

No. 795,781.

PATENTED JULY 25, 1905.

F. S. McDOUGALL.  
WORKING BODY CHURN.  
APPLICATION FILED JUNE 29, 1904.

2 SHEETS—SHEET 1.

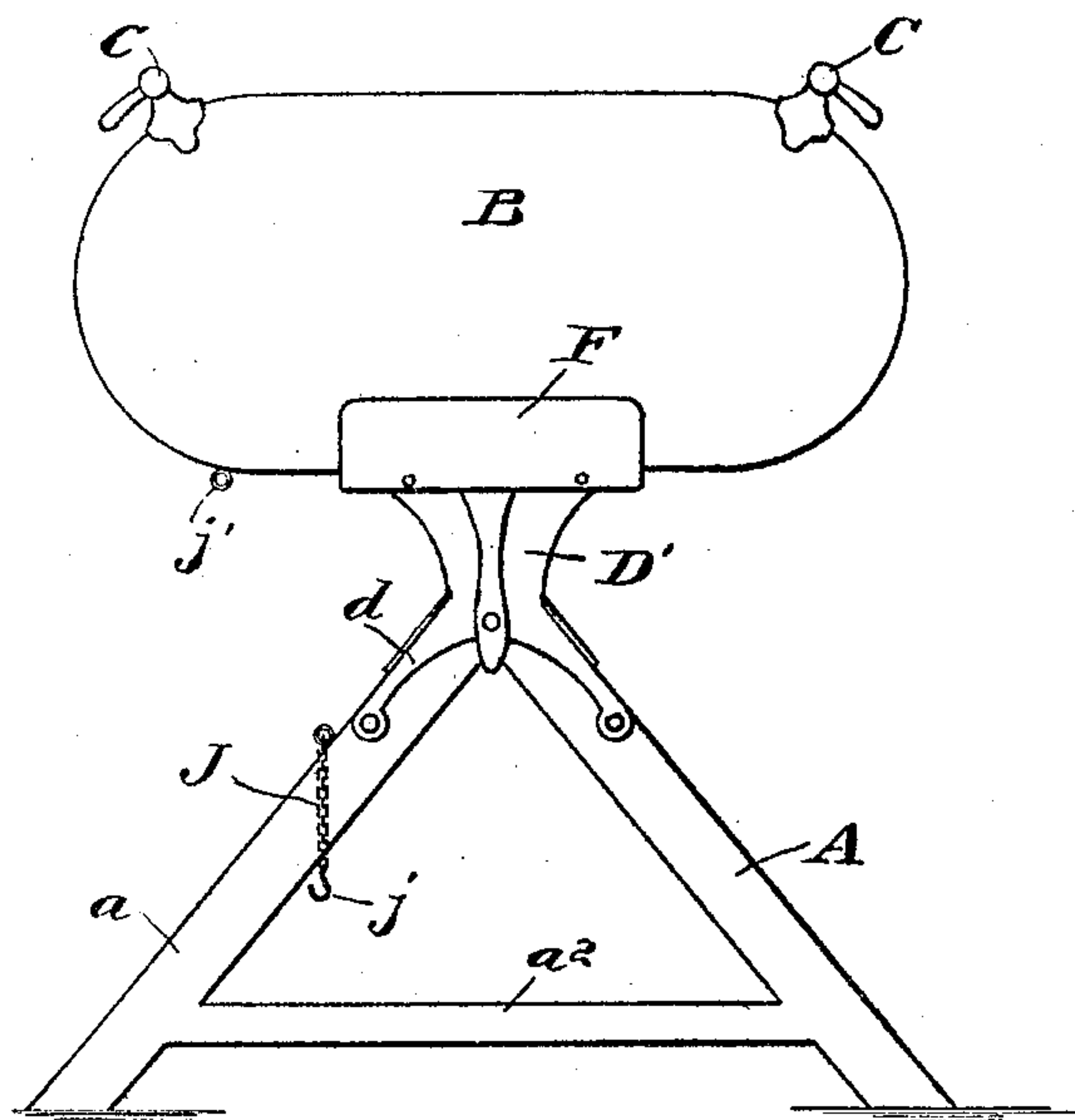


Fig. 1.

