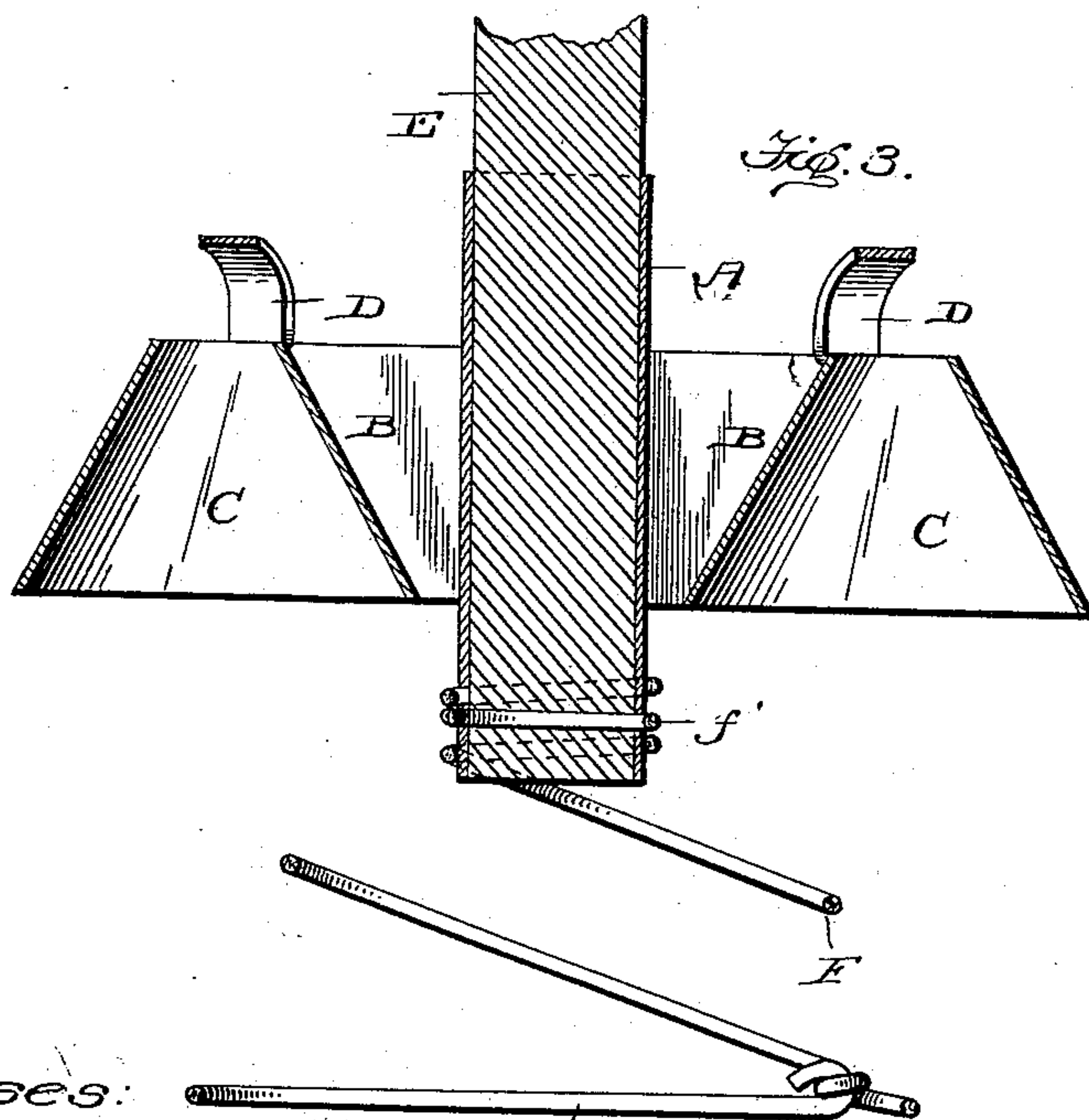
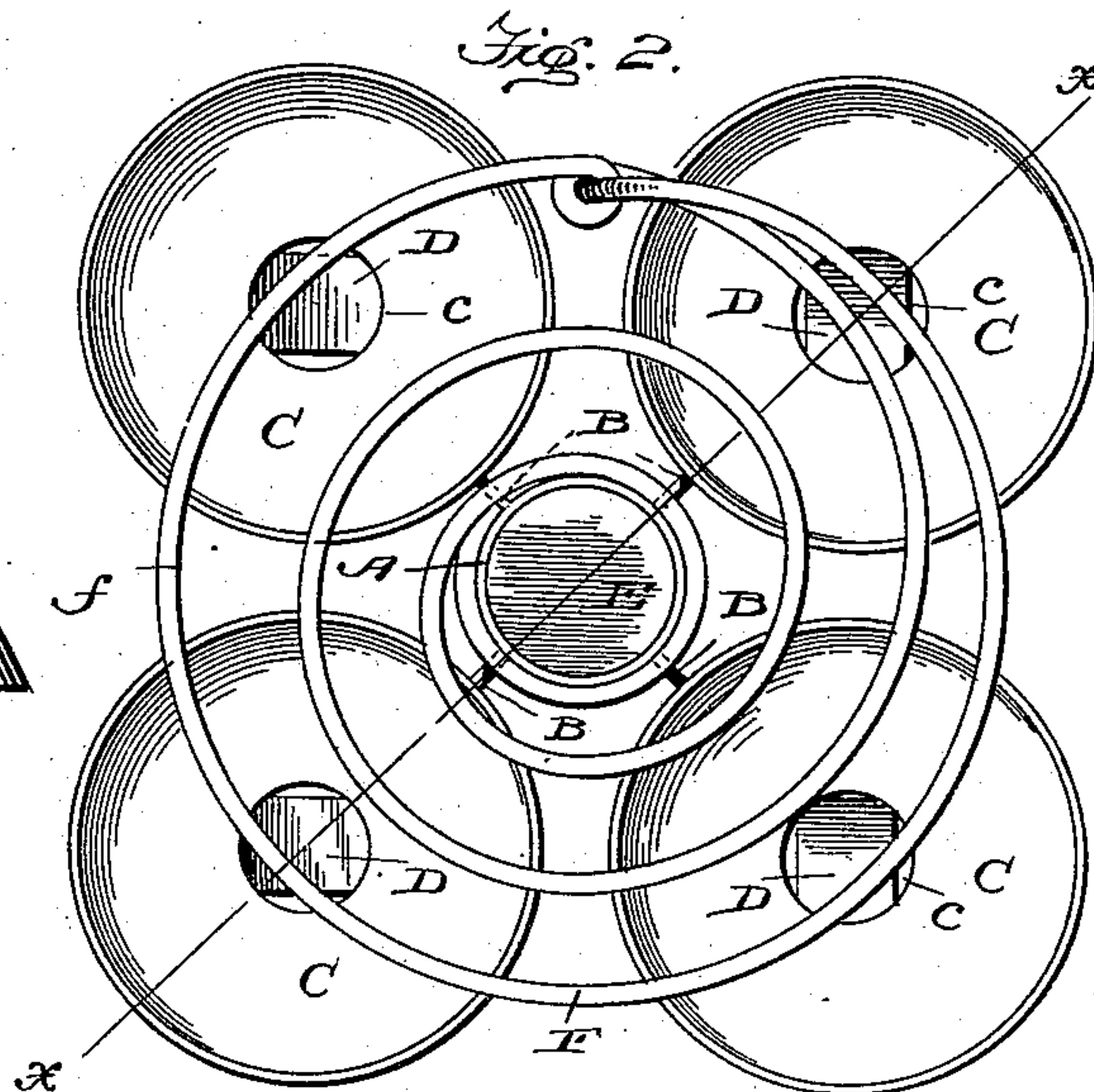
