

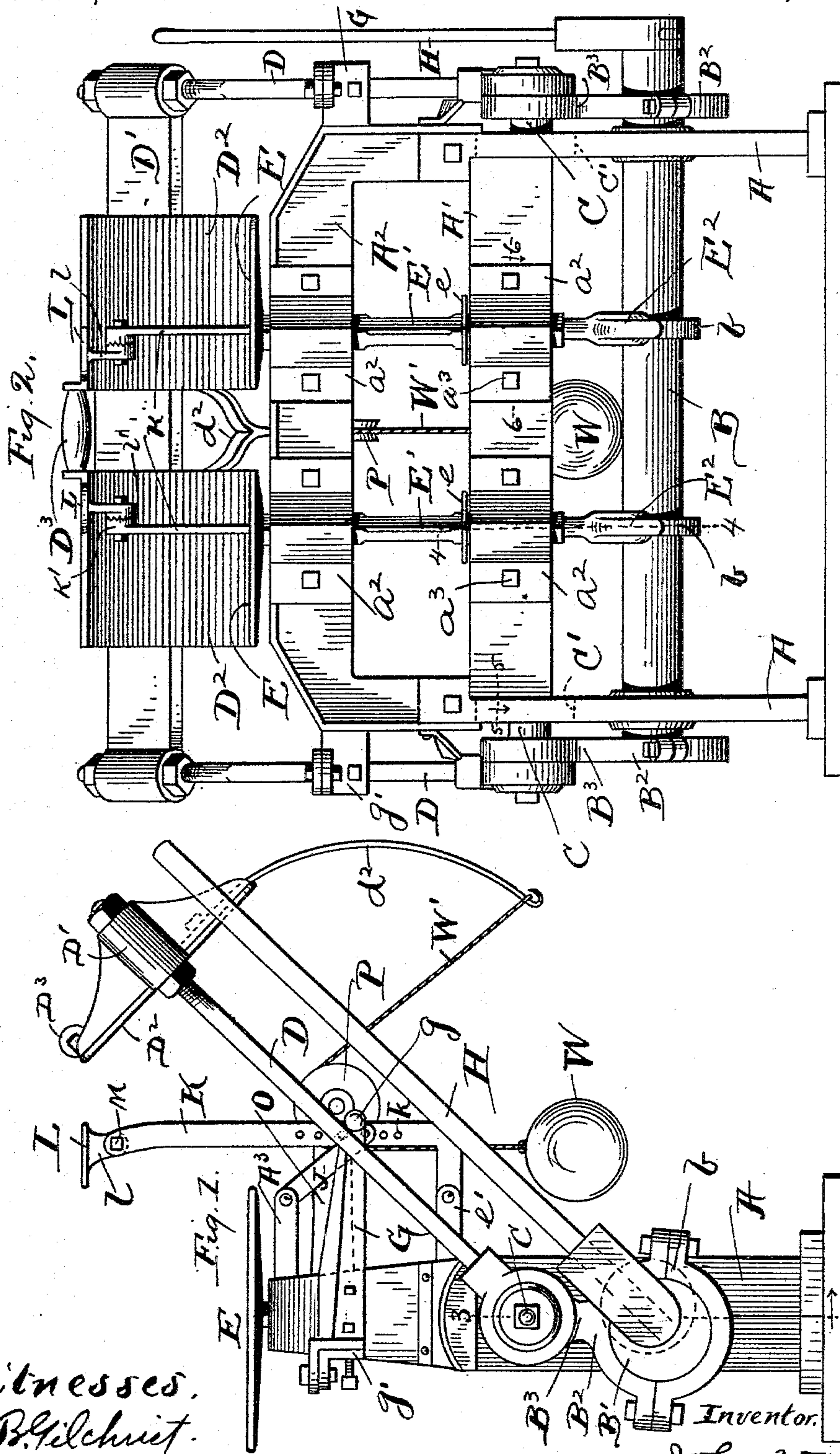
(No Model.)

2 Sheets—Sheet 1.

J. WACHALEC.
MOLDING MACHINE.

No. 511,224.

Patented Dec. 19, 1893.



Witnesses,
E. B. Gilchrist.
C. S. Brown

Inventor.
John Wachalec
By Leggett & Leggett
his attorneys.

(No Model.)

