

No. 792,044.

PATENTED JUNE 13, 1905.

C. H. HUTCHINGS.  
MOLDING MACHINE.  
APPLICATION FILED JUNE 7, 1904.

3 SHEETS—SHEET 1.

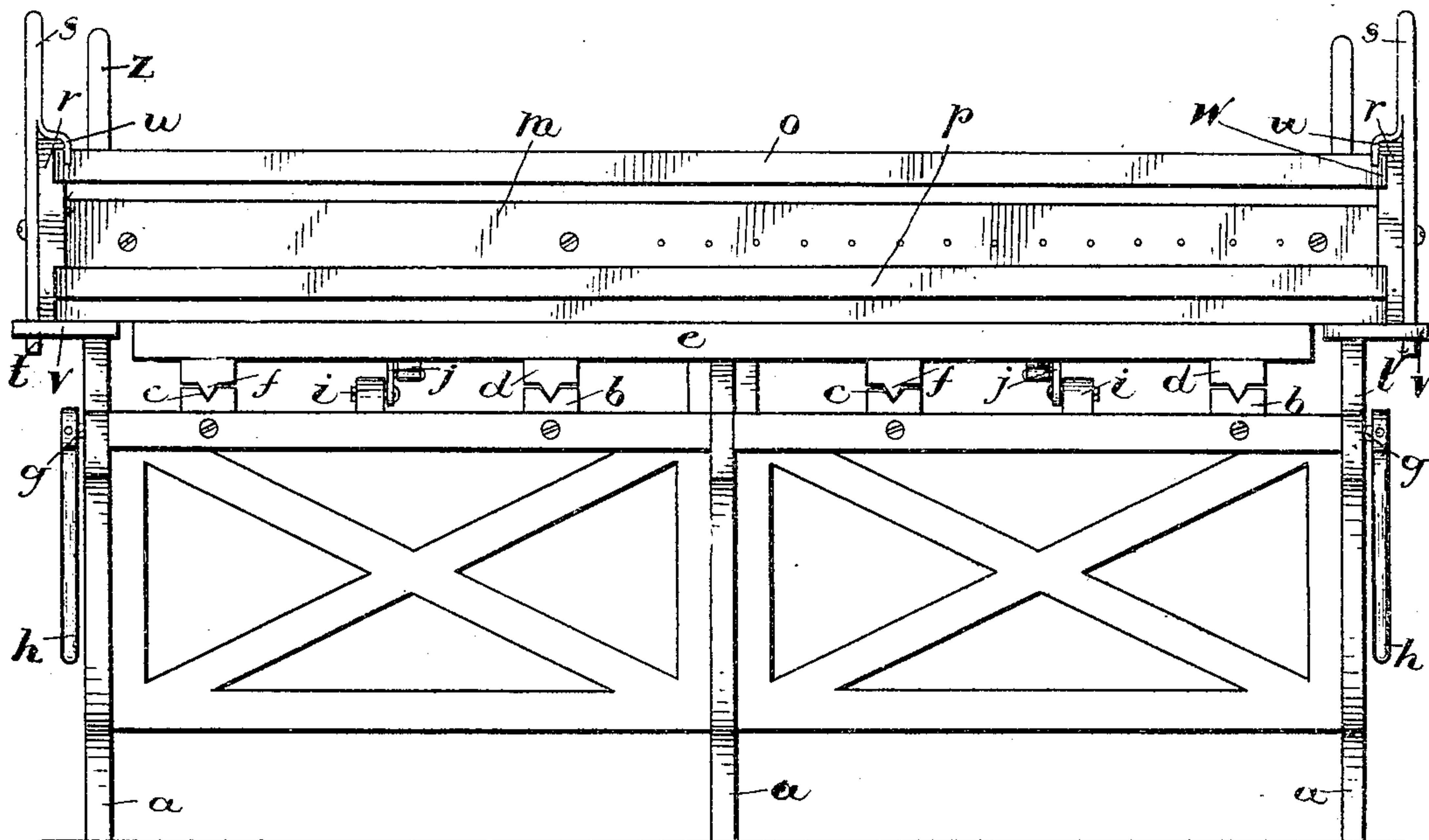


Fig. 1.

