

(No Model.)

2 Sheets—Sheet 1.

J. ALLENSON.  
APPARATUS FOR FORMING MOLDS FOR CASTINGS.

No. 587,356.

Patented Aug. 3, 1897.

Fig. 1.

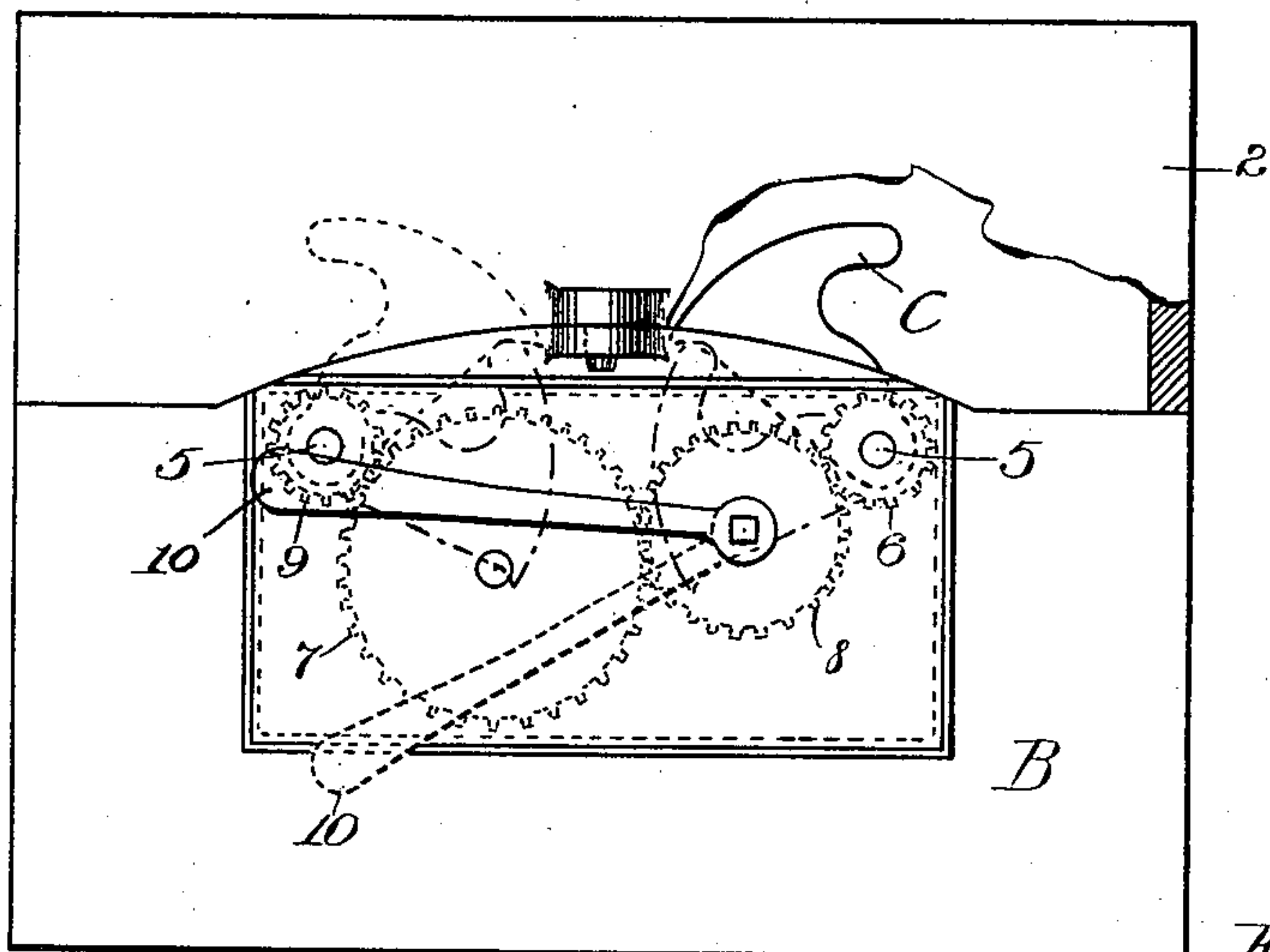


Fig. 5.

