

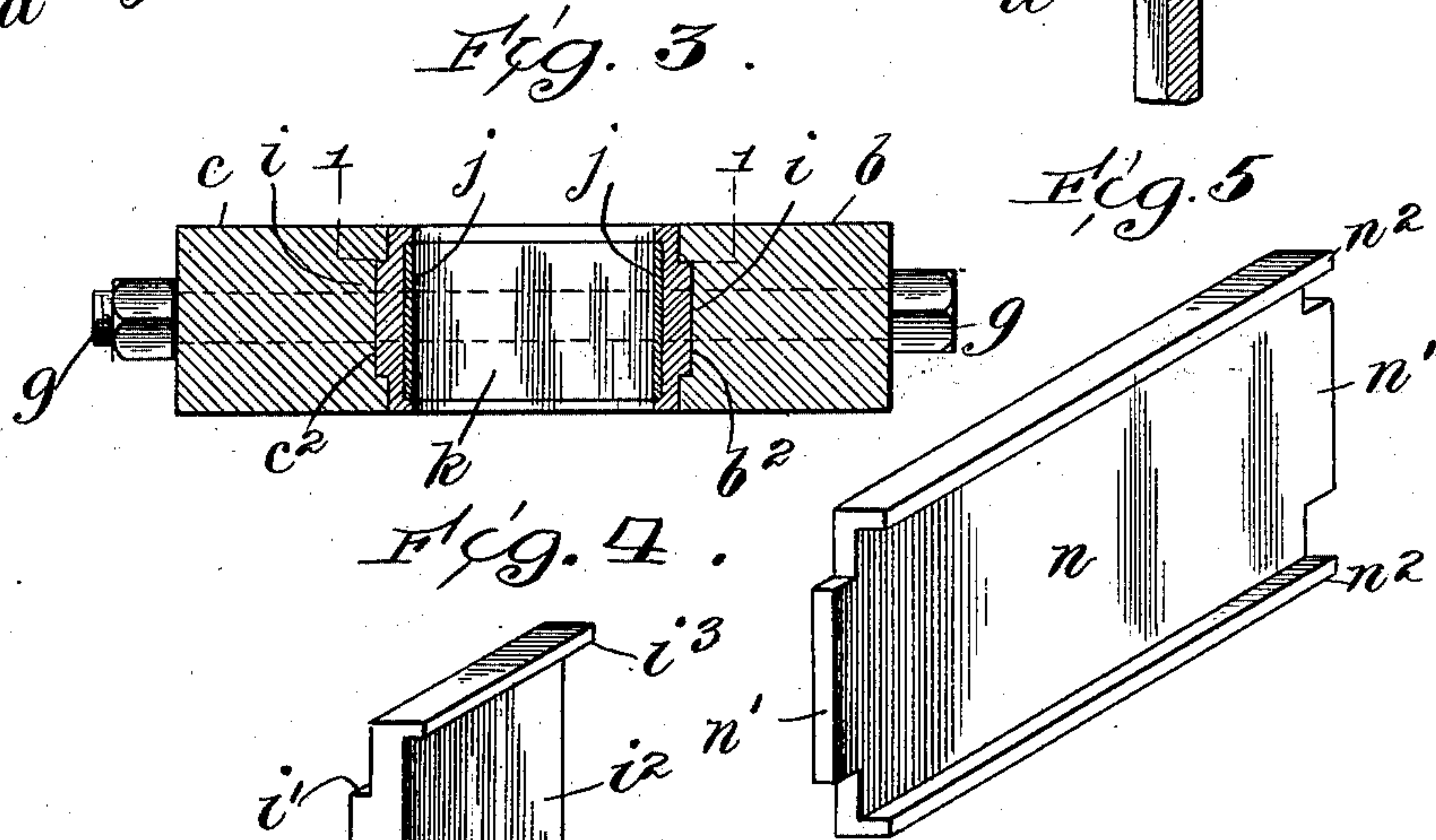
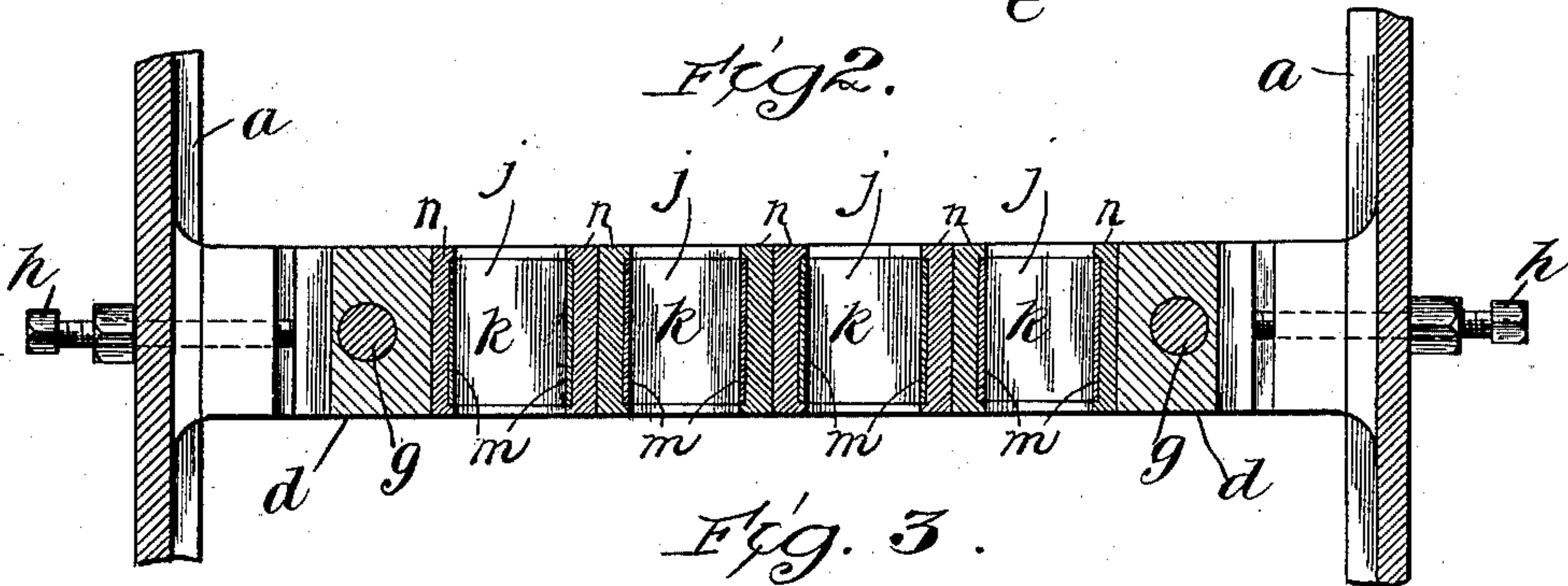
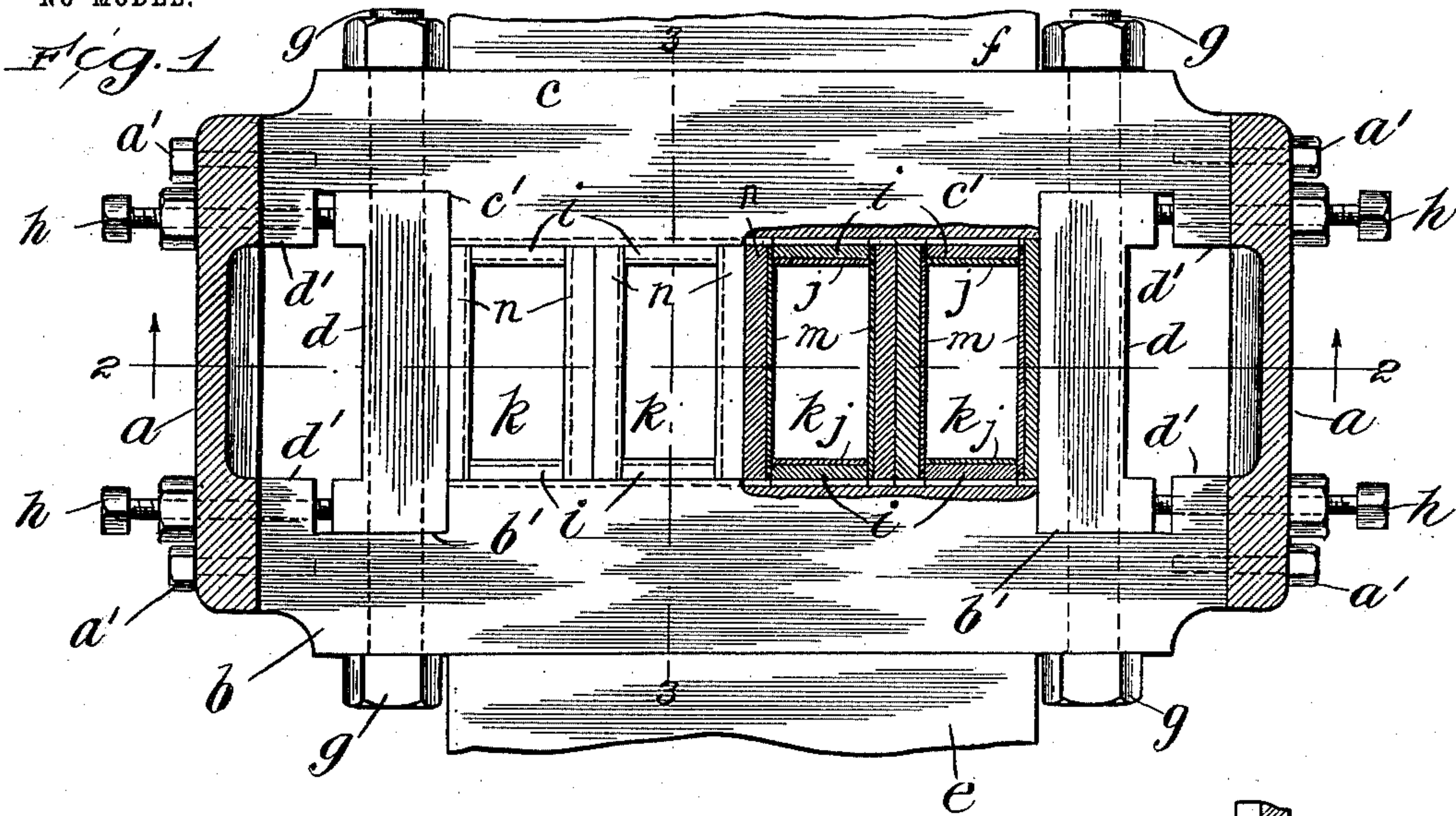
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H. J. FLOOD.
MOLD FOR BRICK MACHINES.

