

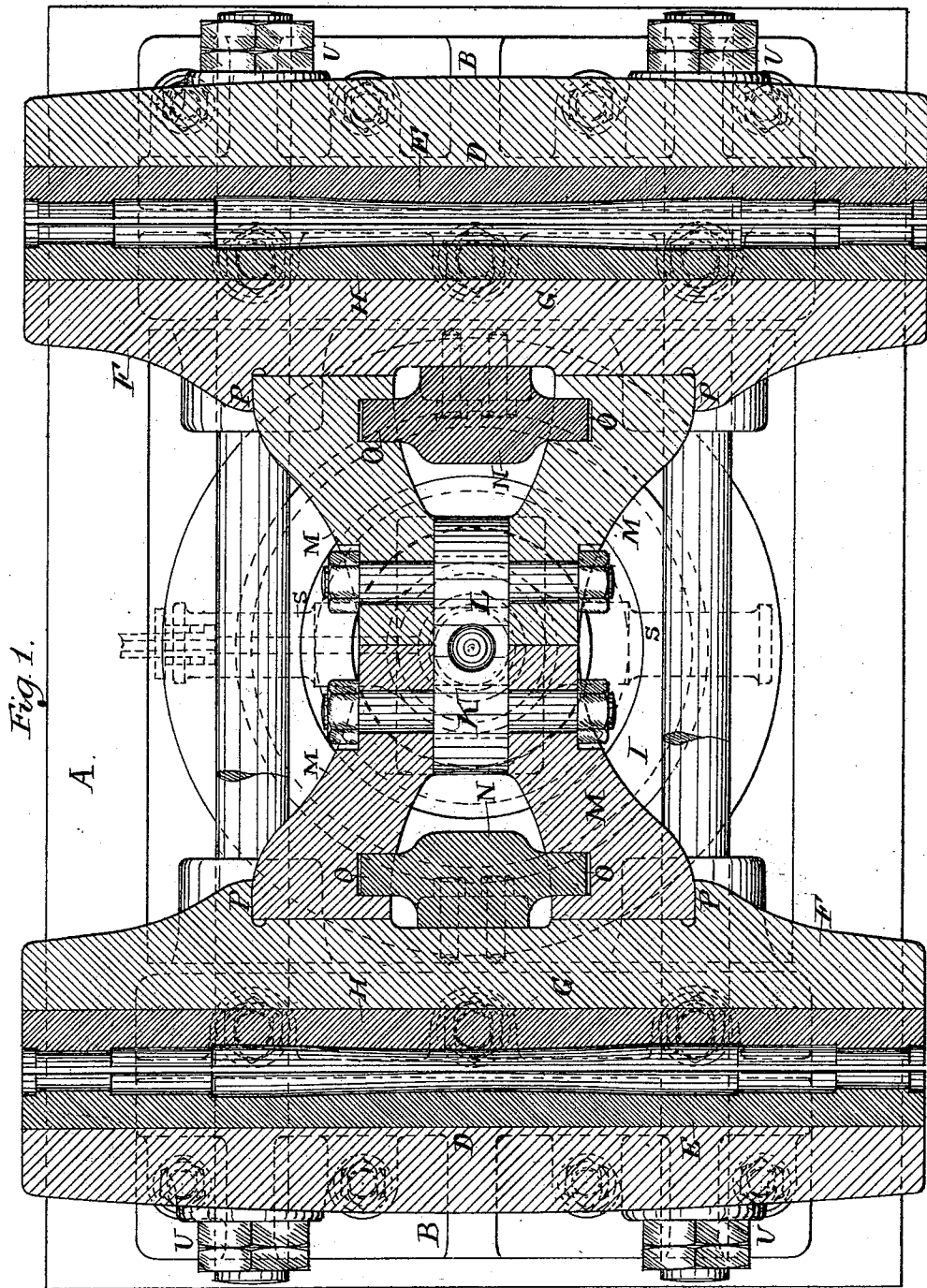
(No Model.)

4 Sheets—Sheet 1.

B. F. & F. T. PEACOCK.
METAL FORGING AND SHAPING PRESS.

No. 505,955.