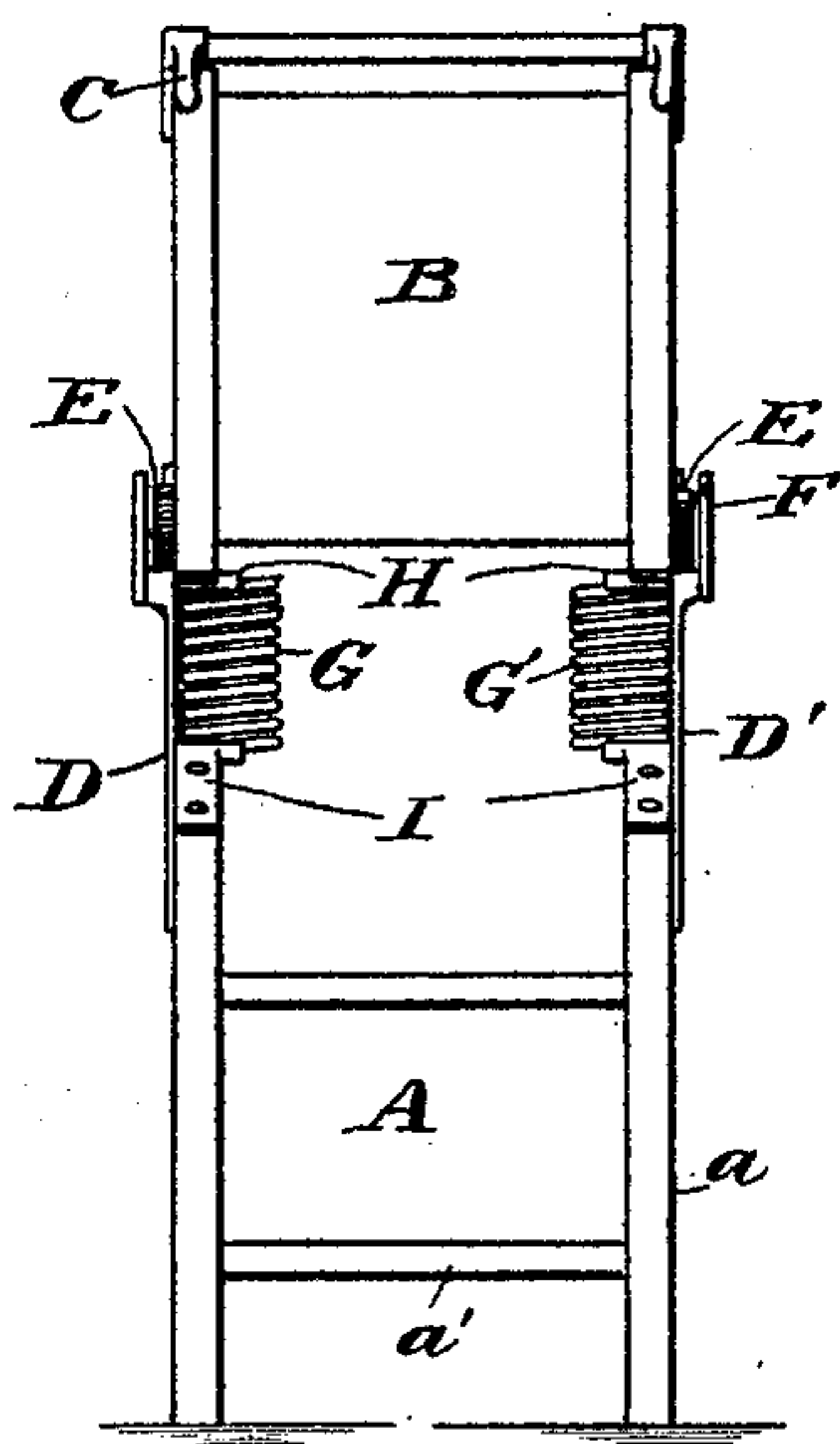


Fig. 2.