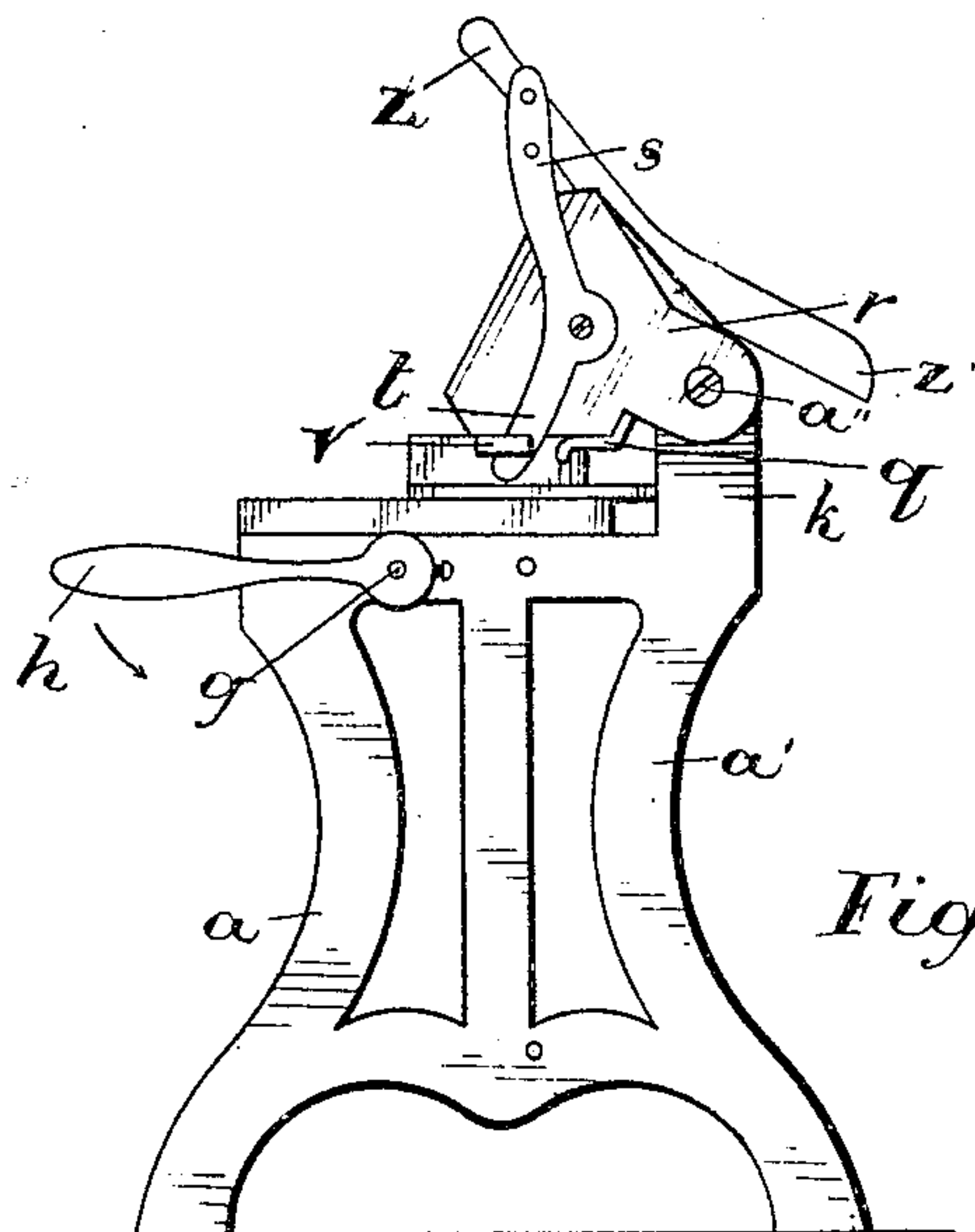


Fig. 3.

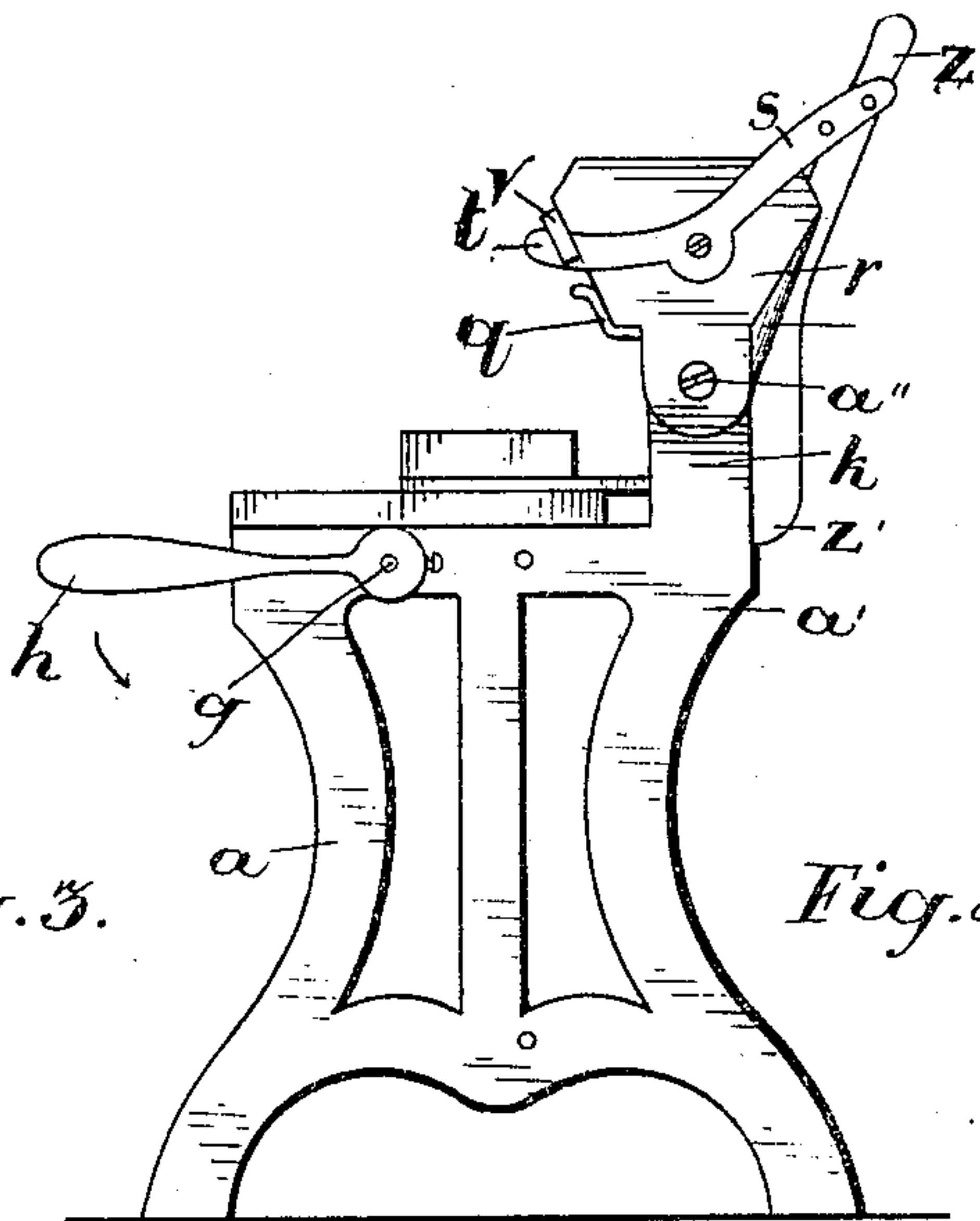


Fig. 2.

