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MEANS FOR SECURING DIES IN FORGING APPARATUS.

APPLICATION FILED MAY 14, 1920.

1,389,286. Patented Aug. 30, 1921.

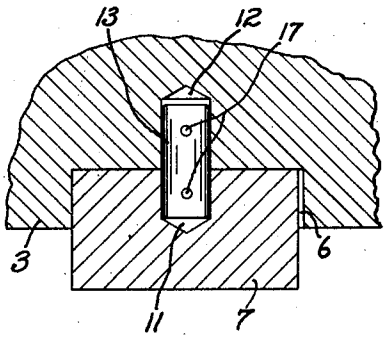


Fig. 1

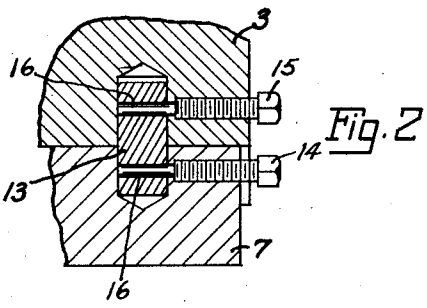
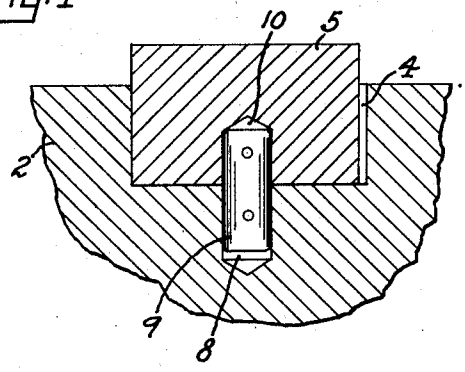


Fig. 2



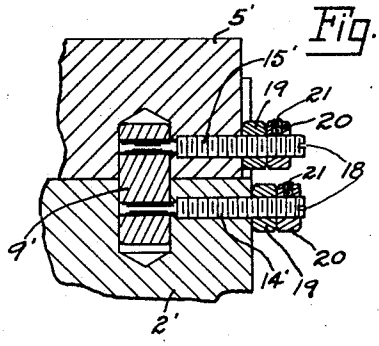


Fig. 4

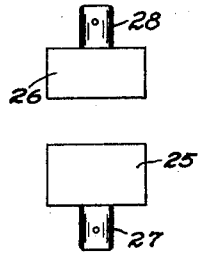


Fig. 3

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MEANS FOR SECURING DIES IN FORGING APPARATUS.

1,389,286. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed May 14, 1920. Serial No. 381,285.

To all whom it may concern:

Be it known that I, KRISTOFFER A. ANDERSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Means for Securing Dies in Forging Apparatus, of which the following is a specification.

This invention relates to means for securing dies in forging apparatus. I have a number of motives in view among them being the provision of means of a simple nature for securely and substantially removably holding the dies in place.

In the drawings accompanying and forming part of the present specification I have shown in detail certain forms of embodiment of the invention which to enable those skilled in the art to practise the same will be set forth fully in the following description. From this it will be clear that I do not restrict myself to such showing. I may depart therefrom in several respects within the scope of the invention defined by the claims following said description.

Referring to said drawings:

Figure 1 is a sectional elevation of portions of a drop hammer involving the invention.

Fig. 2 is a sectional detail of the hammer portion.

Fig. 3 is a detail of a modification of the dies showing the centering pins rigid therewith.

Fig. 4 is a view corresponding to Fig. 2, of a modification.

Like characters refer to like parts throughout the several views of the drawing.

As will be inferred the dies may be secured in various types of forging apparatus and a drop hammer is one of these.

A drop hammer involves as is known a base or bed and a hammer or falling body, the base or bed and hammer or falling body having recesses in which dies are disposed. I provide means for holding these dies securely and substantially yet removably in position. In Fig. 1, 2 denotes the base and 3 the hammer. In the upper side of the base or bed and generally centrally thereof, is a recess or aperture 4 in which the lower die is fitted, the die bottoming against the under surface of the recess as more or less common. The rising and falling hammer 3 has in its under side the practically similar recess 6 in which the upper die 7 is fitted. The dies do not altogether fill their respective recesses but are spaced a short distance from side walls thereof to receive shims or equivalent means by which if necessary, the dies 5 and 7 can be tightened in their appropriate recesses. The spaces between the dies and the adjacent side walls are quite narrow indeed being intended to receive quite thin shims.

