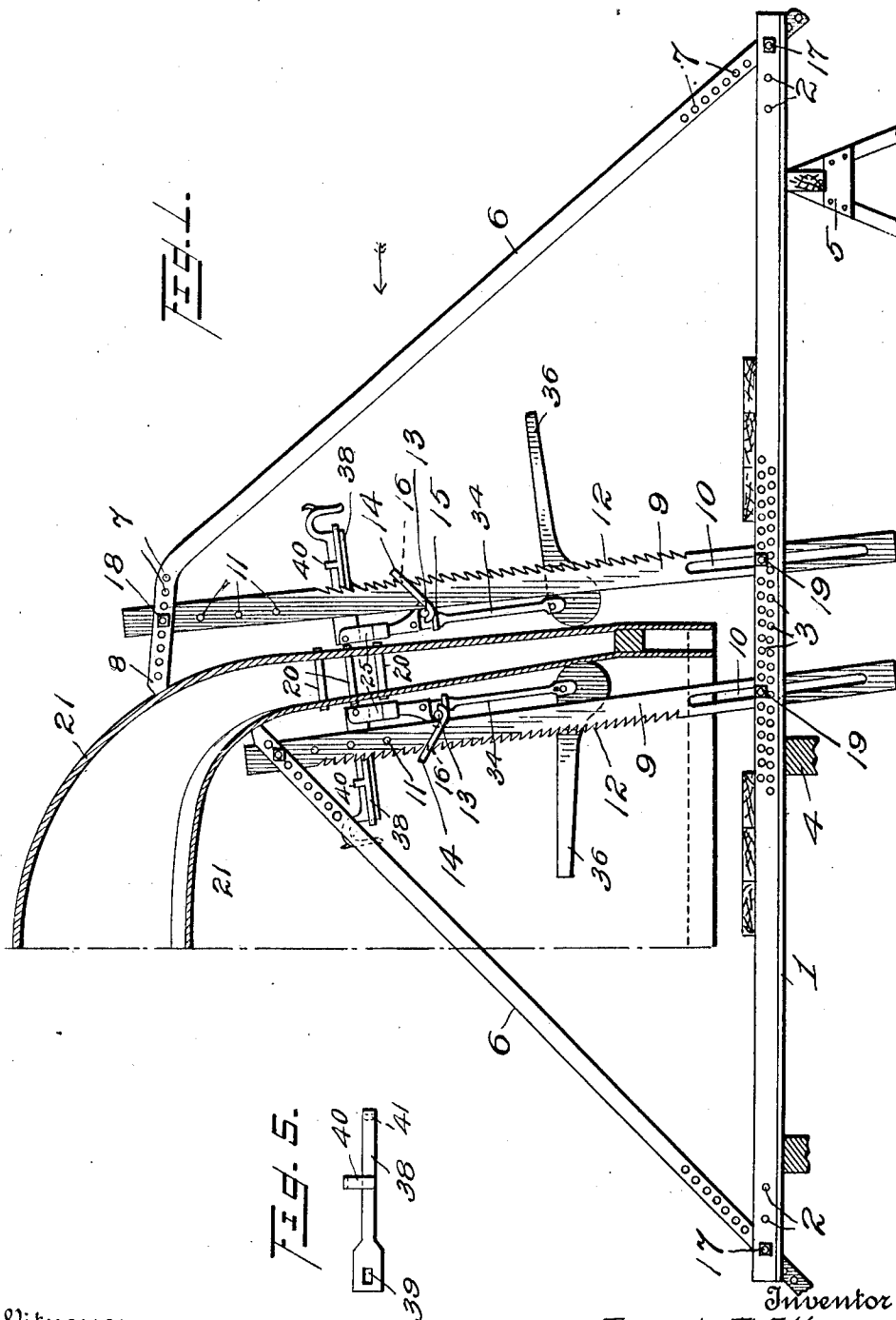


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 POWER HAMMER SUPPORTING DEVICE AND ADJUSTABLE FRAME FOR THE SAME.
 APPLICATION FILED FEB. 3, 1911. Patented Mar. 19, 1912.
 1,020,471. 3 SHEETS—SHEET 1.



