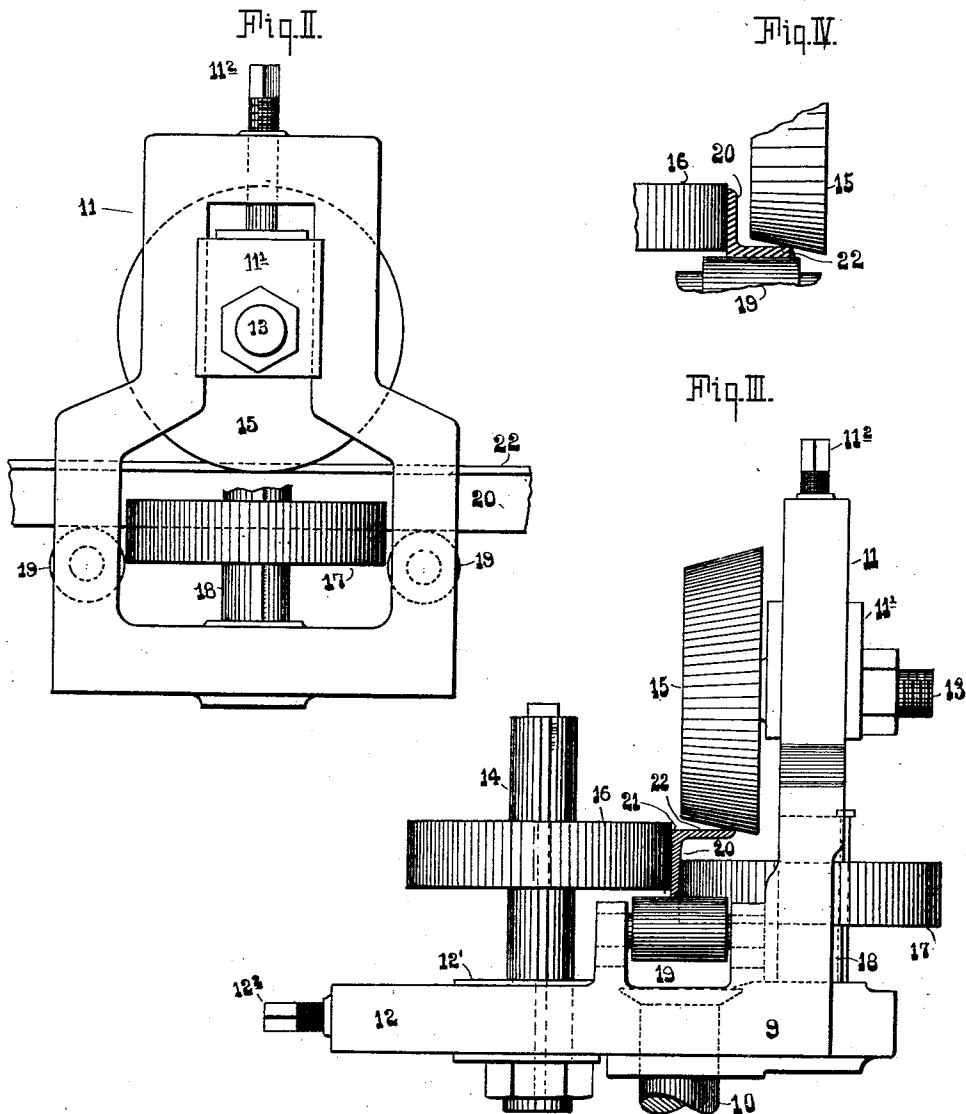
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GUIDE FOR METAL BENDING MACHINES.

(Application filed Mar. 9, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

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## GUIDE FOR METAL-BENDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 702,836, dated June 17, 1902.

Application filed March 9, 1901. Serial No. 50,429. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES WEBER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Guides for Metal-Bending Machines, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I is a plan view, partly broken away, of a structural steel-bending machine, showing an angle-girder partly bent and passing between the rolls of the back guide. Fig. II is an end elevation of the back guide, showing the position of a girder between the rolls. Fig. III is a side elevation of the back guide, showing the girder in cross-section between the rolls. Fig. IV is a broken-away detail side view of the bending-rolls, showing the girder in a reverse position to the girder in Fig. III.

