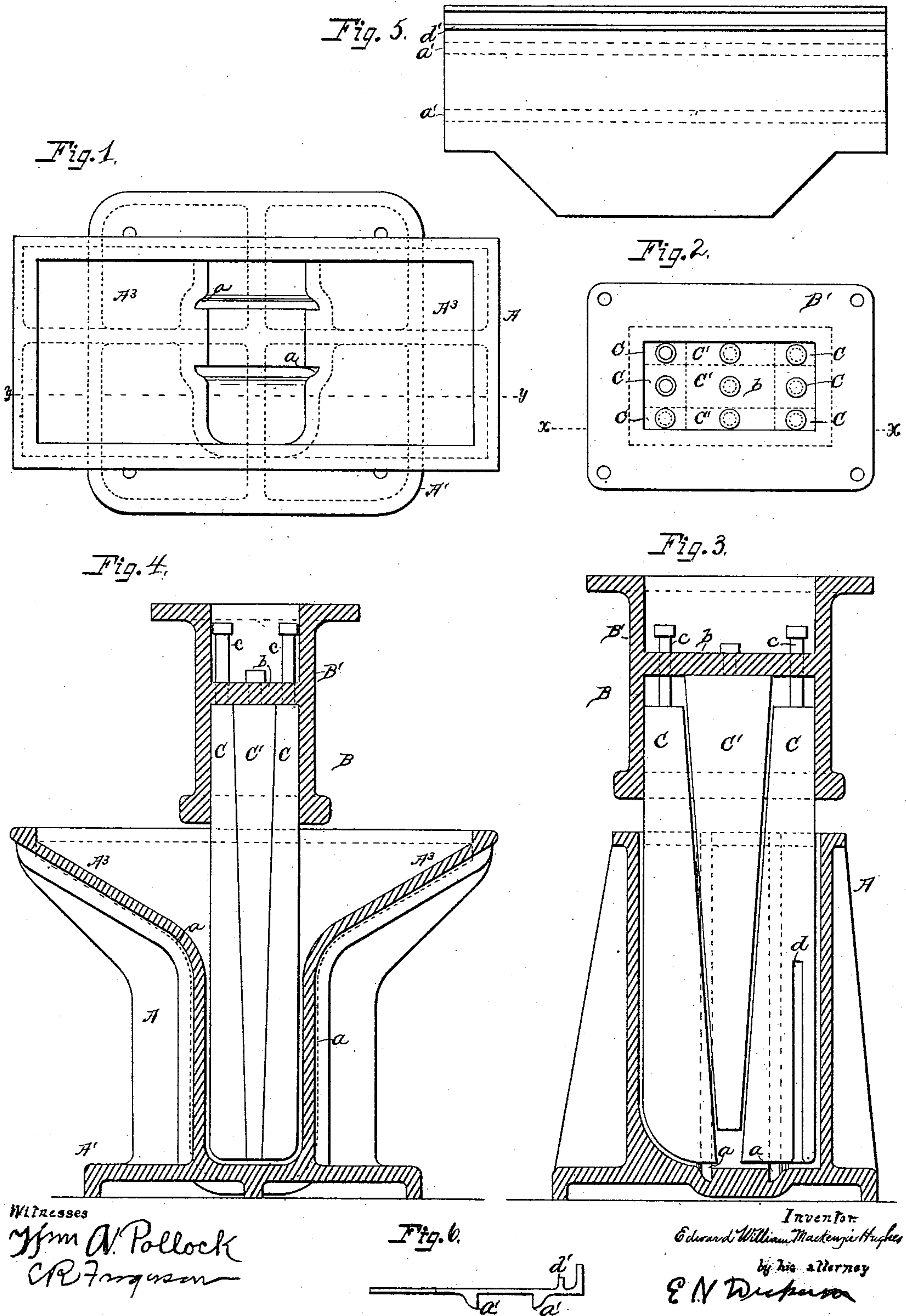


(No Model.)

E. W. M. HUGHES.
DIE FOR FORMING JOURNAL BOXES.

No. 451,052.