Witnesses.

H. L. Trimble  
L. F. Brock.

Inventor.

C. H. Hutchings  
by C. S. Riches  
his attorney

No. 792,044.

PATENTED JUNE 13, 1905.

C. H. HUTCHINGS.  
MOLDING MACHINE.  
APPLICATION FILED JUNE 7, 1904.

3 SHEETS—SHEET 2.

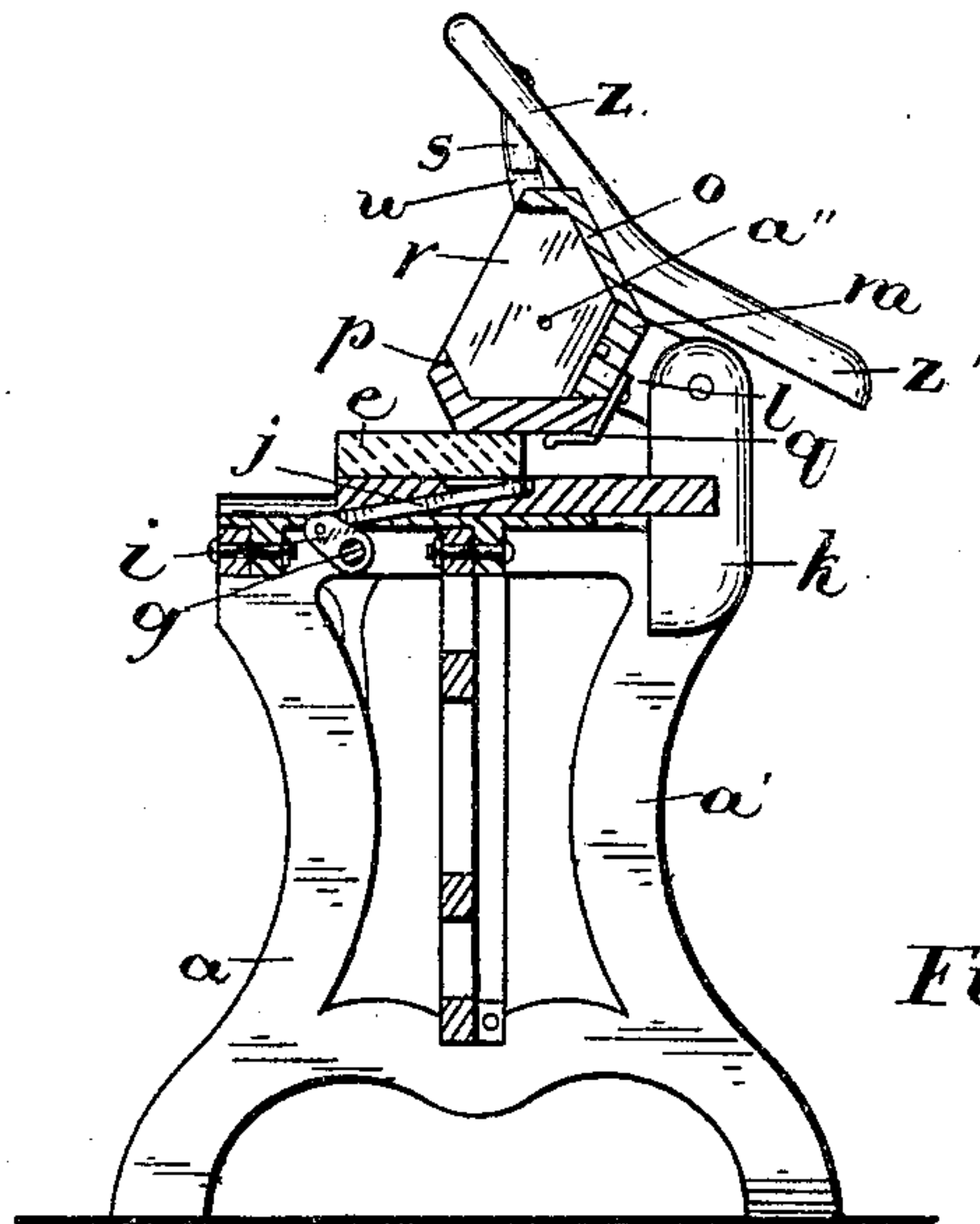


Fig. 4.

