

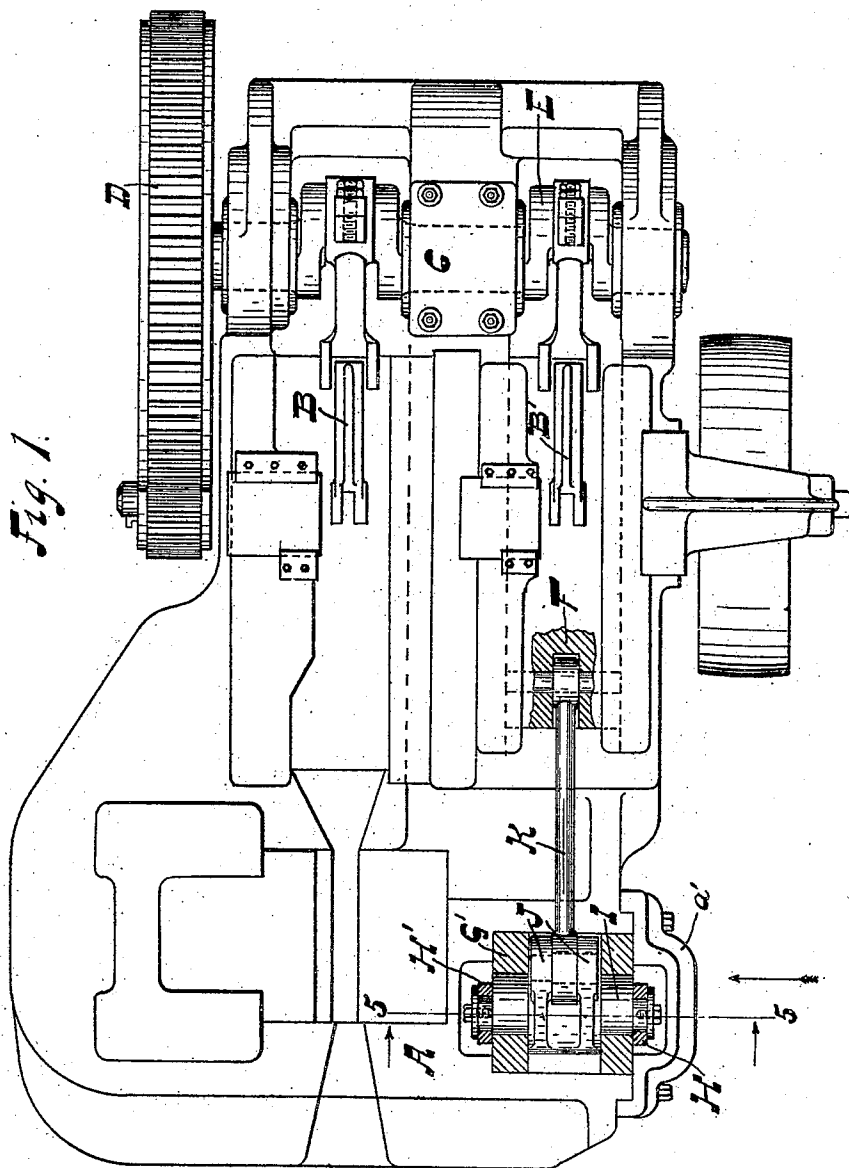
No. 848,284.

PATENTED MAR. 26, 1907.

J. R. BLAKESLEE, JR.
METAL WORKING APPARATUS.

APPLICATION FILED JUNE 24, 1905.

2 SHEETS—SHEET 1.



Witnesses:

Edw. Lindmueller.

W. M. Saywell

By

Inventor:
J. R. Blakeslee, Jr.
J. O. Pay
His Attorney.

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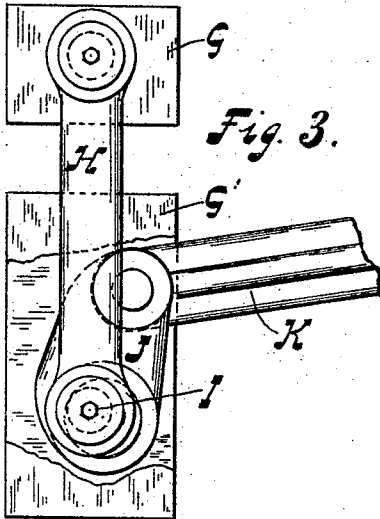


Fig. 3.

