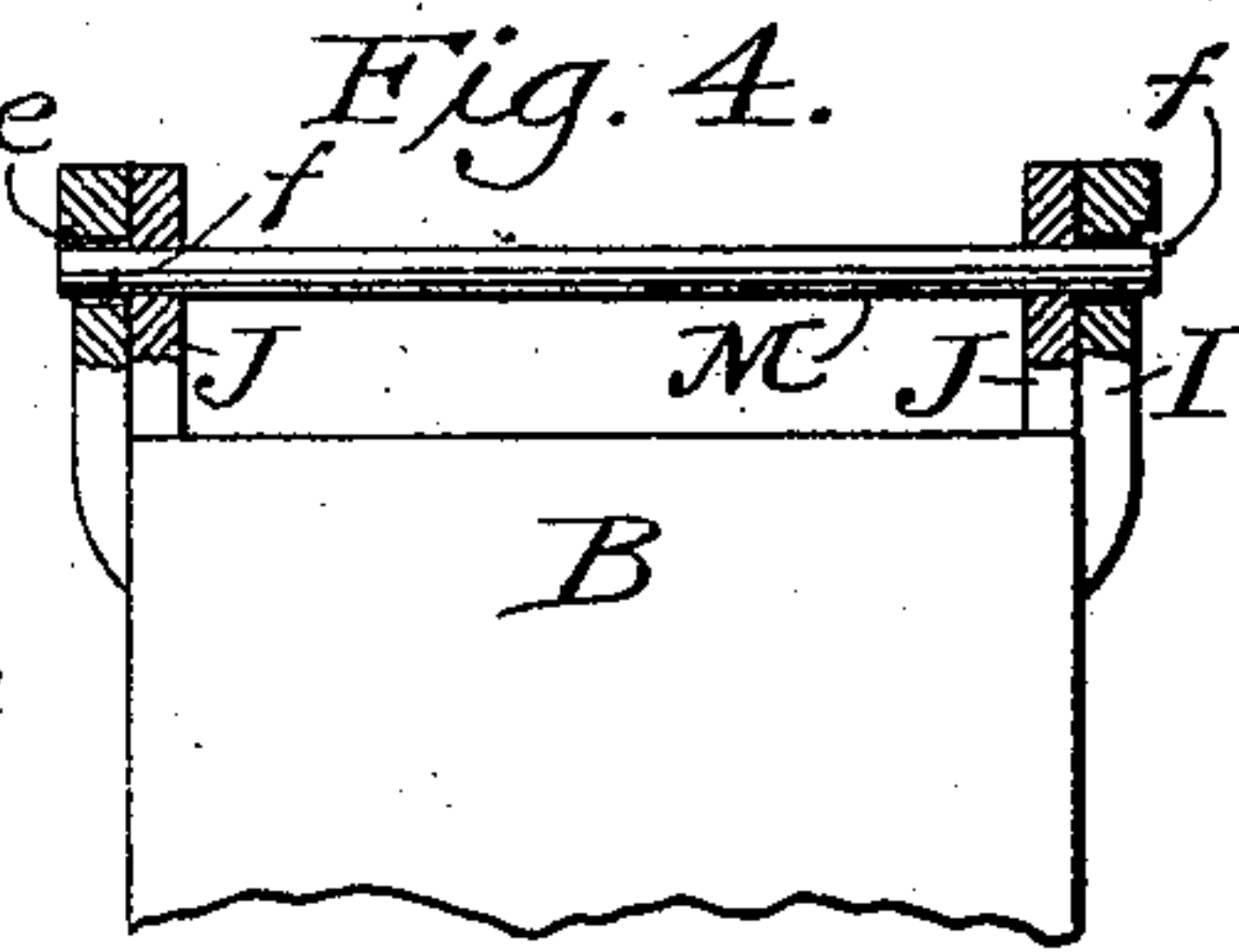
