

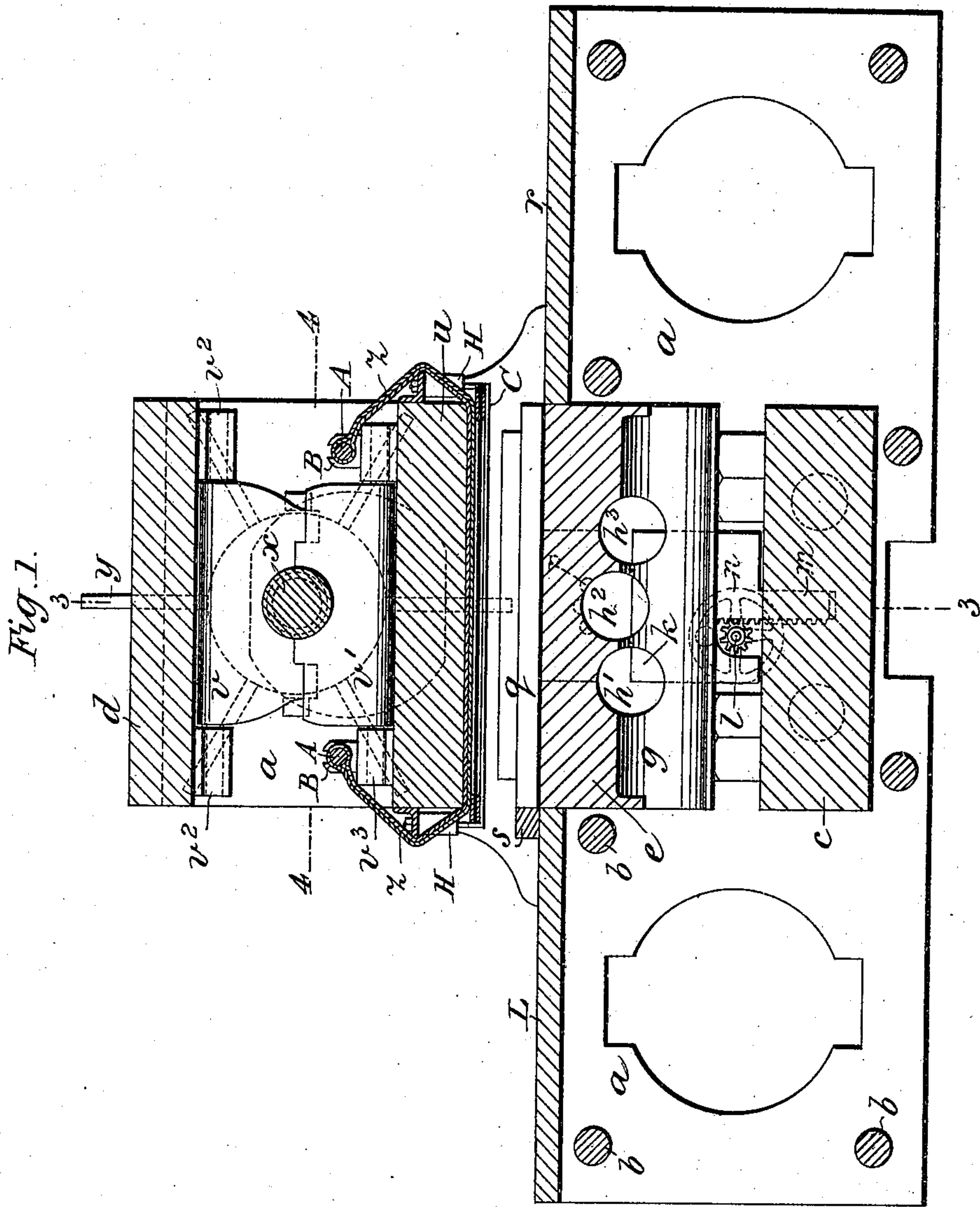
(No Model.)

3 Sheets—Sheet 1

G. EASTWOOD.
STEREOTYPING.

No. 503,950.

Patented Aug. 29, 1893.



WITNESSES:

Fred White
L. K. Fraser.

INVENTOR:

George Eastwood,
By his Attorneys:
Arthur C. Fraser & Co.