2 Sheets—Sheet 2.

J. WACHALEC.
MOLDING MACHINE.

No. 511,224.

Patented Dec. 19, 1893.

Fig. 3.

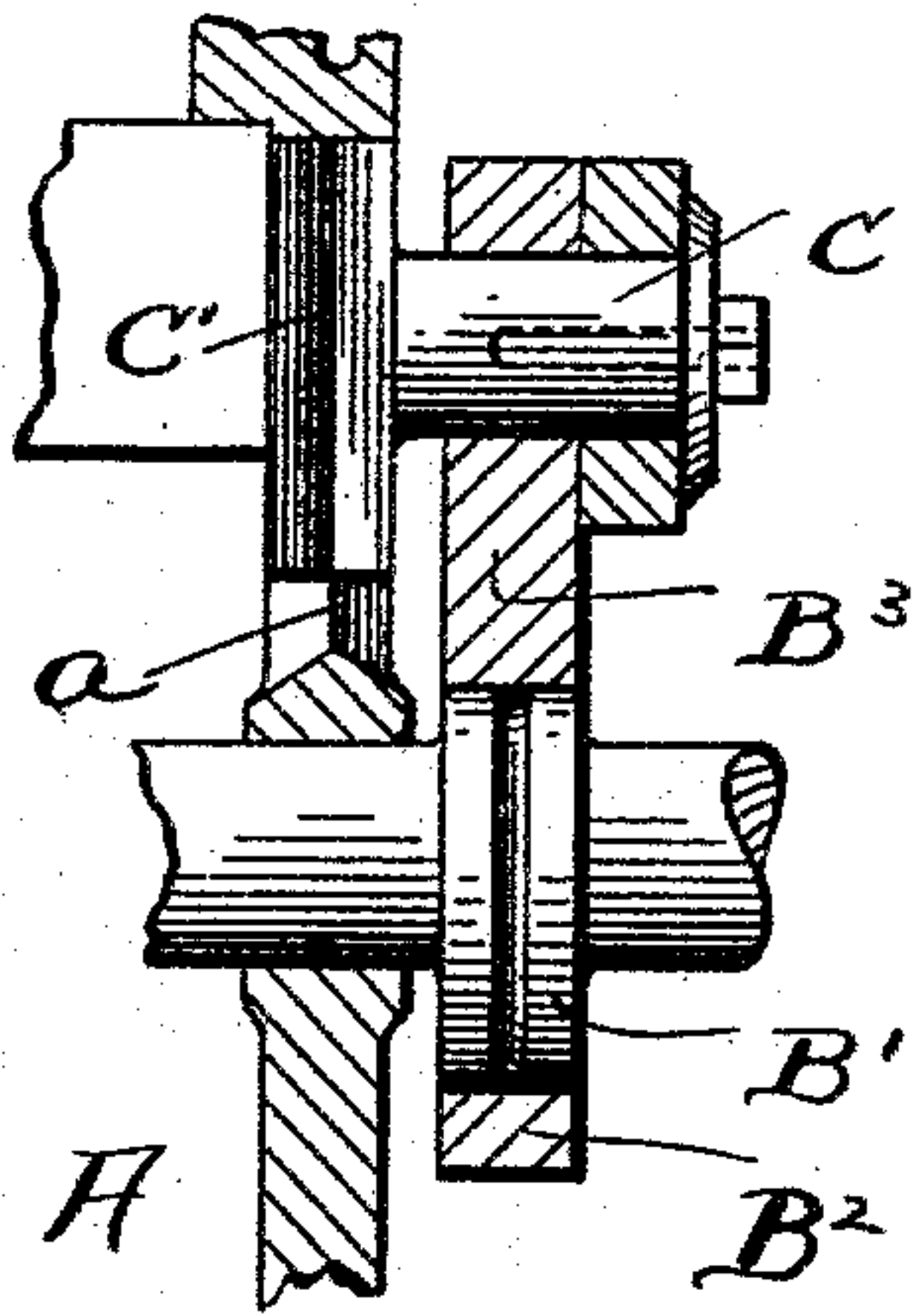


Fig. 4.