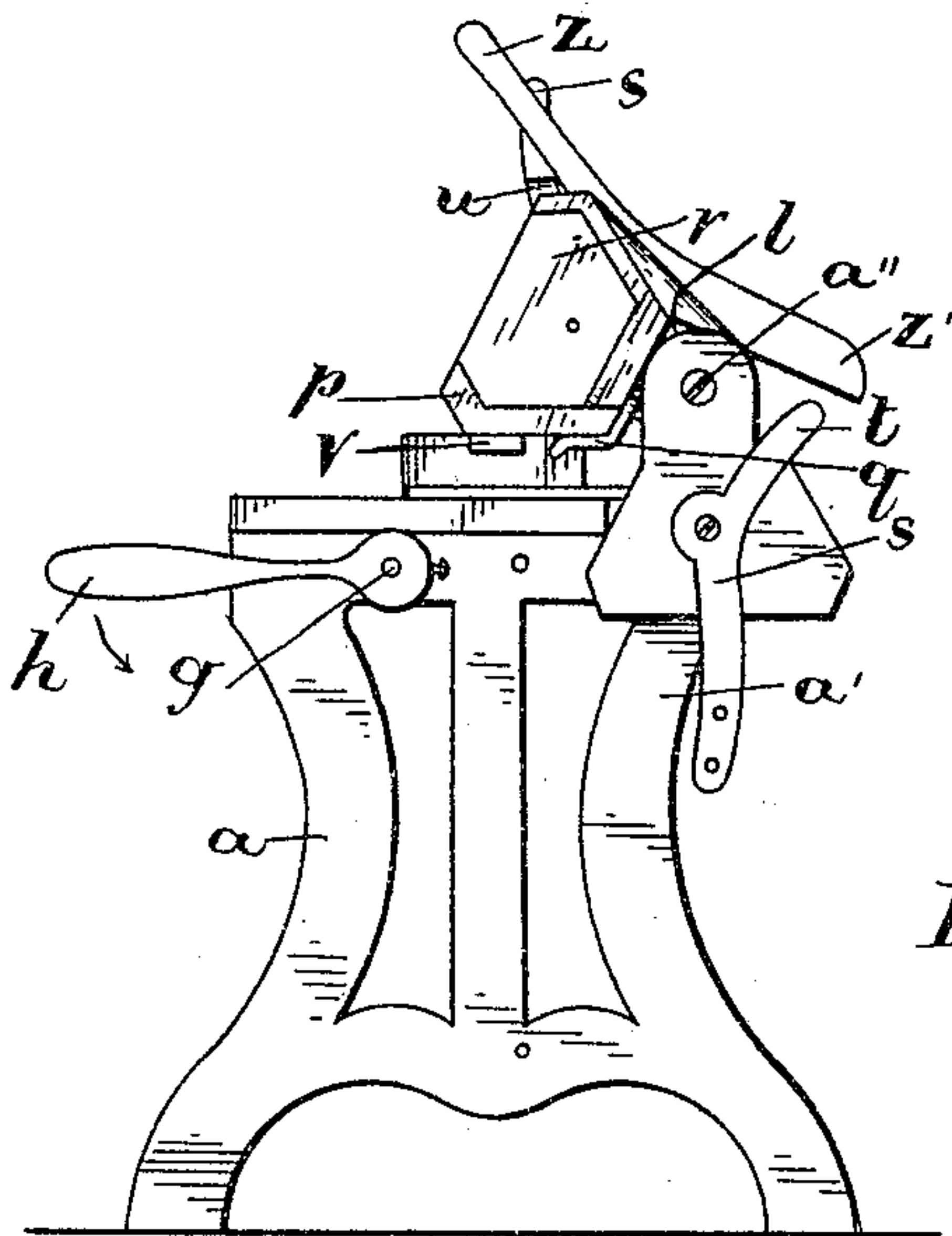


Fig. 5.

Witnesses.

H. L. Trumble.  
L. F. Brock.

Inventor.

