

March 11, 1924.

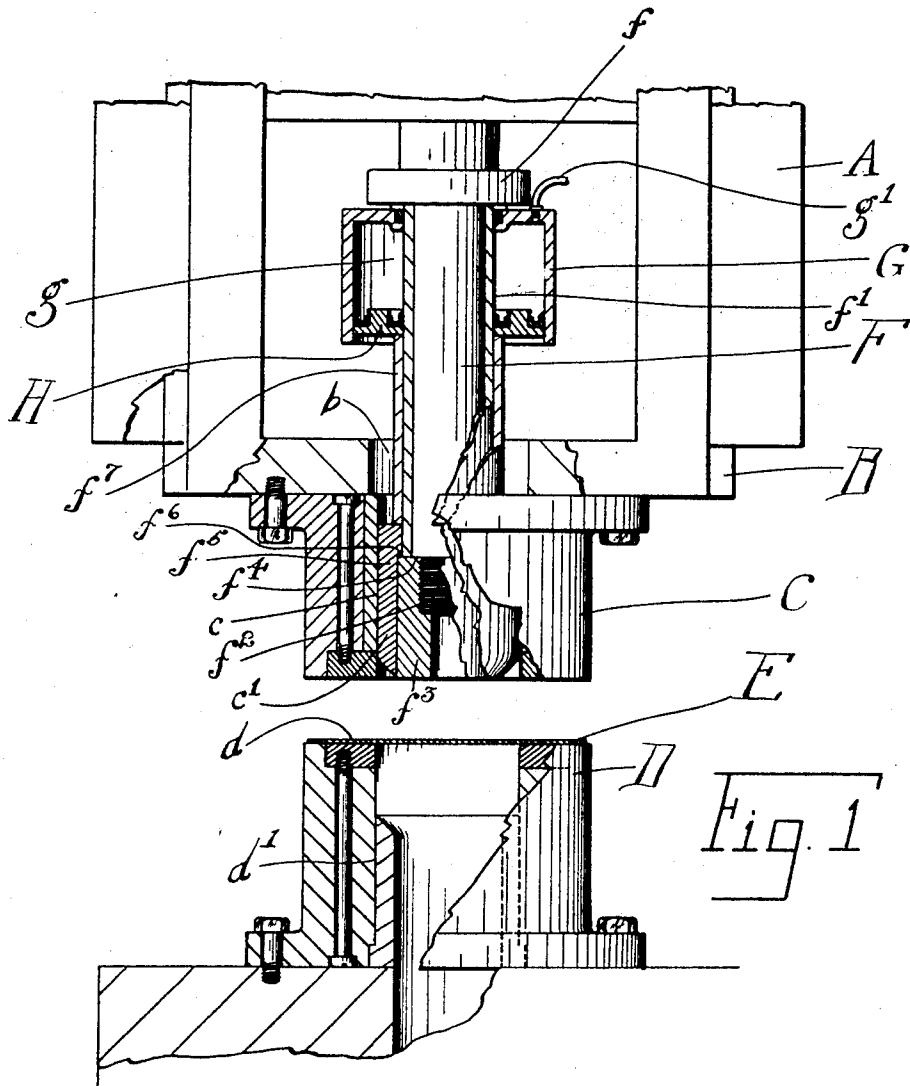
1,486,746

J. HEISEL

POWER PRESS

Filed Sept. 14, 1921

2 Sheets-Sheet 1



Inventor
John Heisel
By *Walter F. Drury*
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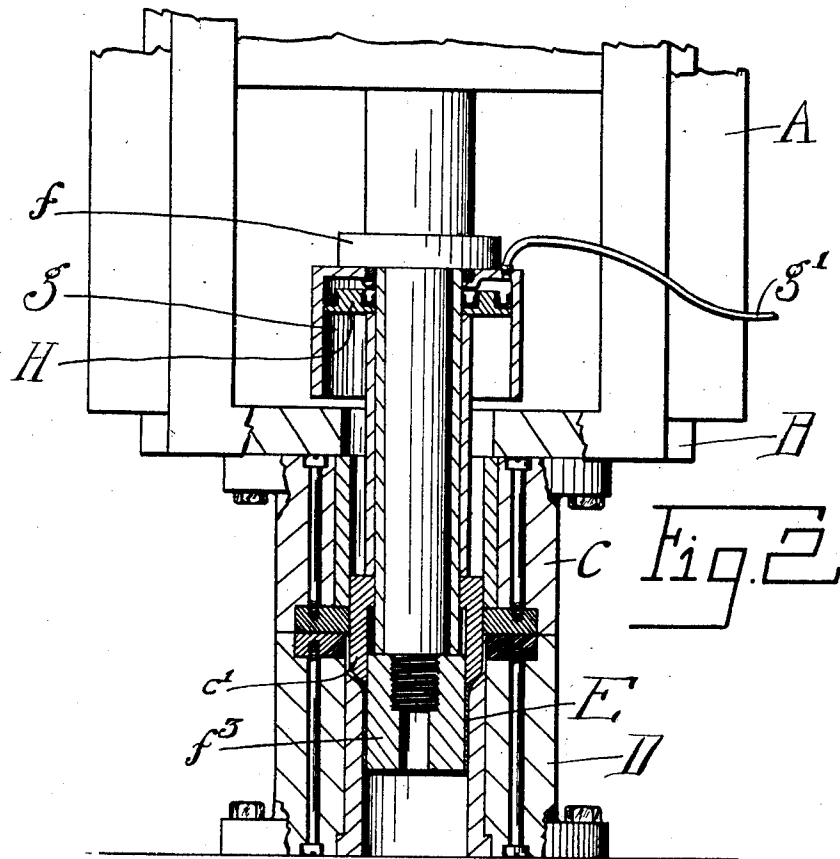
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2 Sheets-Sheet 2



John Heisel ^{Inventor}

By *Walter F. Murray* ^{Attorney}

UNITED STATES PATENT OFFICE.