Patented Oct. 3, 1893.



Witnesses
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L. B. Brock.

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Attorney

(No Model.)

4 Sheets—Sheet 2.

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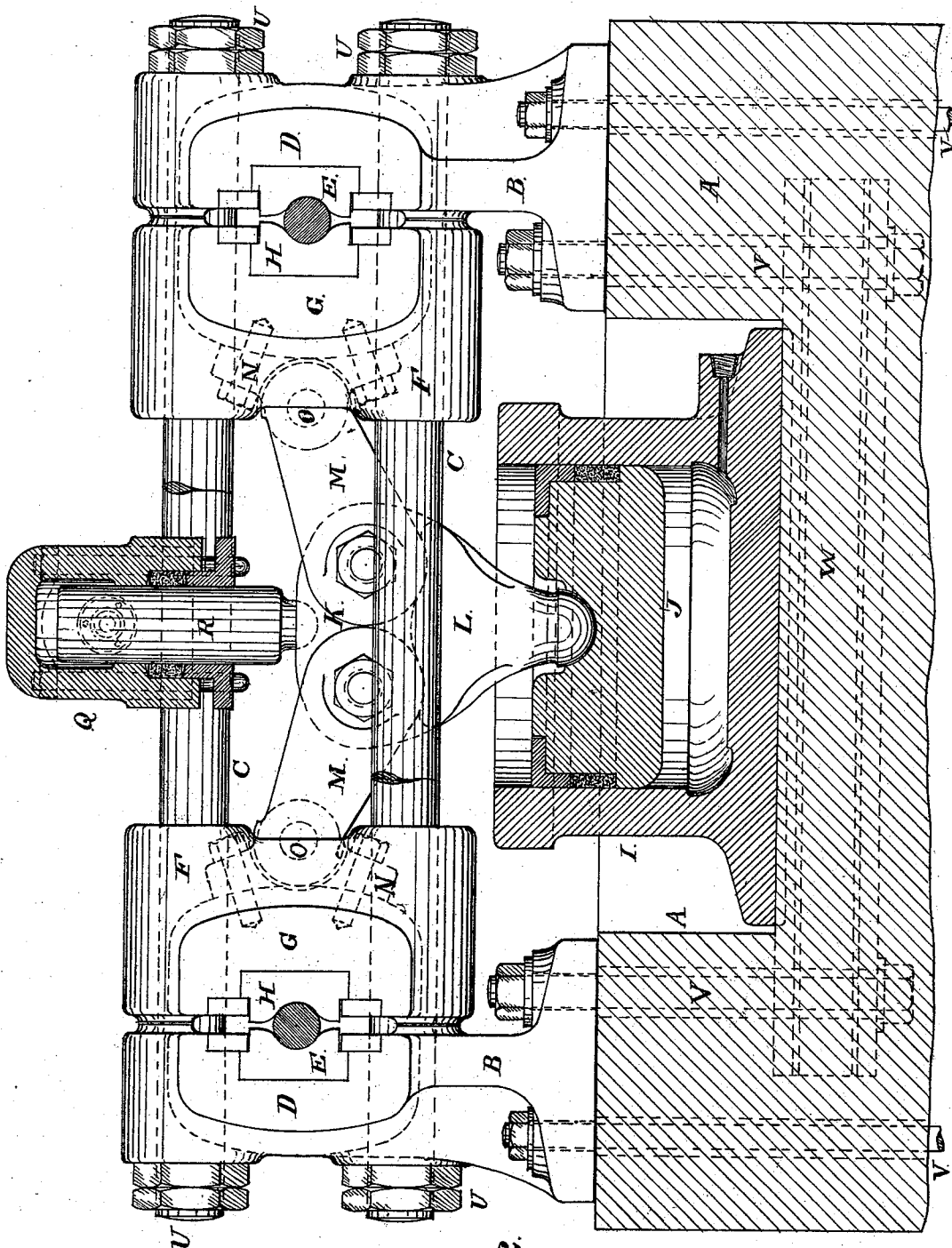


Fig. 2.