APPLICATION FILED SEPT. 3, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

HARRY J. FLOOD, OF CHICAGO, ILLINOIS.

MOLD FOR BRICK-MACHINES.

SPECIFICATION forming part of Letters Patent No. 749,781, dated January 19, 1904.

Application filed September 3, 1903. Serial No. 171,803. (No model.)

To all whom it may concern:

Be it known that I, HARRY J. FLOOD, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Molds for Brick-Machines, of which the following is a specification.

My invention relates to molds for brick-machines and similar machines for compressing material into form, and is especially applicable to machines having the general type of molds and mold-table illustrated in a former patent issued to me April 14, 1903, Patent No. 725,619. It is well known by those skilled in the art to which this class of machines belongs that the metal immediately surrounding the mold-cavity is subject to great wear due to the abrasion of the material within the mold during compression. Such abrasion is under all ordinary circumstances serious; but when operating upon certain classes of material—such, for example, as highly-silicious clays from which so-called “sand” brick are produced—the abrasion is so great as to almost preclude the use of this type of machine. For example, it frequently happens that when producing sand brick the mold-liners of the type ordinarily heretofore employed become so worn at the end of a two days run that they are unfit for use. With the old form of mold-liners this rapidity of wear presented a serious problem, for the reason that on account of the high price of steel of the grade requisite for the liners and on account of the difficulty in performing machine-work upon steel having such a high degree of hardness the cost of mold-liners when renewed thus often was prohibitive. An important object of my present invention is to provide a mold and mold-liners of such construction that the portions immediately surrounding the mold-cavities may be readily removed and new lining-plates substituted with a minimum expenditure of labor and material.