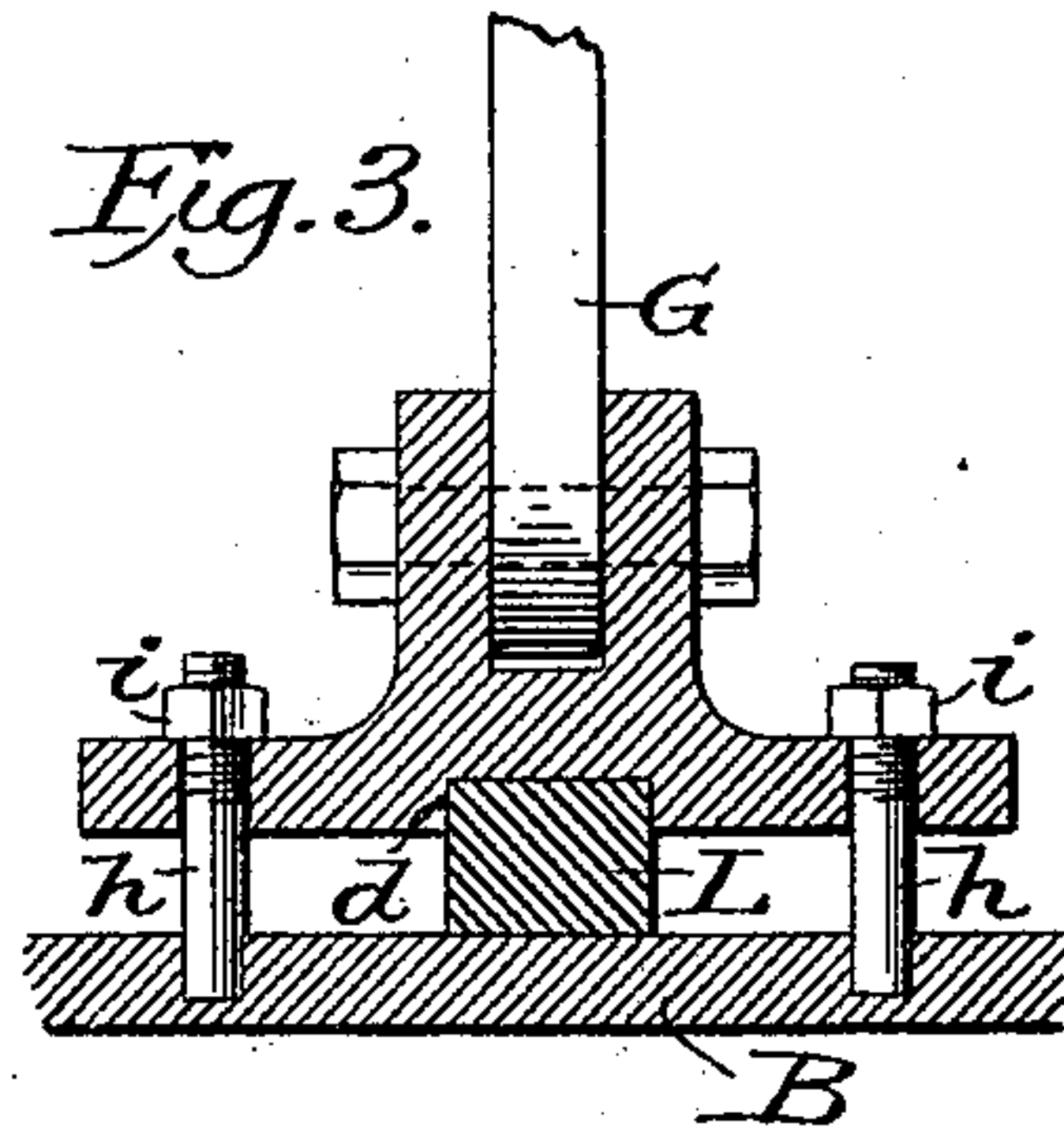