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(No Model.)

4 Sheets—Sheet 3.

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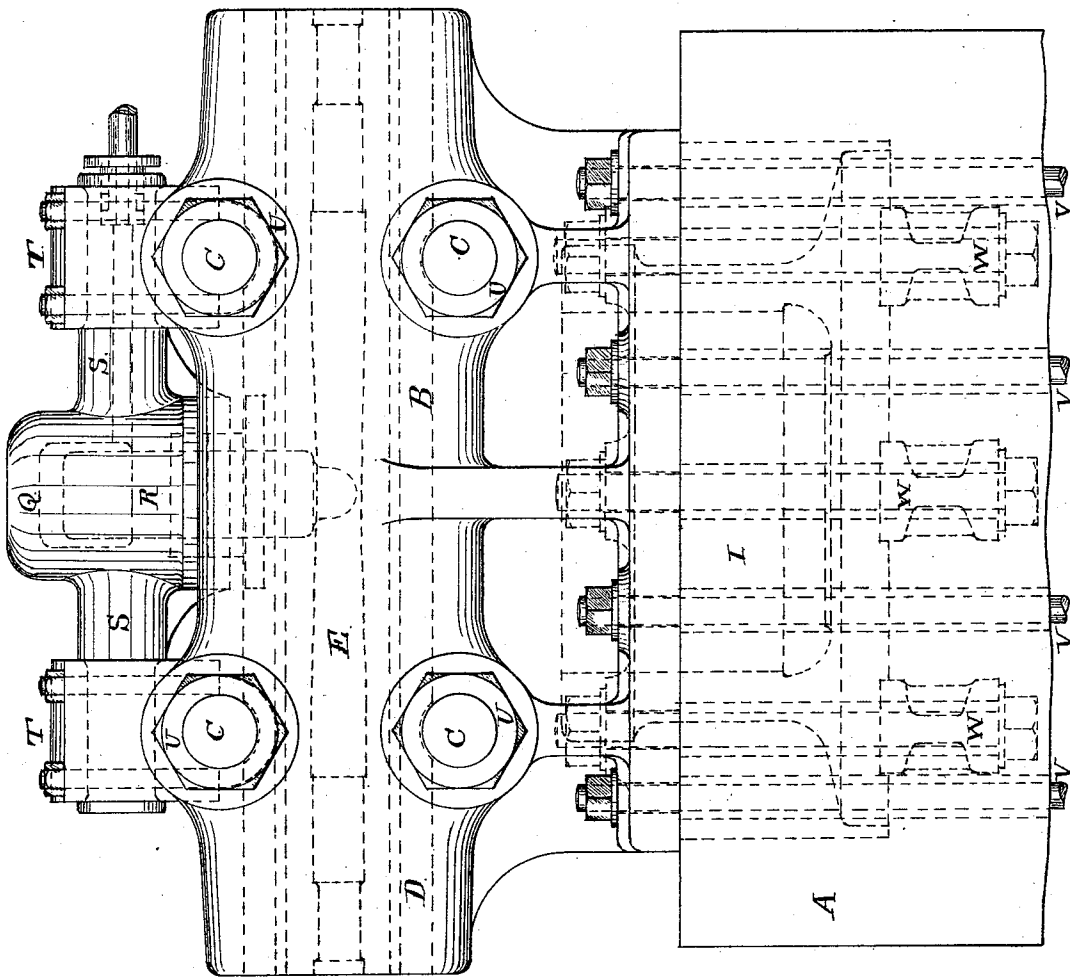


Fig. 3.