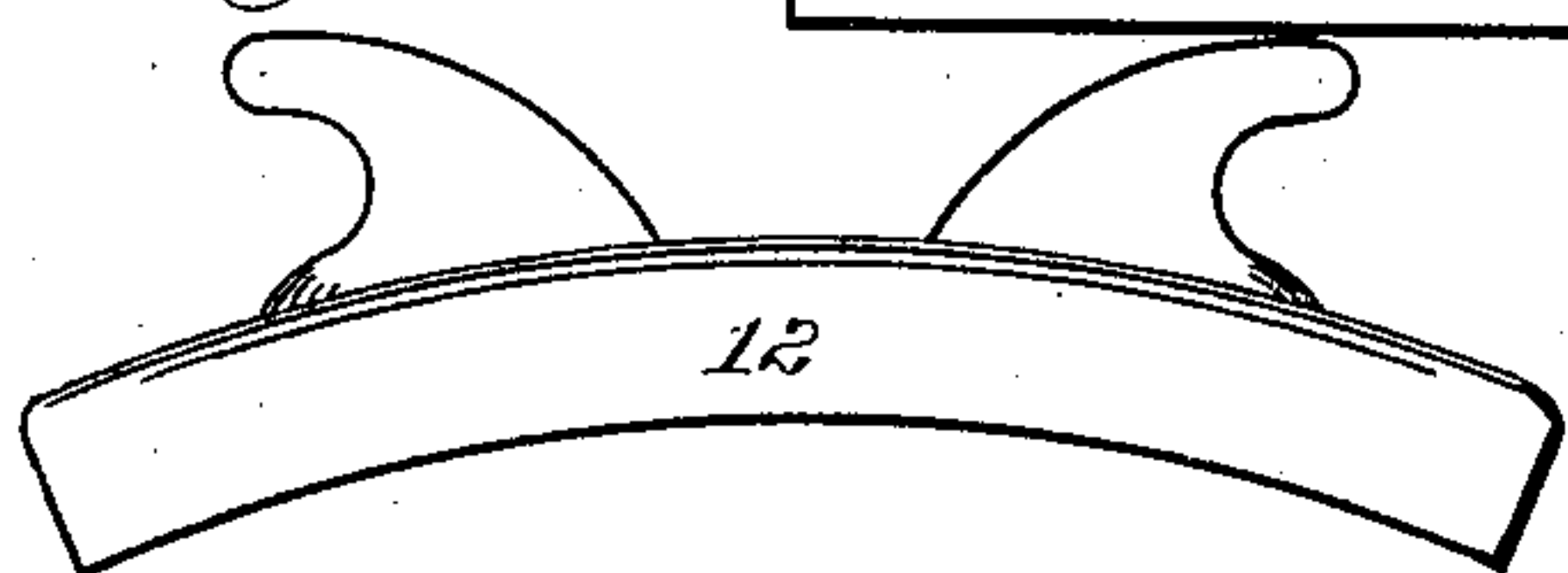


Fig. 6.