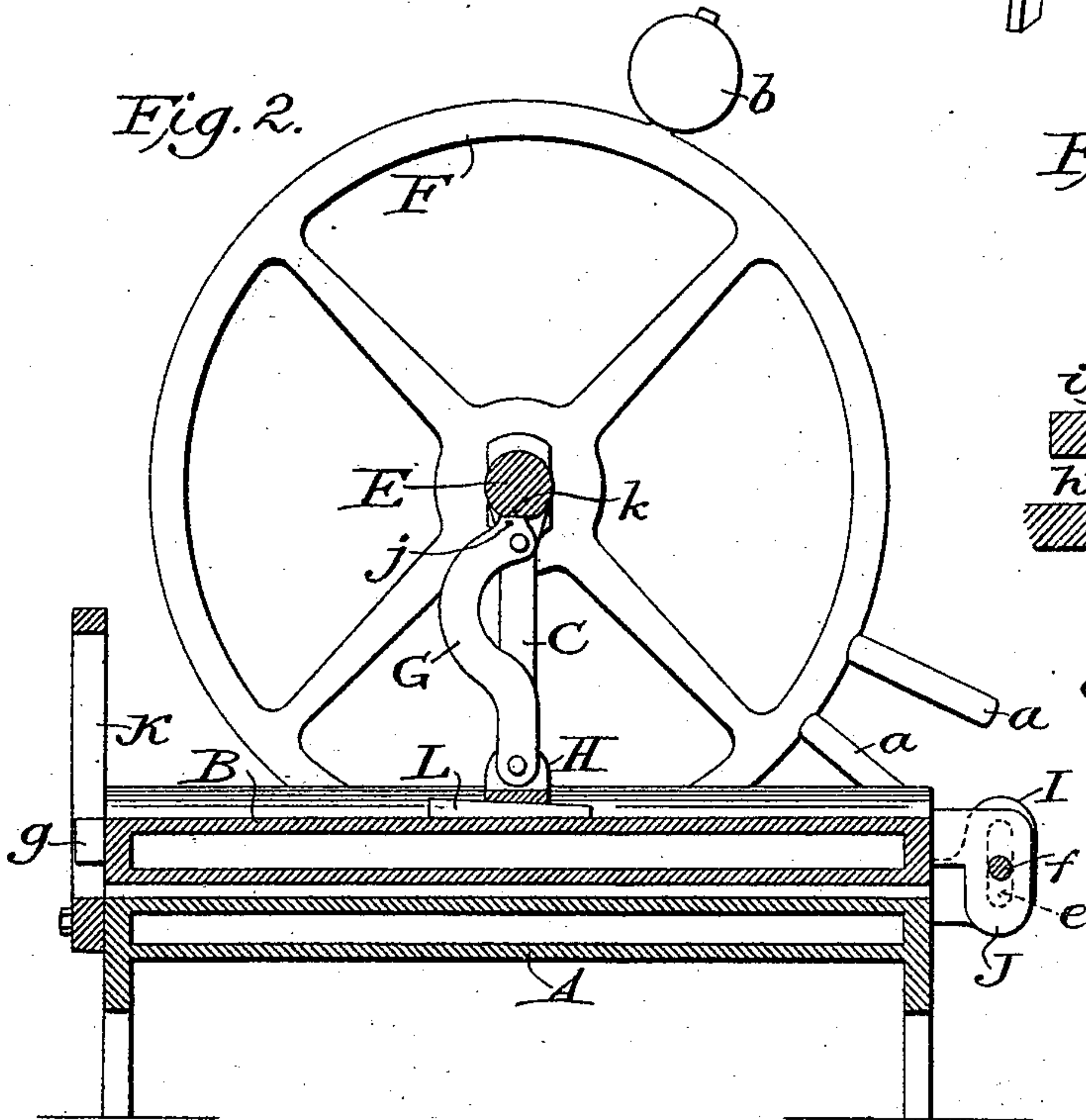