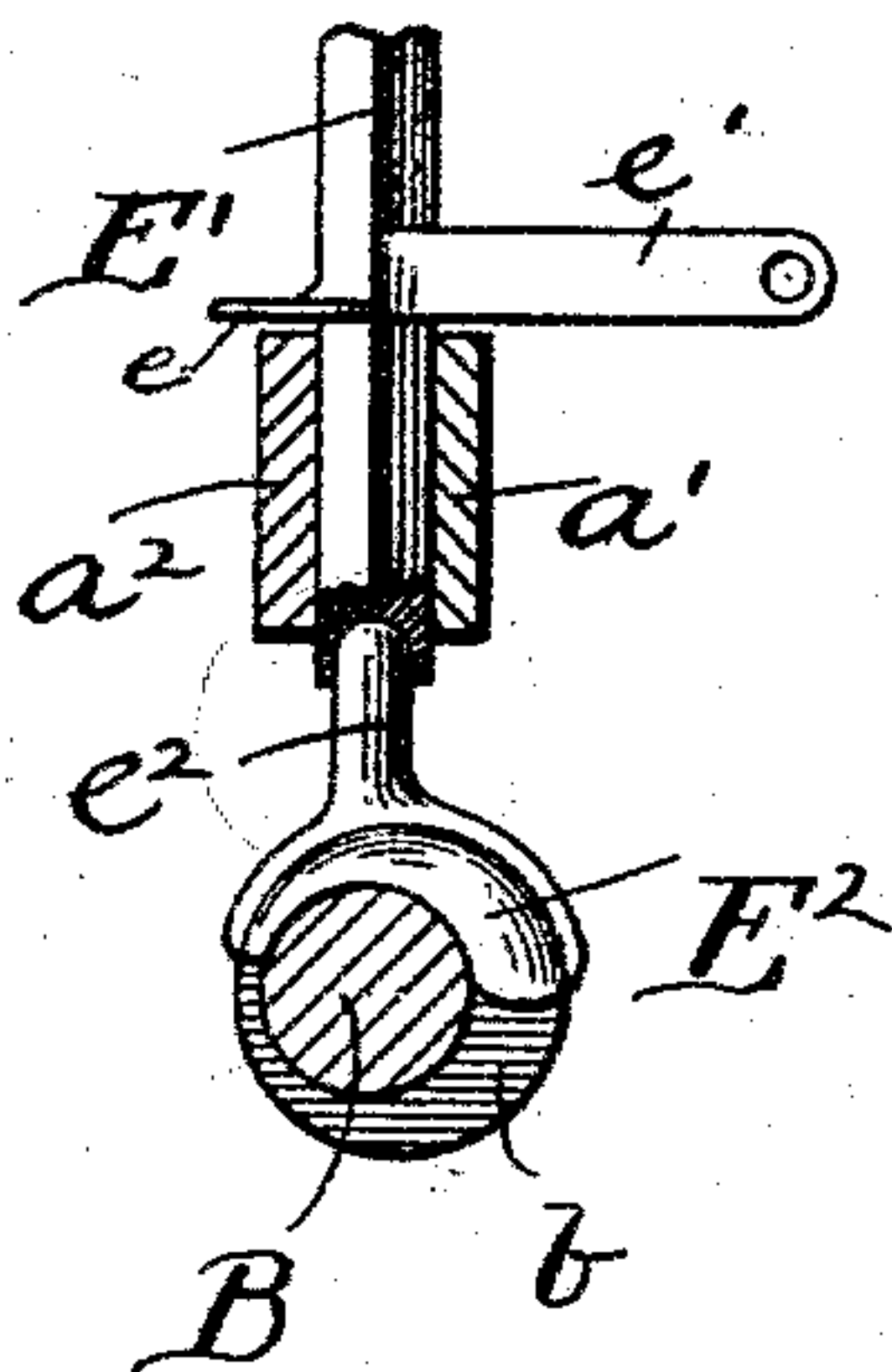


Fig. 5.