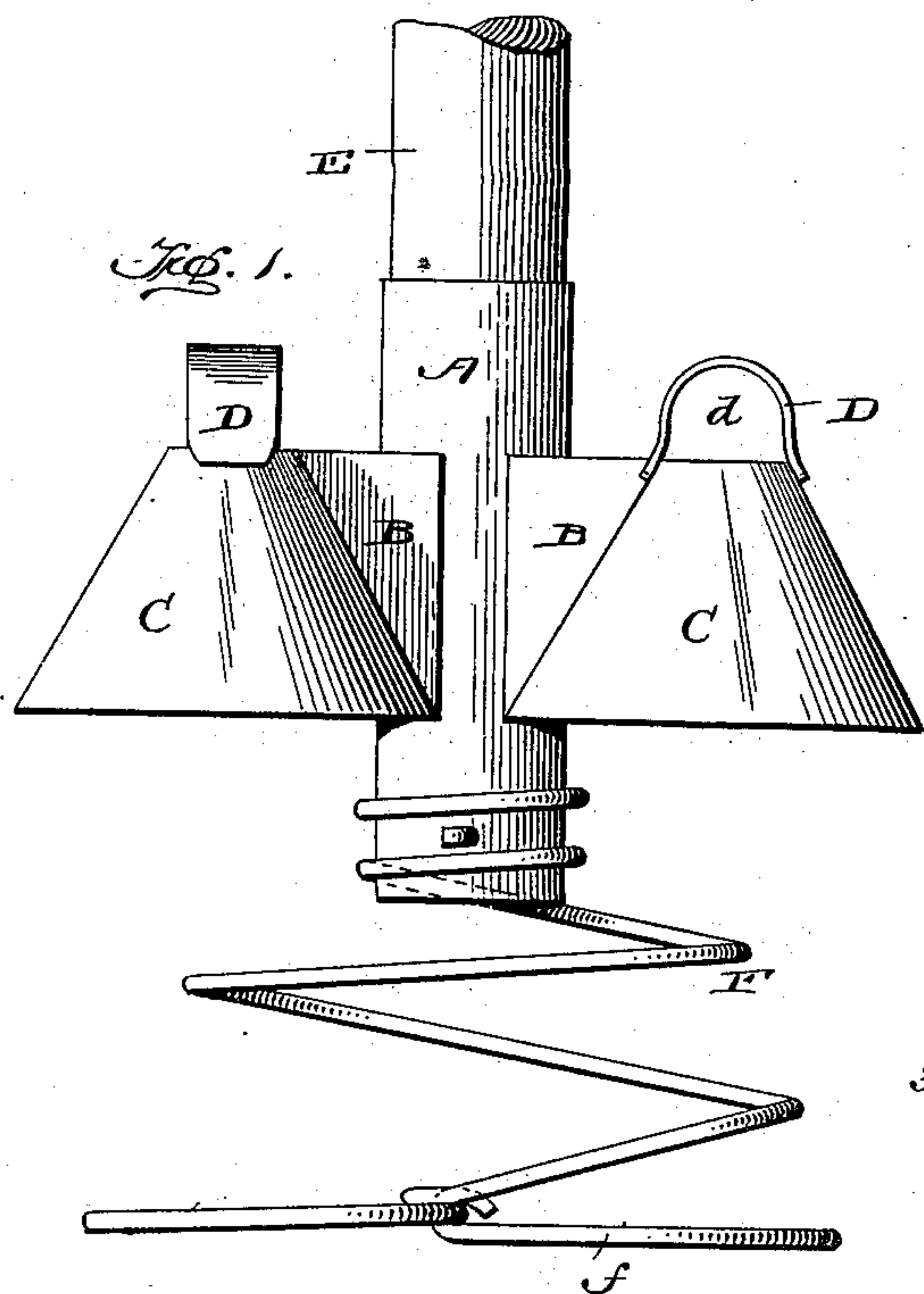