Extending from the bottom of the recess 4 practically centrally thereof is a counterbore 8 of practically cylindrical form, this counterbore being adapted to receive the centering pin 9 which extends up into a counterbore 10 also of cylindrical form in the under portion of the lower die 5 as shown best in Fig. 1.

Extending into the top of the upper die 7 is a virtually similar counterbore 11 to mate the counterbore 12, extending from the top of the upper recess or aptreure 6, the two counterbores 11 and 12 when in register being intended to receive the centering pin 13 practically a duplicate of the pin 9. The respective centering pins 9 and 13 accurately position the dies yet they loosely, not unduly, fit their counterbores so that when necessity requires shims may be driven into the spaces between the sides of the dies 5 and 7 and the side walls of the recesses or apertures 4 and 6 in order to precisely position the dies for joint action with each other.

In connection with a carrying member such as the base or bed 2 or the hammer 3 and its die as 5 and 7 respectively, and the centering pins 9 and 13 respectively, are associated screws which engage the respective centering pins and which are threaded through the carrying members (2 and 3) and which engage the respective centering pins. In the present case there are two such screws, denoted by 14 and 15 respectively. Each screw comprises a threaded body from which centrally extends the cylindrical plain portion 16. The base and hammer have respectively threaded openings to receive threaded portions of the screws 14 and 15 which can be driven home by wrenches engaging the heads of the screws, the plain extensions 16 being adapted to project through cylindrical openings 17 extending entirely through the centering pins at opposite sides of their centers.

In Fig. 4 the numeral 2′ denotes the base or bed and 5′ the die associated therewith.

The centernig pin is denoted by 9′. With the base 2′, die 5′ and centering pin 9′ are associated screws 14′ and 15′. These screws 14′ and 15′ instead of being headed are slotted at their outer ends as at 18 to receive a screw-driver or similar implement to position the same in operative relation. They may be also furnished with nuts 19 to abut against the base 2′ and die 5′ respectively, the nuts being abutted by washers 20 which when set substantially against the nuts are held in position by screws 21 threaded therein and adapted to bite against the respective screws 14′ and 15′ respectively.

In Fig. 3 the lower and upper dies are denoted by 25 and 26 respectively. Rigid with them are pins 27 and 28. The pin 27 depends from the lower die 5, the pin 28 rising centrally from the upper die 26. The dies 25 and 26 fit apertures of which those denoted by 4 and 5 are examples in the base or bed and hammer of the machine respectively. The centering pins 27 and 28 are therefore rigid with the respective dies 25 and 26. Their projecting ends loosely fit sockets in the base and hammer respectively and are held removably in position in either of the two ways set forth or in some other convenient manner.

What I claim is:

1. Means for securing dies in forging apparatus comprising a base and a hammer both recessed, dies set into the recesses of the base and the hammer, and centering pins associated with the dies, the base and the hammer having counterbores into which the centering pins extend.

2. Means for securing dies in forging apparatus comprising a base and a hammer both recessed, dies set into the recesses of the base and the hammer, each die having a counterbore on its inner side, the base and the hammer having counterbores which register respectively with those of the dies, and centering pins set into the registering counterbores of the base, the hammer and the dies respectively.

3. Means for securing dies in forging apparatus comprising a carrying part, a die associated with said carrying part, and a centering pin rigidly connected with one of the parts, the other having a counterbore into which the pin is removably fitted.

4. Means for securing dies in forging apparatus comprising a base and a hammer both recessed, dies set into the recesses of the base and the hammer, centering pins associated with the dies, the base and the hammer having counterbores into which the centering pins extend, and screws extending through the base and hammer respectively, also through the dies and connected with the centering pins.

5. Means for securing dies in forging apparatus comprising a base and a hammer both recessed, dies set into the recesses of the base and the hammer, centering pins associated with the dies, the base and the hammer having counterbores into which the centering pins extend, and screws in threaded connection with the base and the hammer respectively and also with the dies, the centering pins having transverse plain cylindrical openings, the inner ends of the screws being plain to fit said openings.

In testimony whereof I affix my signature.

KRISTOFFER A. ANDERSON.

In presence of—
HEATH SUTHERLAND,
JOHN BUCKLEY.