C. H. Hutchings  
by C. H. Riches  
his attorney

C. H. HUTCHINGS.  
MOLDING MACHINE.  
APPLICATION FILED JUNE 7, 1904.

3 SHEETS—SHEET 3.

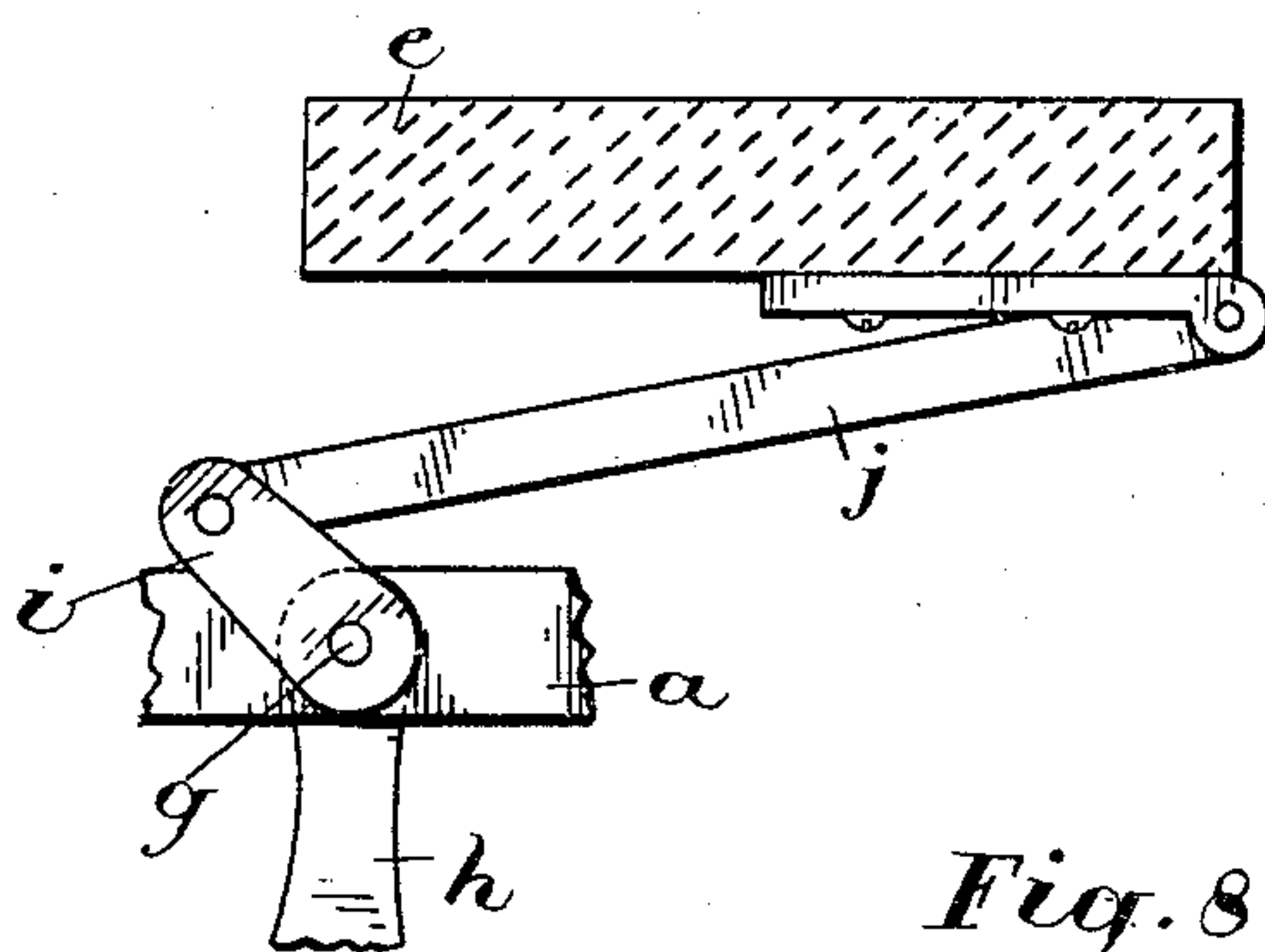


Fig. 8.

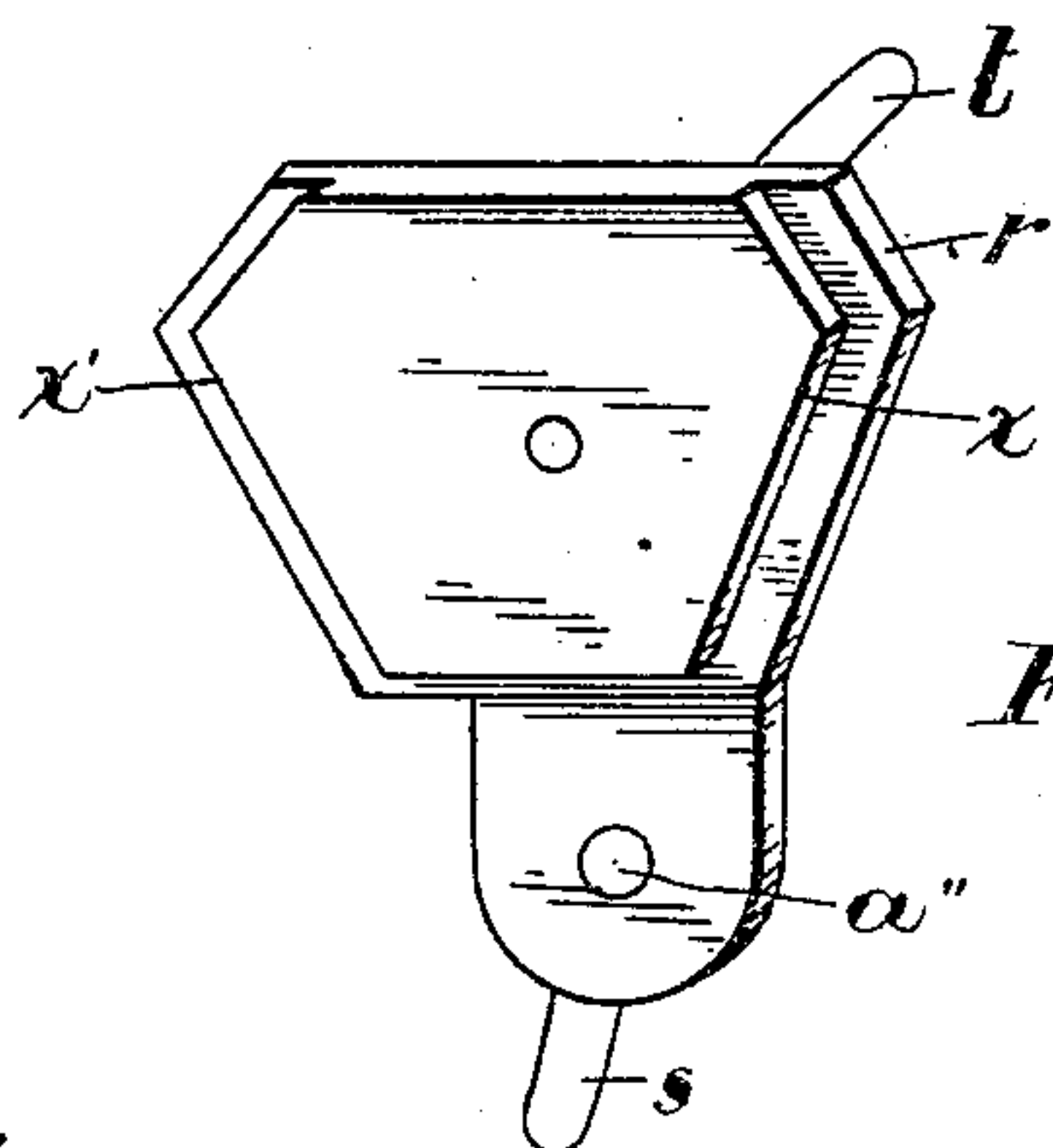


Fig. 6.