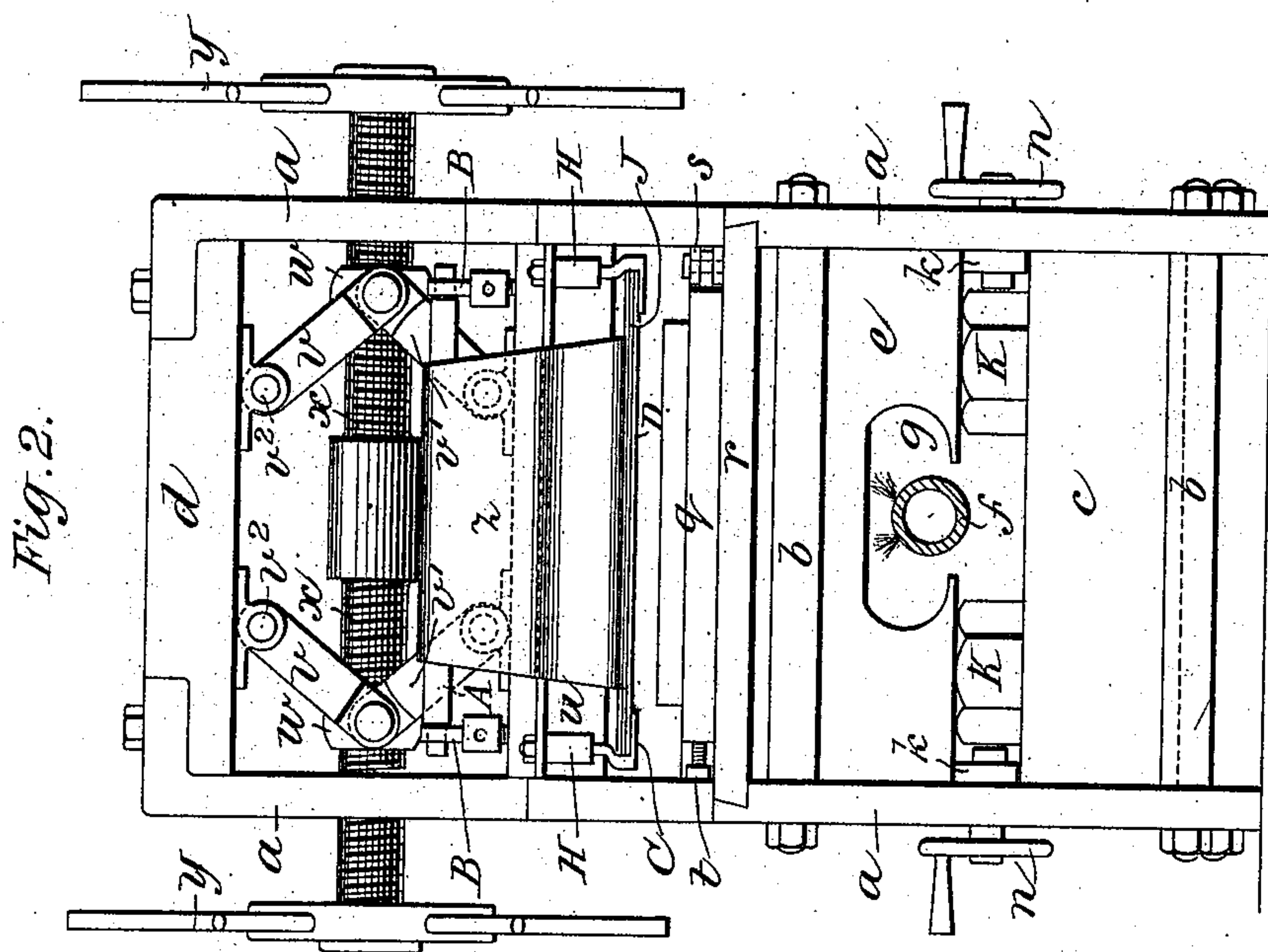
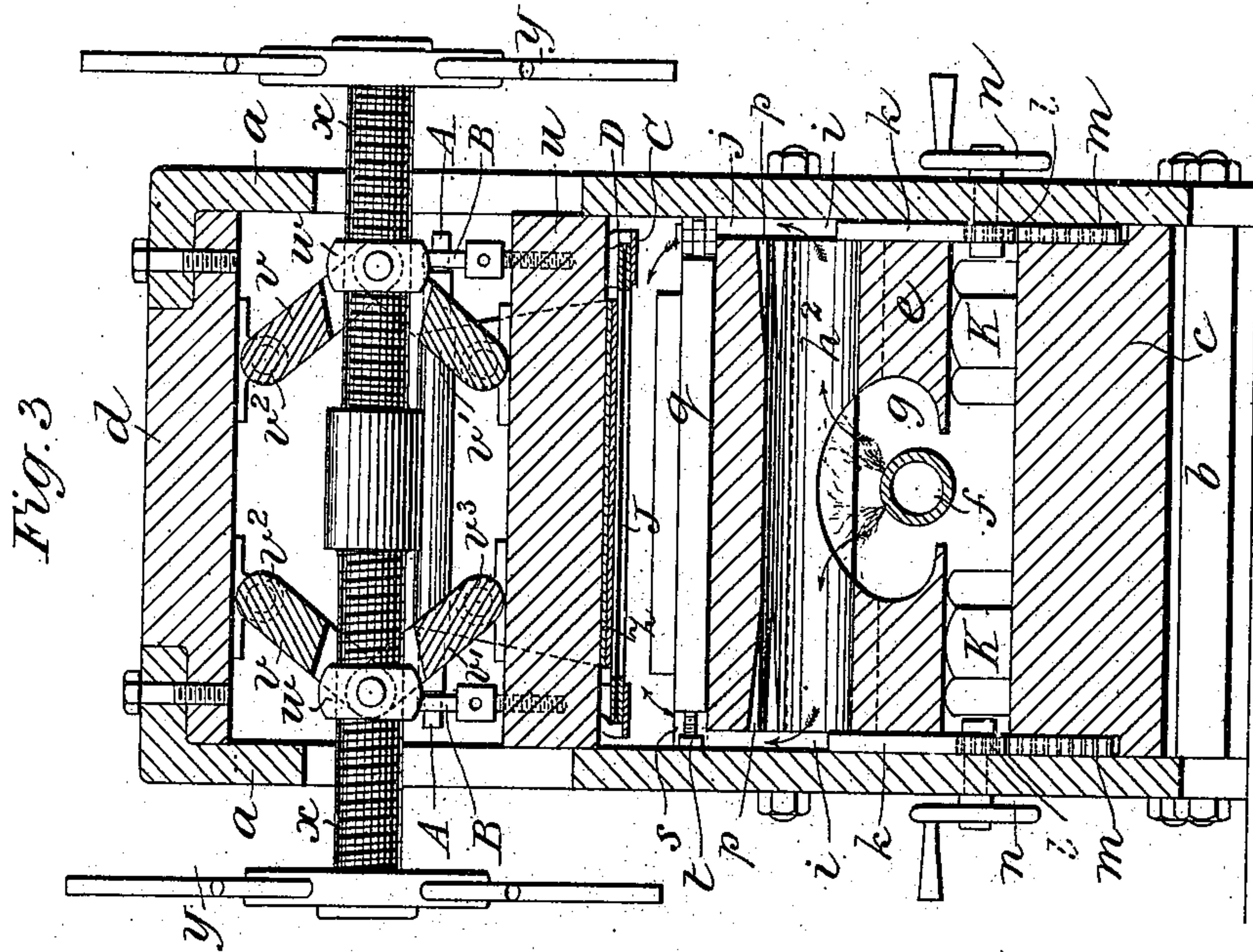
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3 Sheets—Sheet 2