Another important consideration arises when it is proposed to send repairs to a machine at a distance. Usually at a brick-yard where such machines are operated there are few facilities for properly tempering such liners as might be sent from the manufactory

in an untempered condition and few facilities for reshaping and fitting such liners as might be sent from the manufactory in a tempered and hardened condition. Hence great annoyance is frequently experienced in fitting new mold-liners into old machines located at a distance. It is one of the objects of the present invention to eliminate this difficulty and render it possible to employ a lining-plate of standard dimensions and rectilinear prismatic form which may be accurately gaged and be therefore interchangeable.

On account of the various requirements of the trade it is necessary to provide means whereby the mold-cavities may be adjusted to different dimensions without necessitating a change in the size or proportion of the permanent parts of the machine which surround the mold-liners; and it is another one of my objects in the present invention to provide means whereby the parts surrounding the mold-cavities may be readily disassembled for the introduction of other mold-liners and subsequently rigidly held in position, so as to avoid danger of the parts becoming disarranged under pressure.

Still another object of my invention is to provide means whereby the size of the mold-cavity may be maintained practically constant to thereby avoid so-called “fins” or rough corners upon the finished bricks.

Referring now to the drawings which form part of this specification and illustrate an embodiment of the invention whereby these objects are obtained, Figure 1 is a plan view showing the molds and surrounding parts of the machine. A portion of this figure is in section taken on the broken line 1 1, Fig. 3. Fig. 2 is a sectional view taken on the line 2 2, Fig. 1. Fig. 3 is a sectional view taken on the line 3 3, Fig. 1; and Figs. 4 and 5 are perspective views of pieces which I shall designate as “soft backs.”

Similar letters refer to similar parts throughout the several views.

The component parts of the mold are supported on the main frame-pieces *a a*. The front cross-block *b* and back cross-block *c* are substantially symmetrical in form and are provided with the recesses *b' b'* and *c' c'*, re-

spectively, for receiving the extremity of the end blocks d . Said cross-blocks b and c are of massive proportions to afford great rigidity and strength and extend across the machine.

5 At their ends said cross-blocks have the extensions d' , which form part of the recesses b' and c' and are adapted to receive the set-screws h , hereinafter mentioned. Said recesses do not closely fit said end blocks d , but
10 permit an adjustment of the same in a transverse direction. The side frames a are apertured to loosely receive the cap-screws a' , so as to support said cross-blocks and at the same time permit the adjustment thereof.

15 The front apron e and back apron f are bolted to the front and back cross-blocks b and c , respectively. Said cross-blocks are drawn firmly to a bearing upon the said end blocks in a front and rear direction by means
20 of heavy bolts g , which fit loosely in said cross-blocks. By preference said bolts pass through the end blocks d , which are suitably recessed to loosely receive said bolts. In the transverse direction said end blocks are forced
25 inwardly toward the center of the machine by means of the set-screws h . The frame-pieces a are apertured to loosely receive said set-screws, and the heads of said set-screws lie upon the outside of said frame-pieces, there-
30 by permitting the adjustment of the mold parts from the exterior of the machine. Said cross-blocks b and c are suitably drilled and tapped at the recesses b' and c' for receiving said set-screws, while the side frames are ap-
35 ertured in such a manner as to receive said set-screws loosely. As there are two set-screws h for each block d , the extremities of the latter are separately adjustable, and the tightening of said set-screws forces said end blocks
40 onto the mold-inclosing parts to firmly hold the same together.

The inner surfaces of the cross-blocks b and c are not plane surfaces, but have recesses b^2 and c^2 , respectively, running longitudinally in
45 said blocks. Said recesses b^2 and c^2 are designed to receive the corresponding projections i' of the soft backs i , and thereby prevent vertical movement of said backs. The upper edge of said soft backs is flush with
50 the top of the blocks b and c , and by preference the lower edge of said backs is flush with the bottom of said blocks. The inner surfaces of said soft backs have the recesses i^2 for receiving the hardened mold liner-plates
55 j , and said liner-plates are prevented from vertical movement by means of the flanges i^3 , formed at the upper and lower extremities of said soft backs i . The projections i' , recesses i^2 , and flanges i^3 are the full width of
60 the soft backs i and of the mold-cavities k , of which said backs and liners are intended to form the front and rear walls. The side walls of the mold-cavities k are formed by the side liner-plates m , which fit within the
65 soft backs or partition-plates n . Said soft

backs n have at their extremities the projec-
tions n' , adapted to fit within the recesses b^2 and c^2 in the cross-blocks b and c , respec-
tively. At the top and bottom said soft backs
 n are provided with the flanges n^2 , which
70 project inwardly toward the mold-cavity and serve to prevent vertical movement of the liners m .