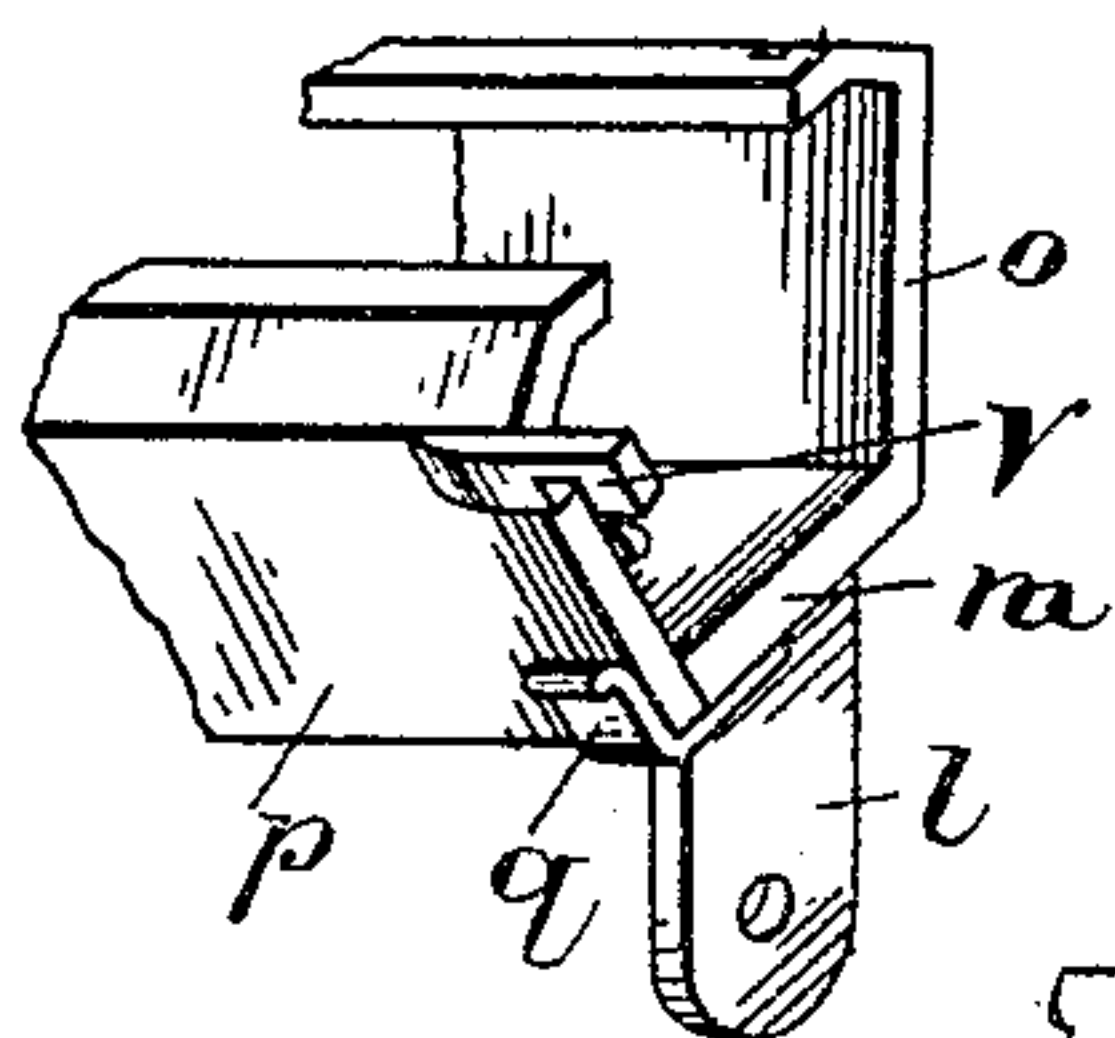


Fig. 9.