Witnesses
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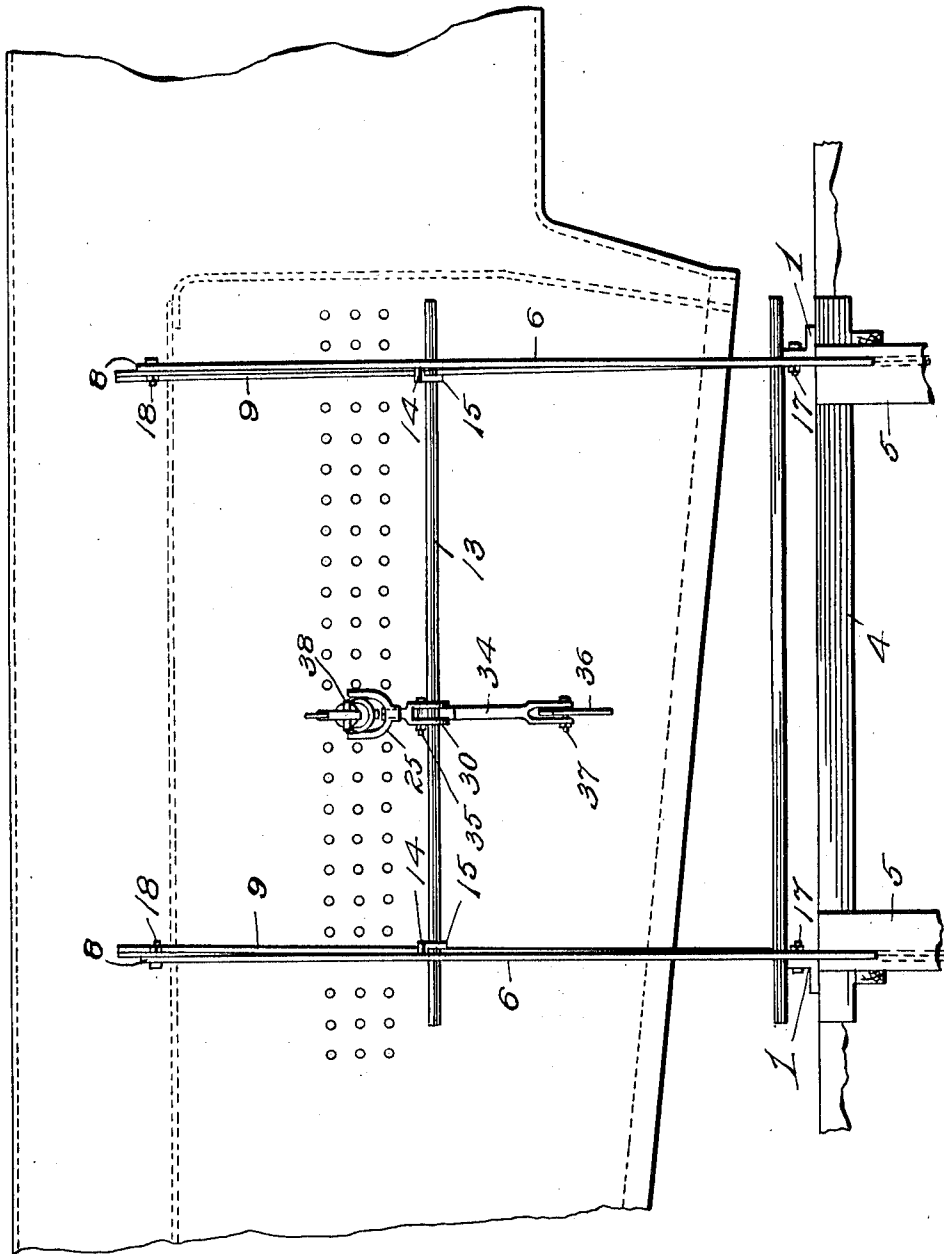
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