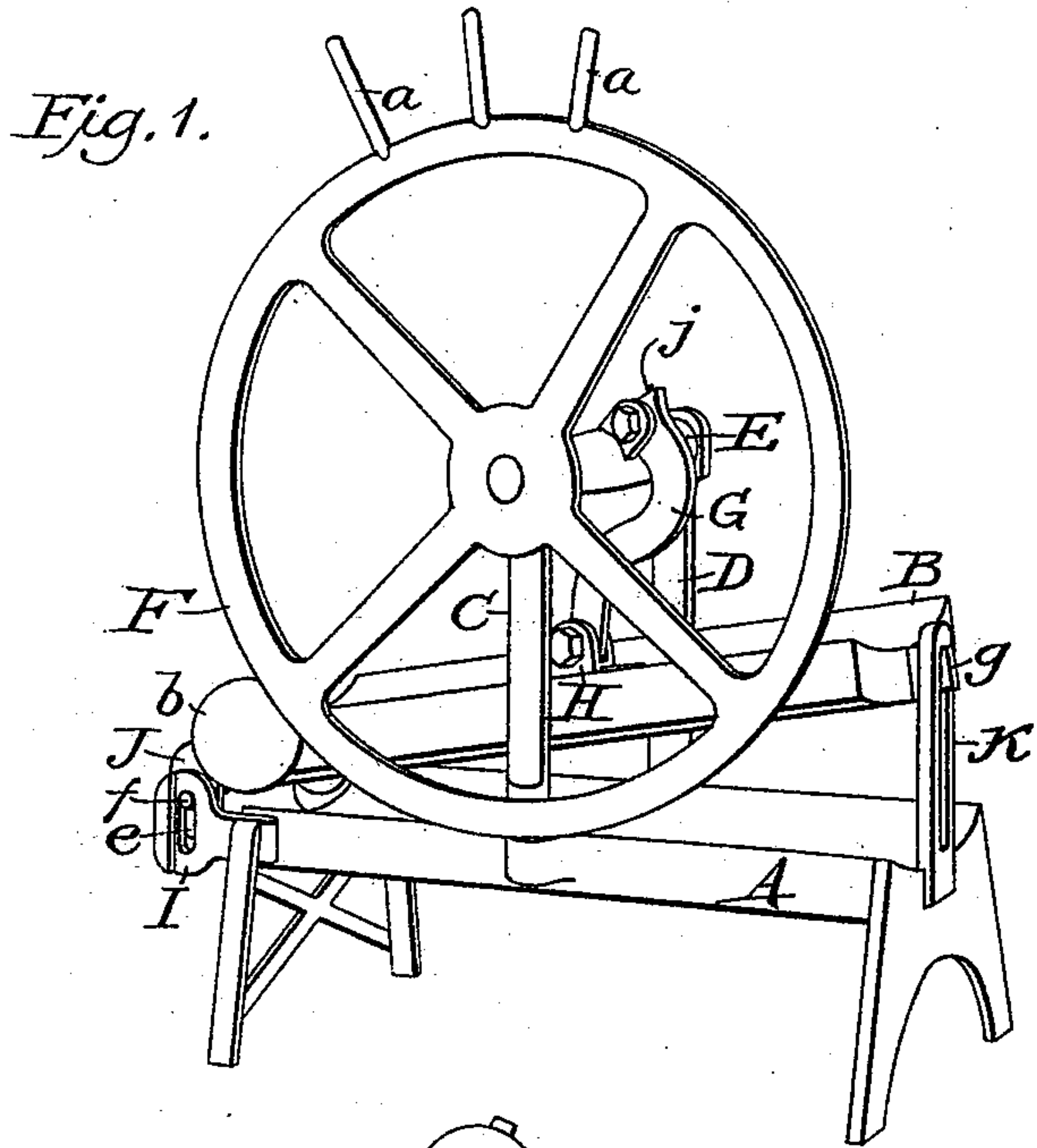