JOHN HEISEL, OF MOUNT HEALTHY, OHIO, ASSIGNOR TO THE CINCINNATI GALVANIZING COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

POWER PRESS.

Application filed September 14, 1921. Serial No. 500,489.

To all whom it may concern:

Be it known that I, JOHN HEISEL, a citizen of the United States of America, and a resident of Mount Healthy, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in a Power Press, of which the following is a specification.

My invention relates to that class of power presses used in drawing and forming articles from blanks, and has for an object the simplification of construction and operation of such devices.

Another object of my invention is to provide a power press of the type referred to wherein several of the elements most subjected to wear are eliminated.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which—

Fig. 1 is a fragmental front elevation of a power press embodying my invention, parts being broken away.

Fig. 2 is a transverse sectional view of the press shown in Fig. 1.

My invention resides primarily in providing means adapted to draw a blank and to yield when further work is performed on the blank.

The fixed gib A has slidably mounted within it a head or slide B carrying a blank holder C. The blank holder has a central bore *c* in alignment with the central bore *b* in the head B. The lower surface *c'* of the blank holder is adapted to cooperate with the upper surface *d* of the fixed die D, between which the blank E is placed at the beginning of the drawing operation. The reciprocating shaft F is adapted to extend through and be reciprocated through the bores *b* and *c* in the head and blank holder by any means common in the art. A collar *f* is mounted upon the shaft F and forms an abutment for the drum G. The drum G is mounted upon a bushing *f'* mounted on the shaft F. A chamber *g* is formed within the drum in which the piston H may be reciprocated. Suitable packing is provided about the piston and the drum to make the chamber *g* practically air tight. The lower end of the shaft F is screw threaded, as shown at *f²*, and carries a secondary die *f³*. A shoulder *f⁴* is formed at the upper end of the die *f³* and said shoulder is engaged by the bushing *f'*. A primary die *f⁵* is slidably

mounted upon the secondary die and may be reciprocated within the bore *c* in the blank holder C. The primary die has an inwardly projecting shoulder *f⁶* adapted to engage the shoulder *f⁴* on the secondary die. A spacing collar *f⁷* is slidably mounted upon the bushing *f'* and abuts the piston H and the upper end of the primary die *f⁶*. The chamber *g* is in constant communication, by means of a suitable conduit or hose *g'*, with a source of fluid under pressure, such as compressed air.

The operation of my device is as follows:

The blank E is placed upon the fixed die D. The head B and the reciprocating shaft F are then caused to move toward the fixed die D. The primary and secondary dies move in unison because of the fluid under compression within the chamber *g* retaining the shoulder of the primary die in engagement with the shoulder on the secondary die. The primary and secondary dies move into the fixed die D and draw the blank into the enlarged upper portion of the fixed die. The internal fixed die *d'* forms an abutment which limits the downward movement of the primary die *f⁵*, and the secondary die continues its downward movement and draws the blank into the reduced lower portion of the fixed die D. The fluid under pressure within the chamber *g* yieldingly resists the movement of the piston H upwardly in the drum G. After the article has been drawn and the reciprocating shaft F moves upwardly, the fluid under pressure within the chamber *g* returns the piston and primary die to their normal positions as shown in Fig. 1.

What I claim is:

1. In a device of the class described the combination of concentric fixed dies, concentric movable dies, a reciprocating shaft upon which the movable dies are mounted adapted to carry the movable dies into co-operative relationship with the fixed dies, a fluid tank containing fluid under constant pressure, a piston reciprocally mounted in the fluid tank, and means connecting a movable die and the piston, whereby the last mentioned die may yieldingly engage one of the fixed dies during movement of a second of the movable dies.

2. In a device of the class described the combination of reciprocating movable dies, fixed dies in the line of reciprocation of the

movable dies, adapted to cooperate with the movable dies, a shaft adapted to reciprocate the movable dies, a drum adapted to contain fluid under constant pressure, and a piston
5 adapted to be reciprocated in the drum and to control the movement of a movable die whereby the last mentioned movable die may yieldingly engage a fixed die.

3. In a device of the class described the
10 combination of fixed dies, a reciprocating shaft, dies mounted on the reciprocating shaft adapted to be carried into cooperative relationship with the fixed dies by movement of the shaft, the dies on the shaft being
15 relatively movable, a drum adapted to contain fluid under constant pressure mounted on the shaft, a piston adapted to be reciprocated in the drum and to be acted upon by fluid contained within the drum, and means

spacing the piston from one of the relatively 20 movable dies on the shaft, whereby said last mentioned die may yieldingly engage one of the fixed dies.

4. In a device of the class described, the combination of fixed dies, movable dies, a 25 reciprocating shaft adapted to carry the movable dies into engagement with the fixed dies, a drum mounted on the shaft adapted to contain a fluid under pressure, a piston in the drum adapted to be acted upon by 30 the fluid pressure, and means connecting the piston and one of the movable dies whereby said movable die may yieldingly engage one of the fixed dies.

In testimony whereof, I have hereunto 35 subscribed my name this 13th day of September, 1921.

JOHN HEISEL.