(No Model.)

4 Sheets—Sheet 1.

C. E. OVENSHIRE.

DOOR CLAMP.

No. 590,047. Patented Sept. 14, 1897.

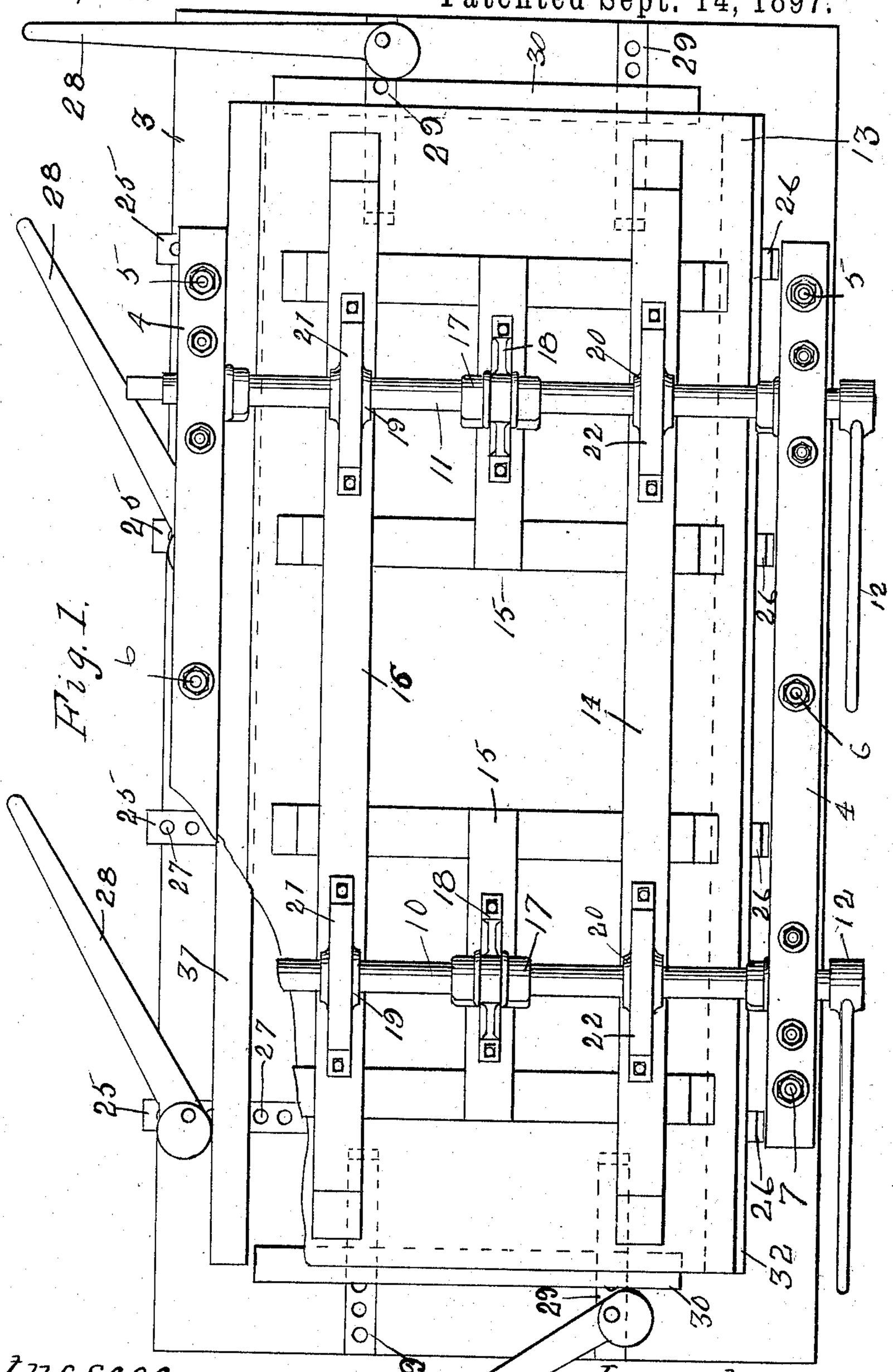

Fig. 1.

Witnesses
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B. P. Shepherd

Inventor
Charles E. Ovenshire
By Paul & Crawley
his Attys.

(No Model.)

4 Sheets—Sheet 2.

C. E. OVENSHIRE.

DOOR CLAMP.