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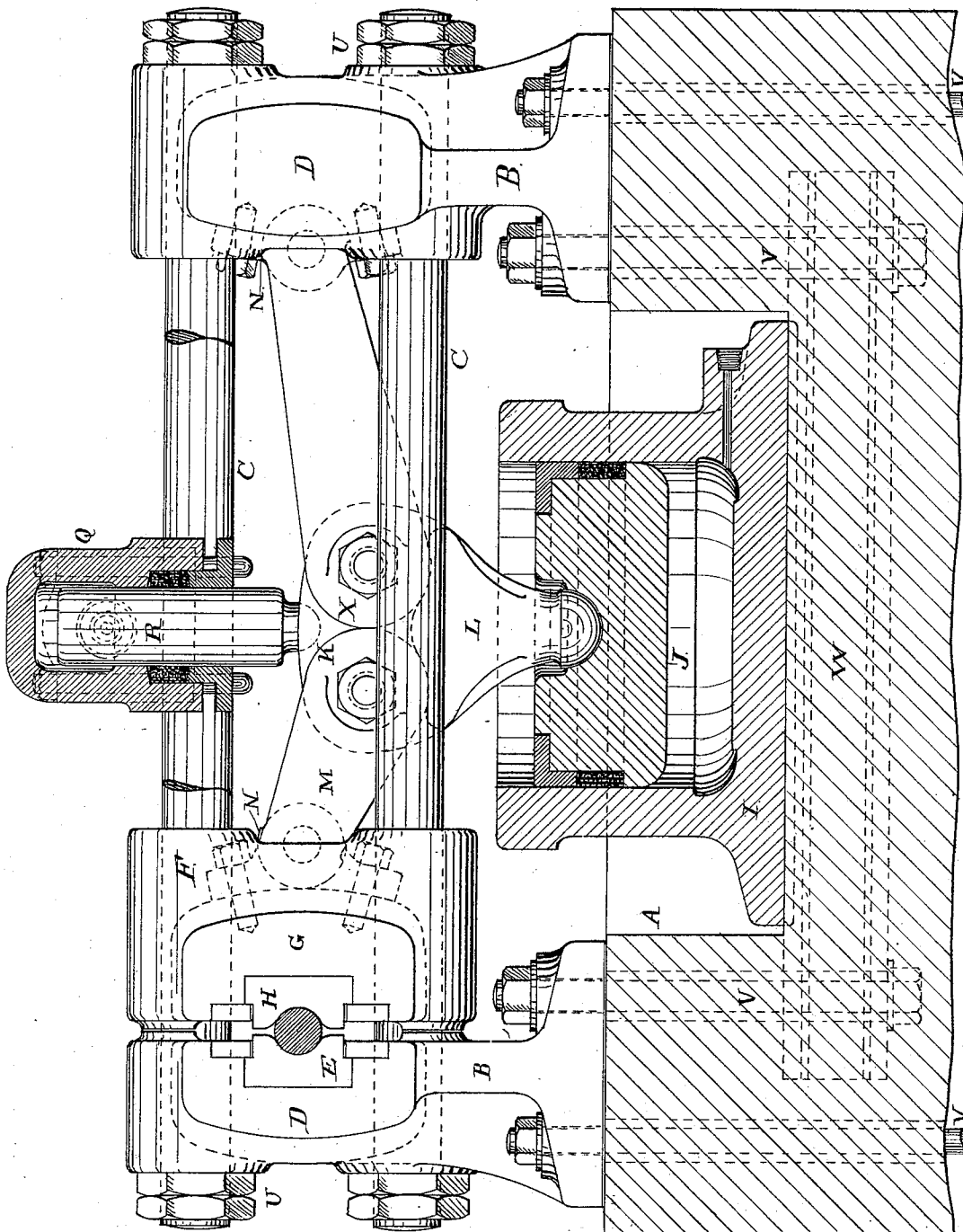
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Witnesses
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Fig. 4.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. PEACOCK, OF ANNISTON, ALABAMA, AND FRANCIS TOY
PEACOCK, OF SPARROW'S POINT, MARYLAND.

METAL FORGING AND SHAPING PRESS.

SPECIFICATION forming part of Letters Patent No. 505,955, dated October 3, 1893.

Application filed June 27, 1892. Serial No. 438,166. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN F. PEACOCK, residing at Anniston, in the county of Calhoun and State of Alabama, and FRANCIS TOY PEACOCK, residing at Sparrow's Point, in the county of Baltimore and State of Maryland, citizens of the United States, have invented certain new and useful Improvements in Metal Forging and Shaping Presses; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to metal forging and shaping presses.

