

No. 886,027.

PATENTED APR. 28, 1908.

A. WOOD.
BENDING MACHINE.

APPLICATION FILED FEB. 27, 1908.

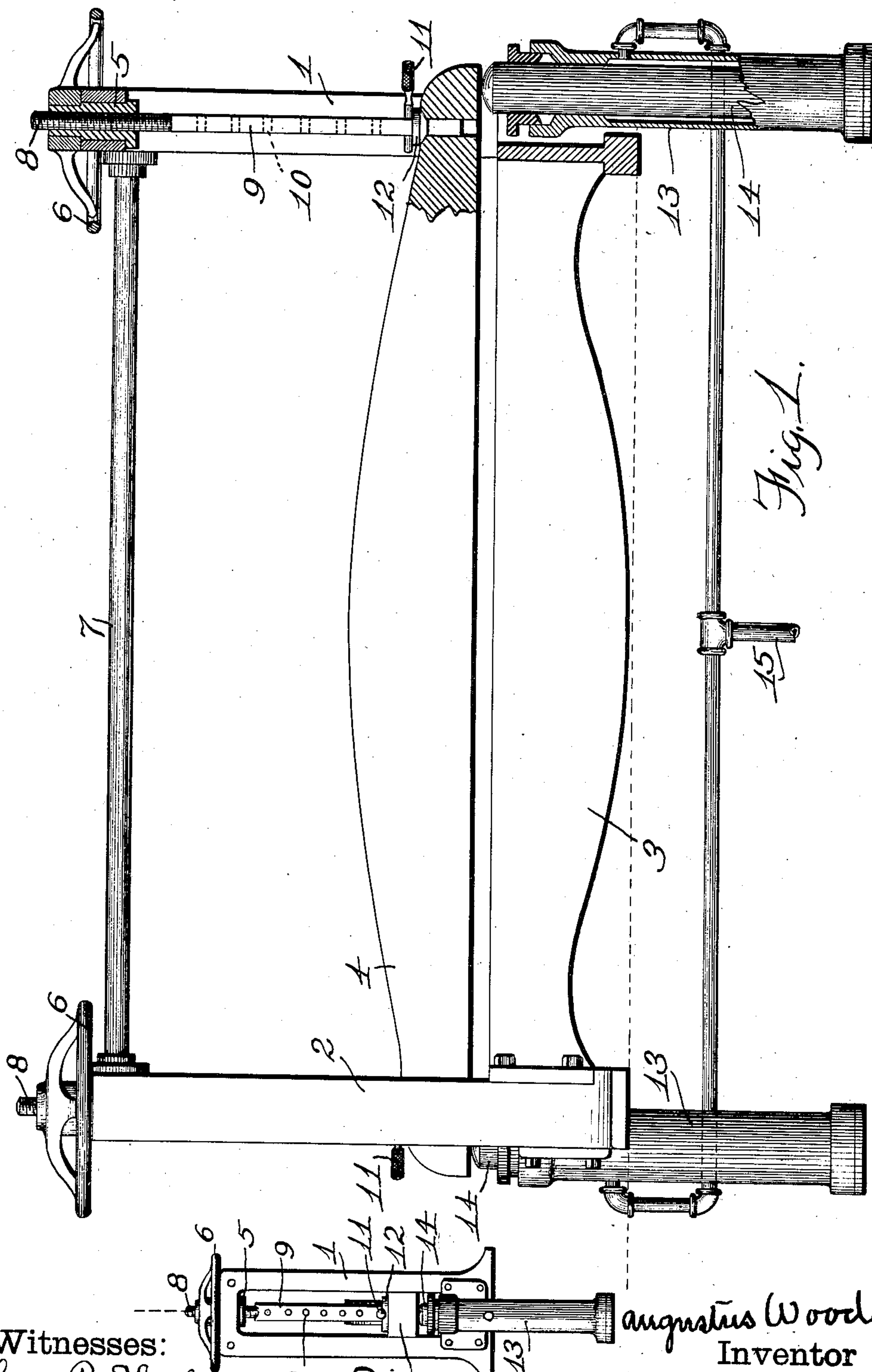


Fig. 1.

Fig. 2.

Witnesses:
Elmer R. Shipley.
M. S. Belden.

Augustus Wood
Inventor
by James W. See
Attorney

UNITED STATES PATENT OFFICE.

AUGUSTUS WOOD, OF HAMILTON, OHIO, ASSIGNOR TO NILES-BEMENT-POND COMPANY, OF JERSEY CITY, NEW JERSEY.

BENDING-MACHINE.

No. 886,027.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed February 27, 1908. Serial No. 418,004.

To all whom it may concern:

Be it known that I, AUGUSTUS WOOD, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Bending-Machines, of which the following is a specification.

