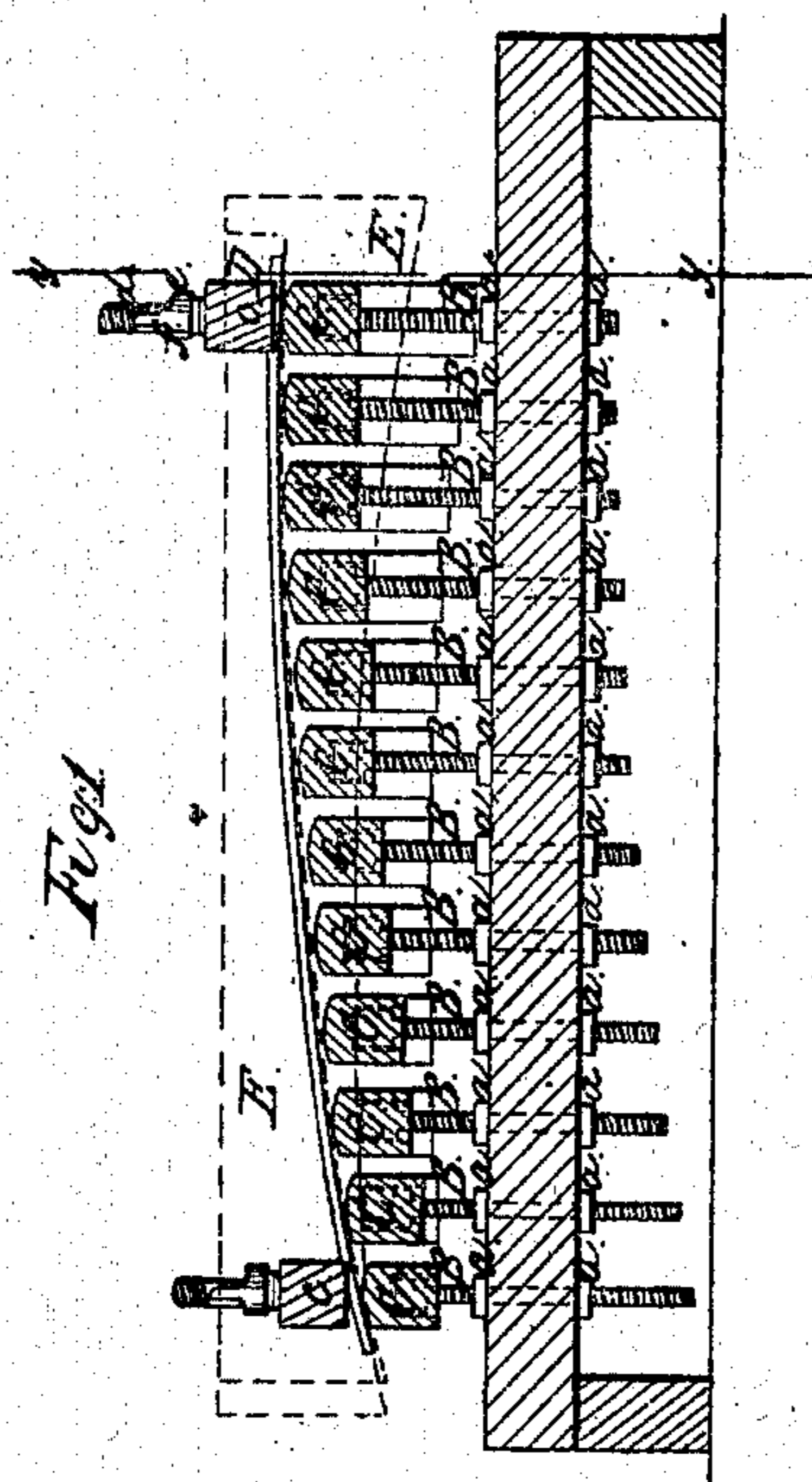
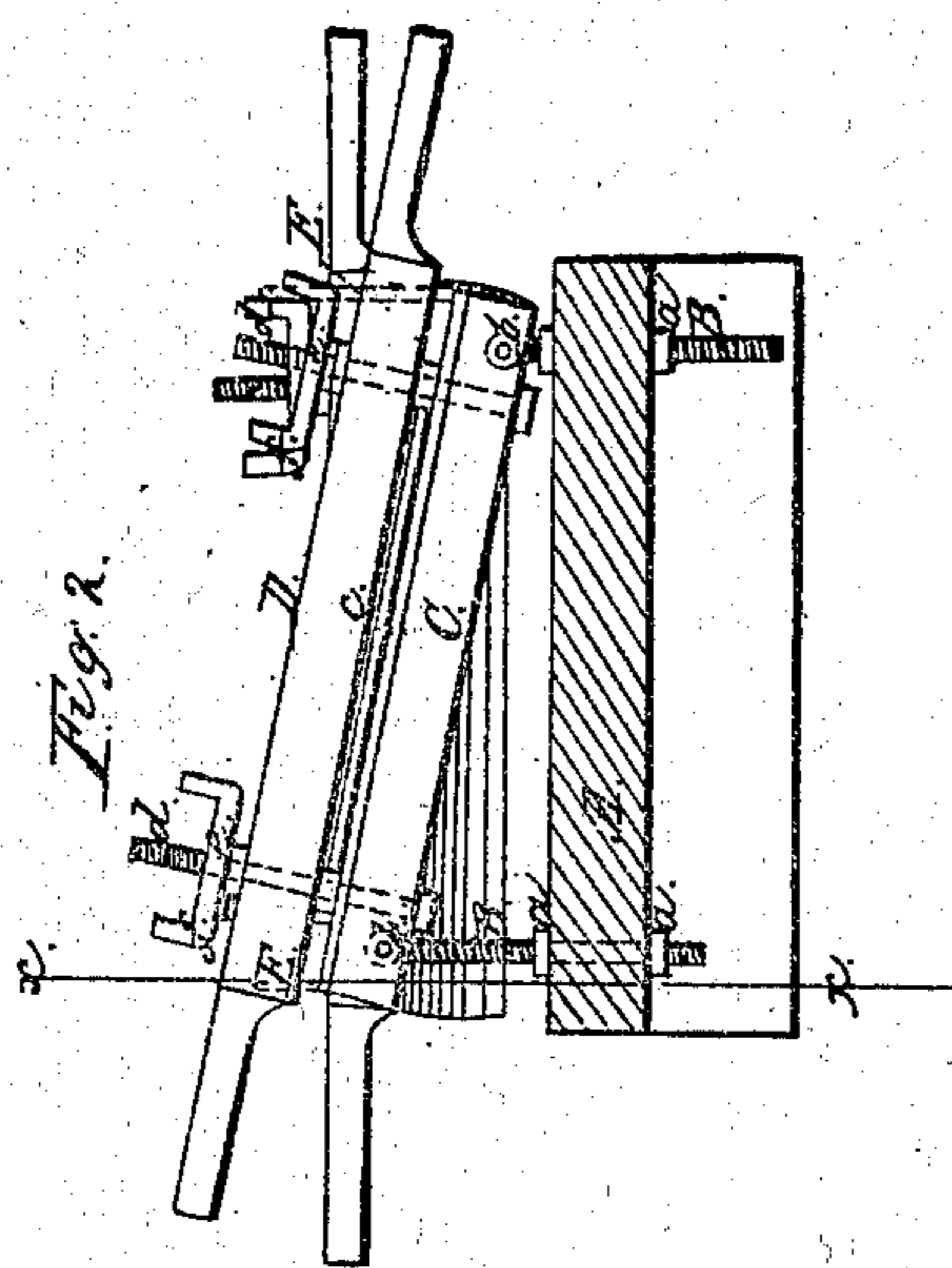