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3 Sheets—Sheet 3.

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Fig. 4.

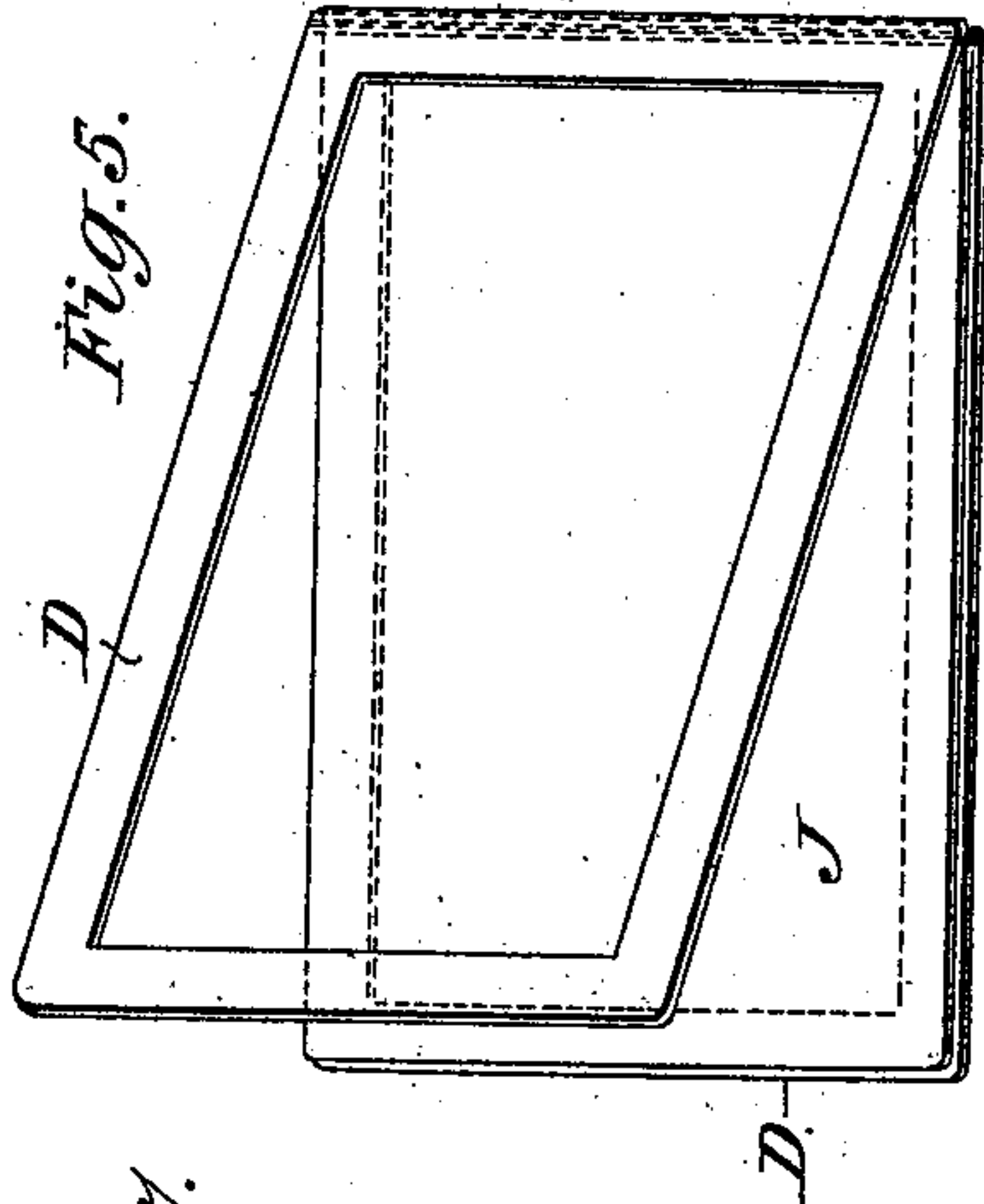
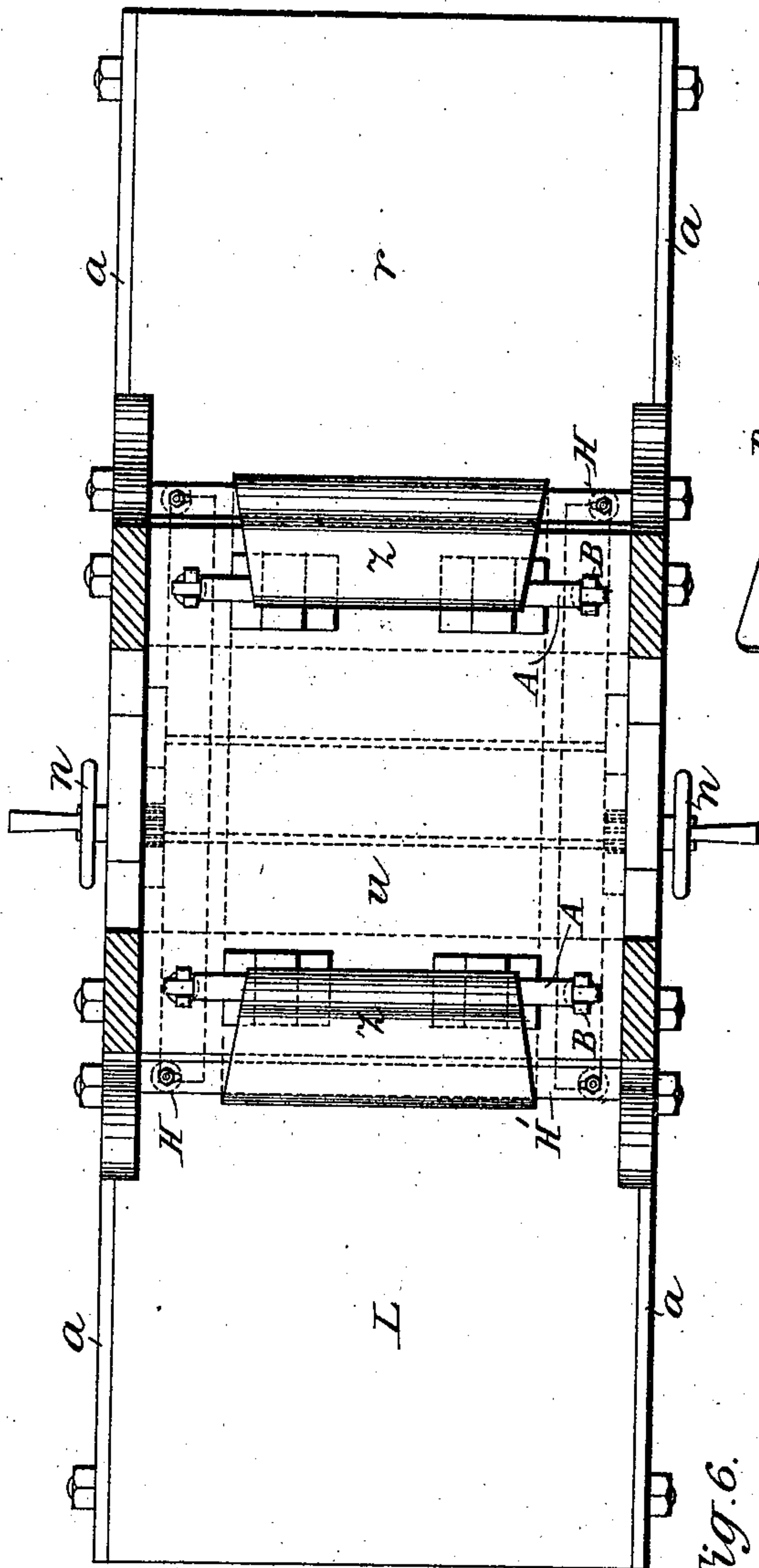


Fig. 7.