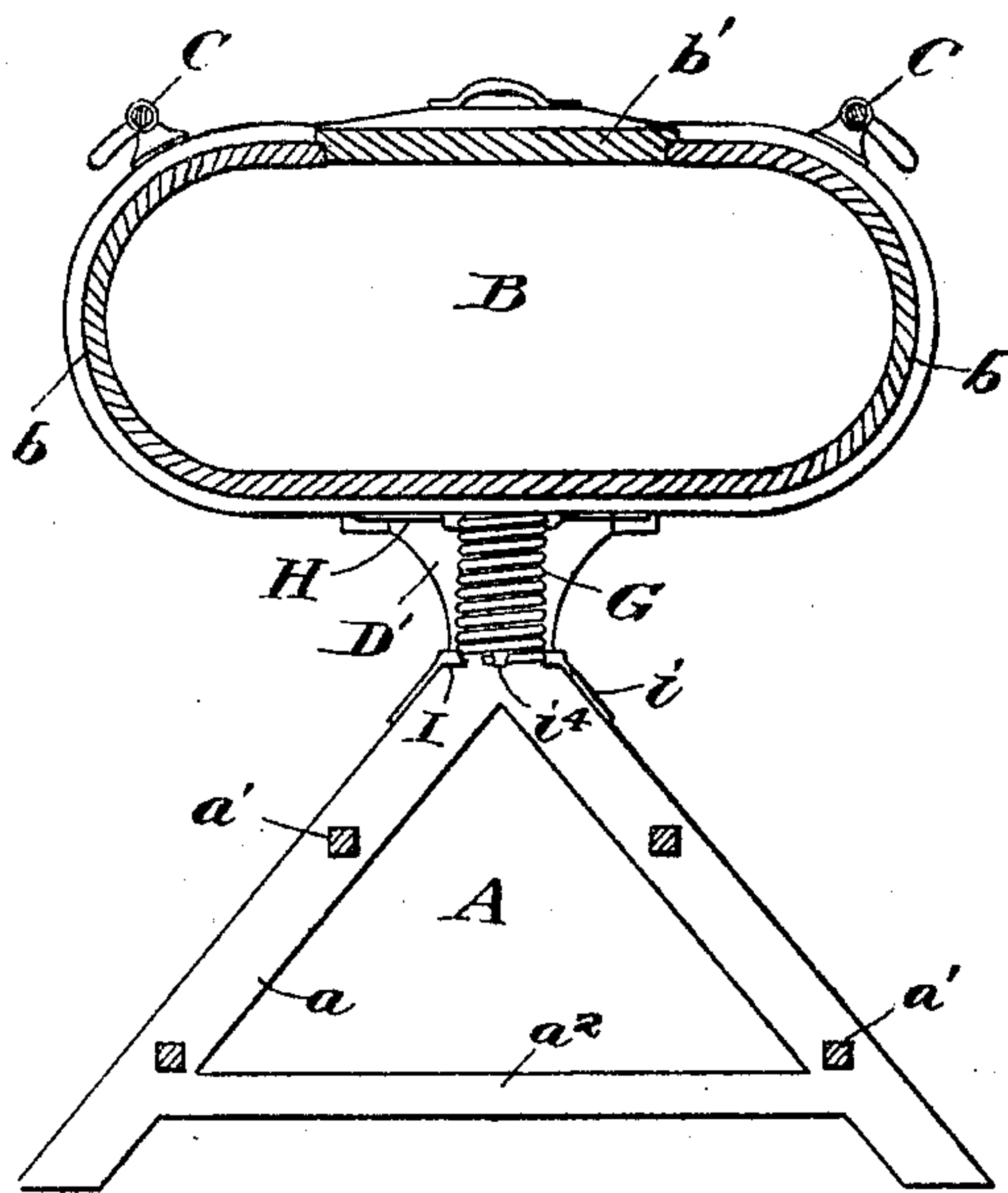


Fig. 3.