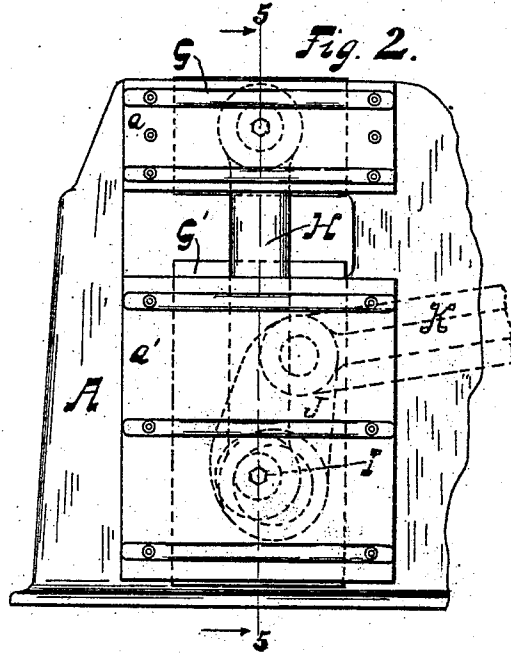


Fig. 2.

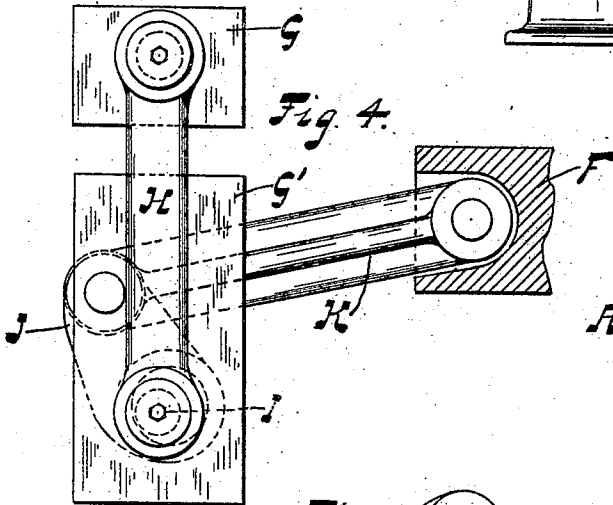


Fig. 4.

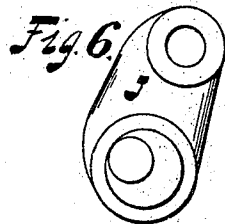


Fig. 6.

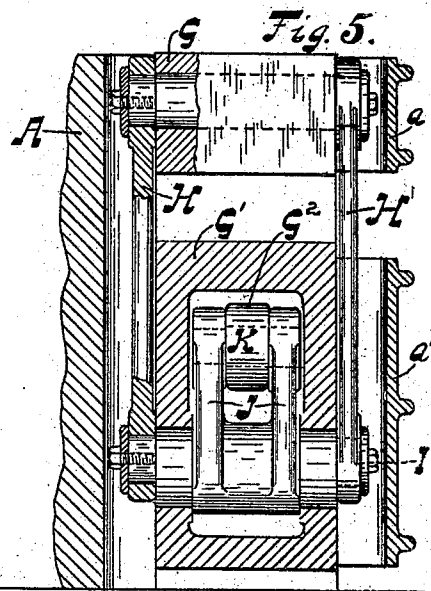


Fig. 5.

Witnesses:

Edw. Lindbuerger.
G. W. Saywell

Inventor:
J. R. Blakeslee, Jr.
By J. D. Fay
His Attorney.

UNITED STATES PATENT OFFICE.

JOHN R. BLAKESLEE, JR., OF CLEVELAND, OHIO.

METAL-WORKING APPARATUS.

No. 848,284.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed June 24, 1905. Serial No. 266,722.

To all whom it may concern:

Be it known that I, JOHN R. BLAKESLEE, Jr., a citizen of the United States, a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Metal-Working Apparatus, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

My invention relates to metal-working apparatus, and particularly to combined forging machines and presses which are adapted to impart to heated metal various forms through the medium of suitable dies and forming-tools.

Said invention is especially an improvement upon the forging-machine shown and described in United States Letters Patent No. 737,065, issued to John R. Blakeslee, August 25, 1903.

The object of my invention is to develop a pressing power of great efficiency and also, in combination with a forging or upsetting machine, such as is shown in the above-mentioned patent, to effect both the forging and pressing operations at one heat, and thus reduce the time and cost of manufacture and enhance the quality of the finished article.

Said invention consists of mechanism hereinafter fully described, and specially set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents a plan view of my invention comprising an improved press, parts of which are shown in section, in combination with parts of a forging-machine such as is shown in the above-mentioned patent. Fig. 2 represents a broken side elevation looking in the direction of the arrow, Fig. 1. Fig. 3 represents a side elevation of the two die-blocks, a vertical connecting-arm, and a shaft formed with two integral lever-arms, one of said arms appearing in said figure, also a broken elevation of an operating-arm connecting the reciprocatory cross-head and said eccentric arms, the lower die-block being broken away to more plainly show the connections between said arms. Fig. 4 represents a view similar

to that shown in Fig. 3, with the die-blocks in their inward or closed position. Fig. 5 represents a broken transverse vertical section taken upon the plane indicated by the lines 5 5, Figs. 1 and 2; and Fig. 6 represents a side elevation of one of the lever-arms.