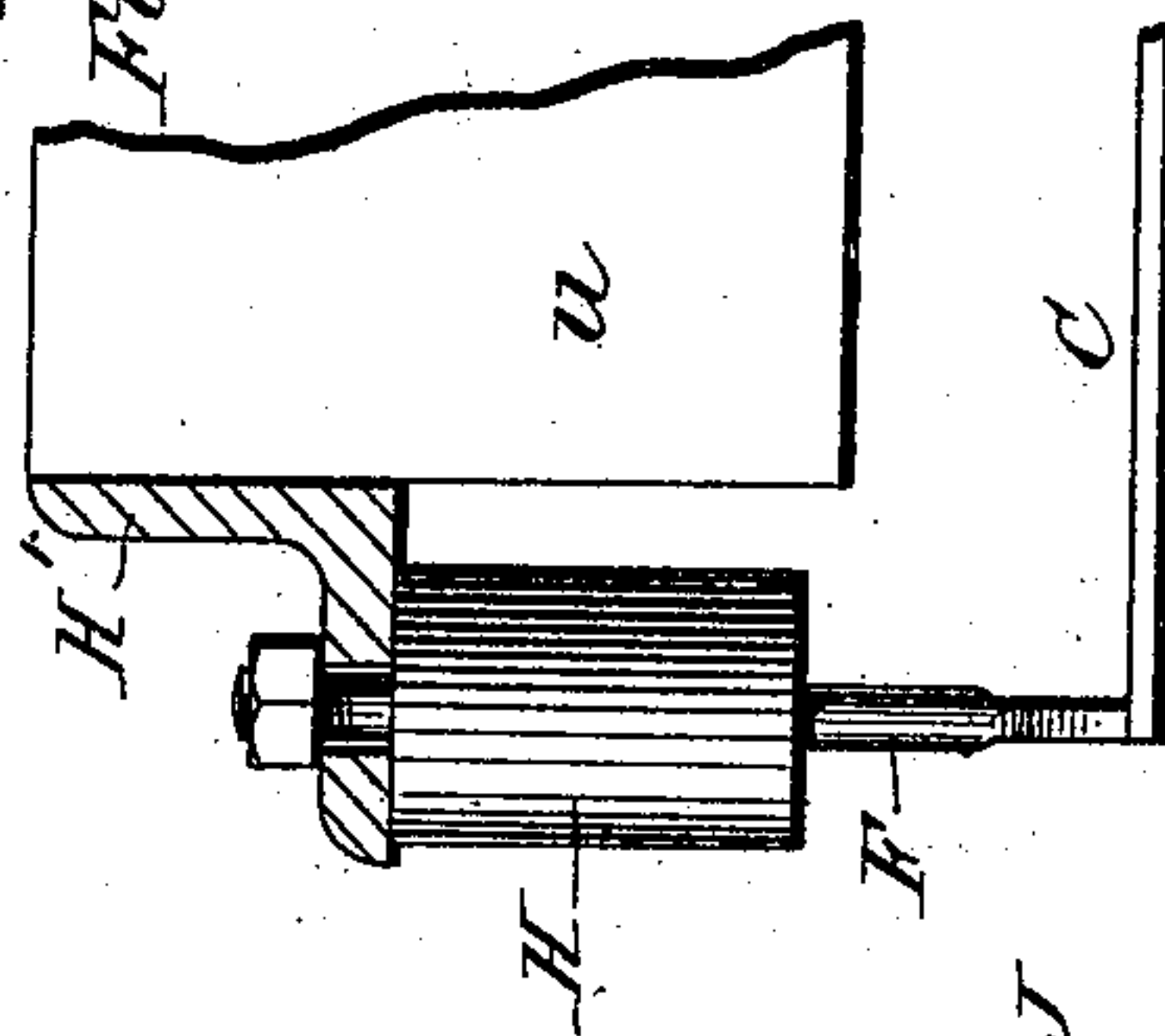
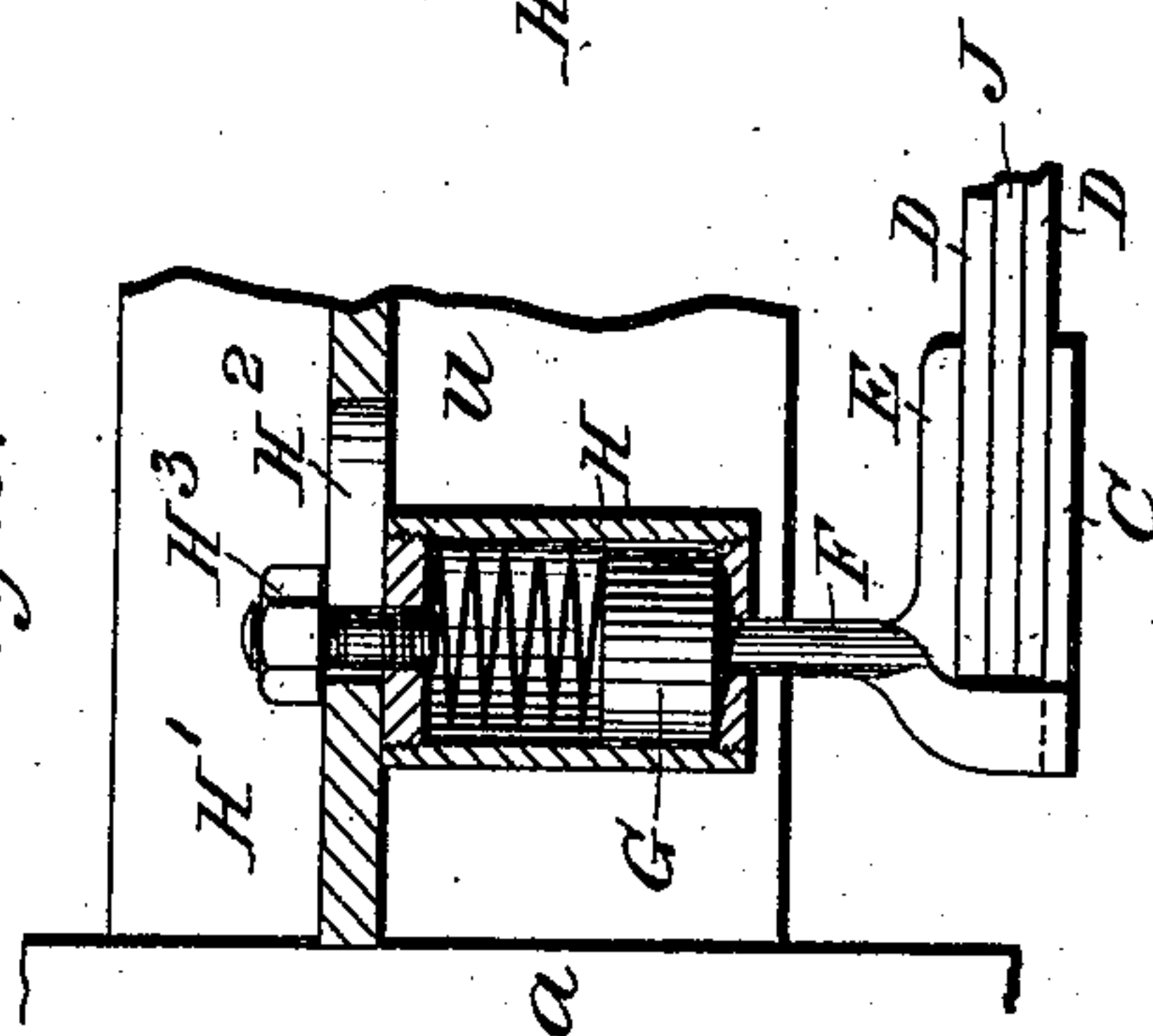