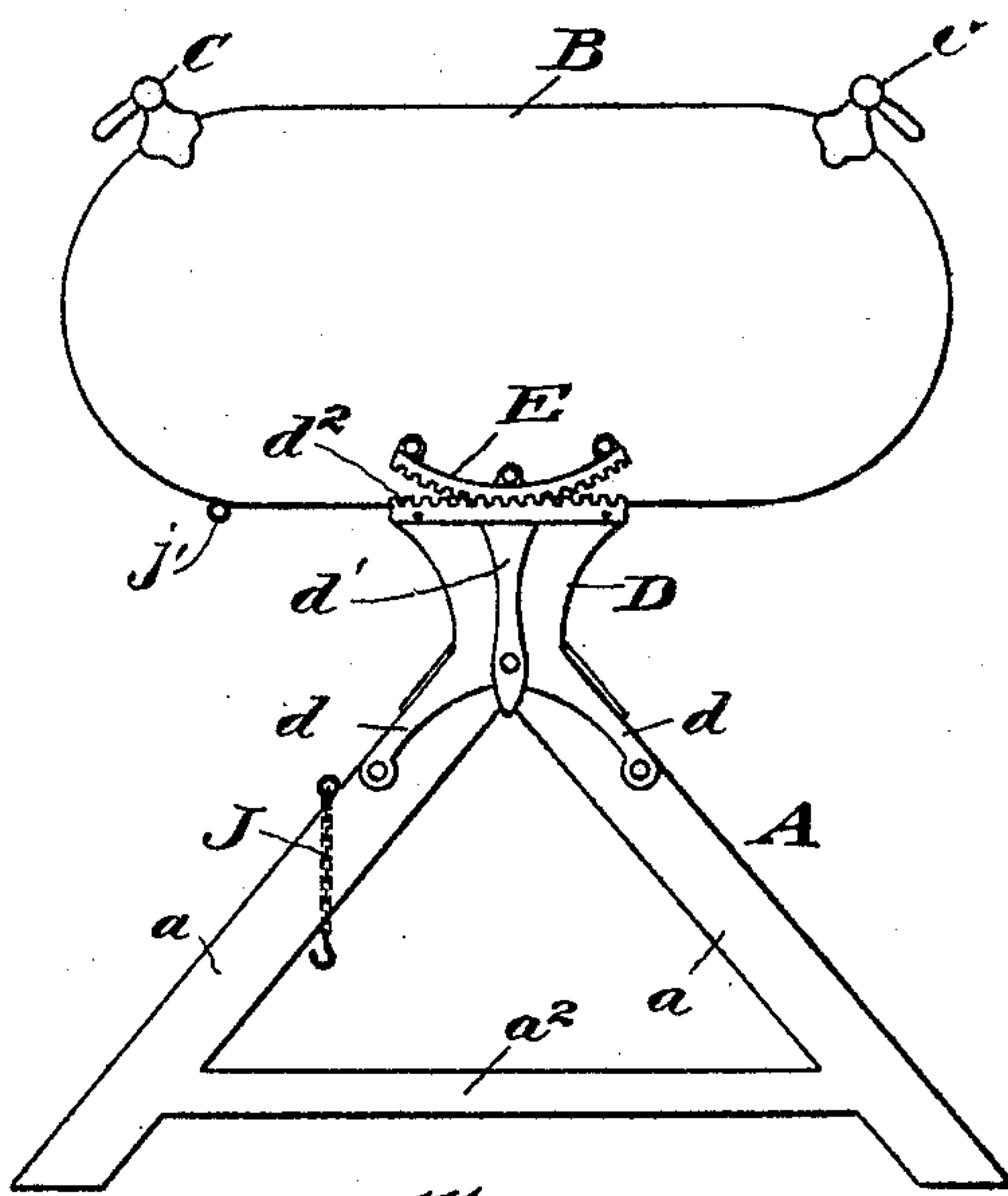


Fig. 4.

WITNESSES:  
Robert Head  
V. E. Nichols.