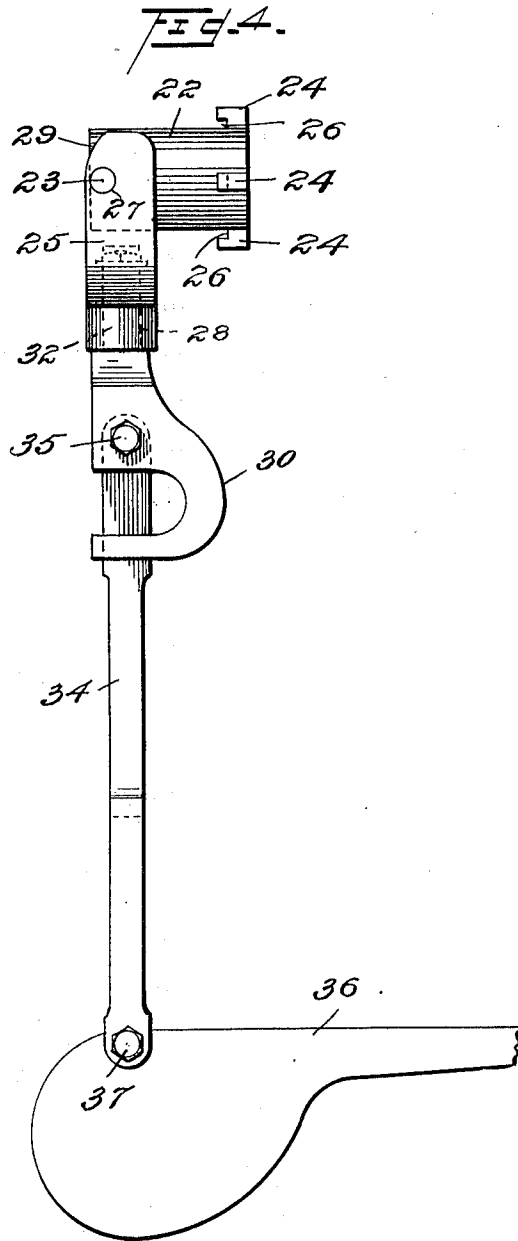
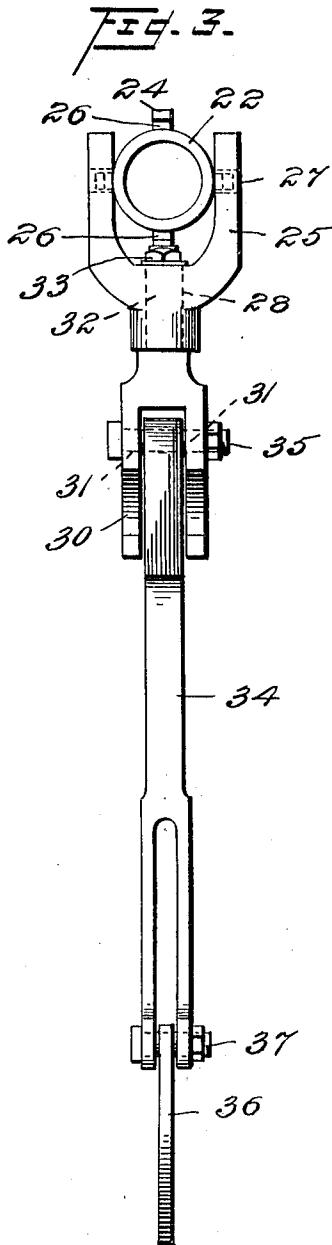
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UNITED STATES PATENT OFFICE.