No. 590,047. Patented Sept. 14, 1897.

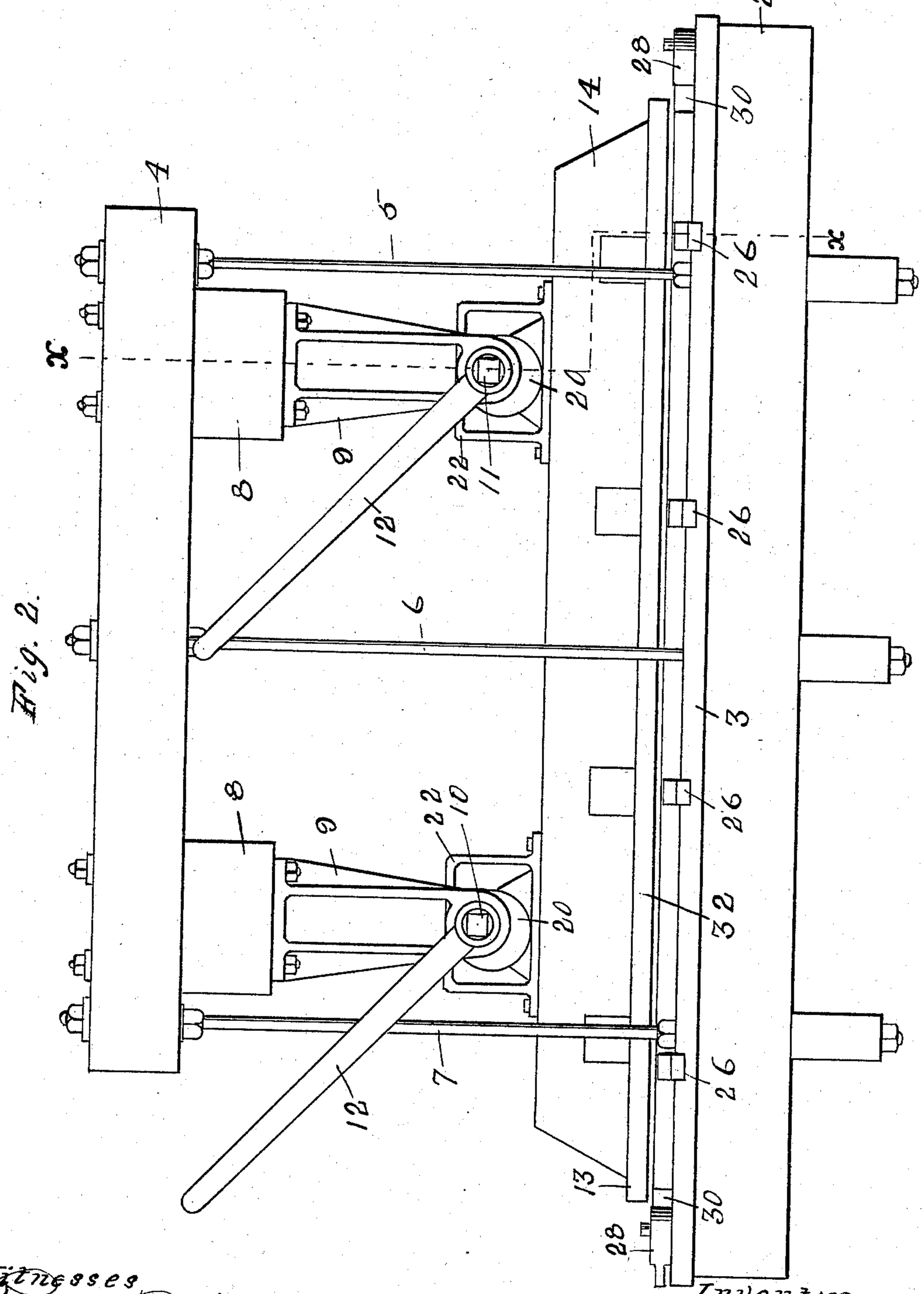

Fig. 2.

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(No Model.) 4 Sheets—Sheet 3.

C. E. OVENSHIRE.

DOOR CLAMP.

No. 590,047. Patented Sept. 14, 1897.

Fig. 3.

