No. 881,253. PATENTED MAR. 10, 1908.

C. J. MILLER.

FORGING CRANE.

APPLICATION FILED NOV. 21, 1907.

Fig. 1.

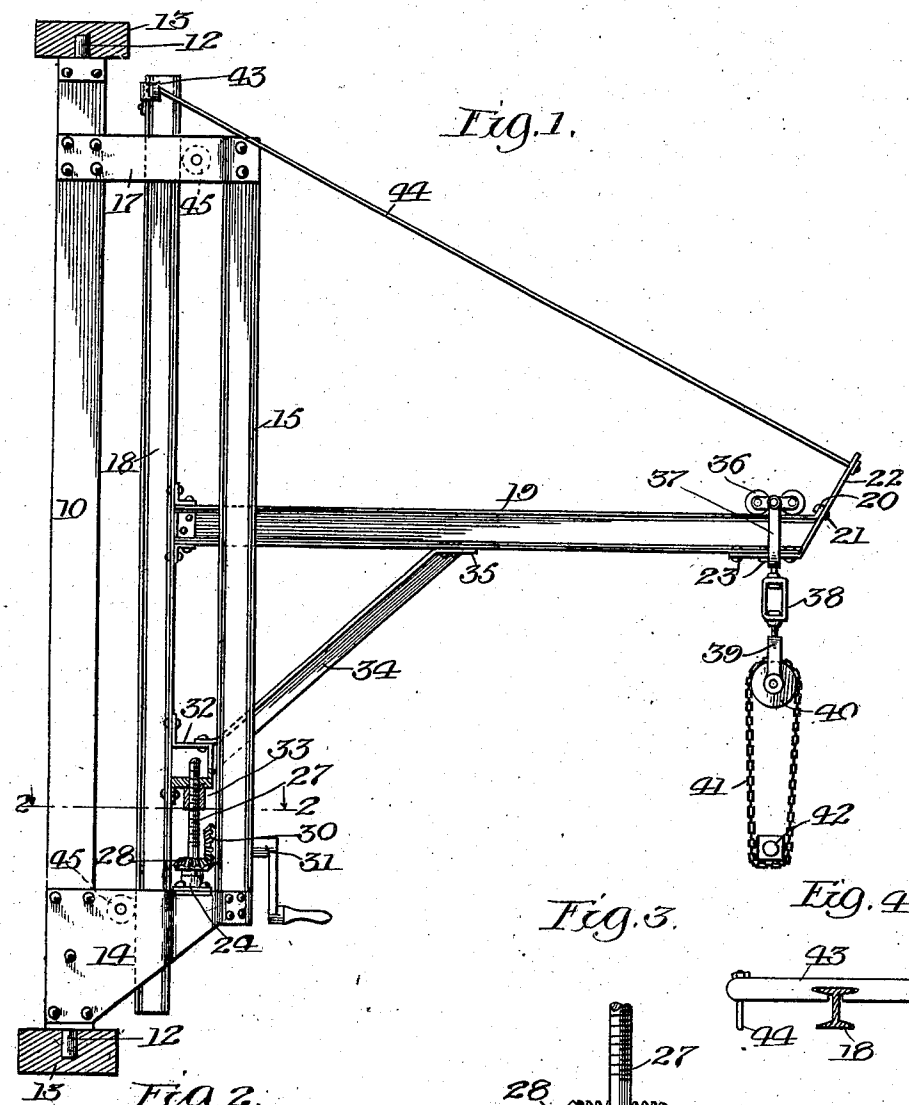


Fig. 2.

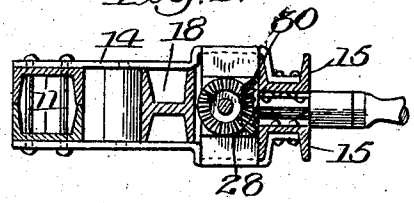


Fig. 3.

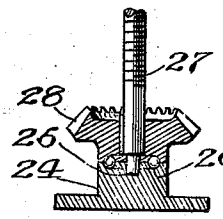


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES J. MILLER, OF CHICAGO, ILLINOIS.

FORGING-CRANE.

No. 881,253. Specification of Letters Patent. Patented March 10, 1908.

Application filed November 21, 1907. Serial No. 403,182.

To all whom it may concern:

Be it known that I, CHARLES J. MILLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Forging-Crane, of which the following is a specification.

This invention relates to improvements in that type of cranes used for handling heavy pieces of material, and while it is more especially intended to be employed for use in the making or forging of billets into car-axles, yet it is applicable for use for other purposes; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to furnish a horizontal and vertical movement of the suspended load or billet whereby it may be manipulated and formed into the desired shape.

Another object of the invention is to provide a crane of the above-named character, which shall be simple and inexpensive in construction, strong, durable and effective in operation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, in which—

Figure 1 is a view in side elevation of a crane embodying my invention; Fig. 2 is a plan cross-sectional view taken on line 2—2 of Fig. 1; Fig. 3 is an enlarged sectional view of a portion of the screw-shaft and gearing used for vertically adjusting the load supporting-arm of the crane; and Fig. 4 is a top plan view partly in section of the cross-head and adjustable upright.

Like numerals of reference, refer to corresponding parts throughout the different views of the drawing.