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POWER-HAMMER-SUPPORTING DEVICE AND ADJUSTABLE FRAME FOR THE SAME.

1,020,471.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed February 3, 1911. Serial No. 606,393.

To all whom it may concern:

Be it known that I, ERNEST J. ALLEN, a citizen of the United States, residing at Vilas, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Power-Hammer-Supporting Devices and Adjustable Frames for the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is the provision of means for riveting both ends of boiler, fire box, or other stay bolts or radial stays at the same time, and which also may be used to hold one end of a stay bolt or radial stay while the other end is being driven or upset.

The means in the preferred form comprises an adjustable frame and two pneumatic or power hammer supporting devices fulcrumed on the adjustable frame, the supporting devices being adapted to hold and force two hammers against opposite ends of a stay bolt or radial stay, and the hammer being so supported that it can move in a circle about the end of the bolt or stay which is to be upset.

The invention consists in certain novelties of construction and combinations of parts as hereinafter set forth and claimed.

The accompanying drawings illustrate an example of the physical embodiment of the invention constructed according to the best mode of procedure I have so far devised for the purpose.

Figure 1 is an end view in elevation of the adjustable frame for supporting the two hammer holding devices, the two said devices being in the relative positions they may occupy, upon opposite sides of a fire box, when in use, and the fire box being shown in section. Fig. 2 is a view of Fig. 1 as seen when looking in the direction of the arrow. Figs. 3 and 4 are different views of a hammer supporting device. Fig. 5 illustrates means for securing a hammer within the cylinder of a supporting device.

Referring to the several figures, the adjustable frame comprises two base angle irons 1, 1, each having series of holes 2 in the web at the ends and series of holes 3 adjacent the middle portion, the angle irons

being supported in parallel horizontal positions and at the desired height from the floor or ground by the engine frame 4 and horse 5, or by any other suitable means; four braces 6, each having at each end a series of holes 7, and two of the braces at their upper ends 8 being bent so as to adapt them for bearing against the external surface of the boiler; four vertical bars 9, each provided with a slot 10 at the lower end, a series of holes 11 at the top end, and one edge having teeth forming notches 12, as shown; and two bars or round rods 13 adjustably supported upon the bars 9 by brackets, each bracket consisting of a slotted metallic bar 14 having one end 15 bent over to form a seat for the rod and the metal at the end of the slot fashioned to form a knife edge 16 for engaging the notches in the edges of the vertical bars. The lower ends of the braces are adjustably secured to the ends of the base angle bars by bolts 17, and their upper ends adjustably secured to the upper ends of the vertical bars by bolts 18. As the parts are thus united, the weight of the braces, rods and vertical bars forces the upper ends of the braces against the boiler, and the lower ends of the vertical bars are adjustably held to the base angle irons by bolts 19 passed through the slots and the holes in the angle bars.

Obviously, by the construction shown the vertical bars may be adjusted and firmly held in any positions desired relative to the fire box and boiler, close to or more remote from the same, and in vertical or oblique positions so that the rods 13 will be in their proper positions relative to the fire box for holding the hammer supporting devices. As before stated, the brackets provide for the adjustment of the rods 13 relative to the vertical bars and the bent ends 15 of the brackets by gravity clamp the rods against the said bars so the rods cannot bodily move endwise.

By reference to Fig. 1 it will be seen that the horizontal rods 13 are at opposite sides of the fire box in proper relative positions to hold the hammer supporting devices, and it is clear that they can be caused to occupy any other positions at opposite sides of the fire box, either horizontal or oblique, depending upon the locations of the stay bolts or radial stays which are to be driven or

headed. The two hammer supporting devices are also illustrated by Fig. 1 with the hammers in positions to head bolts or stays 20 of the fire box 21, the supporting devices 5 being clamped to the horizontal rods.