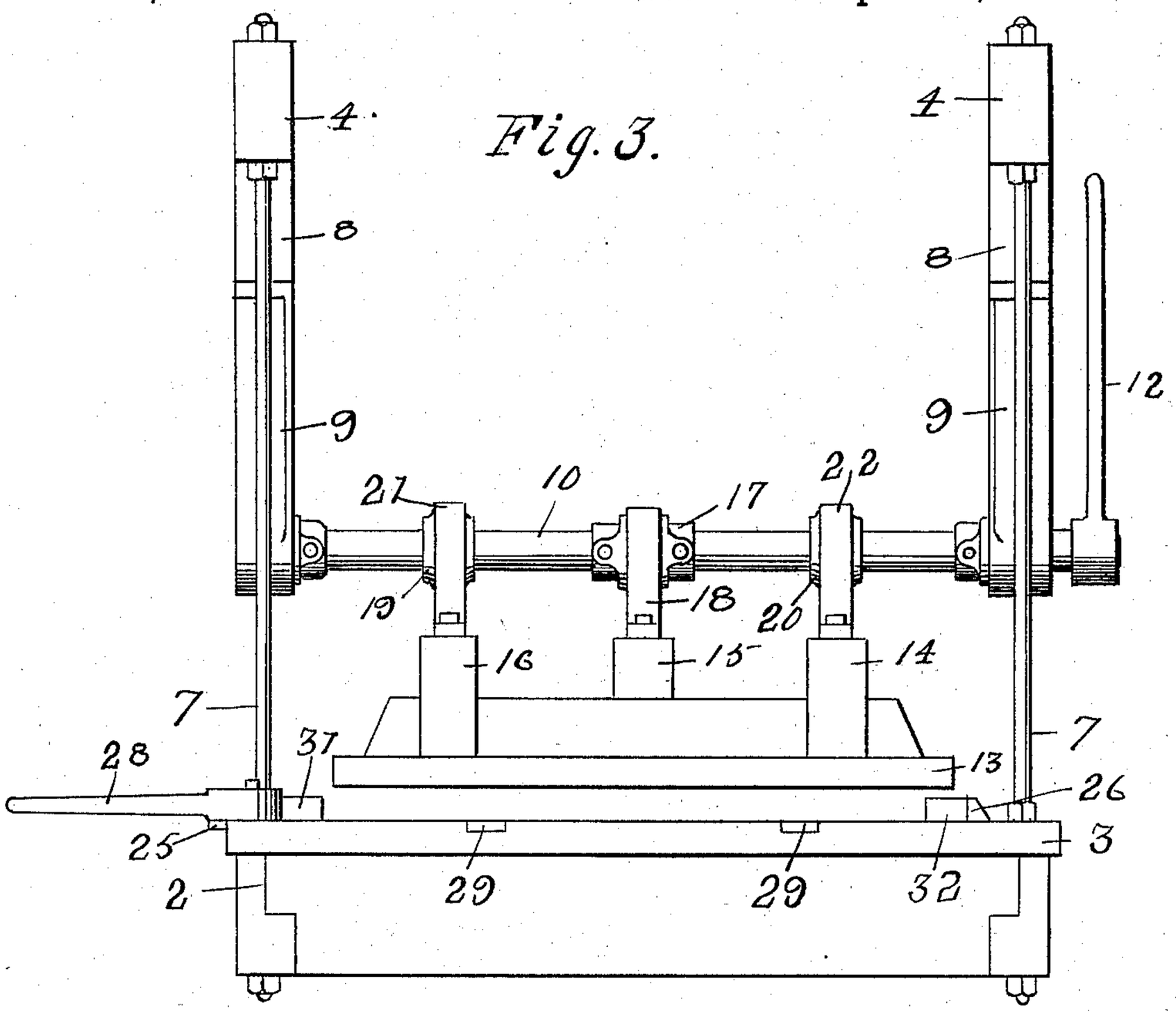
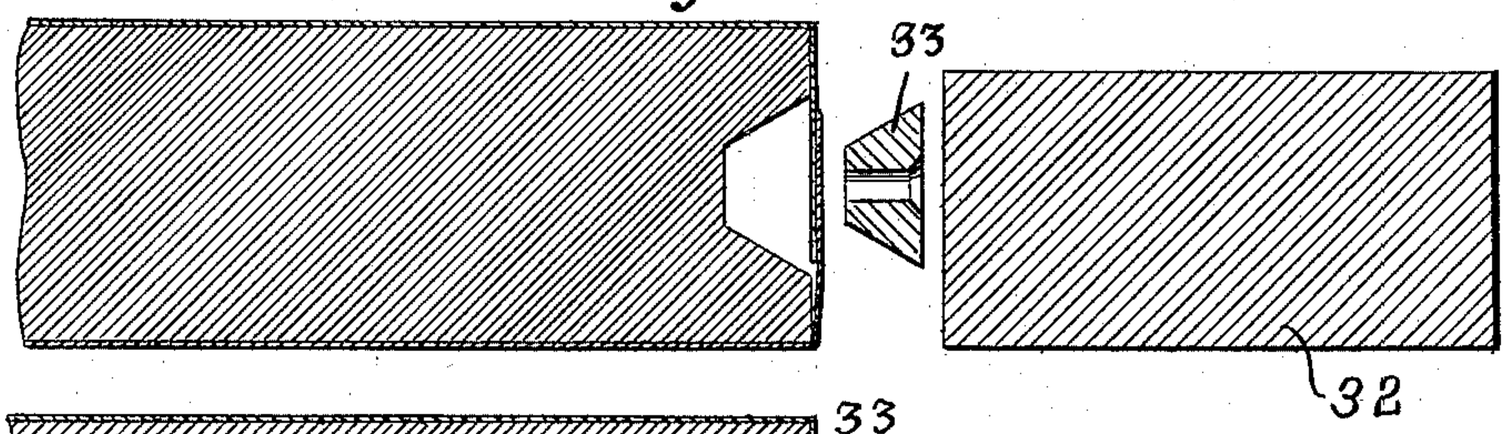


