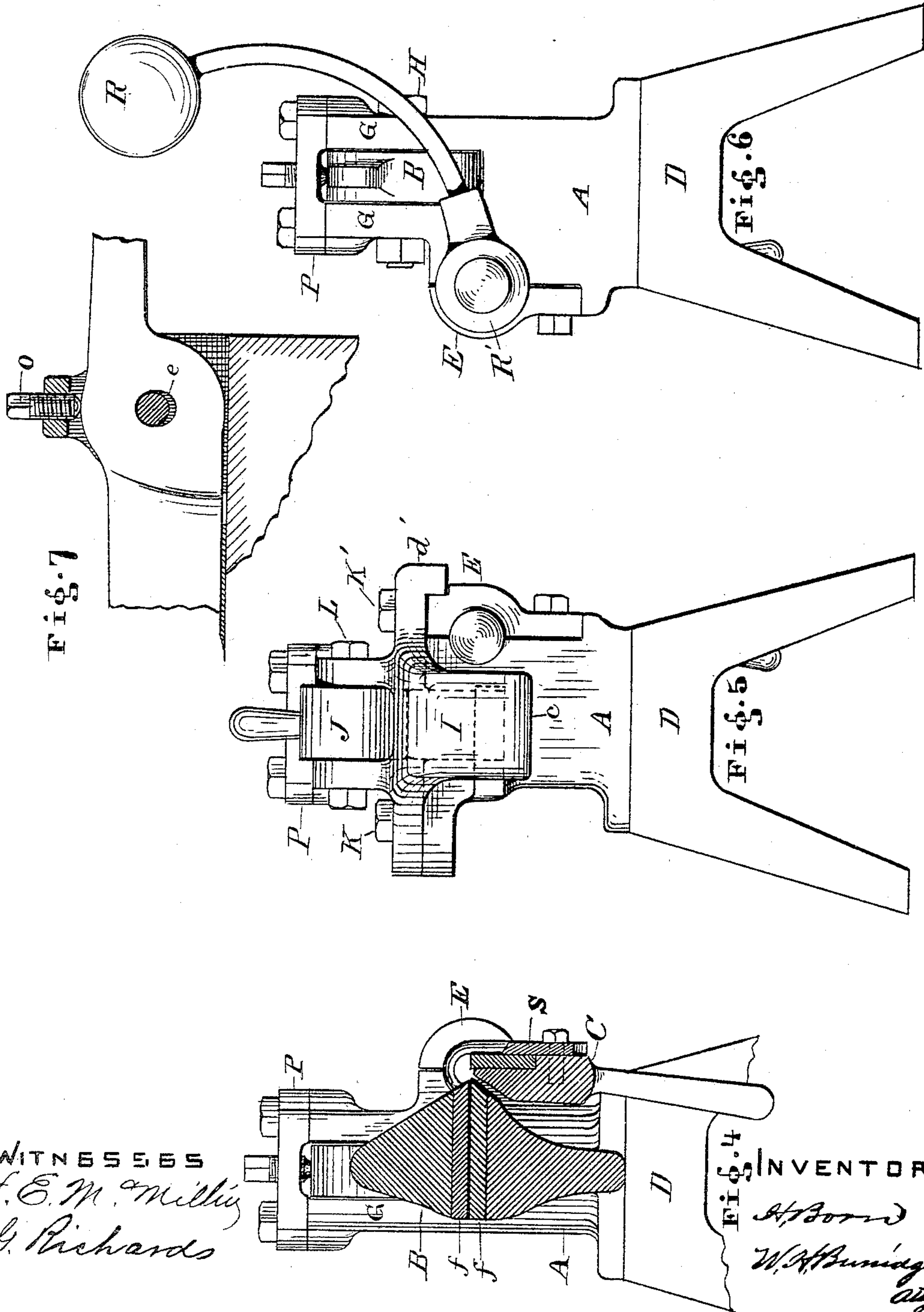


H. BORN.
BOX BENDING BRAKE.

No. 437,829.

Patented Oct. 7, 1890.



WITNESSES
H. E. M. Milby
J. G. Richards

Fig. 4 INVENTOR
H. Born
W. H. Burdick
Att.