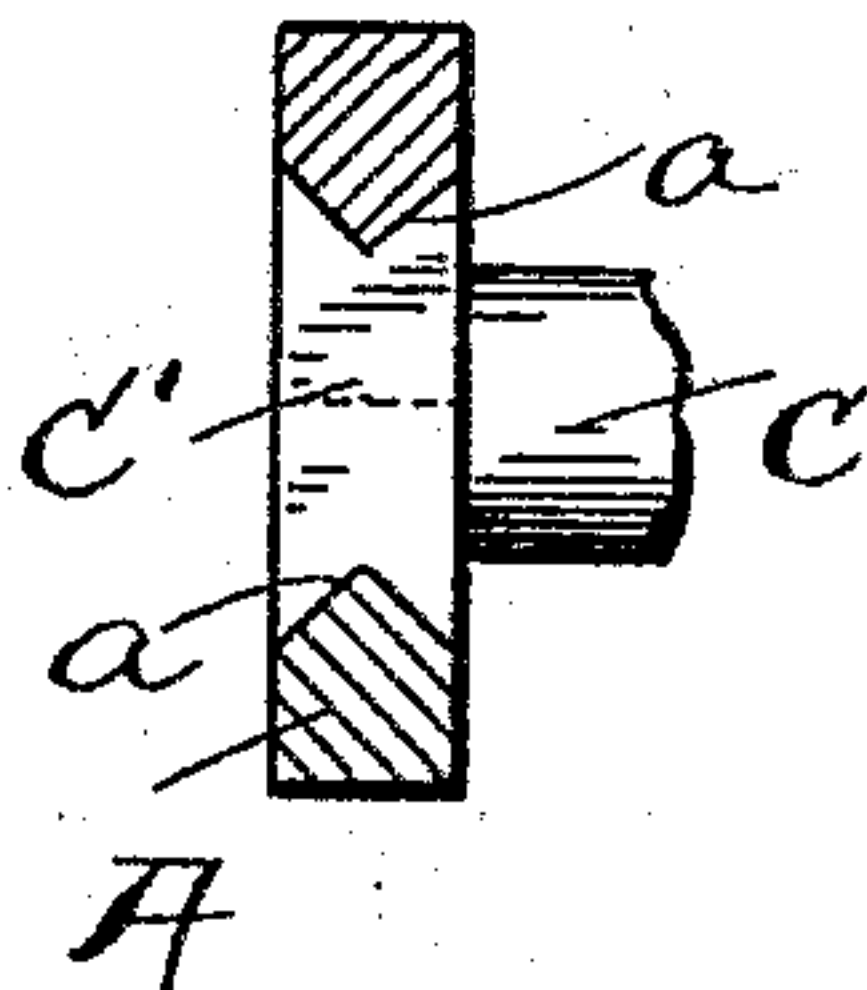


Fig. 6.

