

Jan. 19, 1926.

O. S. BEYER

1,570,199

DRAWING PRESS

Filed April 17, 1923

2 Sheets-Sheet 1

Fig. 1.

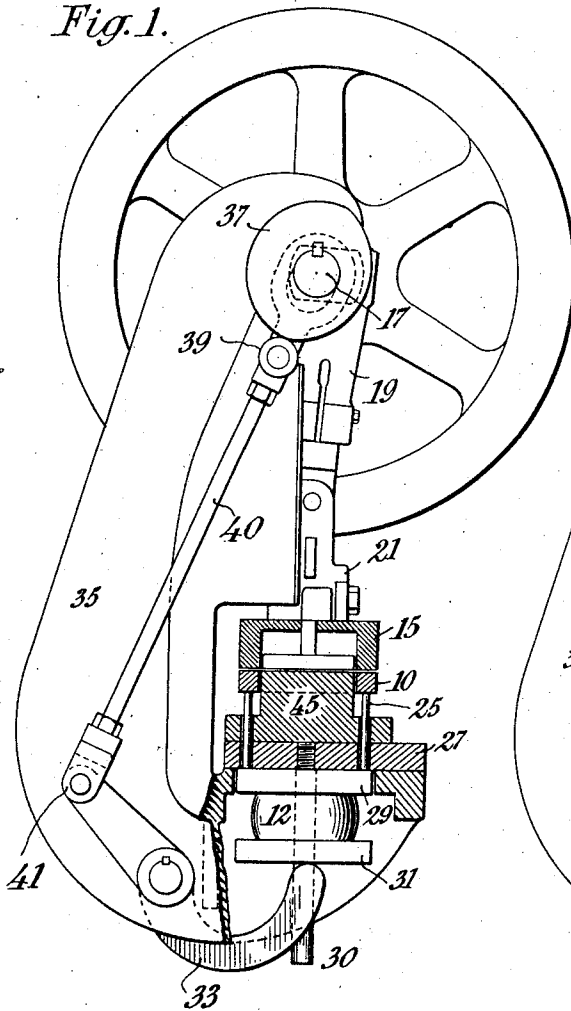
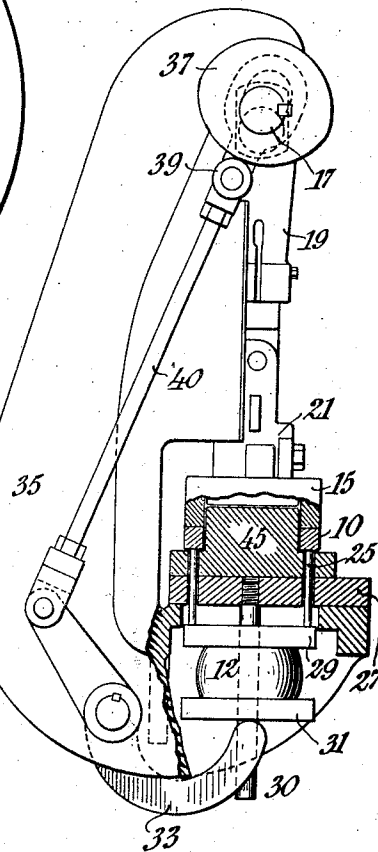


Fig. 2.



INVENTOR :

Otto S. Beyer,

By Attorneys,

Fraser & Myers

Jan. 19, 1926.

1,570,199

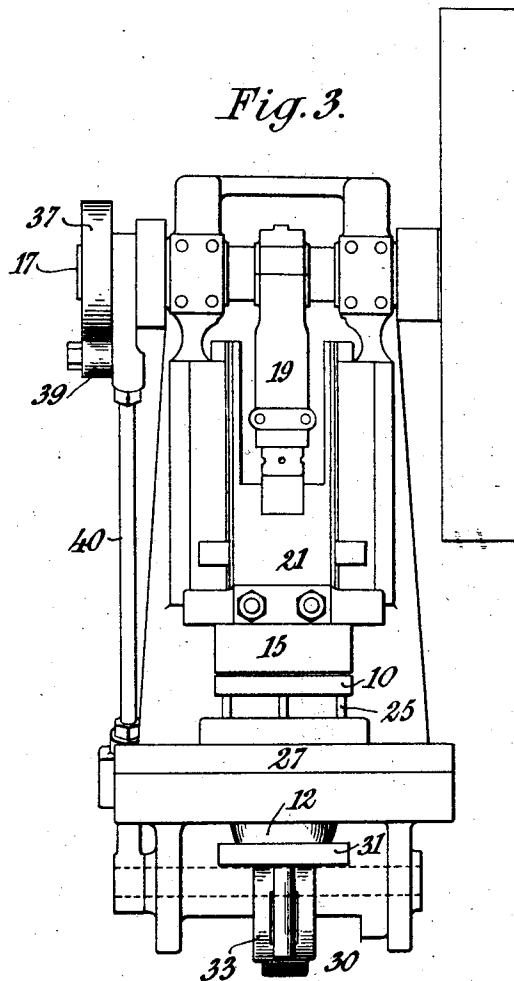
O. S. BEYER

DRAWING PRESS

Filed April 17, 1923

2 Sheets-Sheet 2

Fig. 3.



INVENTOR :

Otto S. Beyer,

By Attorneys,

Fraser & Myers

UNITED STATES PATENT OFFICE.

OTTO S. BEYER, OF BROOKLYN, NEW YORK, ASSIGNOR TO E. W. BLISS COMPANY, OF
BROOKLYN, NEW YORK, A CORPORATION OF WEST VIRGINIA.

