J. B. BERNHARD.

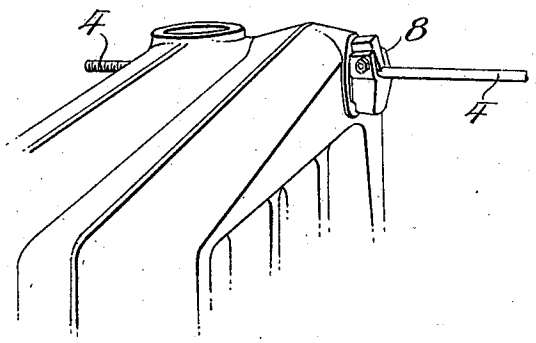
CLAMP FOR ASSEMBLING BOILER SECTIONS.

APPLICATION FILED OCT. 20, 1909.

979,737

Patented Dec. 27, 1910.

Fig. 1.



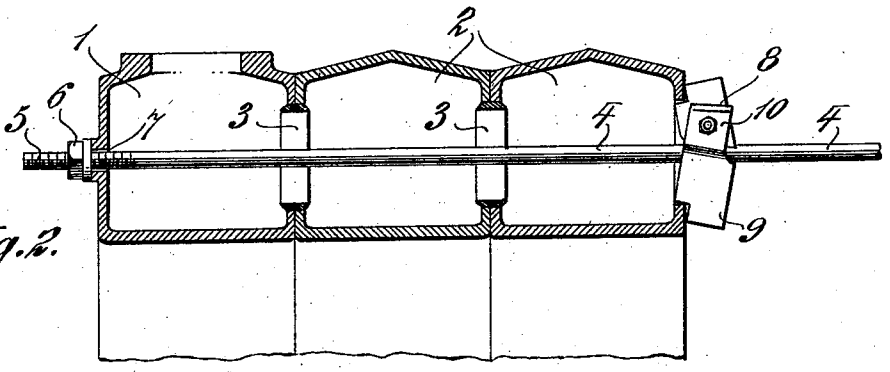


Fig. 2.

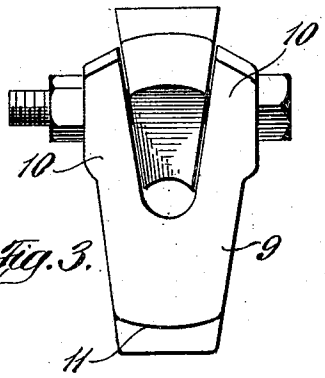


Fig. 3.

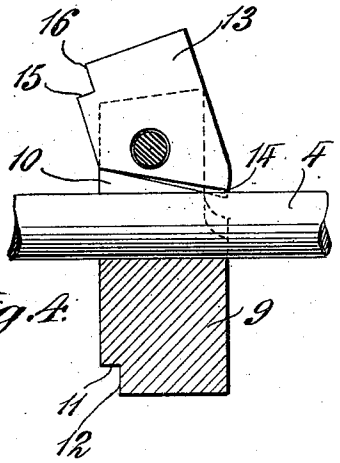


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN BLOOMFIELD BERNHARD, OF NEWARK, NEW JERSEY, ASSIGNOR TO UNION BOILER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

CLAMP FOR ASSEMBLING BOILER-SECTIONS.

979,737. Specification of Letters Patent. **Patented Dec. 27, 1910.**

Application filed October 20, 1909. Serial No. 523,682.

To all whom it may concern:

Be it known that I, JOHN B. BERNHARD, a citizen of the United States, and resident of the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Clamps for Assembling Boiler-Sections, of which the following is a specification, reference being had therein to the accompanying drawing, in which—

Figure 1 is a perspective view showing the clamp in use; Fig. 2 a vertical sectional view showing the clamp applied; Fig. 3 an elevation of the clamp; and Fig. 4 a vertical sectional view thereof.

The object of this invention is to provide a device of simple construction adapted for use in assembling the legs or sections of boilers. These sections are connected together by means of short tubes, called push-nipples, so that the interiors of the sections will be in free communication. These push-nipples are inserted in apertures formed in the contacting surfaces of the sections and the sections are forced together by some form of bolt and nut arrangement in order to squeeze the push-nipples into the apertures and thereby form steam and water-tight connections between the boiler sections.

By my invention I provide a very simple and effective means for drawing the boiler sections together over the push-nipples.

Referring to the various parts by numerals, 1 designates the end section of the boiler and 2 the intermediate sections.

3 designates the push-nipples which are arranged between the boiler sections and by means of which the sections are connected together.