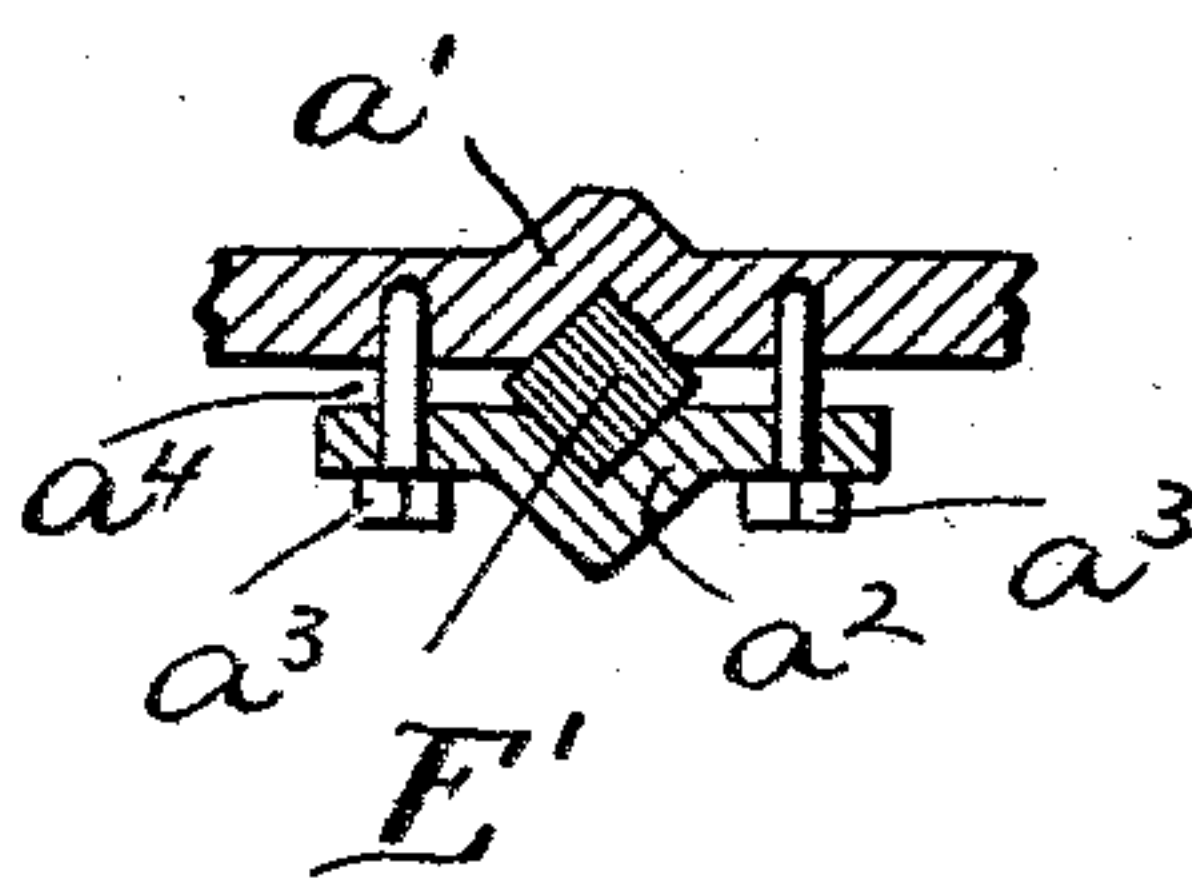
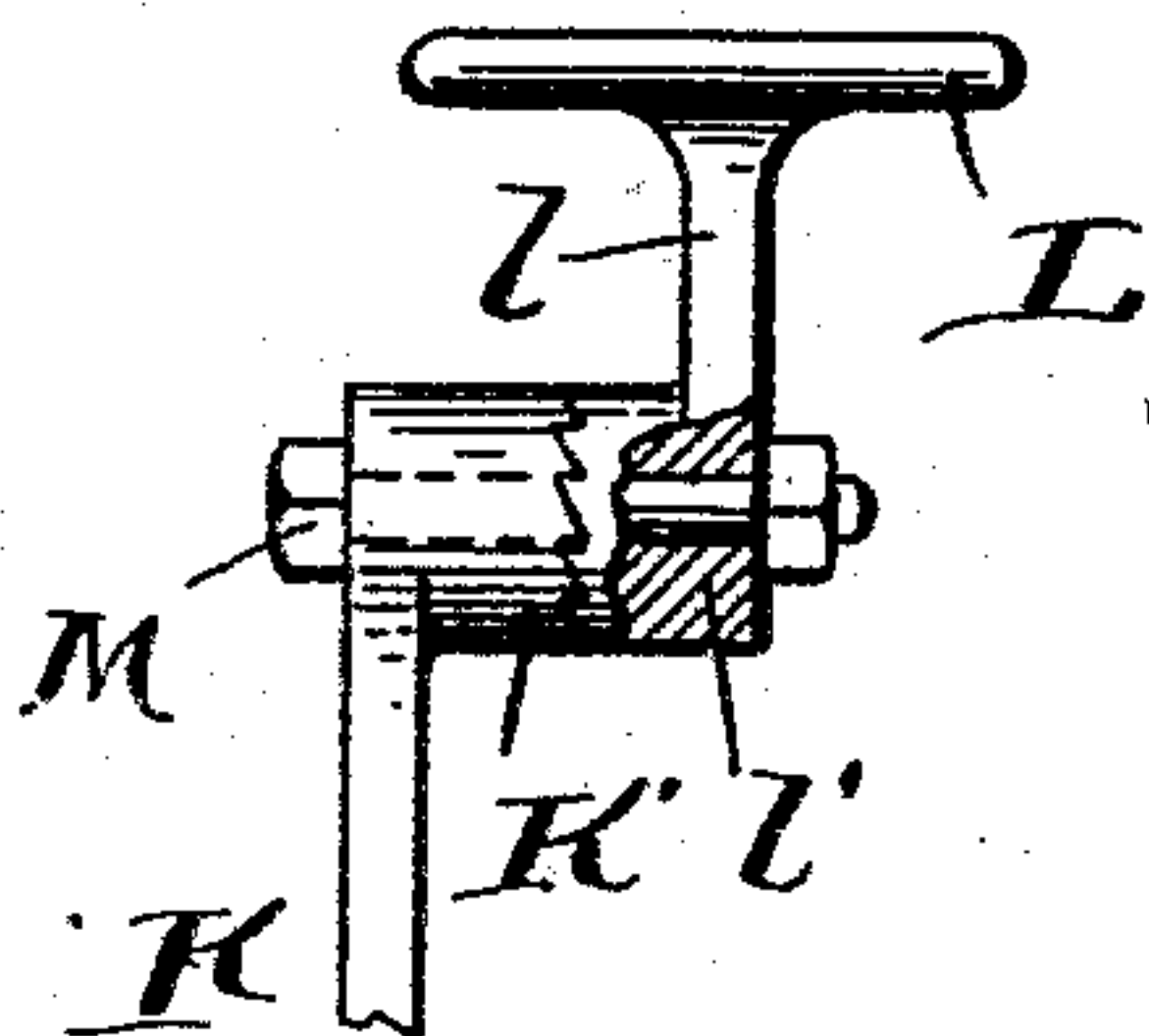