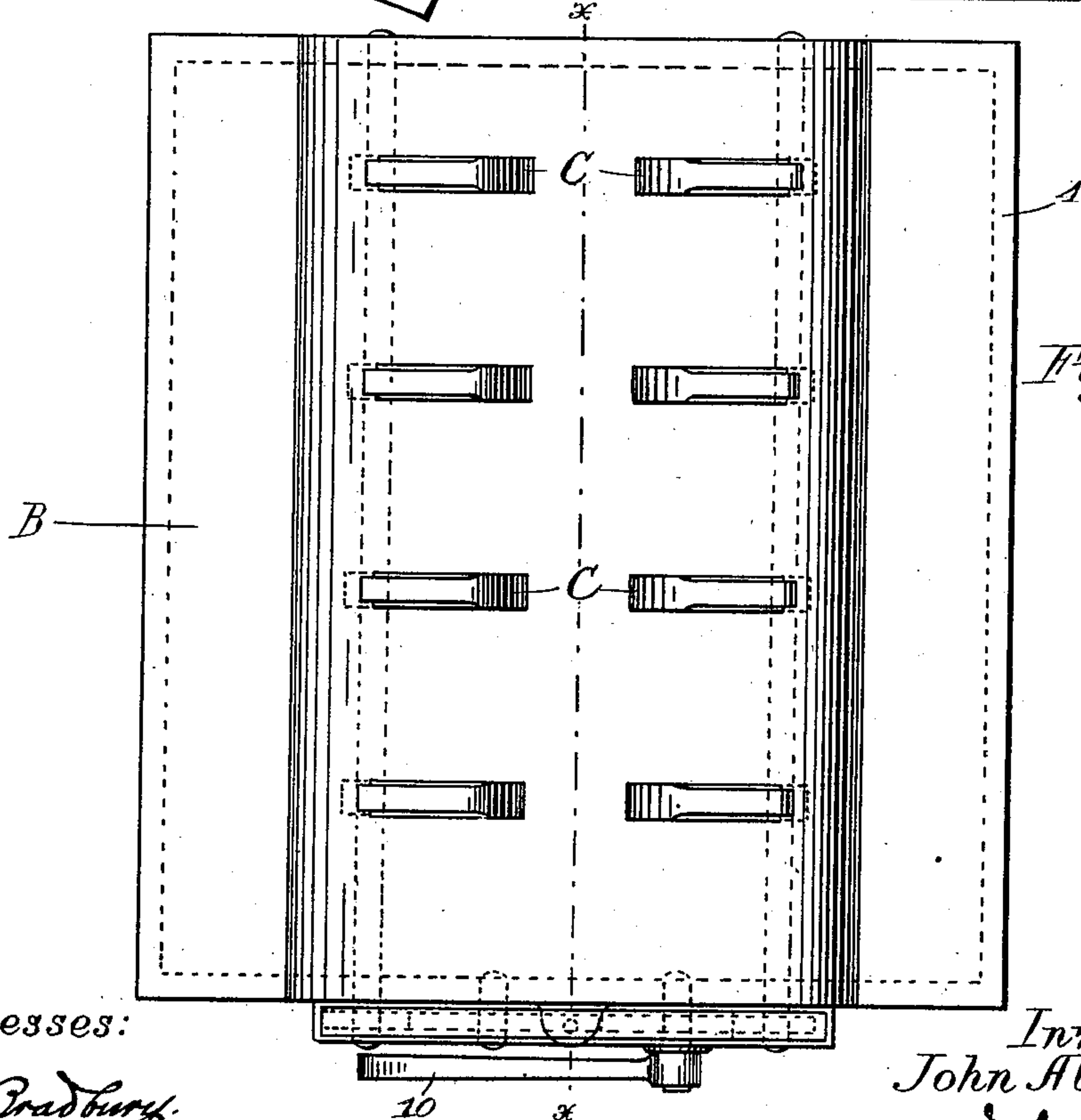
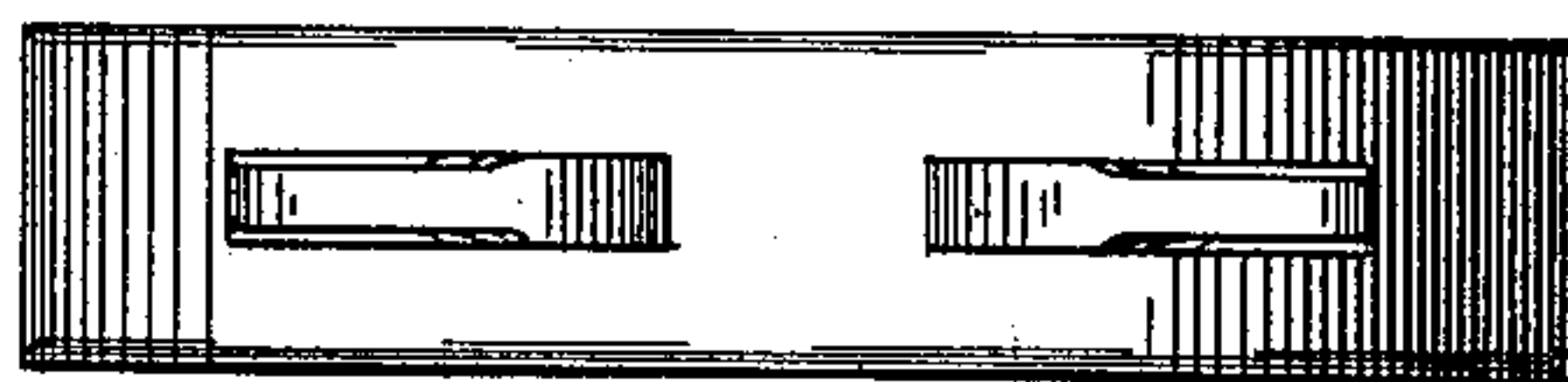


Fig. 2.