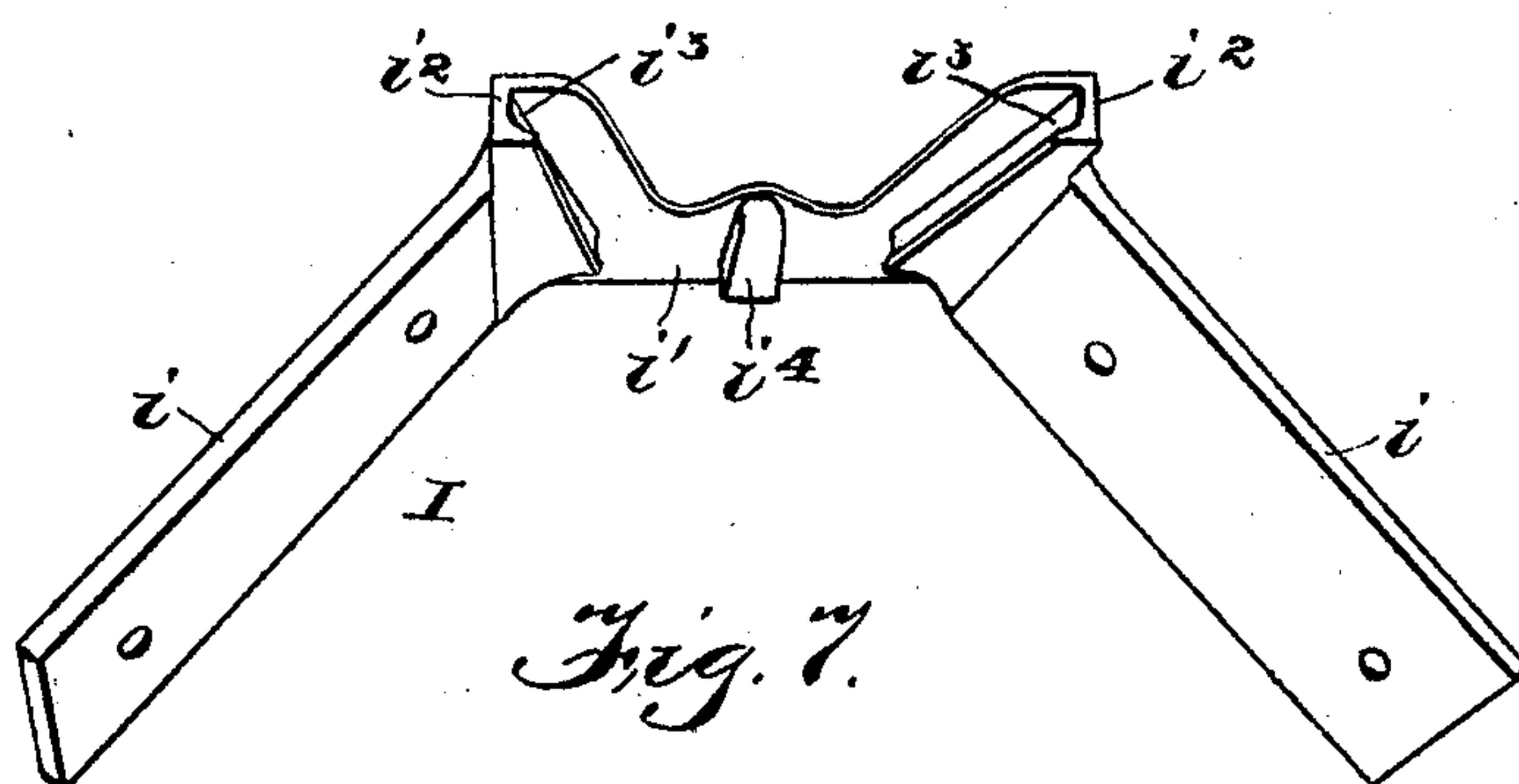
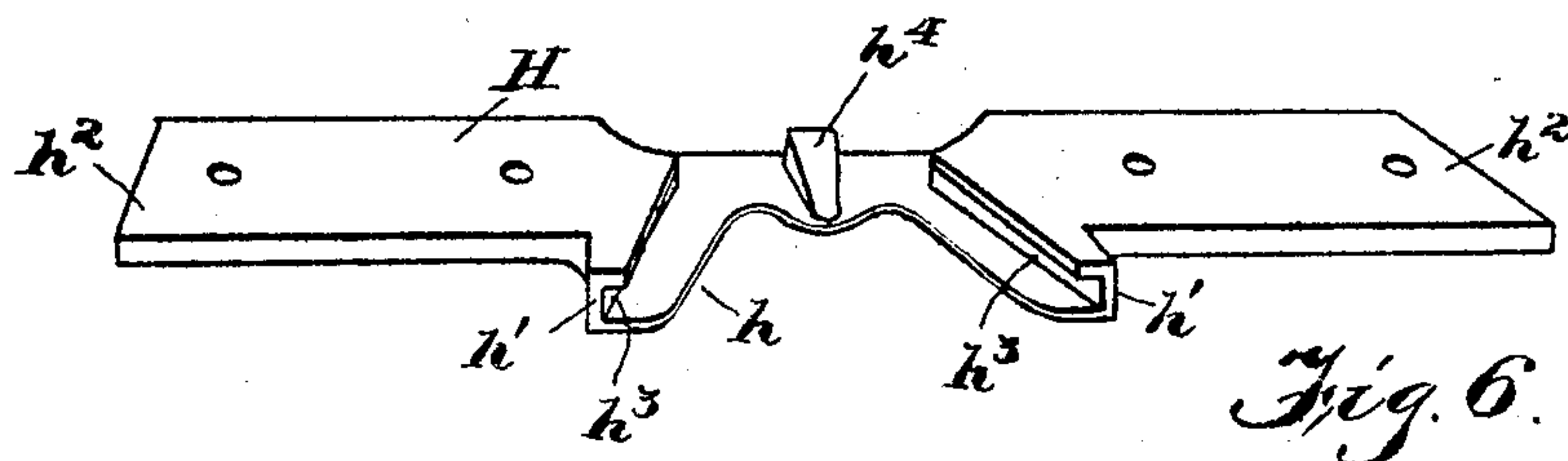
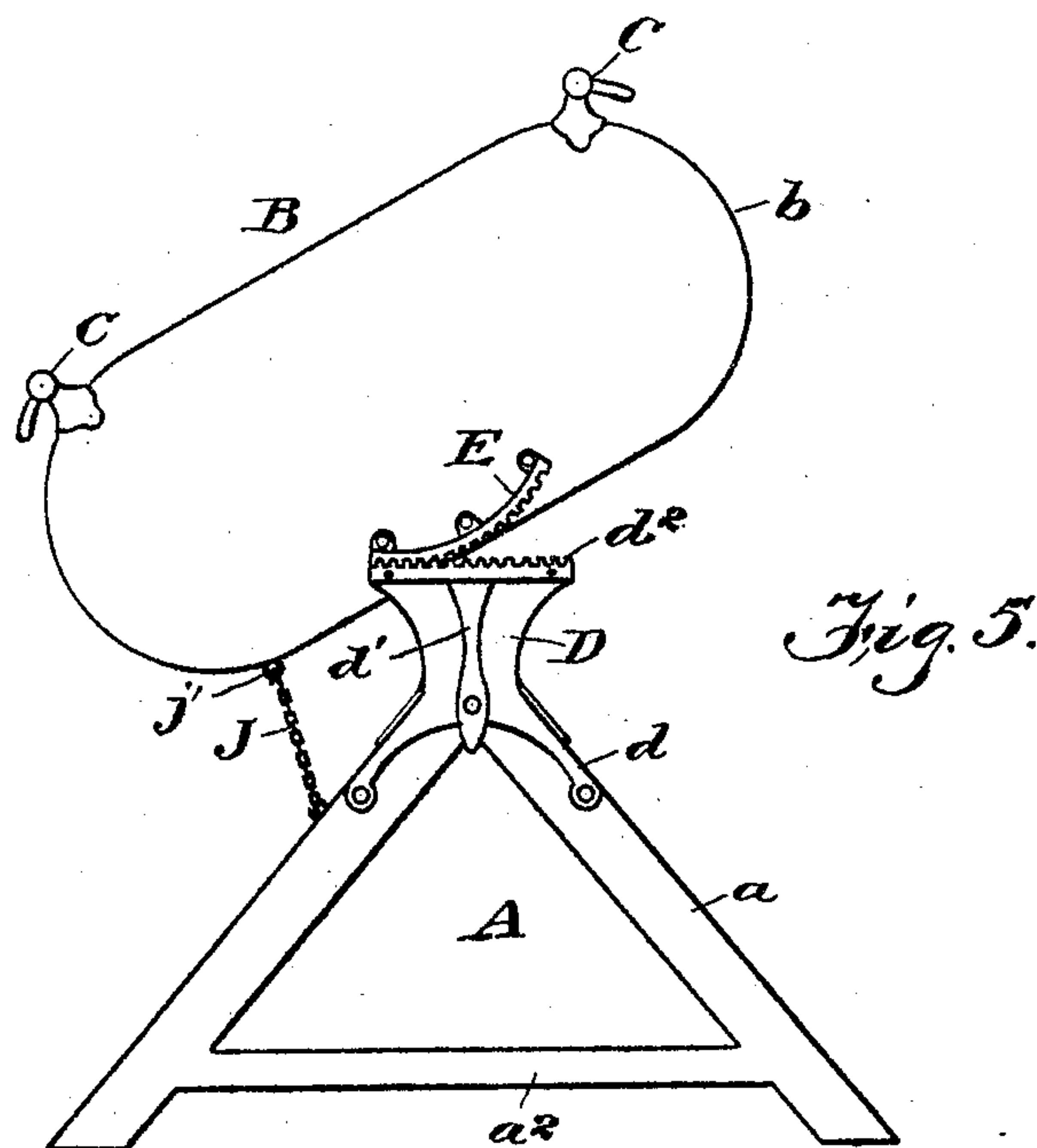
INVENTOR:  
Frederick S. McDougall  
BY  
Griffin Perukowski & Cavavagh  
ATTORNEYS.