The object of our invention is to forge axles, rods, shafts and the like, by means of a fluid-pressure press of novel construction, whereby the output of the machine is accomplished in a simple, efficient, and economical method.

Figure 1 is a horizontal sectional view and partial plan of a machine embodying our invention. Fig. 2 is a side elevation of the same, partially in vertical section. Fig. 3 represents an end elevation of the machine. Fig. 4 represents a side elevation of a modified form of a machine, to which we have also applied our improvements.

Our invention consists in the following construction and combination of the operative parts, which will first be fully described and set forth in the specification, and the features of novelty therein then pointed out and claimed.

In the drawings—A represents the foundation bed upon which our machine is mounted.

B represents the twin stationary standards of the double machine. These standards are bolted to the foundation in any suitable way, and the standards themselves are mutually braced against outwardly thrust strains or blows, tending to force the standards farther apart, by the combined brace and guide rods C. The standards B carry the die-holders D and the stationary dies E.

In the duplex machine two cross-heads F are employed which reciprocate back and

forth upon the stay and guide rods C. These cross-heads carry the movable die-holders G and the movable dies H, the latter being arranged to reciprocate adjacent to and in line with the stationary dies E.

For the purpose of reciprocating the movable dies H simultaneously the following mechanism is preferably employed: I is a fluid-pressure cylinder disposed below the machine and intermediately of the standards B. J is the cylinder-piston having a vertical movement therein which is adapted to operate a toggle device K, for the purpose of operating the movable dies. This toggle K consists of a vertically moving piece L having suitable connection with the piston J. To this piece are pivotally connected four lever-toggle arms M, which in turn are pivotally connected, respectively, to the oppositely arranged cross-heads F.

In making connection between the cross-heads F and the toggle-arms M, so as to secure a jointed pivotal action we preferably employ the pieces N which are provided with axially oppositely projecting pintles O which project into corresponding bearings on the inner sides of the toggle-arms M, and hold the latter in position. These pieces N we prefer to bolt to the cross-heads F in any suitable manner. The outer ends of the toggle-arms M are rounded, being received into corresponding depressions or bearings in the opposite faces of the cross-heads F, and abutments P are formed at the outer ends of these bearings in the cross-heads which serve to hold the toggle-arms M in position and upon the pintles O. An upward movement of the piston J operates upon the toggle device K to move the dies H toward the dies E.

For the purpose of returning the piston J, or in other words moving the dies H away from the dies E, we provide a second fluid-pressure cylinder Q, having a piston R which rests upon the top of the vertical piece L of the toggle K. This piston or ram R will, when pressure is introduced into the cylinder Q, force the toggle down and the dies apart.

We prefer to provide the cylinder Q with oppositely extending arms S which terminate in bearings T secured to and carried by the upper stay and guide rods C, the fluid pas-

sages to the cylinder Q being through the bearings T and the arms S. The outer ends of the arms S are journaled in the bearings T so as to oscillate therein, thereby permitting a limited rocking movement to the cylinder Q to compensate for any lateral movement of the vertically moving piece L of the toggle K. In like manner the bearings T of the cylinder Q may be moved bodily along the rods C to provide for any undue endwise movement of the toggle.

It will be understood by the term fluid-pressure cylinders that any known fluid or gaseous agent may be employed—such as water, oil, steam, air, gas, caloric or the like.

The dies shown in this machine are designed for the forging of car axles, but it will be clear that other dies may be substituted therefor having die-faces for the forging of all kinds of axles, shafting, rods, or for that matter, the machine may be used in connection with dies for making any sort or style of forging, or analogous press-work.

We purpose using our machine in the forging of a special axle made of fagots or piles, for which we have received Letters Patent in England and in this country.

By means of our invention we get an enormous and almost unlimited pressure or force on the dies. We vary the power or compressive strain or blow by means of the nuts U on the opposite ends of the stay and guide rods C, which alter the angle of the toggle arms M, and thus increases or diminishes the leverage power of the press.