In the working of many metal forms it is necessary to subject the metal to both an upsetting and a pressing operation, and in the making of eyebars, for instance, it is necessary to pass the blanks back and forth between the press and the forging-machine several times and to act upon them alternately by the two machines before the required shape is obtained. In order that this may be satisfactorily accomplished without reheating the blank, I have invented the combined forging machine and press, to be hereinafter fully described. Said press is especially adapted also to the finishing of metal forms after they have been worked in the rough by the forging-machine and as constructed develops very great power.

Referring particularly to Fig. 1, I have shown the frame A of a suitable forging-machine, such as is shown and described in the above-mentioned patent, having a stationary die-block, suitable dies, and a die-slide reciprocable transversely of the frame in suitably constructed slideways. A header-slide is mounted in suitably-constructed slideways and is longitudinally reciprocable, such reciprocation being effected through the medium of an operating-pitman B, journaled upon a crank-shaft C, driven by a driving-gear D. These elements represent in outline the construction of the forging-machine described in the above-mentioned patent. Upon the same frame A, I have mounted my improved press, and I have furnished the crank-shaft C with an additional eccentric E, adapted to effect, through the medium of an operating-pitman B', the reciprocation of a cross-head F, connected to the working parts of the press. The upper and lower die-blocks of the latter are represented by G G', respectively, and are connected by two vertical arms H H'. The lower ends of said vertical arms H H' are journaled upon the ends, respectively, of a transverse shaft I, formed with two integral lever-arms J, between the outer ends of which is journaled a rod K, connected at its other end to the cross-head F. There is provided but one of the connecting-rods K, and, as will be clearly noted from Fig. 5, the lower die-block G' is provided with

a transverse recess G^2 , within which the lever-arms J and the outer end of the arm K rock when the cross-head F is reciprocated. Suitable outer cover-plates $a a'$ are provided for the upper and lower die-blocks, respectively.

The operation of my improved metal-working apparatus will be readily understood from the foregoing description, taken in connection with the accompanying drawings, the open and closed positions of the die-blocks of the press being illustrated in Figs. 3 and 4, respectively. All of the strain of the work in the press is distributed between the downward pressing strain upon the parts of the frame below the under die-block G' , the pulling strain upon the vertical arms H H', and the transverse strain upon the lever-arms J. Immense power is developed by my improved construction of presses, and I am enabled to efficiently form many articles—such as springs, spring-clips, and eyebolts—which it has been impossible to work satisfactorily in devices of this character with which I have heretofore been acquainted. By operating my improved press in combination with a forging-machine, as mentioned above, I find that it is not necessary to reheat the article being operated upon in passing from the forging-machine to the press, or vice versa, and that I am thus enabled to produce a better article at a less cost of manufacture.

Having described my invention in detail, that which I particularly point out and distinctly claim is—

1. In a press, the combination of die-blocks; a reciprocatory cross-head; a lever-arm mounted in one of said die-blocks, and connected to both of said die-blocks, and adapted to reciprocate the same relatively to each other; and means connecting said cross-head and arm.

2. In a press, the combination of two rela-

tively vertically reciprocable die-blocks, the lower of said blocks having a transverse recess; a shaft journaled in said recessed die-block and bearing a lever-arm disposed within said recess; arms connecting the other die-block with said shaft, said arms being eccentrically attached to the respective ends of the latter; and reciprocatory actuating means connected with said lever-arm.

3. In a press, the combination of two die-blocks, one of said blocks having a transverse recess; a shaft journaled in said recessed die-block and bearing a lever-arm disposed within said recess; arms connecting the other die-block with said shaft, said arms being eccentrically attached to the respective ends of the latter; and means for rocking said shaft, such means comprising a reciprocatory cross-head, and a connecting-rod attached at one end in said cross-head, and at the other to said lever-arm.

4. In a press, the combination of die-blocks; a reciprocatory cross-head; a crank-shaft journaled in one of said die-blocks; two arms connecting opposite sides of the other die-block and the ends of said crank-shaft, respectively; and a connecting-arm journaled at one end in said cross-head and at the other end upon said crank-shaft.

5. In a press, the combination of die-blocks; a reciprocatory cross-head; a transverse shaft journaled in one of said die-blocks; means connecting the other die-block and said shaft; two arms eccentrically located upon said shaft and formed integral therewith; and connecting means journaled at one end in said cross-head and at the other end between said eccentric arms.

Signed by me this 9th day of June, 1905.

J. R. BLAKESLEE, JR.

Attest:

A. E. MERKEL,
G. W. SAYWELL.