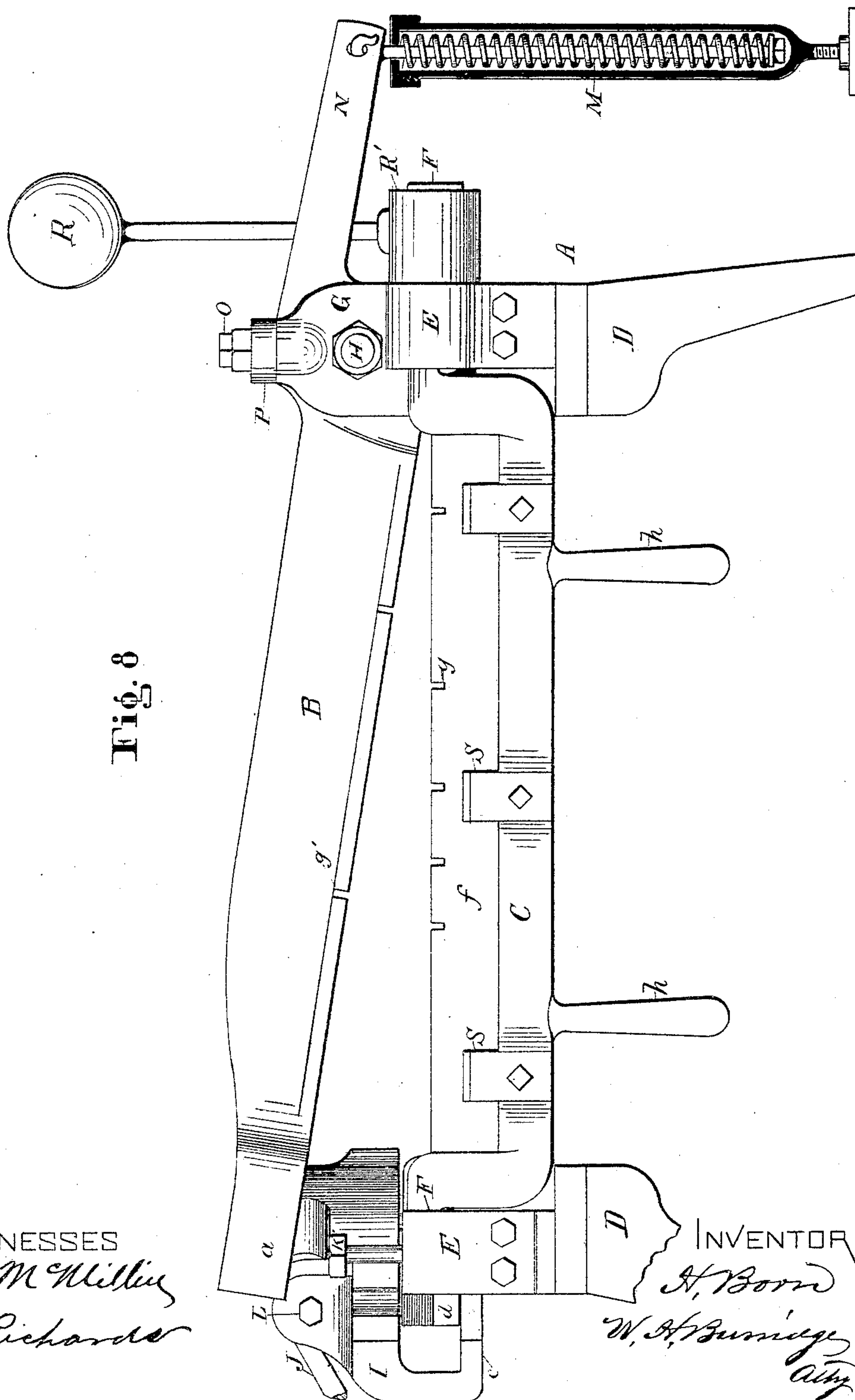
(No Model.)

3 Sheets—Sheet 3.

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Life

WITNESSES
H.E. McMillen
J.G. Richards

INVENTOR
A. Board
W. A. Burnidge
Atty

UNITED STATES PATENT OFFICE.

HENRY BORN, OF CLEVELAND, OHIO.

BOX-BENDING BRAKE.

SPECIFICATION forming part of Letters Patent No. 437,829, dated October 7, 1890.

Application filed March 4, 1890. Serial No. 342,648. (No model.)

To all whom it may concern:

Be it known that I, HENRY BORN, a resident of Cleveland, in the county of Cuyahoga, State of Ohio, a citizen of the United States, have invented a new and useful Box-Bending Brake; and I do hereby declare the following to be a full, clear, and complete description thereof.

My invention relates to and consists in the peculiar construction and arrangement of the operative parts of said machine, the object of which is to facilitate the manipulation of said mechanism and to render it effective for the purpose intended.