No. 795,781.

PATENTED JULY 25, 1905.

F. S. McDOUGALL.  
WORKING BODY CHURN.  
APPLICATION FILED JUNE 29, 1904.

2 SHEETS—SHEET 2.



WITNESSES:

Robert Head

V. E. Nichols.

INVENTOR

Frederick S. McDougall  
BY  
Griffin Bernhardt & Cavanaugh  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FREDERICK S. McDOUGALL, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF  
ONE-HALF TO FRANK W. TRABOLD, OF BROOKLYN, NEW YORK.

## WORKING-BODY CHURN.

No. 795,781.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed June 29, 1904. Serial No. 214,580.

*To all whom it may concern:*

Be it known that I, FREDERICK S. McDOUGALL, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Working - Body Churns; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in churns of that class wherein a body or receptacle is mounted on a suitable stand or base in a manner to rock or oscillate on a horizontal axis.

One object of this invention is to provide simple and efficient means for holding an oscillatory body in position and under spring tension on the stand or base, thus permitting the churn to be operated with ease and by a young unskilled operator.

A further object that I have in view is to provide means for retaining and guiding the oscillatory body so as to prevent it from becoming displaced on the stand, said means being shielded to overcome the possibility of the operator's clothing being caught in the working parts.

A further object is to simplify and cheapen the construction to the end that the structure as a whole will operate satisfactorily and efficiently by churning the milk and cream in a very short space of time.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the actual scope of the invention will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, wherein like characters of reference are used to indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a churn constructed in accordance with my invention. Fig. 2 is an end elevation thereof. Fig. 3 is a vertical longitudinal section through the churn. Fig. 4 is a side elevation somewhat similar to Fig. 2 with the guard-plate removed, showing the gearing between the stand and the oscillatory body. Fig. 5 is another side elevation showing an adjusted position of the churn-body. Figs. 6 and 7 are enlarged detailed perspective views of spring-holding

plates adapted to be fastened to the oscillatory body and the stand, respectively.

Any suitable form of base or stand may be employed for supporting an oscillatory churn-body; but, as shown by the drawings, I prefer to use a substantially triangular stand A, which consists of two pairs of upwardly-converging legs *a*, which are joined in pairs by the tie-bars *a'*, the legs of each pair being united by another tie-bar *a''*.

The body or receptacle B may be of any suitable form; but, as shown, said receptacle is generally rectangular and provided with curved or rounded ends *b*. The receptacle is provided with an opening in its top, which is adapted to be closed by a removable cover *b'*. For conveniently working the receptacle suitable handles C are fastened to the outside of the same. These handles may be of any suitable construction, and they may be applied to the respective ends of said receptacle, as shown.

The body is mounted on the stand by devices which permit it to rock or swing in a vertical plane, said devices being constructed to keep and retain the body in place on the stand, thus overcoming accidental removal of the body from said stand. I employ carrier-plates D D', which are adapted to be fastened to the respective sides of the stand A and are extended above said stand to receive racks E on the body B. Each carrier-plate D or D' is cast in a single piece of metal substantially in the form represented more clearly by Figs. 1, 4, and 5, each plate having depending branches *d* and a reinforcement rib *d'*. The plate is fitted laterally against the outside of the stand, so as to span the space at the meeting ends of the converging legs, and through the plate and its branches *d* are passed suitable fastening screws or bolts, whereby the carrier-plates tend to strengthen the stand. Each carrier-plate has a straight thickened upper edge, which is provided with a number of gear-teeth forming a rack *d''*, and on the said rack-formed edges of the carrier-plates D D' are adapted to rest on curved racks E, which are fastened to the sides of the churn-body B, as shown. It will be seen that the teeth of the segmental racks E engage with the teeth of the straight racks *d''* of the carrier-plates, whereby the body is mounted on said carrier-plates and the two racks cooperate in holding the body against accidental displace-



ment on the stand, the body being free to rock or swing in a vertical plane. Each segmental rack E may be cast to form in a single piece of metal and in a way which enables it to be secured rigidly to the side of the churn-body.

Guard-plates F are fastened to the carrier-plates D D' by suitable screws or rivets, said plates F being arranged to inclose or house the two racks, and thereby prevent the clothing or fingers of the operator from being injured by catching in the racks. As shown, these guard-plates are flat pieces of sheet metal, which occupy stationary positions on the carrier-plates and extend upwardly along-side of the body B, the latter being free to rock or oscillate between said plates.

For making the body easy of operation I employ a pair of springs, (indicated at G G',) which are connected to the stand and to the body in a way to normally maintain the latter in a substantially horizontal position, as indicated by Figs. 1 to 5, inclusive, of the drawings. These springs are arranged within or between the carrier-plates D D' in a way to be housed thereby in order to conceal them from view, said springs being preferably of the coiled variety and arranged in vertical positions, as indicated more clearly by Figs. 2 and 3. Each spring is held in place by a pair of cooperating plates H I (shown in detail by Figs. 6 and 7) and adapted to be fastened to the working body and the stand A, respectively.

The plate H is cast in a single piece with an offset portion  $h$  and with the ledges or shoulders  $h'$ , the latter joining the offset  $h$  with the branches  $h^2$  of the plate. The ledges or shoulders  $h'$  converge, as shown more particularly by Fig. 6, and in their opposing faces are provided the channels or grooves  $h^3$ , the latter being above the plane of the offset  $h$  and partaking of the inclination of the shoulders. The offset  $h$  is recessed or fashioned as shown, and on the middle portion thereof is a lug  $h^4$ , the latter lying between the grooved shoulders  $h$   $h'$  and near one side edge of the plate H. The members  $h^2$  of the plate are fitted against a flat lower surface of the churn-body at one side thereof, and said plate is fastened firmly to said body by screws or other fasteners that pass through suitable perforations in said members  $h^2$  of the said plate H.