Witnesses:

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A. S. Johnson

Inventor:

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per: J. O. Merwin  
Attorney.

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2 Sheets—Sheet 2.

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Fig. 4.

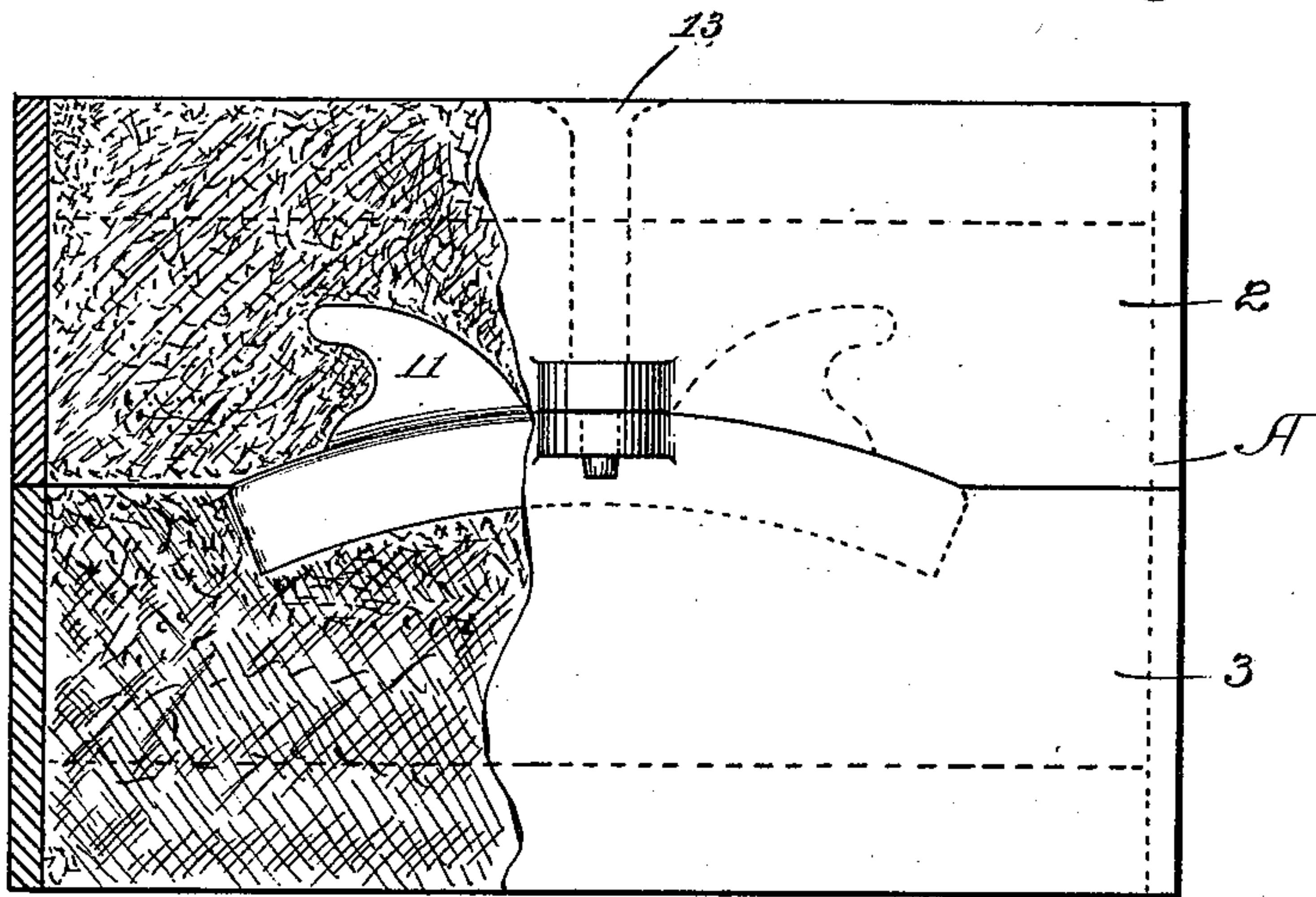
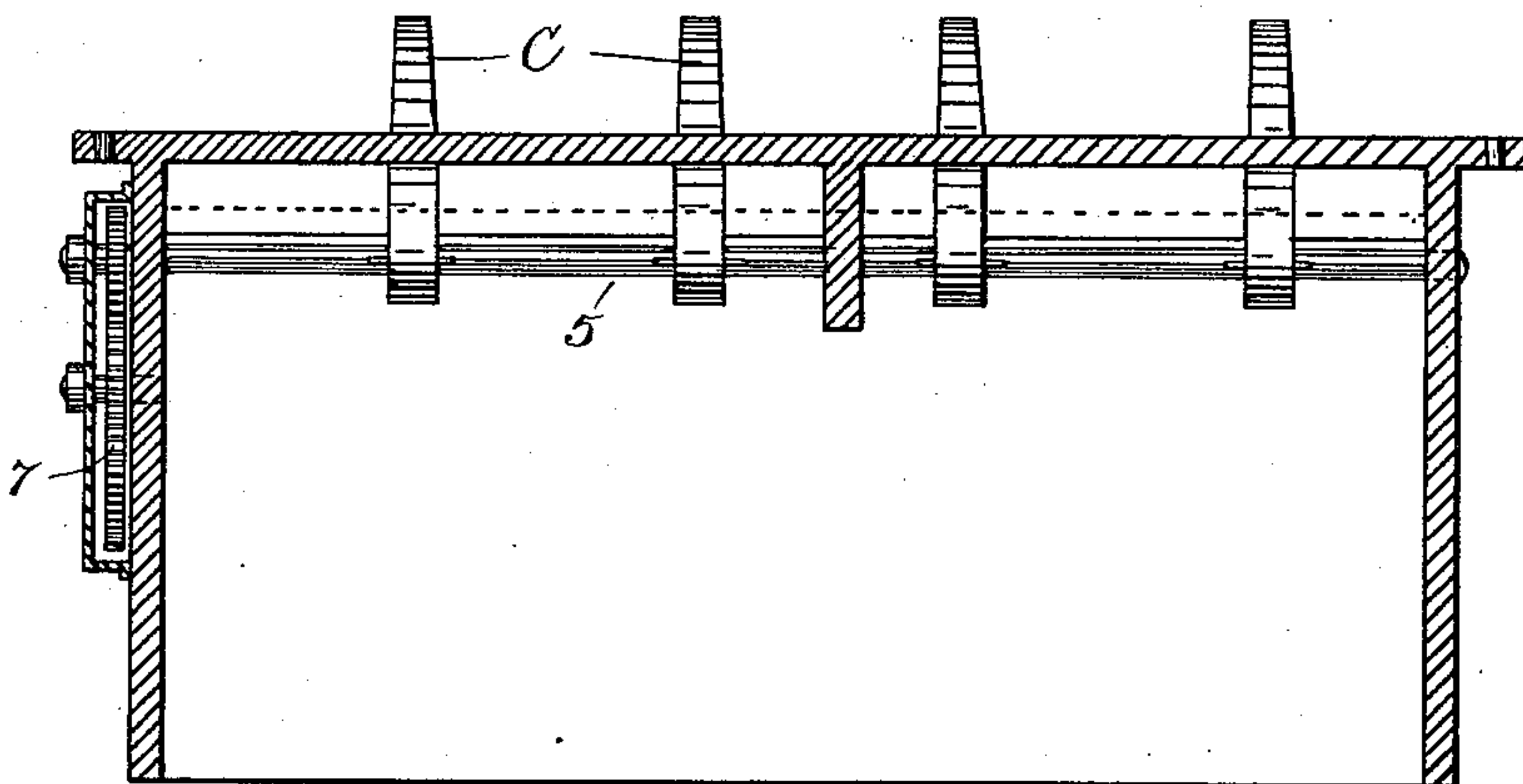


Fig. 3.



Witnesses:

V. G. Bradbury.  
A. Johnson

Inventor:

John Allenson.  
per: *Thomas W. Allen*  
Attorney.