Fig. 7.



Witnesses.
E. B. Gilchrist.
[Signature]

Inventor.
John Wachalec
By Leggett & Leggett
his Attorneys.

UNITED STATES PATENT OFFICE.

JOHON WACHALEC, OF CLEVELAND, OHIO.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 511,224, dated December 19, 1893.

Application filed June 30, 1892. Serial No. 438,555. (No model.)

To all whom it may concern:

Be it known that I, JOHON WACHALEC, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Molding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in molding-machines and attachments; and it consists in certain features of construction and in combination of parts hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a right hand side elevation of a machine embodying my invention. Fig. 2 is a front side elevation of the same. Figs. 3 and 4 are vertical sections in detail taken in lines 3—3 and 4—4, Figs. 1 and 2, respectively, partly in elevation. Fig. 5 is plan in detail, partly in section, on line 5—5 Fig. 2. Fig. 6 is a horizontal section on line, 6—6, Fig. 2. Fig. 7 is an enlarged view in detail, partly in section.

The supporting-frame of the machine comprises upright side-members or standards, A, and transverse members, A', A², connecting said standards or side-members. Standards or side-members A, near the lower end thereof, afford bearing for an oscillating-shaft B. Shaft B, outside of each standard or member A, is provided with an eccentric, B'. B² represents the eccentric-straps which are each provided with an upwardly-extending arm, B³, fulcrumed at its upper end upon a laterally-projecting pin or stud C of the sliding-box C' adapted to slide up and down suitable ways *a* in the respective standard or member of the supporting-frame, a preferable construction being illustrated in Figs. 3 and 5 wherein ways *a* are V-shaped and sliding-boxes C' are correspondingly grooved. Upon pins or studs C, next outside arms B³, are fulcrumed upwardly-extending rods, D, the two rods D, at their opposite ends, being connected by a cross-piece or beam, D', that is provided with a platen, or, as shown, a pair of platens, D². Directly below platens D² is located a platen or a pair of platens, E, that are supported by upright rods E' that rest upon feet, E², supported by oscillating-shaft B. Rods

E' are preferably square in cross section as shown (see Fig. 6) and have bearing in corresponding boxes *a'* rigid with transverse members A' A² of the supporting-frame, *a*² representing the caps of said boxes, the same being bolted to the respective members of the supporting-frame, as at *a*³, not snugly but so that a space, *a*⁴ shall intervene between the caps and said supporting members, whereby upon tightening bolts *a*³ said caps of the boxes, as the parts become worn, may be re-adjusted as required.

Shaft B is provided with cams or projections *b* adapted to engage feet E² of rods E', and said feet are preferably removable, as shown in Fig. 4, wherein they have, respectively, an upwardly-extending member *e*² rounded at its upper end and adapted to engage a corresponding recess or depression in the lower end of the respective rod E', by which construction, as feet E² become worn, by lifting rods E' off said feet, the latter can be readily removed, if necessary, for replacement, without interference with the other parts of the machine.

Platen or platens D² are provided with a handle D³, employed in tilting said platens rearward from platens E or in bringing them into position over platens E.

Standards or supporting-members A have bolted thereto at their outer sides rearwardly-extending arms, G, that, at the rear end, are provided with a laterally-projecting lug or member *g* that serves as a stop to limit the rearward tilting of rods D, and at their forward ends, arms G have a lateral flange, *g'*, to limit the forward movement of said rods.