DRAWING PRESS.

Application filed April 17, 1923. Serial No. 632,747.

To all whom it may concern:

Be it known that I, OTTO S. BEYER, a citizen of the United States of America, and residing in the borough of Brooklyn, city and State of New York, have invented certain new and useful Improvements in Drawing Presses, of which the following is a specification.

This invention relates to drawing presses of the type having a blank-holder movable against the resistance of a resilient device by a driven tool coacting therewith, and aims to provide improvements therein.

The invention provides a press of the type referred to in which the increase of stress of the resilient means opposing the movement of the blank-holder is controlled, and may be so controlled as to limit the stress of said resilient means, during the drawing action, to that amount of stress which is produced by the initial movement of said blank-holder, so that the resistance of said resilient means may be so controlled as to not progressively increase with the movement of the blank-holder.

An embodiment of said invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a press (with parts in section) showing the position of the working parts at the commencement of the drawing operation, and

Fig. 2 is a similar view showing the position of the working parts at the end of the drawing operation.

Fig. 3 is a front view of the press shown in Figs. 1 and 2.

Referring to said drawings, numeral 10 designates the blank-holder which bears in suitable manner against a resilient device 12, and which is moved against the resistance of said resilient device or cushion by a drawing tool 15 which is driven in suitable manner, as by means of a crank-shaft 17, pitman rod 19 and slide 21 to which it is attached. The blank-holder conveniently bears on the resilient device 12 through a plurality of pins 25 projecting through the bolster plate 27 of the press. As here shown the resilient device 12 is in the form of a block of rubber, and the several pins 25 may all be made to bear thereon through a plate 29, which plate thus receives the stress of said resilient device. The resilient device 12 and the

means for transmitting the blank-holder movement thereto may, however, have any of the various forms and arrangements known in the art, that shown being a simple and generally used form and arrangement and hence conducive to a ready comprehension of the invention.

Means 30 are provided for controlling the increase of stress of said resilient device 12 due to the movement of the blank-holder 10 by said tool 15, and preferably in such manner that the stress of said resilient device 12 produced by the movement of said blank-holder 10 is limited to that amount which is produced by the initial movement of said blank-holder. These means may be of any suitable form, that illustrated comprising a plate 31 constituting an abutment between which and the plate 29 the resilient device 12 is adapted to be stressed, and suitable means, as a lever 33 and lever operating means 35 for displacing said abutment 31 in a direction to counteract increase of stress of said resilient device 12 during the movement of said plate 29 by said blank-holder 10.

The lever operating means 35 may be of any suitable form, that shown comprising a cam 37 mounted on the crank-shaft 17 operating on a roller 39 on a rod 40 connected to said lever, as indicated at 41. The contour of the cam 37 acting through the lever 33 and abutment 31 effects the desired control of the increase in stress of the resilient device 12 due to the movement of the blank-holder 10 by the driven tool 15. After the resilient device 12 has been stressed by the initial movement of the blank-holder 10, the contour of the cam 37 may be such as to move the lever 33 in such manner that during the remaining part of the movement of the blank-holder on its working stroke, the abutment 31 may be moved at the same rate as the plate 27 is moved by said blank-holder.

45 designates a tool over which a blank is drawn, as the complementary tool 15 moves down gripping the margin of a blank between said tool 15 and the blank-holder 10, and by reason of the control of the increase of resistance of the resilient device 12 as described above, the pressure with which the margin of the blank is gripped during the drawing operation may be controlled. It

will generally be so controlled as to remain constant during the greater part of the drawing operation, though it may be decreased, or even increased, by the action of said means
5 30 for controlling the increase of stress of said resilient device 12. It will be understood, that if desired, and as is usual, the resilient device 12 may have an initial stress prior to the action thereon of the blank-
10 holder 10.

The operation of the device will be clearly understood from the foregoing description.

The invention may receive a variety of other embodiments than that herein specifically illustrated and described.
15

While the resilient device is essentially a cushion, and is commonly a rubber block, it will be understood that any other resiliently-yielding means may be substituted.

20 What is claimed is:

1. A drawing press comprising a revolving crank-shaft, a reciprocatory drawing tool driven therefrom, a stationary die having a blank-holding ring, a resilient cushion for
25 said ring, and means for varying the resilient stress thereof as the reciprocating tool descends, said means comprising a rotary cam connected to the crank-shaft and connections from said cam to said cushion.

30 2. A drawing press according to claim 1, said connections arranged to transmit the

cam-thrust from said cam to the abutment against which said cushion reacts.

3. A drawing press according to claim 1, said connections comprising a rod acted on
35 by the cam and a lever transmitting motion from said rod to the abutment against which said cushion reacts.

4. A drawing press comprising a driving shaft, a reciprocatory part carrying a drawing tool, a stationary die having a blank-holding ring, a resilient cushion for said ring, and means for varying the resilient stress thereof driven from said shaft independently of said reciprocatory part,
40 whereby it is unaffected by adjustments of said reciprocatory part.

5. A drawing press according to claim 4, the means for varying the resilient stress comprising connections from the driving
50 shaft to the abutment against which said cushion reacts.

6. A drawing press according to claim 4, the means for varying the resilient stress comprising a cam on the driving shaft, a rod
55 acted on by the cam, and a lever transmitting motion from said rod to the abutment against which said cushion reacts.

In witness whereof, I have hereunto signed my name.

OTTO S. BEYER.