V are a series of bolts which pass down into the foundation A and securely hold the standards B upon their bed. The holes in the foundation which receive these bolts are large enough to provide for a slight adjustment upon the bed to provide for the proper adjustment of the machine. The inner series of bolts V are connected below with a series of heavy girders W, laid in the foundation beneath the cylinder I. These girders W serve, in connection with the foundation bed, to materially support the downward thrust of the cylinder, and to transmit that holding-down force to the axle-machine itself through the connecting bolts V.

In Fig. 4 we show a modified form of our machine in which only a single set of dies are employed.

It will be observed that in this machine one of the cross-heads F is removed, and a stationary die-holder D of one of the standards B, suitably modified to receive the toggle arm X. This arm is longer than its companion arm M in order to compensate for the space ordinarily taken up by the cross-head F. In other respects the single machine in its operation is similar to that of the duplex one.

We do not limit ourselves to the precise arrangement of the various parts shown in the drawings accompanying this specification nor to the means employed by which we secure the adjustment of the parts. Other de-

VICES than those illustrated will serve to take up the strain between the standards and between the cylinders and the machine. In like manner we may vary the form of our toggle-gear and of the fluid-pressure cylinders. All these changes and modifications we can make and still come within the scope of our invention.

We prefer to leave the opposite ends of the dies E H open, so that a portion of the forgings therein may project axially at the opposite ends, whereby the operator may secure said ends in slings or tongs from a movable crane, and thereby secure perfect control in manipulating the forging in the various blows or strains to which he may subject it.

We claim—

1. In a forging machine or press, the combination of die-holding standards, stay and guide rods connecting the same, a cross-head carrying a die moving on said rods, a toggle device arranged between the cross-head and the standards for actuating said cross-head, having a pintle-carrying piece interposed between the toggle arms, and a fluid-pressure cylinder for operating the toggle.

2. In a forging machine or press the combination of die-holding standards, stay or guide rods connecting the same, die-carrying cross-heads mounted on said rods, a toggle interposed between said cross-heads, a fluid-pressure cylinder for actuating the toggle, and a fluid-pressure cylinder for returning the toggle to its normal position having oppositely arranged bearings upon said stay-rods.

3. In a forging machine or press the combination of die-holding standards, stay or guide rods connecting the same, die-carrying cross-heads mounted on said rods, a toggle interposed between said cross-heads, a fluid-pressure cylinder for actuating the toggle and moving the cross-heads apart, and a fluid-pressure cylinder for returning the toggle to its normal position.

4. In a forging machine or press the combination of die-holding standards, stay or guide rods connecting the same, die-carrying cross-heads mounted on said rods, a toggle interposed between said cross-heads, a fluid-pressure cylinder for actuating the toggle and moving the cross-heads apart, and a second fluid-pressure cylinder having a lateral adjustment with respect to the toggle, for returning the toggle to its normal position.

5. The combination of standards, rods connecting the same, a die-carrying cross-head, a toggle, means for actuating the same, and an oscillating cylinder for returning the toggle to its normal position.

6. The combination, in a forging press, of die-holding standards, stay-rods and guide-ways connecting the same, a die-holding cross-head mounted upon said rods, means for reciprocating said cross-head, and a cylinder mounted and oscillating upon said rods for moving said cross-head.

7. The combination of die-holding stand-

ards, rods connecting the same, a cross-head, and a cylinder mounted and having bearings upon said rods, so as to oscillate thereon and be longitudinally adjusted along said rods for the purpose of moving said cross-head.

5 8. The combination of standards, dies, a fluid-pressure cylinder for operating the dies, mechanism interposed between the dies and said cylinder for actuating the dies and a
10 fluid-pressure cylinder for moving the actuating mechanism back to its normal position.

9. The combination of die-holding stand-

ards, rods connecting the same, a die-holding cross-head moving upon said rods, a separable pintle-carrying piece secured to the cross- 15 head for pivotally connecting the toggle thereto, and means for actuating the toggle.

In testimony whereof we affix our signatures in the presence of two witnesses.

BENJAMIN F. PEACOCK.

FRANCIS TOY PEACOCK.

Witnesses:

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JOS. L. HUNTER.