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE EASTWOOD, OF NORWICH, ENGLAND.

STEREOTYPING.

SPECIFICATION forming part of Letters Patent No. 503,950, dated August 29, 1893.

Application filed March 1, 1893. Serial No. 464,190. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EASTWOOD, of Norwich, England, have invented certain new and useful Improvements in Stereotyping, of which the following is a specification.

The object of my invention is to improve the process or art of producing matrices or molds for stereotyping and more particularly to dispense with the present unsatisfactory methods of and appliances for beating the type with brushes or rolling or mangling it in order to obtain an impression upon the flong; to avoid handling the flong or matrix when in a moist condition, and to avoid heating the type in order to dry the matrix.

By means of my invention hereinafter described I save time, (which is a very important point,) prevent contraction of the matrix and produce almost simultaneously a solid even impression or matrix by means of one machine, whereas the processes or methods hitherto followed for the production and drying of matrices have required two and in some cases three separate machines or appliances.

According to my invention I partially dry the flong before the impression of the type is taken whereby superfluous moisture is driven out and the adhesive and other substances of which the flong is composed are consolidated, and I take the impression while the flong is hot and is in the act of consolidating. I effect the impression by means of a platen which presses the flong upon the type or form when this is in position upon a type bed, and I so connect the flong with the platen that when the platen rises after the impression the flong, or the matrix as it has now become, is automatically lifted from the form, all handling of same being thus avoided. I effect the drying of the matrix while suspended or held between the platen and the type bed, which latter according to my invention constitutes the top of a heating chamber.