Patented Apr. 28, 1891.



UNITED STATES PATENT OFFICE.

EDWARD WILLIAM MACKENZIE-HUGHES, OF CHICAGO, ILLINOIS, ASSIGNOR
TO HIMSELF, AND EDWARD N. DICKERSON, OF NEW YORK, N. Y.

DIE FOR FORMING JOURNAL-BOXES.

SPECIFICATION forming part of Letters Patent No. 451,052, dated April 28, 1891.

Application filed January 30, 1891. Serial No. 379,615. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WILLIAM MACKENZIE-HUGHES, of Chicago, Cook county, State of Illinois, have invented a new and
5 useful Improvement in Automatic Contracting Dies for Forming Journal-Boxes, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

10 This invention relates to an improvement in dies for forming car-journal boxes from metal blanks; and it consists in the construction and novel combination of parts, as hereinafter set forth.

15 In the accompanying drawings, Figure 1 is a top or plan view of the lower or female die. Fig. 2 is a plan view of the upper or male die. Fig. 3 is a vertical section of the two dies on the line *x x* of Fig. 2. Fig. 4 is a vertical section on the line *y y* of Fig. 1 and at
20 right angles to Fig. 3. Fig. 5 is a plan view of a blank from which the box is formed, and Fig. 6 is an end view thereof.

Referring by letter to the drawings, A designates the lower or female die, having a
25 suitable base *A'*. This mold A is substantially rectangular in cross-section and has its upper end portions flared outwardly and upwardly, as at *A''*. The inner surface of
30 the portion below the flared portions corresponds in shape to the outer conformation of the article formed in the die, which in this case is a journal-box, and channels *a* extend
35 the die to receive the ribs *a'* on the blank. It may be here stated that the space between the upper inner ends of the flaring portions equals the length of the box-blank.

B represents the vertically-movable upper
40 or male die, consisting, essentially, of a box-like portion *B'*, having a cross-head *b* and suspended formers *C C'*, the outer ones *C* conforming outwardly to the interior of the journal-box. The outer formers *C* are de-
45 signed to remain stationary during a portion of the upward movement of the part *B'*. As a means thereto, the upper rods of the formers *C* are provided with shanks *c*, which pass loosely through holes in the cross-head *b*
50 and have heads at the upper end larger than the holes through the cross-head. The inner formers *C'* are rigidly attached to the cross-

head *b*, and, as shown, the inner formers are wedge-shaped longitudinally. The inner
surfaces of the formers *C* are inclined to con- 55
form to the wedge shape of the formers *C'*. Certain of the formers *C* are provided with a longitudinal channel *d* to accommodate a flange *d'* of the blank.

In operation the upper die is raised above 60
the lower die and the blank, preferably in a heated condition, is laid upon the upper ends of the inclines *A''*. The upper die is then forced downward by suitable means—such,
for instance, as hydraulic pressure—until 65
the blank is pressed into the female die, the formers being in the condition shown in Fig. 4. The male die is then drawn upward, and it will be seen by reference to Fig. 3 that the
formers *C* remain in their downward position 70
during a short upward movement of the part *B'* and the wedges *C'*. By the removal of the wedge *C'* the formers *C* are rendered free to move slightly inward away from the formed
box. When the part *B'* is raised sufficiently 75
high to engage the heads of the shank *c*, the formers *C* are moved upwardly.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a die, the combination, with the fe- 80
male die, of the movable upper die consisting of upper and lower portions, the upper portion having a movement independently of the lower portion, substantially as described.

2. In a die, the combination, with the lower 85
or female die, of the upper die consisting of a portion having a cross-head and depending formers, the said cross-head portion having a movement independent of certain of the depending portions, substantially as described. 90

3. The combination, with the lower die, of the upper die consisting of the portion having the depending wedge-shaped portion rigidly secured thereto and the outer depending portions or formers movably connected with 95
the upper portion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD WILLIAM MACKENZIE-HUGHES.

Witnesses:

H. COUTANT,
S. O. EDMONDS.