

No. 649,517.

Patented May 15, 1900.

J. P. KELLY.
FORGING PRESS.

(Application filed Feb. 16, 1900.)

(No Model.)

Fig. 1.

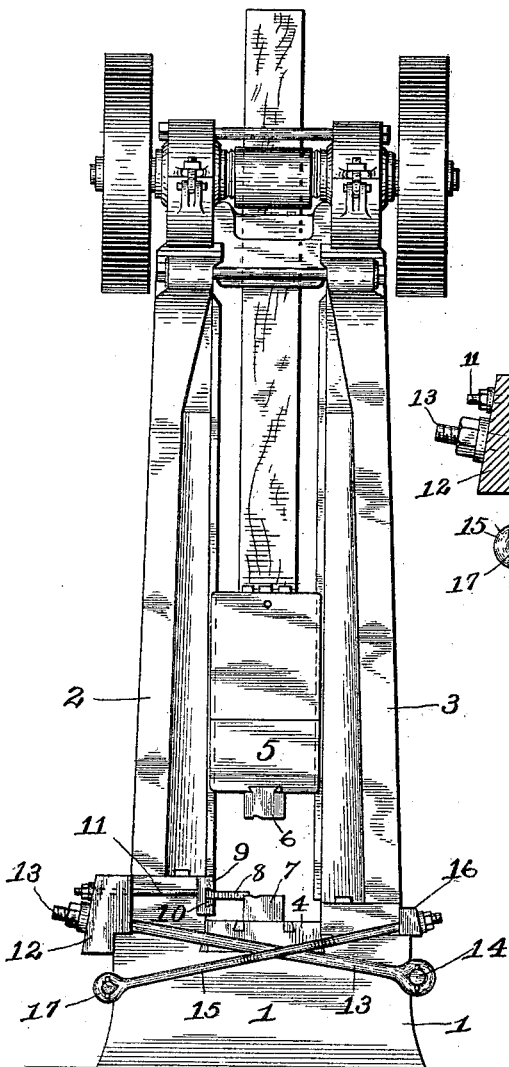


Fig. 2.

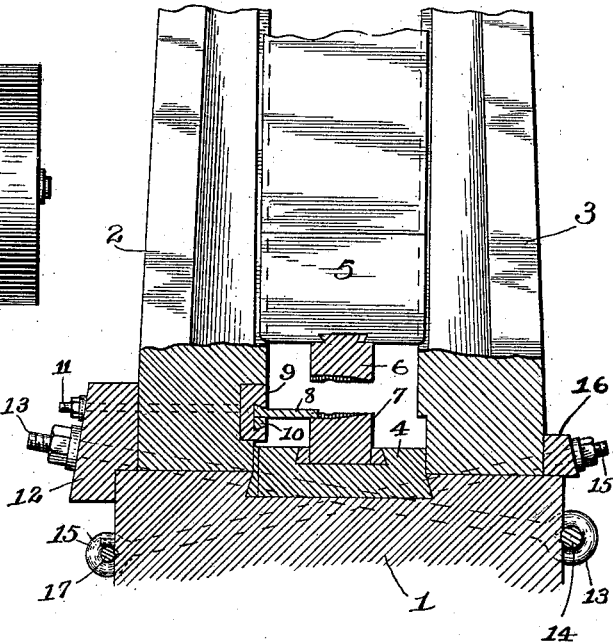


Fig. 3.

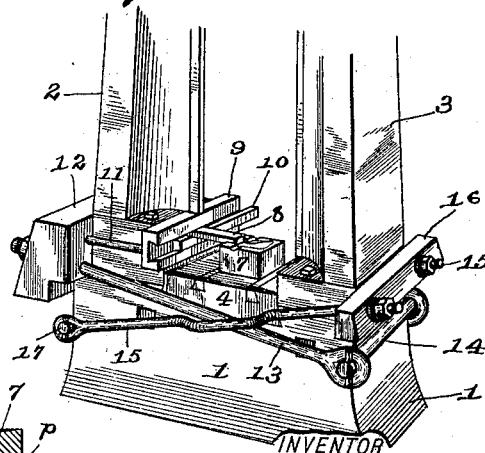
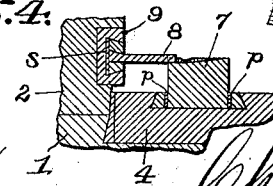


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES P. KELLY, OF ALEXANDRIA, INDIANA.

FORGING-PRESS.

SPECIFICATION forming part of Letters Patent No. 649,517, dated May 15, 1900.

Application filed February 16, 1900. Serial No. 5,501. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. KELLY, a citizen of the United States, residing at Alexandria, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Forging - Presses, of which the following is a specification.

My present invention is an improvement upon that class of forging-presses which are used in the head-hammering or hammering off of ax-forgings.

The object is to produce a machine by means of which the same advantages of adjustment and low cost of dies may be had as with the machine of Patent No. 631,573, issued to W. C. Kelly and myself jointly, August 22, 1899, but in which a much more rigid and compact construction may be obtained and with less cost.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of a drop-press or drop-hammer provided with my said invention; Fig. 2, a detail partially-sectional view of a portion thereof on a somewhat enlarged scale; Fig. 3, a perspective view of the lower portion of such a press or hammer; and Fig. 4, a view similar to a portion of Fig. 2, but showing various adjusting shims and keys.