My invention includes a special construction of apparatus as hereinafter described and shown in the drawings, whereby the above described stages or steps in the production and drying of a matrix can be carried out.

In the accompanying drawings:—Figure 1 is a central longitudinal section of an apparatus constructed according to my invention. Fig. 2 is an end elevation of the apparatus.

Fig. 3 is a section of the apparatus on line 3—3 of Fig. 1 looking toward the left. Fig. 4 is a plan partly in section on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of the rectangular frame which carries the flong, the flong being seen in the frame which is shown partly opened. Figs. 6 and 7 are fragmentary views on a larger scale showing in end view and side view respectively the connection of one of the guides or slideways *c* with the platen, the piston box *h* being in section in Fig. 6.

Referring to the drawings, *a a* are side frames connected together by transverse bars or stays *b b*, a block or bed *c* and a head *d*.

Above the block or bed *c* is a heating chamber *e* the top or upper surface of which constitutes the type bed. This chamber can be heated in any suitable manner. In the particular apparatus shown in the drawings it is heated by means of gas the burners of which are seen at *f* placed in a longitudinal opening *g* at the bottom of the chamber *e*. The burners *f* are not shown in Fig. 1.

In the chamber *e* are three transverse flues *h' h² h³* (the number of which is however arbitrary) which communicate at their ends with vertical passages *i i* leading to openings *j j* in the tops of the sides of the heating chamber. The ends of the flues *h' h² h³* can be more or less closed as required in order to regulate the outflow of heated air therefrom by means of slides or shutters *k k* which can be moved up or down by means of pinions *l l* gearing with racks *m m* on the slides, the said pinions being operated by hand wheels *n n* mounted on the pinion spindles.

In order to prevent the entire closing of all the flues the central flue *h²* which is shown at a higher level than the others has small supplementary horizontal ways *p p* at the upper part.

q is the form of type shown in the position it occupies while the mold or matrix is being taken. It is moved into position along the feed table *r* its inner end coming against the stops or gages *s* while the proper adjustment or register sidewise is insured by the adjusting screws *t t* in one side of the form, these screws being made to bear against the side frame *a*.

Above the heating chamber *e* is a platen *u* which can be lowered and raised as required.

Various arrangements of mechanism are suitable for imparting the required up and down movement to the platen, but the preferred arrangement is that shown in the drawings which consists of toggle-levers $v v v' v'$ 5 jointed at one end to nuts $w w$ on a right and left handed screw shaft x fitted with hand wheels $y y$ for turning it. The other ends of the upper levers $v v$ are jointed at $v^2 v^2$ to the head d , and the other ends of the lower levers 10 $v' v'$ at $v^3 v^3$ to the top of the platen u .

z is a "blanket" stretched under the platen u ; its ends are secured to rods or bars A the ends of which fit into forks or bearings B on 15 the top of the platen. It is, however, not essential to attach the blanket to the platen as (when the saving of time is not the main object in view) it may be laid upon the flong but it is preferable to hold it against the under face of the platen so that it will move 20 therewith.

Attached to the platen u so as to come below it and the blanket z are horizontal guides or slideways C to receive and support the 25 sides of an open rectangular frame D in which the flong is placed, and at the inner end of these guides is a stop E against which the inner end of the frame D abuts when in position for taking the mold or matrix. The 30 guides C are vertically movable to vary the position of the flong relatively to the platen and blanket, and to yield when striking in their downward movement, the form q being preferably adjusted to normally hold the flong 35 away from the blanket and yielding during the pressure to allow the blanket to act against the flong, and are preferably carried at their ends on the lower ends of vertical arms F depending from spring pistons G in boxes H 40 fixed to brackets H' on the platen u ; the guides C are adjustable in position by means of the slots H^2 and tightening nuts H^3 so that they may be set to receive varying widths of frames D ; this construction is clearly seen in 45 Figs. 6 and 7.

The rectangular frame D a detached view of which is shown in Fig. 5 is a rectangular frame composed of two leaves hinged together so that they can be opened for the insertion 50 of the flong or the removal of the matrix or closed upon the flong so as to hold it when laid between them.

J represents the flong.

$K K$ are the hexagonal heads of screws which are screwed into the block or bed c . 55 By screwing in or unscrewing these screws by means of a spanner the heating chamber e which rests upon them can be lowered or raised as may be required in order to adjust 60 the height of the top surface of the said chamber which surface constitutes the type bed as has been already stated.

L is a delivery table along which the form can be removed after the impression has been 65 taken and the flong lifted. In order to allow of this removal the stops or gages s must be lifted out. In cases where the delivery table

L cannot conveniently be accommodated it can be dispensed with together with the corresponding parts of the side frames $a a$. The 70 form would then be removed along the feed table r .