(No Model.)

S. SWARTZ.  
BENDING PRESS.

No. 500,974.

Patented July 4, 1893.



Witnesses:

James F. Dihamel.  
Horace A. Dodge.

SAMUEL SWARTZ,  
Inventor,

by Dodge & Lons,  
Attys.



# UNITED STATES PATENT OFFICE.

SAMUEL SWARTZ, OF DETROIT, MICHIGAN.

## BENDING-PRESS.

SPECIFICATION forming part of Letters Patent No. 500,974, dated July 4, 1893.

Application filed February 8, 1893. Serial No. 461,483. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL SWARTZ, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Bending-Presses, of which the following is a specification.

My invention relates to bending presses, and more particularly to that class designed to bend material into curved form, such as chair backs and the like; and as shown in my former Patent No. 351,815, dated November 2, 1886.

In the drawings,—Figure 1 is a perspective view of my improved press, open and ready for the insertion of the material to be bent; Fig. 2, a longitudinal vertical sectional view of the press when closed; Fig. 3, a sectional view showing the means for adjusting the press; and Fig. 4, a top plan view, partly in section, of the rear portion of the press.

A indicates the lower die or bed of the press, mounted upon suitable supports, and having its face planed to any desired curve; and B indicates the upper former or die, whose under face is shaped to conform to the curvature of the bed, die, or former A. As will be seen upon reference to Fig. 2, both the bed and the die are hollow, and are so formed that they may be connected with a steam supply to heat them, but as these connections form no part of my present invention, they are not shown in the drawings.

Formed on, or secured to, the sides of the bed A, are two uprights C, D, in the upper ends of which is journaled a cross shaft E, said shaft having secured to it at one end, outside of the upright C, a wheel F. This wheel is provided with handles *a, a*, and also with a counter-weight *b*, which serves to balance the die B with which it is indirectly connected. This connection is effected by means of a link G, pivoted or hinged to the cross-shaft E at its upper end, and likewise connected at its lower end to the die B through the bifurcated lug or bracket H. The upper end of the link, as will be seen upon reference to Figs. 1 and 2, is formed with a flat face or end *j* adapted, when the press is closed and the article therein is under pressure, to bear against a corresponding flat face *k* formed upon the cross-shaft E, or the lug to which the link is pivoted. When the faces are in contact, as they are

when the press is closed, and the link consequently in vertical position, they form a lock which will keep the press closed against the pressure which is exerted by the material under strain. The under face of the bracket H, I provide with a recess or slot *d*, which forms a seat for a wedge or block L, and it is through the medium of this wedge that I effect the adjustment of the press. The bracket is adjustably secured to the upper die of the press by the bolts *h, h*, which extend up through the arms of said bracket, and upon which the bracket is free to move except when held down upon the wedge by the nuts *i, i*. By slackening these nuts and moving the wedge either forward or backward in the slot *d*, and then screwing the nuts down on the bracket, the bracket will be adjusted and the limit of movement of the upper die will be correspondingly increased or diminished. By this arrangement I am enabled to secure a nicety of adjustment, the usual range being from one quarter to one inch. Extending rearwardly from the bed are two arms I, I, provided with vertical slots *e, e*, the distance between the inner faces of said arms being substantially equal to the width of the die B. The die B is also provided with two rearwardly and downwardly extending arms J, J, the outer faces of which are intended to bear against the inner faces of the arms I, I. A rod M is passed through arms J, J, the ends *f, f* of said rod being adapted to enter the slots *e, e*, thus forming a hinge for the die B, and which will also allow an up-and-down movement of the die equal to the depth of the curve in the bed, and sufficient space to allow of placing lumber to be bent across the curve. At the forward end of the bed is a slotted upright K, while formed on the die B is a flattened lug or projection *g*, adapted to work in the slotted upright and limit the upward movement of the die, and prevent any oscillation of the latter as would be liable to occur with the use of the peculiar hinge-joint alone.

Having thus described my invention, what I claim is—

1. In a bending press, the combination of the upper and lower dies,—the lower die provided with rearwardly-projecting vertically-slotted arms, and a closed slotted guide at its forward end;—and the upper die provided



with a hinge-rod at its rear fixed in relation to the said die, and a lug or projection at its forward end; to engage respectively the slots and the guide.

5 2. In a bending press, the combination with the lower die or bed; of the upper die; a rock-shaft mounted upon the bed; a link connected to the rock-shaft; a bracket connected to the link and the upper die and adjustable verti-  
10 cally in relation to the latter; and a wedge interposed between the bracket and the upper die.

15 3. In a bending press, the combination with the upper and lower dies; a rockshaft mounted upon the bed; a link connected to the rock-shaft; a bifurcated bracket secured to the link, and provided with a recess in its under face; bolts extending upward from the upper face

of the upper die and passing through the wings of the bracket; and a wedge interposed be- 20  
tween the bracket and the upper die.

4. In a bending press, the combination of the upper and lower dies, a rockshaft mounted upon the bed and provided with a flat face, a bracket mounted on the upper die and ad- 25  
justable vertically in relation thereto, a link hinged to the bracket and the cross-shaft; said link being provided with a flat face at its upper end adapted to bear against the flat face on the rockshaft when the press is closed. 30

In witness whereof I hereunto set my hand in the presence of two witnesses.

SAMUEL SWARTZ.

Witnesses:

E. S. WHEELER,

E. K. ROEMER.