Each hammer supporting device comprises a cylinder 22 with trunnions 23 and a plurality of spaced lugs 24, each fashioned to provide a notch 26 for receiving hammer 10 anchoring means; a fork 25 having holes 27 to receive the trunnions 23 of the cylinder, and a cylindrical opening 28, and the ends of the forks at 29 are curved; a slotted hook 30 with holes 31, 31, and a 15 threaded journal 32 which is located within the cylindrical opening 28 of the fork and loosely secured by a nut 33, as shown; a lever arm 34 pivoted by a bolt 35 to the slotted hook and with its opposite end slotted 20 and perforated; and an operating lever 36 pivoted to the lever arm by a bolt 37, said operating lever being provided with a curved or cam-shaped edge for frictionally engaging the fire box.

The barrel of each pneumatic or power 25 hammer is inserted into a cylinder 22 and held in place by a U-shaped strap 38 having arms slotted at 39, a tie 40 for passing over the top of the barrel of the hammer and a 30 rubber cushion 41 bearing against the handle end of the barrel. The slots 39 are elongated so they can pass over the opposite lugs 24 and seat in the notches 26 and be held in place by the cushion inserted be- 35 tween the strap and the end of the hammer adjacent the handle.

Each hammer supporting device as a whole constitutes a lever, the arm 34 being 40 the long arm of the lever, the hook and fork or the hook and trunnion being the short arm, and the rod 13 the fulcrum for the lever. As the cylinder is pivoted to the fork at its extreme end, the weight of the oper- 45 ating lever 36 will force the die of the hammer against the stay bolt or radial stay and the jar of the hammer in operation will act to increase the pressure rather than to diminish it. As the cylinder is pivoted to the 50 fork so it can turn in a vertical plane, and the fork journaled upon the hook so it can turn in a horizontal plane, the end of the hammer obviously can travel in a circle about the end of the stay bolt or radial stay. When the rear end of the hammer, for ex- 55 ample, is raised, the die or opposite end of the hammer slides down over the end of the stay bolt until the top edge of the die is even with the top edge of the stay bolt or radial stay and by this location the hammer 60 can drive the edge of the bolt down to the sheet and leave the center of the stay bolt $\frac{3}{16}$ " higher than the edge. Then the hammer in such angular position is moved around in a circle by the operator driving 65 the edge of the bolt down all around and

leaving the central portion higher than the circular edge, which is the proper shape for the completed head.

When desired, the hammer supporting device may be turned end for end and se- 70 cured by the hook to the round rod, the long arm of the lever being at the top and the short arm at the bottom. However, when thus used, the operating lever 36 should be detached and turned around so the cam- 75 shaped edge will be in the proper position when the arm drops by gravity to move the entire device about its fulcrum and force the hammer against the stay bolt or radial stay.

From the foregoing description of the 80 embodiment of the invention taken in connection with the drawings it becomes clear that I have provided efficient means for sup- 85 porting two pneumatic riveters or hammers so that opposite ends of a stay bolt or radial stay can be driven or upset at the same time and by which one end of a bolt or stay or rivet may be upset while the opposite end is held against movement. 90

Obviously, part of the entire holding or 90 adjustable frame and one hammer supporting device and hammer may be used under certain circumstances and certain of the 95 claims are intended to embrace such parts to the exclusion of the remaining parts shown.

In practice modifications may be intro- 100 duced in the construction of both the adjustable frame and the hammer supporting device without constituting substantial de- partures therefrom.

What I claim is:

1. An adjustable frame for supporting 105 power hammers, comprising in combination, two base irons having series of holes at their ends and at their middle portions, four braces each having at each end a series of holes, four vertical bars each provided at 110 the upper end with a series of holes and at its lower end with an opening and having means for supporting a bracket, bolts for adjustably attaching the braces, vertical bars and base irons together, two fulcrum bars, and brackets engaging the vertical bars and 115 supporting the fulcrum bars.

