No. 622,189. Patented Mar. 28, 1899.

J. NALL.

METAL BENDING MACHINE.

(Application filed Mar. 28, 1898.)

(No Model.)

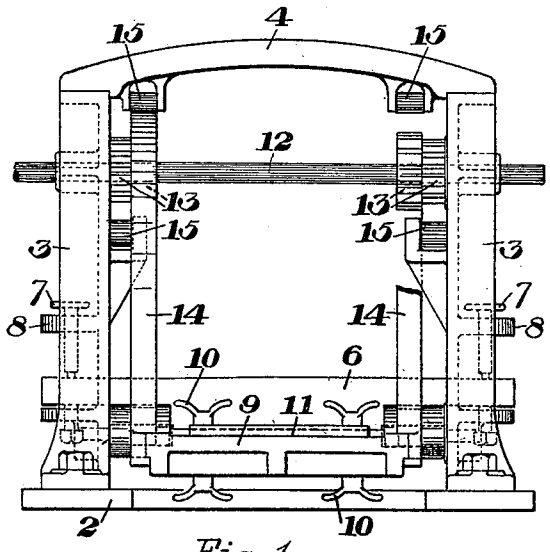


Fig. 1.

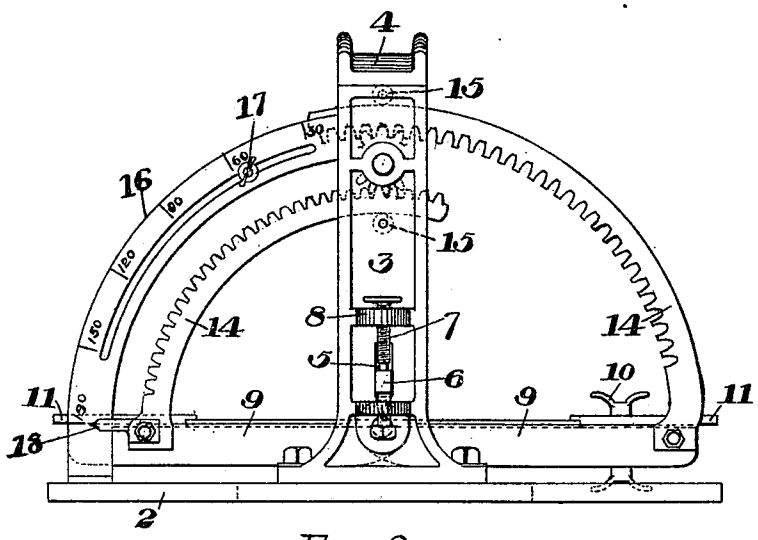


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN NALL, OF HOMESTEAD, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JABEZ NALL, OF CLEVELAND, OHIO.

METAL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,189, dated March 28, 1899.

Application filed March 28, 1898. Serial No. 675,400. (No model.)

To all whom it may concern:

Be it known that I, JOHN NALL, of Homestead, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Metal-Bending Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation, partly in section, of my improved machine; and Fig. 2 is a side elevation of the same.

My invention relates to the bending of metal plates or bars into angles for use as beam connections and other similar purposes; and it is designed to provide a simple and effective machine for this purpose, whereby the two portions of the plate or bar may be bent simultaneously to the desired angle.

In the drawings, 2 represents a suitable base having centrally located thereon the side standards 3 3, which are connected at their top by the curved cap-plate 4. These standards are provided near their lower ends with slots 5, within which are adjustably held the rectangular end portions of the knife-bar 6, which is preferably provided with inclined sides forming a narrow lower edge against which the plate is bent. The bar may be adjusted vertically by screws 7, extending through lugs 8 upon the standards and bearing upon the upper and lower faces of the bar. Immediately beneath the end portions of the knife-bar are provided trunnions, upon which swing the two platens 9 9, each platen having at its inner end suitable collars which take about these trunnions. The platens are provided with suitable slots, through which pass set-screws 10, by means of which clamps 11 are suitably secured near the ends of the platens, these clamps bearing upon the end portions of the plate, which is slipped beneath the knife-bar when the platens are horizontal and before the operation begins.

Within the upper portions of the standards is mounted a transverse shaft 12, which may be driven by any suitable connections and which is provided with two double pinions 13, which engage the teeth of arc-shaped racks 14, secured at the sides of the platens near their outer ends. One set of these racks engages the larger portions of the double pinions, while the other set is of less radius and engages the teeth of the smaller portions of the pinions upon their under sides, the parts being so arranged that when the shaft is rotated the platens will be swung simultaneously through the same arc. The rear faces of the racks bear upon rollers 15, secured to the cap-plate and the side standards, respectively, so as to support the intermediate portion of the racks during their movement.

I may provide an arc-shaped plate 16, having a curved scale thereon, as shown, and provided with a set-screw 17, adjustable in a slot therein and arranged to be engaged by pin or pointer 18, secured to one of the curved racks. This set-screw will stop the bending operation at the desired point, and the scale enables the operator to set the stop at the desired angle.

The operation is apparent. The plate being slipped beneath the bending or knife bar is secured by the clamps upon the platens. The shaft 12 is then actuated and the platens are both swung upwardly upon the common trunnions through the same angle, thus bending both portions of the plate to the desired amount. The set-screw which holds the knife-bar in place may be loosened and this knife-bar slid out endwise to allow the removal of the bent plate when it is too long to remove otherwise.

The advantages of my invention result from the simultaneous movement of the platens, which swing upon the common center and bend the opposite portions of the metal simultaneously, and from the simple and effective construction whereby the platens are actuated.

I claim—

1. In a bending-machine, the combination with two platens pivoted about a common axis, of a stationary holder arranged to extend over the intermediate part of the sheet in line with this axis, and means for swinging said platens simultaneously.

2. In a bending-machine, the combination with a stationary knife-bar arranged to extend over and bear upon the intermediate part of the sheet, of two platens pivoted about a common axis in line therewith, and means

for swinging said platens simultaneously, substantially as described.

3. In a bending-machine, the combination with an adjustable cross-bar, of two platens pivoted about a common axis in line therewith, clamps upon the platens, and means for swinging said platens simultaneously, substantially as described.

4. In a bending-machine, a pair of slotted standards, a cross-bar adjustably mounted in the slots and removable endwise therethrough, and a swinging platen arranged to bend the metal, substantially as described.

5. In a bending-machine, the combination with a pair of swinging platens, of arc-shaped racks secured thereto, and pinions engaging the racks so as to swing the platens, substantially as described.

6. In a bending-machine, the combination with two swinging platens, of a shaft having pinions of different diameters, arc-shaped racks secured to the platens and engaging the pinions, the parts being arranged to give an equal movement to both platens, and means for actuating the pinion-shaft, substantially as described.

7. In a bending-machine, the combination with a pair of swinging platens, of arc-shaped racks secured thereto, driving-pinions engaging the racks, and supporting-rollers bearing upon the rear of the racks, substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN NALL.

Witnesses:
H. M. CORWIN,
G. I. HOLDSHIP.