Fig. 5.



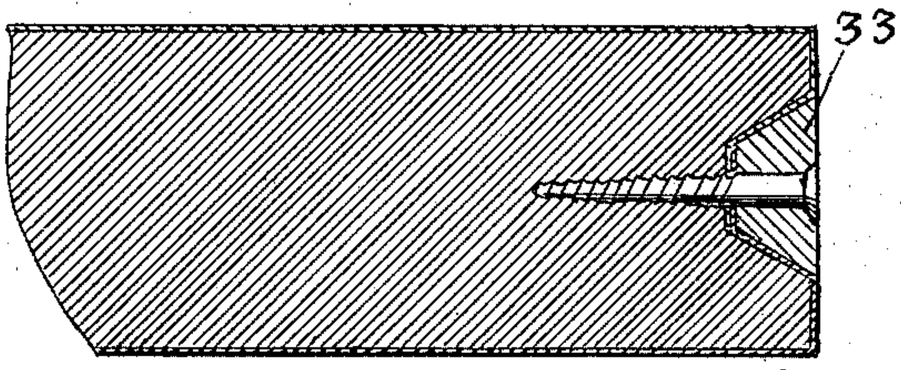


Fig. 6.

Witnesses:
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his Att'ys

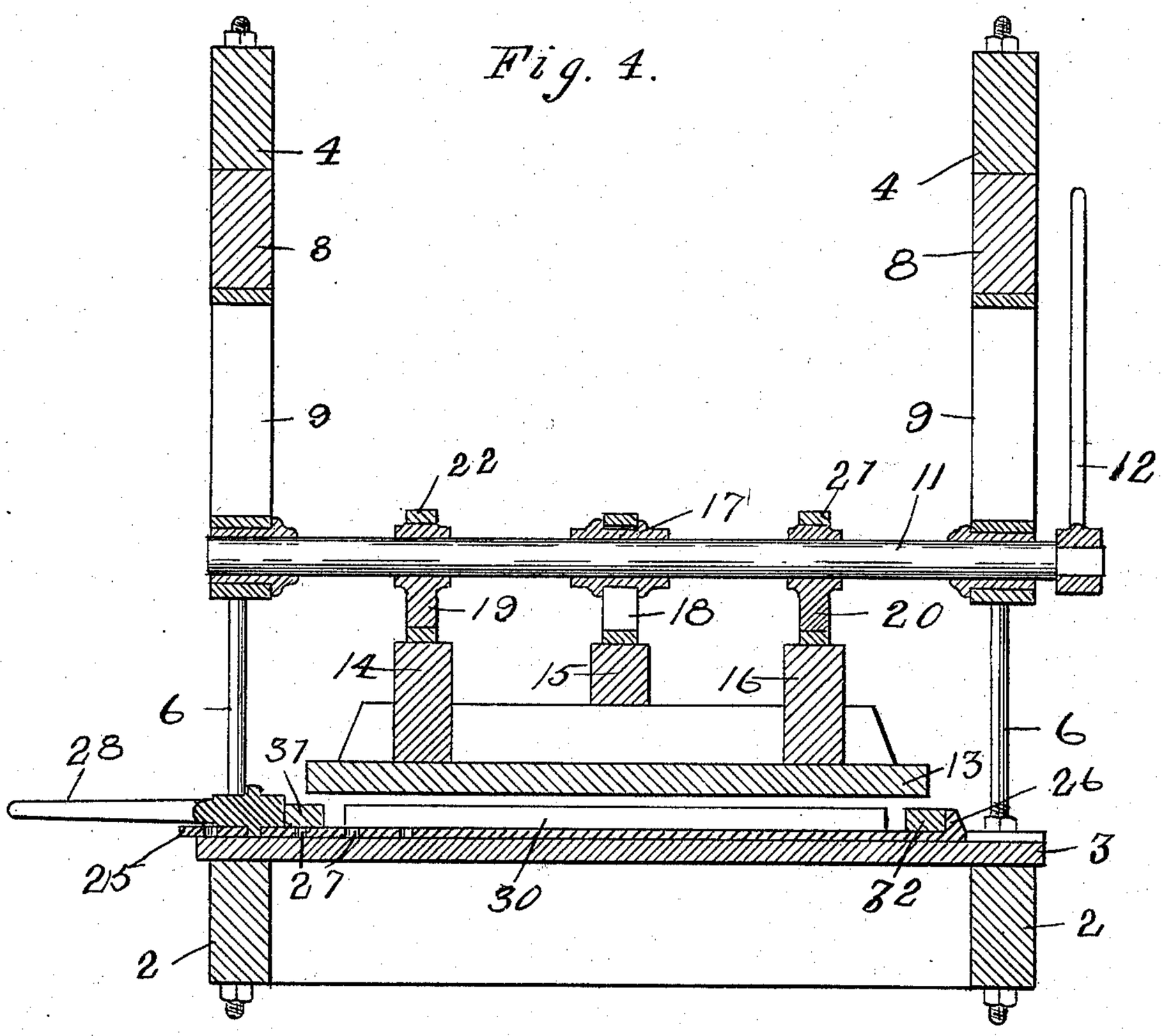
(No Model.) 4 Sheets—Sheet 4.

C. E. OVENSHIRE.

DOOR CLAMP.

No. 590,047. Patented Sept. 14, 1897.

Fig. 4.



Witnesses
Richard Paul
B. P. Shepherd

Inventor
Charles E. Ovenshire
By Paul & Hawley
his Attys.

UNITED STATES PATENT OFFICE.

CHARLES E. OVENSHIRE, OF MINNEAPOLIS, MINNESOTA.

DOOR-CLAMP.

SPECIFICATION forming part of Letters Patent No. 590,047, dated September 14, 1897.

Application filed July 20, 1896. Serial No. 599,906. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. OVENSHIRE, a citizen of the United States, residing at Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Door-Clamps, of which the following is a specification.

My invention relates to clamping devices for use in forming fireproof-doors; and the object I have in view is to provide means for holding the sheets of metal which form the outer surface of the door firmly in position during the process of fitting and securing the edges of the sheets to the edges of the door; and, further, my invention consists in particular means for shaping the edges of the metal to fit the door and holding the same rigidly until secured.

My invention consists generally in a mechanism for clamping the sheets to the door and means for operating the same in combination with a pressing device, whereby the edges of the sheets may be forced into a groove provided in the edges of the door, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of the machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an end view of the machine. Fig. 4 is a transverse sectional view on the line $x\,x$ of Fig. 2. Figs. 5 and 6 are detail sectional views showing the means for securing the edges of the sheets to the edges of the door.

In the drawings, 2 represents a suitable base, rectangular in form, provided with a flat top 3, upon which the door is laid, and forming the stationary part of the clamping device. Above the base 2 is a framework 4, supported by the upright rods 5, 6, and 7, which extend up through the flat top of the base and near the longitudinal edges thereof.

Timbers or cross-beams 8 are secured to the under side of the framework 4, and each end of the timbers 4 is provided on its under side with a hanger 9, having a bearing at its lower end to receive the end of the shafts 10 and 11, which are free to turn therein and are held in position by keys or in any other suitable manner. The ends of the shafts project out beyond the sides of the machine, and the extreme ends are squared to enter a square opening provided in the end of the levers 12, by means of which the shafts may be turned when desired.