2. An adjustable frame for supporting 120 power hammers, comprising in combination, two base irons having series of holes at their ends and at their middle portions, four braces each having at each end a series of holes, four vertical bars each provided at the upper end with a series of holes and at the lower end with means for adjustably sup- 125 porting the bar relative to a base iron and each bar also provided with notches for a bracket, bolts for adjustably attaching the braces, vertical bars and base irons together, two fulcrum bars, and brackets engaging 130 the notches in the vertical bars, the free ends

of the brackets clamping the fulcrum bars to the vertical bars.

3. An adjustable frame for supporting power hammers, comprising in combination
5 two base irons having series of holes at their ends and at their middle portions, four braces each having at each end a series of holes and the ends of two of said bars being bent, four vertical bars each provided at the
10 upper end with a series of holes and at its lower end with an opening and having means for supporting a bracket, bolts for adjustably attaching the braces, vertical bars and base irons together, two fulcrum bars,
15 and brackets engaging the vertical bars.

4. An adjustable frame for supporting a power hammer, comprising two base irons each having two series of holes; two braces with holes at their ends; two vertical bars
20 each with a series of holes at one end and an opening at the opposite end; bolts for adjustably uniting the base irons, braces and vertical bars; a fulcrum bar; and brackets adapted to be attached to the vertical bars
25 and to support the fulcrum bar.

5. An adjustable frame for supporting a power hammer, comprising two base irons each having two series of holes; two braces with holes at their ends; two vertical bars
30 each with a series of holes at one end and an opening at the opposite end; bolts for adjustably uniting the base irons, braces and vertical bars; a fulcrum bar; and brackets; the edges of the vertical bars being notched,
35 each bracket surrounding a bar and engaging a notch and having its ends disposed at an angle to the body of the bracket whereby the fulcrum bar may be clamped between the ends of the bracket and the vertical bar.

40 6. An adjustable frame for supporting a power hammer, comprising two base irons each having two series of holes; two braces with holes at their ends; two vertical bars each with a series of holes at one end and an
45 opening at the opposite end; bolts for adjustably uniting the base irons, braces and vertical bars; a fulcrum bar; and means for adjustably supporting the fulcrum bar in different positions relative to and upon the
50 vertical bars.

7. The combination with two fulcrum bars, of means for adjustably supporting said bars opposite each other with a space between for the sheets to be riveted, and two power hammer supporting devices adjustably secured
55 to said fulcrum bars, whereby both ends of a rivet or bolt may be upset at the same time or one end of a rivet or bolt be upset while the other end is held against movement.

8. A power hammer supporting device comprising a lever with arms and a fulcrum bearing intermediate the ends; one arm of the lever having a hook and carrying a fork journaled to the lever and a cylinder journaled to the fork, and the other arm pivoted
60 to the first mentioned arm.

9. A power hammer supporting device comprising a lever with two arms one pivoted to the other, and means adjacent the pivotal point of the two arms for clamping the lever
70 to a fulcrum bar; one arm of the lever having a fork swiveled upon the same, said fork being provided with means pivoted thereto for supporting a hammer, and the other arm of the lever having an operating lever pivoted
75 to its end.

10. A power hammer supporting device comprising a lever with two arms one pivoted to the other, and means adjacent the pivotal point of the two arms for clamping
80 the lever to a fulcrum bar; one arm of the lever having a fork journaled upon the same said fork being provided with means pivoted thereto for supporting a hammer, and the other arm of the lever having pivoted there-
85 to an operating lever with a curved edge.

11. The combination with a lever, of a cylinder having trunnions and spaced lugs about its circumference; and a U-shaped strap 38 having two arms slotted at 39 to
90 engage the said lugs, and means uniting the said arms intermediate their length, said strap being adapted to hold a hammer relative to the cylinder.

In testimony whereof I affix my signature, 95
in the presence of two witnesses.

ERNEST J. ALLEN.

Witnesses:

WILLIAM R. DONNS,

EDW. L. HUNT.