This press or drop-hammer consists, generally speaking, of an ordinary base 1, columns 2 and 3, an anvil 4, a drop-hammer 5, and upper and lower dies 6 and 7, containing mating matrix-cavities. So far the machine is of an ordinary and well-known form, the dies being of that variety in which the head ends of the matrix-cavities are planed out to the surface of said dies, as explained in Patent No. 631,573, above referred to, and therefore will not be further described herein except incidentally in describing the invention.

It is desirable for the head-die 8 to be held as rigidly as possible after being adjusted to the required position. This head-die has hitherto been carried by a heavy bar passing through a hole in the column of the press—in some machines against a yielding weight and in others against a heavy abutment or back-stop. The columns of such a press as ordinarily constructed are not calculated to well

withstand the numerous heavy blows which would be delivered upon such a column were the head-die arranged to abut directly against it. The space inside the columns is also in many presses insufficient to conveniently receive suitable devices for carrying such a head-die. In order to overcome these difficulties, I have (in a press of rather large size) planed away a portion of the base of the column, leaving a wide flat seat, and have inserted in this seat a hardened shoe or bearing-plate 9, the face of which contains a dovetailed groove, within which groove the outer end of the head-die 8 may be adjustably secured by means of keys 10 of suitable form. The plate 9 is secured to the column of the press by strong bolts 11, one on either side of said column, and in order to suitably buttress and strengthen the column of the press and enable it to properly resist the blows delivered upon it I have secured upon the outside a heavy solid metal block or cross-bar 12, tying the same to the base of the press by heavy rods 13, extending to a cross-bar 14. The bolts 11 to the plate 9 preferably pass through this heavy block or cross-bar 12. I preferably further strengthen the press by means of the bolts 15 and cross-bars 16 and 17.

The position of the head-die 8 is adjusted laterally and vertically, as desired, by means of such keys as the keys 10, which may be used in pairs, as shown in Fig. 4, if desired, instead of as single keys, as shown in the other figures. For different-sized heads of axes a series of these head-dies 8, which are interchangeable with each other, is provided, and longer or shorter ones are employed as shorter or longer headed axes are desired. Slight adjustments may be made of the main dies and head-dies relatively to each other by means of shims or distance-plates, as *s*, which may be inserted behind the end of the head-die next the surface of the plate 9, as shown in Fig. 4, and similar plates *p* may be employed alongside the lower main die 7, which may be shifted about when desired, as will be readily understood.

By the means described I am enabled to dispense with the long bar for carrying the head-die which has heretofore been employed and which, as above stated, has commonly passed out through an opening in the column

of the press against some structure upon the outside, (as well as with said opening,) and at the same time have retained all the advantages incident to the use of three-part dies, consisting of an upper and a lower die having mating matrix-cavities and a head-die entering the open end and forming the head-wall to the complete die, which advantages, as above stated, are fully set forth in Patent No. 631,573.

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

1. The combination, in a drop-press, of the usual base, columns, anvil, and hammer, an upper and a lower die having mating matrix-cavities open at the head end, a third die entering the opening which forms the prolongation of the matrix-cavity, a steel plate or shoe resting against the inner side of the adjacent column of the press against which said die directly bears and to which it is adjustably secured, and suitable means for supporting the column to resist the heavy blows delivered thereon during the operation of the machine by said head-die.

2. The combination, in a drop-press otherwise of the usual construction and provided with upper and lower dies having open head ends and a head-die entering the opening, of a shoe or plate supported within the columns of the press having a dovetailed groove in its face within which the outer end of the third or head die is adjustably secured, substantially as set forth.

3. The combination, in a drop-press, of the base, the columns, the anvil, the hammer, the upper die, the lower die, a third or head die entering the prolongation of the matrix-cavity in said upper and lower dies, a shoe or plate secured within the press against the in-

ner face of the column adjacent to said head-die and adapted to support said head-die, a heavy block or bar outside the press back of the position where said plate is secured, and heavy tie-rods connecting said block or bar to the opposite side of the press and serving to support the column against the stress of the blows delivered through the head-die, substantially as shown and described.

4. The combination, in a drop-press, of the usual base, columns, anvil and hammer, an upper and a lower die having mating matrix-cavities open at the head end, a third die entering said open head end and means whereby the same is immovably supported therein by the adjacent column of the press.

5. The combination, in a drop-press, of the base, the columns, the anvil carrying a stationary die, the hammer carrying a reciprocatory die, said dies having mating matrix-cavities and a prolongation thereof forming an open head end thereto, a third die entering said prolongation and forming the head-wall to the matrix-cavity, and suitable means whereby it is immovably and unyieldingly secured to the adjacent column.

6. The combination, in a drop-press, of the usual base, columns, anvil and hammer, an upper and a lower die having mating matrix-cavities open at the head end, a third die entering said open head end, and a rigid support secured wholly within the columns of the press for said third die, whereby said die is immovably and unyieldingly held in place.

In witness whereof I have hereunto set my hand and seal, at Alexandria, Indiana, this 13th day of February, A. D. 1900.

JAMES P. KELLY. [L. S.]

Witnesses:

S. C. HANNA,
C. D. SCHURTZ.