This invention pertains to improvements in that class of bending machines involving a pair of clamp-members for clamping sheet metal, either between dies for the direct bending of the metal or for merely holding the metal while it is bent by hammering some projecting portion of the sheet. Occasions arise, in the use of this class of machines, when, in order to bring the active parts of the machine to bear upon the proper portion of a plate some very large formation of or attachment to the plate must be passed between the clamping members of the machine. Such cases sometimes arise in the formation of certain forms of metallic car trucks.

My improved machine will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a front elevation of a bending machine exemplifying my improvements, part appearing in vertical longitudinal section: and Fig. 2 an end elevation of the same on a reduced scale.

In the drawing:—1, indicates a vertically slotted housing: 2, a similar housing: 3, a bridge-piece firmly secured to the bases of the two housings and forming the lower clamp-member of the machine: 4, a gate forming the upper clamp-member of the machine, this gate being above and in the vertical plane of the bridge-piece and having its ends fitted to slide vertically in the slots of the housings: 5, a nut vertically journaled in the top of each of the housings over the ends of the gate: 6, handles on these nuts to serve in turning them: 7, tie-bars connecting the upper ends of the housings: 8, a screw for each of the rotary nuts 5: 9, downward extensions of the screws 8, these extensions being flat and extending from the screws down through mortises in the ends of the gate where the gate fits in the slots of the housings: 10, a vertical series of perforations in each of the flat screw-extensions 9: 11, pins removably inserted in a selected perforation

in each of the flat screw extensions: 12, washers on the flat screw extensions, over the ends of the gate: 13, a vertical cylinder disposed under each end of the gate: 14, a plunger working in each of the cylinders, the upper ends of the plungers projecting up from the cylinders and engaging under the ends of the gate: and 15, piping, to be connected with a source of supply of fluid under pressure to permit of the fluid being admitted to and exhausted from the two cylinders.

The clamping or pressing power of the machine is gotten by means of the handles 6 which, upon being turned, forces the screws downward and, through the medium of the flat screw extensions and the pins, forces the gate down toward the bridge-piece.

If it be desired to raise the gate, the pressure derived from the screws is to be relieved sufficiently to permit the pins to be withdrawn, after which the fluid may be admitted to the cylinder causing the two plungers to rise and quickly elevate the gate to any point desired. When the gate is again to go to work the pressure in the cylinders is to be relieved, thus allowing the plungers and the gate to descend and the pins to be restored in the flat screw extensions, after which pressure may again be put on the gate by means of the screws.

In the drawing the gate is illustrated in position for use down fairly close to the bridge-piece, the pins in such case being employed in the lower perforations in the flat screw extensions. If, however, the form of piece to be dealt with is such as to require, while the work is being done, a considerable distance between the bridge-piece and the gate then the pins will be inserted in selected holes higher up in the flat screw extensions and the plungers will be employed in supporting the gate at the desired low point and in quickly elevating it above such point.

It is to be observed that the working motions of the gate are substantially the same as could be gotten if, instead of the flat screw extensions, the screws extended, as threaded members, all the way down to the gate. In such case, however, long and tedious screwing operations would be required in effecting extended raisings and lowerings of the gate, while in the present case, the idle rising and falling motions of the gate are quickly

effected by means of the plungers, the slow powerful action of the screws being limited to a comparatively short range of motion.

I claim:—

- 5 1. A bending machine comprising, a pair of housings, a bridge-piece connecting the housings and forming a lower press-member, a gate forming the upper press-member and having its ends arranged for vertical motion
- 10 in said housings, a cylinder under each end of said gate, plungers in the cylinders with their upper ends engaging under the gate, means for admitting pressure fluid to and exhausting it from the cylinders, a screw device
- 15 at the top of each housing, a downward extension from each screw device to the appropriate end of the gate, the gate being vertically movable relative to such extensions, and means cooperating with said extensions
- 20 and the gate to limit the downward motion of said extensions relative to the gate, combined substantially as set forth.

- 25 2. A bending machine comprising, a pair of housings, a bridge-piece connecting the housings and forming a lower press-member, a gate forming the upper press-member and having its ends arranged for vertical motion in said housings, a cylinder under each end of said gate, plungers in the cylinders with

their upper ends engaging under the gate, 30 means for admitting pressure fluid to and exhausting it from the cylinders, a nut journaled in the top of each housing over the appropriate end of the gate, means for turning said nuts, a screw in each nut, a flat extension 35 from the foot of each screw downward to and through a perforation in the appropriate end of the gate, said flat extension being provided with a vertical series of perforations, and pins adapted for insertion in selected ones of said perforations over the ends 40 of the gate, combined substantially as set forth.

3. A bending machine comprising, a pair of vertical housings, a fixed horizontal lower 45 press-member secured to the housings, a movable horizontal upper press-member sliding in the housings, screw devices supported by the housings for forcing the upper press-member down, cylinder and plunger 50 devices for moving the upper press-member upwardly, and coupling devices between the screw devices and the upper press-member, combined substantially as set forth.

AUGUSTUS WOOD.

Witnesses:

M. S. BELDEN,
ELMER R. SHIPLEY.