The operation of producing and drying a matrix by means of this apparatus is as follows:—The gas in the heating chamber e having 75 been ignited and the platen u being in its raised position (as seen in the figures) a moist flong J is placed in the rectangular frame D which is then closed upon it. The frame D 80 with the flong is then slid into the guides C up to the stop E , the form being under the blanket z . The hot air which escapes through the openings $j j$ in the top of the heating chamber e now surrounds the flong and quickly drives out the superfluous moisture. 85 When the flong has been dried to the state in which the substances of which it is composed begin to consolidate (which a little experience will enable the operator to know) the platen 90 u is lowered so as to bring the flong in its heated state down upon the form q which has in the meantime been placed upon the type bed. The platen is caused to give sufficient pressure to take a good even impression from 95 the type. When the impression has been taken the platen is raised and it carries the flong or matrix J with it because the frame D containing the matrix is still held in the guides C . During the descent of the platen the guides 100 C would come against the side margins of the form and would yield somewhat because of the compression of the springs of the pistons G , but on the ascent of the platen these springs would force the guides C with the frame D and 105 matrix clear of or out of contact with the blanket z . The type form q can now be removed and the matrix is allowed to remain for a short time (a few seconds is generally sufficient) suspended or held between the platen and the 110 type bed until finally dried by the hot air which continues to rise from the chamber e through the openings $j j$ and to circulate above and below the matrix. In a very short time the matrix becomes dry and can be removed with its frame D . It can at once be taken out of 115 this frame and be put into the casting box. Another flong in another frame D or in the same frame can then be introduced into the apparatus for taking a matrix from another form or from the same form if required. The 120 tables r and L are preferably made removable on dovetail guides or in any other convenient way in order to allow other parts of the apparatus to be more readily got at for adjustment, examination or repair. 125

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

1. In the production of matrices or molds for stereotyping the process which consists in, first suspending a moist flong above the type 130 form, then while so suspended partially drying the moist flong by means of heat until the superfluous moisture is driven out and the adhesive and other substances of which the

flog is composed are consolidating, and then pressing the flog while hot and in the act of consolidating upon the form so as to take an impression of same, substantially as and for the purpose hereinbefore described.

2. The process of producing matrices or molds for stereotyping which consists first in partially drying the moist flog while it is suspended between a platen and the top of a heating chamber which also constitutes the type bed, secondly in taking the required impression upon the partially dried flog while hot between a form on said type bed and said platen, and thirdly in drying the resulting matrix or mold while it is suspended between said platen and the top of said heating chamber, substantially as and for the purpose set forth.

3. In apparatus for producing matrices or molds for stereotyping, a platen movable up and down and carrying a flog, in combination with a type bed below said platen and carrying a form of type opposite to the platen, and a heating chamber beneath said type bed, having outlet openings at top, and supplying an upward current of heated air to dry said flog, whereby when carried by said platen said flog is surrounded by a rising current of heated air throughout its manipulations, substantially as and for the purpose hereinbefore described.

4. In an apparatus for producing matrices or molds for stereotyping, a platen, in combination with a heating chamber opposite said platen, the top of which chamber constitutes the type bed, said chamber having transverse flues for the hot air, vertical side passages, and openings in top of said chamber, whereby the hot air escapes by said openings, substantially as and for the purpose hereinbefore described.

5. In an apparatus for producing matrices or molds for stereotyping a platen in combination with a heating chamber having transverse flues, vertical side passages and top openings for the passage of hot air as set forth,

and shutters whereby the flow or passage of the hot air can be regulated, substantially as hereinbefore described.

6. In apparatus for producing matrices or molds for stereotyping, the combination with a platen adapted to be brought down toward the form of type, and a bed beneath said platen of guides on the under side of said platen adapted to receive a holder containing the flog to be impressed, substantially as and for the purpose hereinbefore described.

7. In apparatus for producing matrices or molds for stereotyping, the combination with a platen adapted to be brought down toward the form of type, and a bed beneath the platen of spring arms on the under side of said platen, and guides carried by said arms and adapted to receive a holder containing the flog to be impressed, whereby when the platen is brought down to produce the impression the guides somewhat yield, and when the platen is again lifted the guides together with the flog and its holder are moved out of contact with the blanket and platen, substantially as and for the purpose hereinbefore described.

8. The combination of a heating chamber the top of which constitutes a type bed, hot air outlets *j j* in top of said chamber, a frame *D* adapted to hold a flog, guides *C C* to receive the sides of said frame, a platen *u* carrying said guides, and means for lowering and raising said platen whereby a flog held in said frame when in said guides can be forced down upon a form placed on said type bed to take an impression of said form and be then raised clear of said form while still held in said frame in said guides.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE EASTWOOD.

Witnesses:

EDWARD MACKAY YOUNG,
ASHER EMANUEL SAMAN.