J. W. EASBY.  
MACHINE FOR BENDING METAL PLATES.

No. 48,538.

Patented July 4, 1865.



# UNITED STATES PATENT OFFICE.

JOHN W. EASBY, OF WASHINGTON, DISTRICT OF COLUMBIA.

## MACHINE FOR BENDING METAL PLATES.

Specification forming part of Letters Patent No. 48,538, dated July 4, 1865.

*To all whom it may concern:*

Be it known that I, JOHN W. EASBY, of Washington and District of Columbia, have invented a new and Improved Device for Bending Metal Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a transverse vertical section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved device for bending metal plates, and is more especially designed for bending armor-plates for ships and other vessels, so that they may conform to any part of the sides of the vessel and fit snugly thereto.

The invention consists in the employment or use of a series of adjustable bars, in connection with patterns and clamps, constructed and arranged in such a manner that the bars may be very readily adjusted to form a curved or winding bed corresponding to any portion of the exterior surface of the hull of a vessel, so that each plate may with the greatest facility be bent to conform to the portion of the vessel to which it is to be attached.

A represents a cast-iron bed-plate, through which screw-rods B pass in two parallel lines, one near each side of the bed-plate, and are secured at a greater or less height above the bed-plate by nuts *a a*, one above and the other below said plate, as shown in both figures. The upper ends of these screw-rods B are secured by pivots *b* in the ends of bars C, which are side by side, parallel with each other, but not in contact, each one being capable of being moved or adjusted in a vertical plane by means of the screw-rods B without interfering with the ones adjoining it. The outer or end bars, C, are each provided with a clamp, D, composed of a bar, *c*, placed directly upon the outer bars, C, and connected thereto by screw-rods *d* and nuts *e*, the latter being provided with arms or levers *f* for the convenience of turning them.

From this description it will be seen that the bars C may be adjusted so as to form a hori-

zontal plane, or they may be adjusted so as to form a curved or winding surface, varying in shape at all points, as may be required.

In order to adjust the bars C to form a curved or winding surface corresponding to that which an armor-plate should have to fit any particular part of a vessel, the upper and lower parts of the portion of the vessel where the plate is to be attached have patterns E cut out or formed for them, the same being composed of planks or boards, the outer edges of which are in one and the same plane and the inner edges curved or hollowed out, one to correspond to the upper edge of the section of the vessel where the plate is to be attached, and the other made to conform to the lower edge of said section. These patterns are shown in red outline in Fig. 1, and when formed they are laid on the ends of the bars C, their outer straight edges being in one and the same plane, and the ends of the bars C are then adjusted in contact with the curved edges of the patterns. By this means the bars C are adjusted so as to form a winding or curved bed corresponding to the section of the hull of the vessel between the lines from which the patterns were cut. The plate to be bent is then properly heated and laid upon the bars C, the ends of the plate being under the clamps D, and the latter are then screwed down, so as to bend the plate snugly down on the bars C. Thus by this simple arrangement metal plates may be bent to suit all parts of the hull of a vessel, each plate corresponding in form to the section or part where it is designed to be attached, and the work may be done rapidly and in a perfect manner.

I would remark that I do not confine myself to the screws for adjusting the bars C and clamps D, for other means might be employed for the purpose.

I claim as new and desire to secure by Letters Patent—

The combination of the patterns E E, adjustable bars C C C, running transversely of the said patterns, the clamps D D, and bed-plate A, all constructed, arranged, and operating in the manner and for the purposes specified.

JOHN W. EASBY.

Witnesses:

RALPH REED,  
E. S. MORROW.