Beneath the shafts 10 and 11 and over the central portion of the base 2 is arranged the movable portion 13 of the clamping device. It is provided with a flat under surface to rest upon the flat top of the base and upon its upper side is provided with a series of longitudinal timbers 14, 15, and 16.

The middle portion of the shafts 10 and 11 is provided with a box or bearing 17, which revolves within a bracket 18 arranged upon the upper side of the timber 15, and forms a guide and bearing for the central portion of the shaft.

Upon either side of the bearing 17 I provide the cams 19 and 20, which are rigidly secured upon the shafts and turn within the brackets 21 and 22, which extend above the shafts and are secured to the timbers 14 and 16 and support the movable portion 13 of the clamp.

Within the brackets 21 and 22 I arrange the blocks 23 and 24, having a hollowed-out middle portion in which the cams turn, and which furnish a broad bearing for the same.

As the shafts 10 and 11 are turned by the levers 12 the cams will be moved in their bearings within the brackets and the movable portion of the clamp raised or lowered.

The top 3 of the base is provided with a series of transverse grooves, and bars 25 are provided to slide in said grooves, having at one end an upwardly-turned lug 26 and at the other a series of holes 27 to receive a pin or lug on the cam-lever 28, by means of which the bar may be moved on the base and the edges of the sheets fitted to the edges of the door. The ends of the top 3 are also provided with short grooves to receive the short bars 29, which are fixed in the top of the base and are provided with a series of holes to receive the lug provided on the cam-lever 28.

I provide short bars 30 to be placed between the ends of the cam-levers and the edge of the door, and the inner edge of the bar is adapted to force the edges of the sheets into the groove provided on the edges of the door.

Side bars 31 and 32 are provided and extend the entire length of the movable por-

tion of the clamp. The bar 32 rests upon the transverse bars 25 just inside the lugs 26 and will be drawn in toward the movable portion of the clamp when the cam-levers are operated. The bar 31 rests upon the opposite ends of the sliding bars and will be moved in toward the movable portion simultaneously with the bar 32. The inner edges of the bars 31 and 32 are adapted to fit into the groove provided in the edges of the door in the same manner as the bars provided on the end of the base.

The operation of the machine is as follows: The sheets are placed in position upon the upper and under side of the door with the edges of the sheets overlapping and covering the groove provided in the edges of the door. The movable portion of the clamp is then moved down upon the door by means of the levers, and as the shafts 10 and 11 are turned the pressure upon the door will be increased. The side bars are then placed in position, and by means of the cam-levers the overlapping edges of the sheets are forced into the groove provided in the edges of the door, as shown in Figs. 5 and 6. The manner of pressing in the edges of the sheets at the ends of the door is similar to that described, except that the bar at each end of the door operates independently of the other. The pressing operation being completed, the side and end bars are removed and a band 33 placed in the groove in the edges of the door and secured therein by screws or in any other suitable way. The edges of the sheets of metal will thereby be held securely in position and the wooden door completely covered by a fireproof material.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, in a door-clamp, with the base, of the bars arranged to slide in grooves upon the top thereof, and provided at one end with an upwardly-extending lug and at the opposite end with a series of holes, the pressing-bars upon the opposite ends of said sliding bars, and a cam-lever having a pin or lug to enter one of the holes in said sliding bars, and a face to engage the edge of said pressing-bars, substantially as described.

2. The combination, in a door-clamp, with the base, of the clamping mechanism arranged above the same, the transversely-sliding bars arranged upon said base, the pressing-bars upon either end of said sliding bars, the stationary bars provided at either end of said base, the short pressing-bars arranged upon said stationary bars, said stationary bars being provided with a series of holes, and cam-levers having a lug to enter one of said holes, and a face to engage the edge of said pressing-bars whereby the same may be forced into engagement with the overlapping edges of the metal on the ends of the door, substantially as described.

3. In a device of the class described, the combination, with the table or base having a flat upper surface, of the frame, the hangers secured thereto, the shafts mounted in bearings therein, and having projecting ends, means for rotating said shafts, the cams provided thereon, the movable clamping device supported by the shafts to be raised or lowered by the movement of the same, said clamping device being provided with a flat under surface to cover the surface of the door placed upon the base or table, the pressing-bars provided upon said table, and means for forcing the same into engagement with the edges of the door, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of December, A. D. 1895.

CHARLES E. OVENSHIRE.

In presence of—
C. G. HAWLEY,
M. E. GOOLEY.