The plate I, which is adapted for attachment to the stand, is constructed peculiarly, as shown by Fig. 7, and to embrace the top meeting ends of the legs  $a$ , and this plate I is, like the plate H, also cast in a single piece of metal. Said plate I consists of the inclined branches  $i$  and the central body portion  $i'$ , the latter having inclined shoulders  $i^2$ , which converge toward one edge of the plate. These converging shoulders have grooves or channels  $i^3$  in their opposing edges, and the body portion  $i'$  of said plate I has a lug  $i^4$ . It will be understood that the plate I is fastened over

the top ends of the stand-legs  $a$  for the branches  $i$  to embrace said legs and to be secured thereto by suitable fastenings, whereby the plates I tend to also strengthen the stand. The pair of plates H I for each spring cooperate in holding said spring in position, because the plate I is fastened to the stand directly below the plate H, that is attached to the churn-body. The end coils of the spring at the upper and lower portions thereof fit against the offset  $h$  of the plate H and the body portion  $i'$  of the plate I, said end coils of the spring being received in the sockets formed by the channels  $h^3$  of the plate H and the channel  $i^3$  of the plate I. Furthermore, the end coils of the springs snap over the lugs  $h^4$  and  $i^4$  of the plates H I, respectively, and thus the end coils of the springs are held in and fastened to the pair of plates in a way to wholly overcome any accidental separation of the spring from the plates and to place the body B under the tension of the pair of springs G G'.

As hereinbefore indicated, the body B is maintained in a horizontal position by the springs and by the racks E, resting upon the carrier-plates D D'. To use the churn, the operator removes the cover  $b'$  and pours the milk and cream into the body B through the opening in the top thereof, after which the cover is replaced. The operator applies pressure to one of the handles C and moves the body to an inclined position; but the body is prevented from slipping or sliding on the carrier-plates under the strain of the springs by reason of the geared engagement of the racks E with the carrier-plates. By relaxing the pressure on the handle the body is returned to an oppositely-inclined position by the recoil energy of the springs G G', and this rocking motion is continued in order to violently agitate the contents of the body until the cream is churned.

It is evident that the liquid which remains in the churn may be readily drawn off through a suitable opening or faucet, and to allow the liquid to drain I have provided a fastening-chain J, one end of which is attached to the stand A, while its free end is provided with a hook  $j$ , the latter being adapted for engagement with an eye  $j'$ , that is attached to the churn-body, whereby the latter may be held in the inclined position against the action of the springs, substantially as indicated by Fig. 5.

Changes in the form, size, and proportion of parts and in the details of construction may be made by a skilled mechanic without departing from the principle or sacrificing the advantages of my invention. I therefore reserve the right to make such modifications and alterations as fairly fall within the scope of my invention as defined by the annexed claims. For example, the guard-plates F may be cast in one piece with the carrier-plates D D', or instead of employing the stationary plates I may attach the plates to



the rocking body B for movement therewith. As these changes are obvious expedients falling within the skill of a mechanic, it has not been considered necessary to illustrate them.

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

1. A churn comprising a stand, a rockable chambered body independent of said stand, bracket-plates fixed, to and extending upwardly from, the stand, said bracket-plates being provided with rack-teeth, toothed segments fixed to the body and meshing with the rack-teeth of the bracket-plates, said segments and bracket-plates cooperating in supporting the body free from engagement with the stand, coiled springs located between the bracket-plates, and plates for securing the springs to the stand and the body, respectively.

2. In a churn, the combination with a stand and a rockable body, of cooperating members for supporting the body on said stand, socketed plates attached to the stand and the body respectively, one of said plates being movable with said body and a spring the ends of which have interlocking engagement with said socketed plates.

3. A churn comprising a stand, a rockable body supported thereon, a socketed plate fastened to the body for movement therewith, another socketed plate fastened to the stand, and a coiled spring having its end coils seated in the sockets of said plates and having interlocking engagement therewith.

4. A churn comprising a stand, a rockable

body supported thereon, a plate fixed to said body and provided with converging channels, another plate fixed to the stand and also provided with converging channels, and a spring having its end coils seated in said channels of the recessed plates, and having interlocking engagement therewith.

5. A churn comprising a stand, a rockable body supported thereon, spring-retaining plates fastened to the stand and the body respectively, and each provided with a recess and a lug, and a coiled spring having its end coils seated in said recesses of the respective plates, said end coils of the springs also having interlocking engagement with said lugs of the plates.

6. In a churn, a spring-retaining plate having an offset, converging ledges or shoulders between the said plate and the offset, channels in the opposing faces of said ledges or shoulders, and a lug on the offset portion between said shoulders.

7. In a churn, a spring-retaining plate having inclined branches, a body portion uniting said branches, converging ledges between the branches and said body portion, channels in the opposing faces of the ledges or the shoulders, and a lug on the body portion between the channeled shoulders.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK S. McDOUGALL.

Witnesses:

H. I. BERNHARD,  
JAS. H. GRIFFIN.