The clamping device consists of a clamp rod 4 screw-threaded at one end as at 5 and provided with a nut and washer 6. This rod is adapted to be passed through the boiler sections as shown clearly in Figs. 1 and 2. Its threaded end is passed through the small aperture 7 in the outer wall of the end section, as shown clearly in Fig. 2 and the nut and washer are arranged to bear against said end section. On the rod is mounted a movable abutment 8 which is arranged to automatically grip the rod and maintain itself immovable thereon. This movable abutment consists of the lower member 9 formed with the upwardly extending diverging jaws 10 between which the rod 4 passes, and with the shoulder 11 adapted to fit within the push-nipple-aperture in the boiler section, said shoulder being adapted to rest on the wall of said aperture to center the clamp rod 5 therein, as clearly shown in Fig. 2. The lower member 9 of the abutment is also formed with a shoulder 12 adapted to fit against the outer surface of the boiler section, as shown clearly in Fig. 2. The upper member 13 of the abutment is pivoted between the jaw 10 and is formed with a lower gripping edge 14 adapted to engage the clamping rod on the side of the member 9 opposite the shoulders 11 and 12. The gripping member 13 of the movable abutment enlarges upwardly from its lower edge so that it is wedge-shape in vertical cross section and fits between the upwardly diverging jaws of the lower member. This gripping member is formed with a centering shoulder 15 corresponding to the shoulder 11 of the lower member 9; and is also provided with a shoulder 16 adapted to engage the outer surface of the boiler section and corresponding to the shoulder 12 of the lower member 9. The preponderance of weight in the gripping member is above the pivot and the under side of said upper member is inclined outwardly and downwardly to the gripping edge. This facilitates the passage of the rod between the two members and provides a sharp gripping surface adapted to bite into the rod. It is obvious that the pressure on the upper inner end of the gripping member will cause the outer lower member thereof on the opposite side of the pivot to grip the rod firmly and thereby prevent any inward movement of the rod during the tightening operation. The shoulders 15 and 11 are arcs of a circle whose diameter is substantially equal to the diameter of the openings of the boiler sections, so that the guide rod will be properly centered in said apertures.

In operation, a push-nipple is arranged between two adjoining boiler sections and the clamping rod 4 then passes through said sections and through the aperture 7 in the end section. The nut and washer 6 are then properly adjusted on the threaded end of the rod and the movable abutment adjusted on the other end of the rod until the shoulders 15 and 11 engage the wall of the aperture in the intermediate section. The lower end of

the gripping member 13 is then held down to the rod while the nut 6 is being screwed on the other end of said rod. The slight movement of the nut will draw the rod inwardly sufficiently to cause the gripping member of the abutment to bind firmly on the rod. It is obvious that further movement of the nut will result in the abutment being more firmly bound to the rod. It is, therefore, evident that the required amount of force will be exerted through the nut to draw the two sections of the boiler together and to thereby force the push-nipple into position. By loosening the nut 6 slightly the abutment will be freed from the clamp rod and may then be readily removed to permit the next boiler section and push-nipple to be arranged in position.

The rod 4 is preferably one of the rods used for permanently holding the boiler sections together after the entire boiler has been assembled. It will, of course, be understood that a special clamp rod may be furnished, but usually I employ one of the rods forming a part of the furnace to thereby avoid furnishing an extra clamp rod.

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

1. A clamp for assembling boiler sections comprising a clamp rod threaded at one end and adapted to receive a clamping nut, a gripping abutment movable on said rod and consisting of two members pivotally connected together, each of said members being adapted to engage a boiler section, and one of said members being formed with a gripping edge adapted to grip the rod and hold the abutment rigidly thereto.

2. A clamp for assembling boiler sections comprising a clamp rod, means for moving said rod longitudinally through the boiler sections, a movable abutment adjustable along said rod and comprising two members pivotally connected together and adapted to receive the rod between them, said members being arranged to engage the boiler sections, and one of said members being provided with means for gripping the rod, said means being on the opposite side of said members from the boiler sections.

3. A clamp for assembling boiler sections comprising a rod threaded at one end and adapted to receive a clamping nut, a movable abutment adjustable along said rod and comprising two members pivotally connected together and formed with centering means to engage the wall of the boiler section aperture and with means for gripping the rod when outward pressure is exerted on said members.

4. A clamp for assembling boiler sections comprising a clamp rod, means for moving said rod longitudinally through the boiler sections and abutments adjusted along said rod and comprising a lower member formed with a pair of upwardly extending jaws and an upper gripping member pivoted between said jaws and formed with a boiler section engaging surface at its upper end on one side of the pivot, and with a rod gripping edge at its lower end on the opposite side of said pivot.

5. A clamp for assembling boiler sections comprising a clamp rod threaded at one end and adapted to receive a clamping nut, a movable abutment comprising a lower member formed with a pair of upwardly extending jaws to receive the clamp rod and a centering shoulder near its lower end, and a gripping member pivoted between the upper ends of the jaws of the lower member and formed with a centering shoulder on one of its sides and with a rod-gripping edge on its opposite side.

6. A clamp for assembling boiler sections comprising a clamp rod, means for moving said rod longitudinally through the boiler sections during the assembling operation, and to exert a pressure on the boiler sections, a movable abutment adjustable along said rod and formed with a centering means to engage the wall of the boiler section aperture, and provided with means for gripping the rod.

7. A movable abutment for a clamp comprising a lower member formed with a pair of upwardly extending diverging jaws, a gripping member pivoted between the upper ends of said jaws, said gripping member enlarging upwardly and formed with an engaging surface at its upper end on one side of its pivot, and with a gripping edge at its lower end on the opposite side of its pivot.

8. A movable abutment for a clamp comprising a lower member formed with a pair of upwardly extending diverging jaws, a gripping member pivoted between the upper ends of said jaws, said gripping member enlarging upwardly and formed with an engaging surface at its upper end on one side of its pivot, and with a gripping edge at its lower end on the opposite side of its pivot, and centering shoulders formed on the lower member and on the gripping member, said centering shoulders being on the opposite side of the pivot from the gripping edge of the gripping member.

In testimony whereof I hereunto affix my signature in the presence of two witnesses this 28th day of September 1909.

JOHN BLOOMFIELD BERNHARD.

Witnesses:
CHAS. R. FLOYD,
C. HARR.