Both the side and end liner-plates m and j , respectively, are constructed of hardened and
75 tempered steel ground to size, while the backs n and i are constructed of comparatively soft metal, such as machine-steel or other suitable metal. The side and end liner-plates are made to a standard of thickness, so that it is not
80 necessary for the manufacturer or user to carry but one thickness for any given style of machine. The length of the side liner-plates m will also remain the same for practically all
85 widths of mold and for molds having a considerable variation in length.

In operation when a set of liner-plates be-
comes worn they may be removed by unscrew-
ing the bolts g and set-screws h sufficiently
to loosen up the cross-blocks b and c and end
90 blocks d . If the end liner-plates are not too badly worn, it is sufficient merely to place a thin shim between them and their respective soft backs, when the parts may be replaced
as before. Inasmuch as the liner-plates are
95 composed of an extremely hard steel, the rate of wear is slight and it is frequently necessary to employ merely one or two sheets of paper as shims to bring the liner-plate out to its
proper position. The shims employed for this
100 purpose are held in place vertically by means of the flanges i^3 of the soft backs i .

My invention provides ready means for holding thin liner-plates in position, and it
has been found by experiment that one-quar-
105 ter of one inch is sufficient thickness for said liner-plates, with the advantageous result of small loss of this high-grade steel when the plates are worn out, and, further, there is a saving in connection with transportation.
110 When a somewhat different size of brick is wanted, the mold-cavity may be varied by varying the size of the soft backs i and n . These backs being comparatively soft may be
115 easily shaped by machine or, if necessary, by hand at the place where the brick-press is located.

The parts are so constructed that the end soft backs i and end liners j extend between
and are held at the ends by the side liners m
120 and side soft backs n . As both the end and side soft backs i and n , respectively, are engaged within the recesses b^2 and c^2 in the cross-blocks b and c , said backs and their liner-plates may be shifted lengthwise of said cross-
125 blocks. Consequently when the bolts g and set-screws h are screwed tight the parts will be securely held in position, and the side liners m , which receive the greatest amount
of pressure during the formation of a brick
130

will be positively end-locked by the end soft backs *i* and liners *j*, thus avoiding any possible danger of accidental displacement.

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

1. A mold composed of cross-blocks as *b* and *c*; end blocks as *d* whose extremities are separately adjustable; side liner-plates; end liner-plates, one set of liner-plates abutting at their extremities against the other set of liner-plates; metallic soft backs interposed between said blocks and said liner-plates, said soft backs having flanges top and bottom flush with the inner surface of the liner-plates for preventing the vertical movement thereof; and a mortise connection between said soft backs and said cross-blocks.

2. A mold composed of end blocks; cross-blocks having recesses extending longitudinally therein; means for drawing said cross and end blocks together; metallic soft backs extending from one cross-block to the other and having projections for entering the recesses in said cross-blocks, said soft backs

having recesses in the faces thereof; side liner-plates fitting in the recesses in said soft backs; and means at the ends of the mold for locking said liner-plates in position.

3. A mold composed of side liner-plates; end liner-plates; metallic soft backs recessed to receive said side liner-plates; other metallic soft backs recessed to receive said end liner-plates, the inner face of all of said liner-plates being flush with the inner surface of said soft backs; cross-blocks, as *b* and *c*; recesses in said cross-blocks; projections on the adjacent soft backs for engagement in said recesses; and end blocks as *d*, the extremities whereof are separately adjustable, said end liners extending between said side liners whereby the mold-inclosing parts are firmly locked in position when said cross and end blocks are drawn together.

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Witnesses:

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