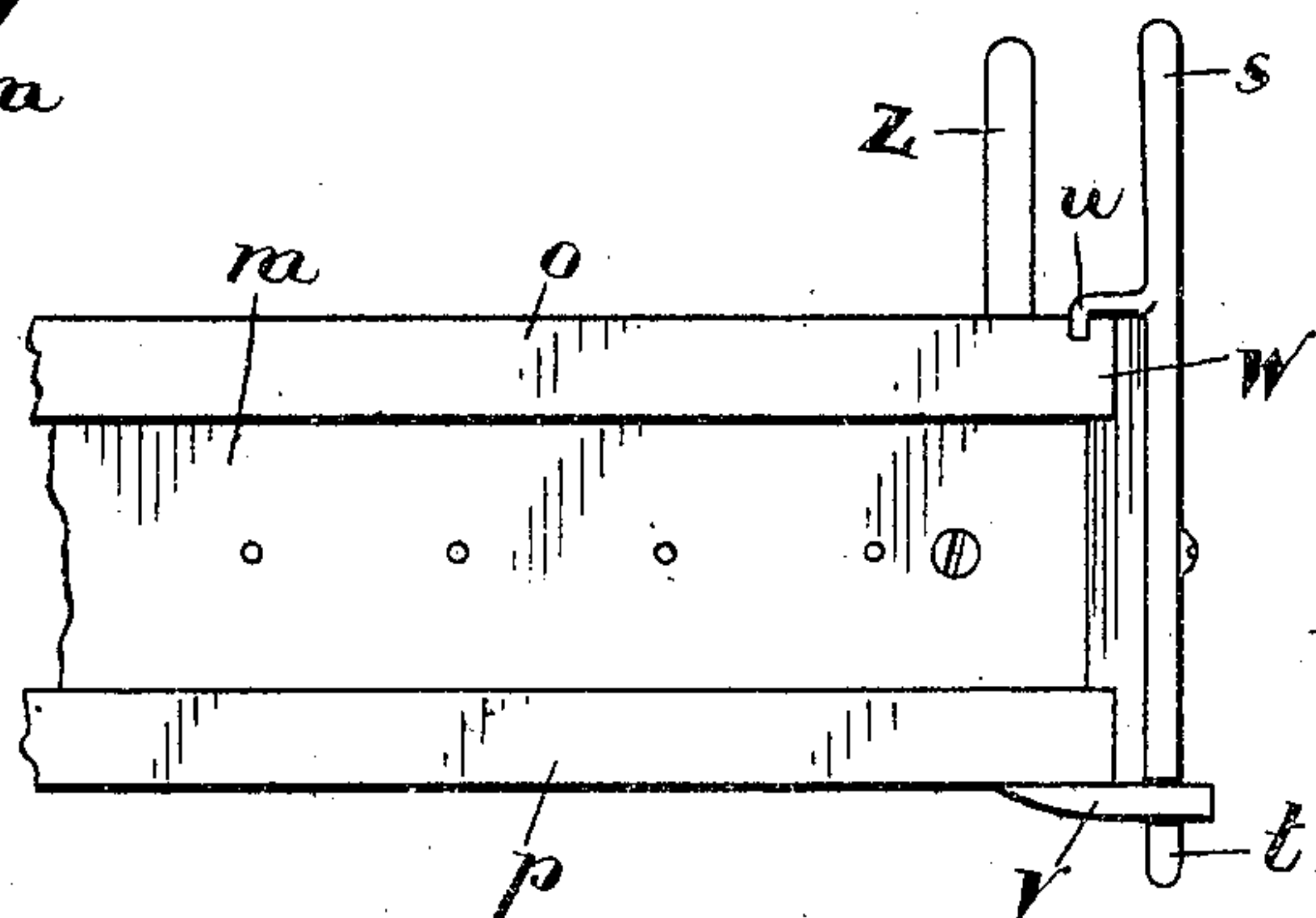


Fig. 7.

Witnesses.

H. L. Prindle.  
L. F. Brock.

Inventor.

C. H. Hutchings  
by C. H. Riches  
his attorney.



# UNITED STATES PATENT OFFICE.

CHARLES H. HUTCHINGS, OF TORONTO, CANADA, ASSIGNOR OF  
TWO-THIRDS TO PHILIP W. STANHOPE, OF TORONTO, ONTARIO,  
CANADA.

## MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 792,044, dated June 13, 1905.

Application filed June 7, 1904. Serial No. 211,562.

*To all whom it may concern:*

Be it known that I, CHARLES HENRY HUTCHINGS, of the city of Toronto, in the county of York and Province of Ontario, Canada, have  
invented certain new and useful Improvements  
in Molding-Machines; and I hereby declare  
that the following is a full, clear, and exact  
description of the same.

This invention relates to a machine for  
molding cementing and siliceous substances  
intimately mixed together in a dry state and  
then slightly moistened to cause their adhe-  
sion when tamped or pressed into a homoge-  
neous mass. Owing to the granular nature  
of the mixture, it is necessary to handle the  
molded block with the greatest of care during  
its delivery from the molding-machine and its  
transportation to the hardening or seasoning  
room.

In my former patent, No. 714,184, dated  
November 25, 1902, I have shown and described  
a molding-machine in which the mold-box or  
flask was rigidly maintained in an upright po-  
sition and fitted with a removable follow-  
board upon which the molded block was re-  
moved. During the operation of that ma-  
chine it was necessary to exercise more than  
ordinary care and skill in the removal of the  
molded block from the mold-box or flask,  
and often under the most careful conditions  
the homogeneity of the molded mixture was  
frequently shattered and the block rendered  
useless for the purpose for which it was in-  
tended.

The object of the present invention is to  
articulatingly connect the mold-box or flask  
to the frame of the machine, so that it can be  
maintained in an upright position during the  
molding of the material and then turned into  
a position at substantially right angles thereto  
to deliver the molded block to a movable car-  
riage positioned to receive it.

For a full understanding of the invention  
reference is to be had to the following de-  
scription and to the accompanying drawings,  
in which—

Figure 1 is a front elevation of the machine.  
Fig. 2 is an end elevation showing the mold

in the upright position. Fig. 3 is a similar  
view to Fig. 2, showing the mold in its upset  
position. Fig. 4 is a transverse sectional view  
of the machine with the mold in the position  
shown in Fig. 3. Fig. 5 is a similar view to  
Fig. 3 with the clamping-lever and end plates  
for the mold released from engagement with  
the fixed and detachable sides. Fig. 6 is a  
detail view of one of the end plates and oper-  
ating-levers. Fig. 7 is a plan view of the top  
of a section of the mold, showing the clamp-  
ing members for locking the end plates and  
fixed and detachable sides together. Fig. 8  
is a sectional view showing the carriage and  
carriage-operating mechanism, and Fig. 9 is  
a view of a section of the mold.

Like letters of reference refer to like parts  
throughout the specification and drawings.

Stationarily mounted upon the top of the  
frame *a* are four transversely-disposed rails  
*b*, each having a V-shaped groove *c*, and mount-  
ed upon the rails *b* are the carriage-slides *d*,  
having V-shaped tongues *f* to enter the grooves  
*c* and prevent their lateral displacement from  
the rails. Journaled in the ends of the frame  
*a* is a longitudinally-disposed shaft *g*, located  
below the rails *b* and fitted at each end with  
a lever *h*, by means of which it is actuated,  
and mounted upon the shaft *g* intermediate its  
ends are cranks *i*, connected by links *j* to the  
carriage *e*. During the operation of the le-  
vers *h* the shaft *g* is rotated to cause the  
cranks *i* and links *j* to move the carriage either  
toward the back or front of the carriage-bed—  
that is to say, if the levers *h* are moved in the  
direction indicated by arrow the shaft *g* and  
the cranks *i* will execute a corresponding  
movement and cause the links to draw the car-  
riage toward the front of the machine, while  
the reverse movement will cause them to move  
it toward the back of the machine. Project-  
ing upwardly from the top of the standards *a'*  
are vertical arms *k*, to which are hinged the  
downward extensions *l* of the mold-box, which  
is shown to consist of a bottom plate *m*, inte-  
grally formed with or permanently connected  
to the downward extensions *l*, and a side plate  
*o*, integrally formed with or permanently con-