In the curving of structural flanged beams by means of rolls the flanges have a tendency to twist or bend transversely to the curve produced by the bending-rolls, and this is usually caused by the steel being springy in spots along the face of the beam.

The object of my invention is to true the beam's flanges both longitudinally and transversely and without reducing the curve of the beam unless so desired.

The bending-rolls 2 have their bearings in the frame 1, which is provided with rearwardly-projecting arms 3, connected by supporting-guides for the adjustable carriage 5. The carriage is adjustable horizontally by means of the screw 7, having bearing in arms 3 and working in collars 8, secured to said carriage and engaging the screw. Table 9 is mounted on the carriage 5 and pivotally secured thereto by means of bolt 10.

11 is a vertical housing, 12 a horizontal housing, said housings being integral with table 9. Boxes 11' and 12' are adapted for adjustment in said housings by means of screws 11<sup>2</sup> and 12<sup>2</sup>. 13 and 14 are shafts secured in said boxes and capable of revolving therein.

Keyed or otherwise secured to shafts 13 and 14 are rolls 15 and 16. These rolls can be adjusted along the length of the shaft when so desired.

17 represents a roll adjustably secured to shaft 18, which is loosely mounted in housing 12.

19 19 represent rolls loosely secured in bearings 19' 19'.

In the operation of my guide after the forward end of an angle-beam has been bent to the desired curve rolls 2, 2, and 2 are brought to a stop, carriage 5 moved forward along screw 7 until the center of said carriage is about on a line with the curve of said beam, bolt 10 is loosened, and table 9 adjusted so that the edge of the vertical flange 20 of angle-beam 21 will ride on the horizontal faces of rolls 19 19. Bolt 10 is tightened, rolls 16 and 17 adjusted to bear against the sides of the vertical flange 20, and bevel-wheel 15 lowered to bear on the outer edge of flange 22. The bending-rolls 2, 2, and 2 are started, angle-beam 21 moves forward over and between the rolls on the back guide, bending-roll 15 bends the flange 22 slightly below the horizontal plane between the end rolls 19 19, while the rolls 16 and 17 hold the vertical flange in proper alinement. Owing to the springy nature of steel it is necessary to bend the flange downward more than its true angle, so that the beam when it passes from the guide will spring back to its true or predetermined angle. When a beam is to be curved, so that the edge of the horizontal flange becomes the outer periphery of the curve, Fig. IV, instead of the inner, as shown in Fig. I, the tendency of the flange will be to bow or bend downwardly instead of upward. Hence the bevel-roll 15 presses on the inner side of flange 22, while the bottom of the flange 22 is supported on the rolls 19 19 and roll 17 is omitted.

The guide is applicable to the prevention of a transverse twist or bend in the different styles of structural shapes, including traction-rails, when passing from the operation of curving in a bending-machine.

I have shown the rolls secured as idlers in their housings; but when necessary power attachments can be connected to the several shafts, thereby revolving the rolls from their own power instead of by the action of the beam's forward movement between them.

Having described my invention, I claim—  
1. In a metal-bending machine, a bending

mechanism, a guide receiving the bent metal and having a rotatable and transverse adjustment to the line of feed.

2. In a metal-bending machine, a bending  
5 mechanism, a guide receiving the bent metal, and rotatably adjustable in a plane transversely of the working faces of the bending mechanism.

3. In a metal-bending machine, a bending  
10 mechanism, a guide for receiving the bent metal and preventing its distortion, having a carriage adjustable transversely of the line of feed, a table rotatably mounted on the carriage, and a set of rolls carried by the table.

15 4. In a metal-bending machine, a set of bending-rolls, and a guide for receiving the

bent metal, having a table rotatable in a plane transversely of the axes of the bending-rolls and adjustable in the plane of the table.

5. In a bending-machine, a bending mech- 20  
anism, a guide receiving the bent metal and having a table adjustable transversely of the line of feed, horizontally and vertically adjustable journal-boxes thereon, and rolls carried by the journal-boxes, one of said rolls 25  
having a bevel face.

Signed at Pittsburg this 26th day of February, 1901.

CHARLES WEBER.

Witnesses:

LUCY DORSEY IAMS,  
GEO. H. HARVEY.