(No Model.)

J. M. CHADWICK.  
CHURN DASHER.

No. 507,065.

Patented Oct. 17, 1893.



Witnesses:

Wm. C. Dasher  
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Inventor:

James M. Chadwick  
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Attys.



# UNITED STATES PATENT OFFICE.

JAMES MATERSON CHADWICK, OF GADSDEN, ALABAMA, ASSIGNOR OF ONE-HALF TO AZARIAH T. FULLER, OF SAME PLACE.

## CHURN-DASHER.

SPECIFICATION forming part of Letters Patent No. 507,065, dated October 17, 1893.

Application filed July 5, 1893. Serial No. 479,626. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES MATERSON CHADWICK, a citizen of the United States, residing at Gadsden, in the county of Etowah and State of Alabama, have invented certain new and useful Improvements in Churn-Dashers; 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 appertains to make and use the same.

The object of my invention is to provide a simple and inexpensive churn dasher which serves to violently agitate the milk to effect the expeditious separation of the butter particles from the milk; and a further object is to provide means which, in addition to agitating the milk, serves to cushion the downstroke of the dasher and aids in returning the same on its upstroke.

With these ends in view, the invention consists, first, in the dasher comprising a socket for the dasher-staff, a series of radial wings or webs, and a series of inverted conical cups each carried by one of said radial webs or wings and provided in its upper end with an opening over which is fixed a breaker-hood that lies in the path of the jet of milk that flows through said inverted cup on the downstroke of the dasher; secondly, a spring connected to the lower end of the dasher staff and having its lower coil bent in a horizontal plane and forming a flat base so that the dasher will have a firm bearing in the churn receptacle; and, thirdly, in the method of attaching the spring and dasher to the staff which overcomes the tendency of either part to become detached.