# UNITED STATES PATENT OFFICE.

JOHN ALLENSON, OF ST. PAUL, MINNESOTA, ASSIGNOR TO THE ST. PAUL  
FOUNDRY COMPANY, OF SAME PLACE.

## APPARATUS FOR FORMING MOLDS FOR CASTINGS.

SPECIFICATION forming part of Letters Patent No. 587,356, dated August 3, 1897.

Application filed May 20, 1895. Serial No. 549,854. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ALLENSON, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Apparatus  
5 for Forming Molds for Castings, of which the following is a specification.

My invention relates to improvements in apparatus for molding car-wheel brake-shoes and similar articles in which the article to be  
10 molded is formed with curved or hook-shaped projections, its object being principally to provide improved means for removing the patterns which form the molds for the projections without interfering with the surrounding sand.

To this end my invention consists in providing separate patterns for the body of the article to be molded and its projections, the mold for the body of the article being formed  
20 in one part of the molding-flask and for the projections in the other. The molds for the projecting parts are formed in the usual way, the patterns then being withdrawn by means of suitable gearing substantially in line with  
25 the curvature or bend of the patterns, so that the bed of the mold is not broken or impaired. This is preferably accomplished, as shown, by mounting the patterns upon pivots, which are rotated to turn the pattern out of the  
30 mold. The mold for the body of the article is formed and the pattern removed in the ordinary manner.

My invention further consists in the construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is an end elevation of my improved apparatus for withdrawing the patterns from the molding-flask,  
40 showing it in use with the cope of a flask. Fig. 2 is a plan view of the same with the cope removed. Fig. 3 is a longitudinal section of the same on line  $x x$  of Fig. 2. Fig. 4 is a detail of the flask, partially broken away, to show the complete mold formed therein; and  
45 Figs. 5 and 6 are details of a car-wheel brake-shoe formed by means of my improved apparatus and method.

In the drawings, A represents an ordinary molding-flask composed of the upper part or  
50 cope 2 and the lower portion or drag 3.

B represents my improved apparatus, by which the patterns are carried and operated. This consists of the frame 4, provided with the longitudinal shafts 5, actuated by means  
55 of gear-wheels 6, 7, 8, and 9 at the end of the machine. Mounted at desired intervals upon the shafts 5 are the patterns C. The gear-wheel 8 is shown provided with a crank 10, which is adapted to be turned, operating the  
60 gear 6 and the gear 9 through the interposed gear 7, thus simultaneously rotating the shafts to turn the patterns out of their molds 11 when formed.

In operation the cope 2 is set upon the machine B with the shafts 5 turned so that the  
65 patterns project up into the cope, as shown by full lines in Fig. 1. The sand is then poured into the cope and packed around the patterns in the usual manner. When this is  
70 done and the molds formed, the crank 10 is operated, rotating the shafts and turning the patterns out of their molds in a line with their curvature, as shown by broken lines in Fig. 1, so that the surrounding bed is uninjured.  
75 The mold for the body 12 of the casting is formed in the drag of the flask in the usual manner. After the molds are formed the parts of the flask are secured together, as shown in Fig. 4, and a flow-gate 13 formed in  
80 the cope, through which the molten metal is poured.

I claim—

Means for forming molds for the casting of objects in the form of circular segments having  
85 upon their convex faces a pair of similar, circular, segmental hooks, of less curvature than the body of the casting, and symmetrically positioned thereon with the hooks outwardly, oppositely extended toward the ends  
90 of the body of the casting, consisting of a frame adapted to be substituted for the drag of the molding-flask, and to operate in combination with the cope thereof, the pair of rotatable shafts journaled in said frame, the  
95 series of similar, oppositely-positioned, hook-

shaped patterns mounted thereon conforming  
to the hooks to be formed upon the body of  
said casting, the outer contour of said pat-  
terns conforming substantially to arcs of cir-  
5 cles of which the shafts are the centers, the  
train of gear interposed between said shafts,  
and the means for operating said train of gear  
to synchronously operate said shafts to pro-  
ject said patterns outwardly into position to

form the mold, and to afterward inturn and 10  
withdraw them from said mold.

In testimony whereof I affix my signature  
in presence of two witnesses.

JOHN ALLENSON.

Witnesses:

T. D. MERWIN,  
MINNIE L. THAUWALD.