Shaft B, at one end, is provided with a hand lever, H, and the arrangement of cams *b* and eccentrics B' is such that the latter act in a direction opposite to that of the cams, and that when the operator has brought platens D² in position over platens E, by thereupon actuating lever H in the direction toward him, platens D² and E will be simultaneously actuated toward each other to effect the compression of the mold supported by platens E, and the required compression having been effected, by thereupon manipulating lever H in the opposite direction, said pairs of platens will recede from each other. Rods E' are also preferably provided with a forwardly-project-

ing flange *e* adapted to serve as a guard to prevent sand from getting into the bearings of said rods.

An objectionable feature of the molding machines heretofore devised consisted in the vast amount of exertion required on the part of the operator to effect the required compression of the mold.

By the construction of my improved machine, it will readily be observed that the exertion required is materially lessened and the operator is greatly relieved.

Another feature of considerable importance to which I would call attention is the provision of a shelf or table or a pair of shelves or tables, *L*, operatively connected with rods *E'* and adapted to be brought into position at the rear of platens *E* to receive the cope or upper part of the flask, when the same, after the compression of the mold, is removed from the drag to remove, in turn, the pattern from the drag. A preferable construction is shown in the drawings, wherein rods *E'* have rearwardly-extending arms *e'* and transverse member *A*² of the supporting-frame is provided with rearwardly-extending arms or brackets *A*³.

K represents levers bent at or near the lower end thereof substantially as shown, and fulcrumed to links *J* (see Fig. 1) that are pivoted at their opposite ends to rearwardly-extending arms or brackets *A*³ of supporting-member *A*², the lower ends of said levers being pivotally connected to rearwardly-extending arms *e'* of rods *E'*.

Levers *K* support tables *L* upon which the cope of the flask is placed when temporarily removed from the drag of the flask as aforesaid, the arrangement of parts being such that during the compression of the mold, said tables, by the mechanism operatively connecting them with rods *E'*, will be thrown or tilted rearward out of the way, and as platens *E* and *D*² are caused to recede from each other after the compression of the mold, said tables are simultaneously brought forward into position to receive the cope of the flask.

Heretofore a bench was provided at one side of the machine and the workman in removing the cope from the drag would place the same upon said bench. Thus lifting the cope to one side was not only inconvenient but the greater portion of the weight of the cope was brought to bear upon the one arm of the workman, and, in the case of ponderous molds, was a severe strain upon the workman.

By my improved attachment of tables *L* heretofore described, the workman lifts the cope rearward onto said tables, the work is equally distributed between both of his hands and arms and consequently rendered much easier.

Levers *K* are preferably provided with a series of holes, *k*, the arrangement whereof is such that according as the fulcrums of said levers are elevated or lowered and adjusted

at a different hole in said levers, shelves or tables *L* supported by said levers are adapted to be brought nearer to or not as near platens *E* as desired. With a large mold it would not be possible to bring tables *L* as far forward as with a small mold. In all cases, however, it is desirable to bring said tables as near the workman as practicable to reduce as much as possible the amount of labor required to remove the cope to and from said tables.

Tables *L* are adjustably secured to levers *K* preferably as indicated, said levers at their upper ends, terminating in an inwardly-projecting ratchet-sleeve *K'*, and legs *l* of tables *L*, at the lower end terminate, respectively, in an outwardly-projecting ratchet-sleeve *l'* that is secured to ratchet-sleeve of the adjacent lever *K* by means of a bolt, *M*, the teeth of the two ratchet-sleeves being adapted to mutually engage each other and to be locked together by means of said bolt.

By means of the construction just described, upon changing the adjustment of the fulcrum of levers *K*, tables *L* can also be readjusted to assume and retain their horizontal position, it being merely necessary to disengage the two ratchet-sleeves *K* and *l'* whereupon the tables can be tilted forward or rearward as required to assume the horizontal position desired and then to again tighten the bolts to secure the parts in their readjustment.

Transverse member *A*² of the supporting-frame, at the central portion thereof, has secured thereto the rearwardly-extending arm or bracket, *O*, that supports a pulley or sprocket-wheel, *P*, and *W* represents a weight that is connected, by means of chain *W'* that leads over said pulley or sprocket-wheel, with a rearwardly and downwardly-extending bar or member *d*² rigid with platens *D*², said weight acting in the direction to retain said platens in their upright position.