The reference numeral 10 designates an upright post or standard which is preferably composed of two channeled pieces 11 of iron which have their channels presented inwardly so that the edges of their flanges will meet to form substantially a rectangular figure in cross-section. The pieces 11 comprising the post 10 may be secured together in any suitable manner and have at their upper and lower ends pivots 12 to fit in suitable sockets in supporting-pieces 13 in order that the machine may be turned to any desired position. Secured to the lower portion of the sides of the post and extending laterally in parallelism therefrom are brace-plates 14 which are secured at their other ends to upright channel-irons 15 which are spaced apart as shown in Fig. 2 and preferably have their channels presented outwardly. Secured to the sides of the upper portion of the post 10 and extending horizontally and in parallelism with one another therefrom are two arms or plates 17 which are spaced apart and are secured at their outer ends to the upper portions of the channel-irons 15 which may be secured together in any suitable manner.

Movably and vertically located between the plates 14 and the plates or arms 17 is an eye-beam 18 which has secured thereto at about its middle a horizontally extending supporting-arm 19 which is preferably in the shape of an eye-beam. The supporting-arm 19 has its outer end beveled and a portion of its upper flange bent inwardly as at 20 and apertured to receive bolts 21 used for securing a bracket 22 thereto, which bracket is also secured by means of bolts 23 to the lower portion or flange of the work supporting-arm 19. The inner end of the arm 19 is secured to the adjustable eye-beam or upright 18 in any suitable manner. Mounted on the upper portions of the plates 14 between the upright 18 and pieces 15 is a block 24 which serves as a support for the base of the screw which raises and lowers the upright 18 and the supporting-arm 19 which it carries. The upper surface of the block 24 is provided with a race 25 in which are located anti-friction balls 26 on which the base of the screw 27 will rest, thus affording ball-bearings for the same. Mounted on the lower portion of the screw 27 is a beveled gear 28 which meshes with a beveled gear 30 mounted on a crank-shaft 31 which is journaled between the channel pieces 15 as will be readily understood by reference to Figs. 1 and 2 of the drawing. Secured to the upright 18 at a suitable point below the supporting-arm 19 is a box-like bracket 32 which is apertured in its lower portion to permit of the free passage of the screw 27, and has rigidly connected to its lower portion a nut 33 which engages the screw. Secured at one of its ends to the outer portion of the bracket 32 is one end of a brace 34, the upper end of which is secured to the lower surface of the arm 19 as at 35. Mounted on the upper surface of the arm 19

is a truck 36 of the ordinary or any preferred construction which has depending therefrom a yoke 37 which embraces the arm 19 and carries on its lower portion a swiveled link 38 to the lower part of which is swiveled a hanger 39 on which is journaled a pulley 40 over which is passed a chain 41 to support the billet 42 or axle. Mounted on the rear portion of the upper end of the upright 18 is a cross-head 43 to which is secured at one of their ends tie-rods 44 the other ends of which are secured to the bracket 22 on the supporting-arm.

From the foregoing and by reference to the drawing it will be clearly seen and readily understood that as the main or supporting-post 10 is pivotally mounted at its upper and lower ends it can be readily turned so as to give horizontal movement to the arm 19 and through it to the billet or load, and that said arm can be vertically adjusted by turning the crank 31 in the proper direction which will cause the upright 18 to move up or down, in which operation opposite portions thereof will impinge against the rollers 45, one of which is journaled between the plates 14 and the other the plates 17 at the upper portion of the apparatus.

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

1. The combination with a pivotally mounted vertical post, of laterally extending arms or projections secured thereto near its upper and lower ends, an upright comprising two spaced-apart pieces secured to the outer ends of said projections, a vertically movable upright extended between the projections at the upper and lower ends of the post and located between the post and the upright at the outer ends of said projections, a load-supporting-arm secured at one of its ends to about the middle of the movable upright and having its other end connected to the upper portion of said upright, a box-like bracket secured to the movable upright below the supporting-arm and having on its lower portion a screw-threaded nut fixed thereto, a screw vertically mounted on the lower projections of the post and extended through said nut and into the bracket, a beveled gear on the lower portion of the screw, a crank-shaft journaled near the screw, and a beveled gear on the crank-shaft to engage the gear on the screw.

2. The combination with a pivotally mounted vertical post, of a pair of laterally extending arms or projections secured thereto near its upper and lower ends and spaced apart, an upright comprising two spaced-apart pieces secured to the outer ends of said projections, a vertically movable upright extended between the projections at the upper and lower ends of the post and located between the post and the upright at the outer ends of said projections, a roller journaled on the upper projections in front of the movable upright, a roller journaled on the lower projections at the rear of the movable upright, a load-supporting-arm secured at one of its ends to about the middle of the movable upright and having its other end connected to the upper portion of said upright, a bracket secured to the movable upright below the supporting-arm and having on its lower portion a screw-threaded nut fixed thereto, a block mounted on the upper portion of the lower projections and having on its upper surface a race, anti-friction balls located in said race, a screw provided with a base to rest on the said balls and extended upwardly through the nut on the bracket, a beveled gear on the lower portion of the screw, a crank-shaft journaled near the screw, and a beveled gear on the crank-shaft to engage the gear on the screw.

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