In the accompanying drawings, forming a part of this specification, I have illustrated the preferred embodiment of my invention, in which—

Figure 1 is a side elevation. Fig. 2 is an inverted or bottom-plan view. Fig. 3 is a vertical sectional view on the plane indicated by the dotted line  $x-x$  of Fig. 2.

Like letters of reference denote corresponding parts in all the figures of the drawings.

My improved dasher can be used in any kind of a vessel or receptacle.

The dasher proper consists of a long sleeve or thimble A, a series of radial wings or webs B, and a series of cups C, all of which are preferably cast or formed in a single metal for simplicity and cheapness although one or more of the parts may be made separate, of any suitable material, and fastened together in any approved manner. The cups C are made in the shape of inverted cones with their broad open ends lowermost, and each cup has an opening  $c$  at its upper end, over which opening is arranged a breaker-hood D that partially covers the opening  $c$  and lies in the direct path of the jet or stream that is forced through the cup on the downstroke of the dasher. This breaker-hood D is preferably integral with the cup and it is so arranged or formed as to leave side openings or passages  $d$  for the escape of the milk that passes through the cup-opening C and is deflected and broken by the breaker-hood D. The wings or webs B extend radially from the thimble or sleeve A, and its outer edge is joined or united with the cup C, said cups lying at suitable distances from each other and the staff.

The thimble or sleeve A is extended a suitable distance below the lower extremities of the inverted cups, and in this thimble is fitted the dasher staff E which has its lower end terminating practically flush with the lower extended end of the thimble.

F is a spring that serves to agitate or churn the milk, to cushion the downstroke of the dasher and thus avoid any danger of breaking the cups C, or bottom of the churn and to assist in returning the dasher on its upstroke. This spring consists of a wire bent into the helical form shown, the coils gradually increasing in diameter from the sleeve and staff to the lower larger coil  $f$  of the spring. This lower coil  $f$  is bent so it lies in a horizontal plane and the free end of the wire is attached to said coil, thus forming a flat base designed to rest squarely on the bottom of the receptacle or vessel. The upper end of the spring is coiled or bent one or more times around the lower end of the sleeve or thimble A, and the upper end of the wire is bent to form the straight arm  $f'$  which is



passed centrally through the lower end of the dasher staff and sleeve A, to firmly secure the spring, staff and thimble together and prevent accidental separation of the parts.

5 I do not strictly confine myself to the use of the spring in connection with the dasher, as it is evident that the dasher can be dispensed with and the spring used with the staff, or vice versa; but for greater efficiency  
10 in operation and to churn the butter more quickly, I prefer to use the dasher, the spring and staff combined and arranged as herein shown and described.

The operation may be briefly described as  
15 follows:—The milk is placed in the receptacle or vessel and the dasher then adjusted therein so that the flat base coil *f* is adapted to rest squarely on the bottom of the vessel. The dasher is reciprocated up and down by  
20 hand, or by power, and the spring and cups agitate and churn the butter very quickly. On the downstroke of the dasher, the spring is compressed to cushion the dasher, and the milk is caused to pass through the inverted  
25 conical cups, in which it is condensed and caused to jet or spurt through the openings *c* and to strike against the breaker-hoods *D*, thus violently agitating the milk. On the upstroke of the dasher, the spring reacts or  
30 is extended to assist the upstroke, and by thus working the dasher up and down the butter can be churned in a very short time.

I am aware that changes in the form and proportion of parts and details of construction of the devices herein shown and described  
35 as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I there-

fore reserve the right to make such changes and alterations therein as fairly fall within 40 the scope of the same.

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

1. A churn dasher consisting of the sleeve 45 or thimble, a series of inverted conical cups carried by said sleeve and each cup having an opening at its upper end, and provided with a breaker hood situated over said opening in each of said conical cups, substantially 50 as and for the purposes described.

2. A churn dasher consisting of a staff-receiving sleeve, a series of inverted conical cups on said sleeve and each carrying a breaker-hood which lies over an opening in the up- 55 per end of the cup, and a coiled spring situated below the staff-sleeve and fastened at its upper end thereto, substantially as and for the purposes described.

3. A churn dasher consisting of a sleeve 60 provided with radial wings, a series of inverted conical cups rigid with said wings and each carrying a break-hood which lies over an opening in the top of said cup, a staff fitted in the sleeve, and the spring arranged be- 65 low the staff and sleeve and having its upper end passed through and fastened to the sleeve and staff, substantially as and for the purposes described.

In testimony whereof I affix my signature in 70 presence of two witnesses.

JAMES MATERSON CHADWICK.

Witnesses:

GEORGE W. WHARTON,  
AUGUSTUS W. WOODLIFF.