What I claim is—

1. In a molding-machine, the combination with an upper and a co-operating lower platen, of an oscillating shaft, means for oscillating said shaft, eccentrics operatively mounted on said shaft, and operatively connected with said upper platen at opposite sides of the machine, cams or projections on said oscillating-shaft, and suitable means operatively connected with said lower platen and adapted to be actuated by said cams or projections, the arrangement of parts being such that said platens shall be caused to simultaneously approach or recede from each other according as said shaft is oscillated in the one direction or the other, substantially as set forth.

2. In a molding-machine, the combination with a pair of upper platens and a pair of co-operating lower platens, of an oscillating-shaft, eccentrics operatively mounted on said shaft, means for oscillating said shaft and mechanism substantially as indicated operatively connecting the upper pair of platens

with said eccentrics, a pair of cams or projections rigid with said shaft and rods operatively connected with the lower platens and terminating at the lower ends in feet adapted to be engaged by said cams or projections, said cams or projections and eccentrics being adapted to simultaneously act, respectively, in opposite directions, substantially as set forth.

3. In a molding-machine, the combination with a supporting-frame, comprising upright members A and transverse members, A' A², connecting said upright members, and upper and lower platens, of an oscillating-shaft supported by said upright members of the supporting-frame, means for oscillating said shaft an eccentric operatively mounted upon said shaft at each side of the supporting-frame, said eccentrics being operatively connected with the upper platens and a pair of cams or projections on said shaft between the upright members of the supporting-frame, rods operatively connected with the lower platens and terminating at the other lower ends in feet, and adapted to be elevated by said cams or projections, said rods having bearing in suitable boxes rigid with transverse members A' A² of the supporting-frame, and the eccentrics aforesaid being adapted to act in a direction opposite to said cams or projections, the arrangement of parts being such that the upper and lower platens shall be actuated simultaneously substantially as set forth.

4. In a molding-machine, the combination with a supporting-frame, and a platen, of an oscillating-shaft supported by said supporting-frame and provided with a cam or projection, means for oscillating said shaft a vertically-reciprocating rod having bearing in said supporting-frame and being operatively connected with the aforesaid platen, and recessed at its lower end, and a removable foot, engaging the recess in the lower end of said rod, and adapted to rest upon and be elevated by the aforesaid cam or projection of the oscillating-shaft, substantially as and for the purpose set forth.

5. In a molding machine, the combination with a platen and mechanism for elevating and lowering the same, of a shelf or table and suitable means operatively connecting said shelf or table with the aforesaid platen-actuating-mechanism in such a manner that the

shelf or table shall be brought into position at the rear of said platen simultaneously with the lowering of the latter, substantially as set forth.

6. In a molding-machine, the combination with a platen, and mechanism for elevating and lowering said platen, of a shelf or table, and adjustable means, substantially as indicated, operatively connecting said shelf or table with the aforesaid platen actuating mechanism and adapted to bring said shelf or table into the desired position at the rear of said platen simultaneously with the lowering of the latter, substantially as and for the purpose set forth.

7. In a molding-machine, the combination of a pair of platens, an oscillating shaft provided with a pair of cams or projections, vertically-reciprocating-rods operatively connected with said platens and terminating at their lower ends in feet resting upon said cams or projections of the oscillating-shaft, of a shelf or table, supported by each of said vertically-reciprocating rods, and suitable mechanism operatively connecting said shelves or tables and platens with each other in such a manner that the shelves or tables shall be brought into position at the rear of the platens simultaneously with the elevation of the latter, substantially as set forth.

8. In a molding-machine, the combination of a pair of platens, an oscillating-shaft provided with cams or projections, vertically-reciprocating-rods operatively connected with said platens and terminating at their lower ends in feet adapted to be engaged and elevated by the aforesaid cams or projections of the oscillating-shaft, said vertically-reciprocating-rods having each a rearwardly-extending arm or bracket, links pivotally connected with the supporting-frame at the rear of the vertically-reciprocating rods, tilting levers fulcrumed to said links and pivotally connected at their lower ends with the aforesaid rearwardly-extending arms or brackets of the reciprocating rods, and tables carried by said tilting-levers, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 2d day of May, 1892.

JOHON WACHALEC.

Witnesses:

C. H. DORER,
WARD HOOVER.