That the invention may be seen and fully understood reference will be had to the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of said machine. Fig. 2 is a detached plan view of the front part thereof. Fig. 3 illustrates parts of Fig. 2 in a different position. Fig. 4 is a vertical cross-section of said machine, on line *x x*, Fig. 1. Fig. 5 is a front end view of said machine. Fig. 6 is a rear end view of the same. Fig. 7 is a detached section, which will be hereinafter described. Fig. 8 is a side elevation of said machine, showing the beam raised.

Like letters of reference denote like parts in the drawings and specification.

Substantially this machine consists of a bed-plate or stationary clamping-stock A, the hinged clamping-beam B, and the bending-bar C, and the means for attaching and holding said stock, beam, and bar in position and in movable or operative relation.

The clamping-stock A is mounted upon the pedestals D D, as seen in Figs. 1, 5, and 8, and formed preferably as shown. The front side of said stock is provided with bearings E E for the journals F F of the bar C, whereas the face side is arranged to receive the beam B, as shown in Figs. 1, 2, and 6—that is, at the rear end are projecting jaws G G, through which extends the pin H for a hinged connection with the beam B, which beam is fitted between said jaws and perforated to receive said pin, as shown in Fig. 7. At the front end is a clamping device for securing the reduced free end *a* of the beam B to said stock A, as seen in Figs. 1, 2, and 5. Said clamping device consists of the bracket I and cam-

lever J. The bracket I is retained upon the stock A by means of the bolts K and K' when in position, as shown in Figs. 1 and 2, whereas the cam-lever J is arranged to swing upon the bolt L, which extends through said bracket, as shown. In addition to the bolt-connection of the bracket and stock A, a lap-joint connection is formed by means of the flange *c* and the projection *d*. Thus in using the clamp-lever J undue strains upon the bolts K K' are prevented, owing to the resistance of the lug *d*.

In adapting this machine for the especial class of work for which it is intended it is essential that the free end of the beam B should be readily and easily disconnected and raised for removal of the bended sheet metal when in box form and for insertion of the sheets to be bent. To admit of a ready disconnection of the bracket I a notch *d'* is used in the front lap *d'* of said bracket, which allows of a simultaneous swinging back of the latter when and while the cam-lever J is loosened and turned, as indicated by the arrow in Fig. 1.

Figs. 1 and 2 illustrate the bracket and cam-lever in a locked position, while Fig. 3 shows said parts removed from engagement over the free end of the beam B, in which latter instance the beam is automatically tilted owing to the resiliency of the spring M, which is arranged in operative relation to the lever N of said beam, as seen in Fig. 1.

On inserting the material to be bent between stock and beam it is essential that the beam B should at either side be in tight contact with the sheet to be bent. This condition is attained by adjustment of the set screw O and cam-lever J.

In Fig. 7 is shown the set-screw O, threaded into the cross-piece P of the jaws G. This set-screw is intended to bear upon the upper side of the beam B when the front end thereof lies upon the material to be bent. Thus when the bracket is drawn into engagement with the bolt K' and the cam-lever J locked, then the beam B is caused to bind firmly upon the inserted material and prevents the same from slipping out of place while being bent. The oblong hole *e* admits of a raising of the beam according to the thickness of the sheets of metal, and with the set-screw O the adjust-

ment is controlled or limited to assure a binding contact upon said metal.

In Fig. 4 is shown the stock A, the beam B, and the bending-bar C, each of them being lined with steel plates *fff* to increase the durability and effectiveness of the machine. The grooves *g g'* (shown in Figs. 1 and 8) admit of bending flanged sheet metal, the flange being placed in said grooves to enable the contact of the material with both the stock and beam.

The bending-bar C, as above stated, is journaled in the bearings E E. The journals F F being integral parts of said bar are so set as to admit of turning said bar in close proximity and in line with the bite of the stock and beam, as seen in Figs. 1 and 4.

By means of the handles *h h* the bending-bar C is turned. The weight R is provided with the hub R' and secured to the extension of one of the journals F', as seen in Figs. 1, 6, and 8, to facilitate the turning of said bar by its counteraction. SS are clamps for secur-

ing the steel plates *f* to the bending-bar C, as shown in Figs. 1, 4, and 8.

When the material is inserted in the manner as above stated, the bending-bar C is raised or turned according to the nature of the angle which is to be produced.

I claim and desire to secure by Letters Patent—

The combination of the stock A, the beam B, hinged between the jaws G G of said stock and provided with a lever N, with spring M at said hinged end, and the bracket I, with cam-lever J, for locking and unlocking said beam to the stock A, constructed and arranged substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY BORN.

Witnesses:

W. E. MOORE,

W. H. BURRIDGE.