nected to the bottom plate *m*, and a removable  
 side plate *p*, detachably connected to the bot-  
 tom plate *m* at the front of the mold-box by  
 hook-shaped clamps *q*, projecting forwardly  
 5 from the under side of the bottom plate *m*.  
 To rigidly lock the removable side plate *p* to  
 the bottom plate *m* when the parts are in their  
 assembled condition, the end plates *r* for the  
 mold-box are fitted with clamping-levers *s*,  
 10 having clamping-hooks *t* and *u* to engage, re-  
 spectively, the hook-shaped arms *v*, project-  
 ing endwise from the removable side plate *p*,  
 and the clamping-cams *w*, formed on the back  
 surface of the side plate *o*. The clamping-le-  
 15 vers *s* are fulcrumed to the outer faces of the  
 end plates *r*, and when the clamping-hooks *t*  
 and *u* are brought into engagement with the  
 hook-shaped arms and clamps the end plates  
 are forced tightly against the ends of the  
 20 side plates *o* and *p* and the removable side  
 plate is drawn tightly into position against  
 the adjacent stops *x* on the inner faces of the  
 end plates *r*, which are also fitted with stops  
*x'* to engage the side plate *o* and hold the end  
 25 plates immovable when locked by the clamp-  
 ing-levers. Attached to the mold-box are  
 handles *z*, with projections *z'* extending below  
 the bottom of the mold-box to engage the  
 frame *a* when the mold-box is in its upright  
 30 position to limit its motion and to hold it an  
 upright position while the material is being  
 molded.

The operation of the invention is as follows:  
 In molding a block the mold-box is placed in  
 35 an upright position with the projections *z'* en-  
 gaging the back of the frame *a* to rigidly  
 hold it in such a position until the molding  
 operation has been completed. The remov-  
 able side plate *p* is then placed in position  
 40 upon the clamps *q* and the end plates *r* posi-  
 tioned against the end and bottom plates. The  
 clamping-levers are then actuated to engage  
 the hook-shaped arms and cams to draw the  
 component parts of the mold-box rigidly to-  
 45 gether. The levers *h* are then actuated to po-  
 sition the carriage *e* where it will be engaged  
 by the removable side plate *p* when the mold-  
 box is upset. The material is then placed in  
 the mold-box and tamped or pressed to the re-  
 50 quired shape and density, and the mold-box is  
 then turned into an upset position, so that the  
 removable plate *p* will rest upon the carriage  
*e*. The clamping-levers *s* are then actuated  
 to disengage the clamping-hooks from the  
 55 hook-shaped arms and cams, and the end plates  
 are then rotated upon their pivots *a''*, so as to  
 drop below and be entirely clear of contact  
 with the end and bottom plates of the mold-  
 box. The levers *h* are then actuated to draw  
 60 the carriage with the removable side plate *p*,  
 with its load, away from the mold-box and to-  
 ward the front of the machine without shat-  
 tering or destroying its homogeneity, so that  
 when it is moved forward sufficiently to clear  
 65 the mold-box the removable side plate and its

load can be raised from the carriage and trans-  
 ported to the place where it is to season and  
 harden.

Having thus fully described my invention,  
 what I claim as new, and desire to secure by  
 Letters Patent, is—

1. The combination of the main frame, a  
 mold consisting of a fixed bottom and side ar-  
 ticulatingly connected to the main frame and  
 arranged to be maintained in an upright po- 75  
 sition to receive the material for the block and  
 to be overturned to deliver the molded block,  
 a removable side detachably connected to the  
 bottom opposite the fixed side, rotatable end  
 sides for the mold, means for locking the end 80  
 sides and the removable and fixed sides to-  
 gether, a carriage to receive the removable  
 side with the molded contents when the mold  
 has been overturned and means for actuating  
 the carriage. 85

2. The combination of the main frame, a  
 mold consisting of a fixed bottom and side ar-  
 ticulatingly connected to the main frame and  
 arranged to be maintained in an upright posi- 90  
 tion to receive the material for the block and to  
 be overturned to deliver the molded block, a re-  
 movable side detachably connected to the bot-  
 tom opposite the fixed side, rotatable end sides  
 for the mold, means for locking the end sides 95  
 and the removable and fixed sides together, a  
 carriage to receive the removable side with the  
 molded contents when the mold has been over-  
 turned, means for actuating the carriage, and  
 stops connected to the mold to engage the main  
 frame when the mold is in its upright posi- 100  
 tion.

3. In a molding-machine the combination of  
 the main frame, a mold oscillatingly mounted  
 therein consisting of a fixed bottom and a fixed  
 side therefor, a removable side detachably con- 105  
 nected to the bottom, end plates pivoted to  
 the bottom and arranged to abut against the  
 ends of the fixed and removable sides, clamp-  
 ing-levers fulcrumed to the outer faces of the  
 end plates and clamping members carried by 110  
 the removable and fixed sides adapted to be  
 engaged by the clamping-levers when actuated  
 to draw the parts together, a carriage movably  
 mounted upon the main frame adapted to be  
 engaged by the removable side of the mold 115  
 when upset, an operating-shaft, levers for ac-  
 tuating the shaft and an intermediate means  
 between the shaft and carriage whereby the  
 carriage is moved by the actuation of the shaft.

4. In a molding-machine the combination of 120  
 the main frame, a mold oscillatingly mounted  
 therein consisting of a fixed bottom and a fixed  
 side therefor, a removable side detachably con-  
 nected to the bottom, end plates pivoted to  
 the bottom and arranged to abut against the 125  
 ends of the fixed and removable sides, clamp-  
 ing-levers fulcrumed to the outer faces of the  
 end plates and clamping members carried by  
 the removable and fixed sides adapted to be  
 engaged by the clamping-levers when actuated 130



to draw the parts together, a carriage movably  
mounted upon the main frame adapted to be  
engaged by the removable side of the mold  
when upset, an operating-shaft, levers for ac-  
5 tuating the shaft and an intermediate means  
between the shaft and carriage whereby the  
carriage is moved by the actuation of the shaft  
consisting of cranks rigidly fixed on the shaft,

and links connected to the cranks and to the  
carriage.

Toronto, February 9, 1904.

C. H. HUTCHINGS.

In presence of—

C. H. RICHES,  
L. F. BROCK.