(No Model.)

J. W. RICKER.

CHURN DASHER.

No. 521,920. Patented June 26, 1894.

Fig. 1.

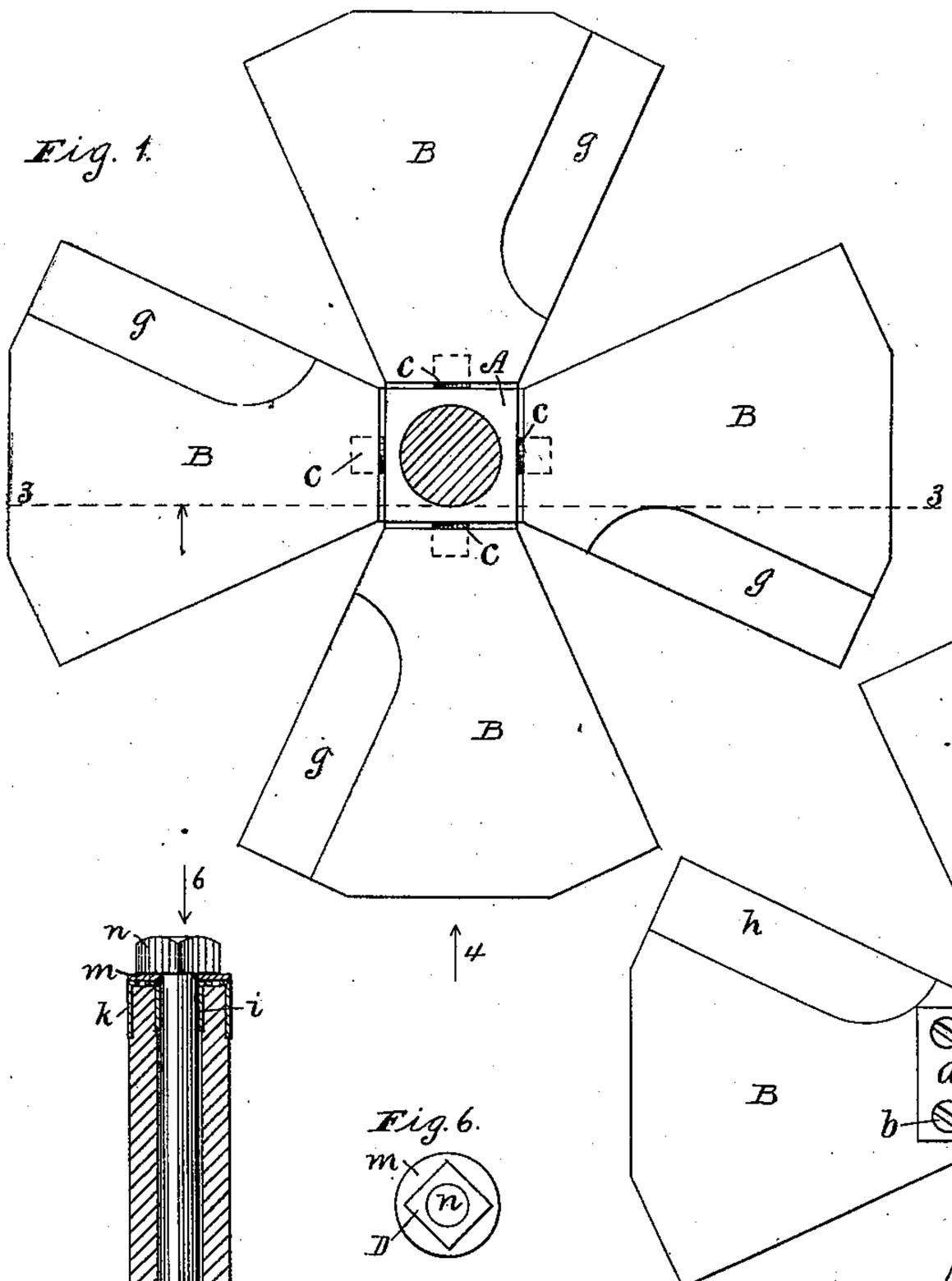


Fig. 4.

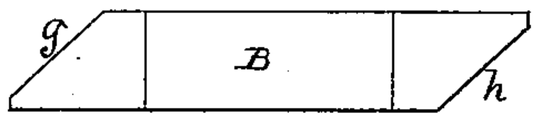


Fig. 2.

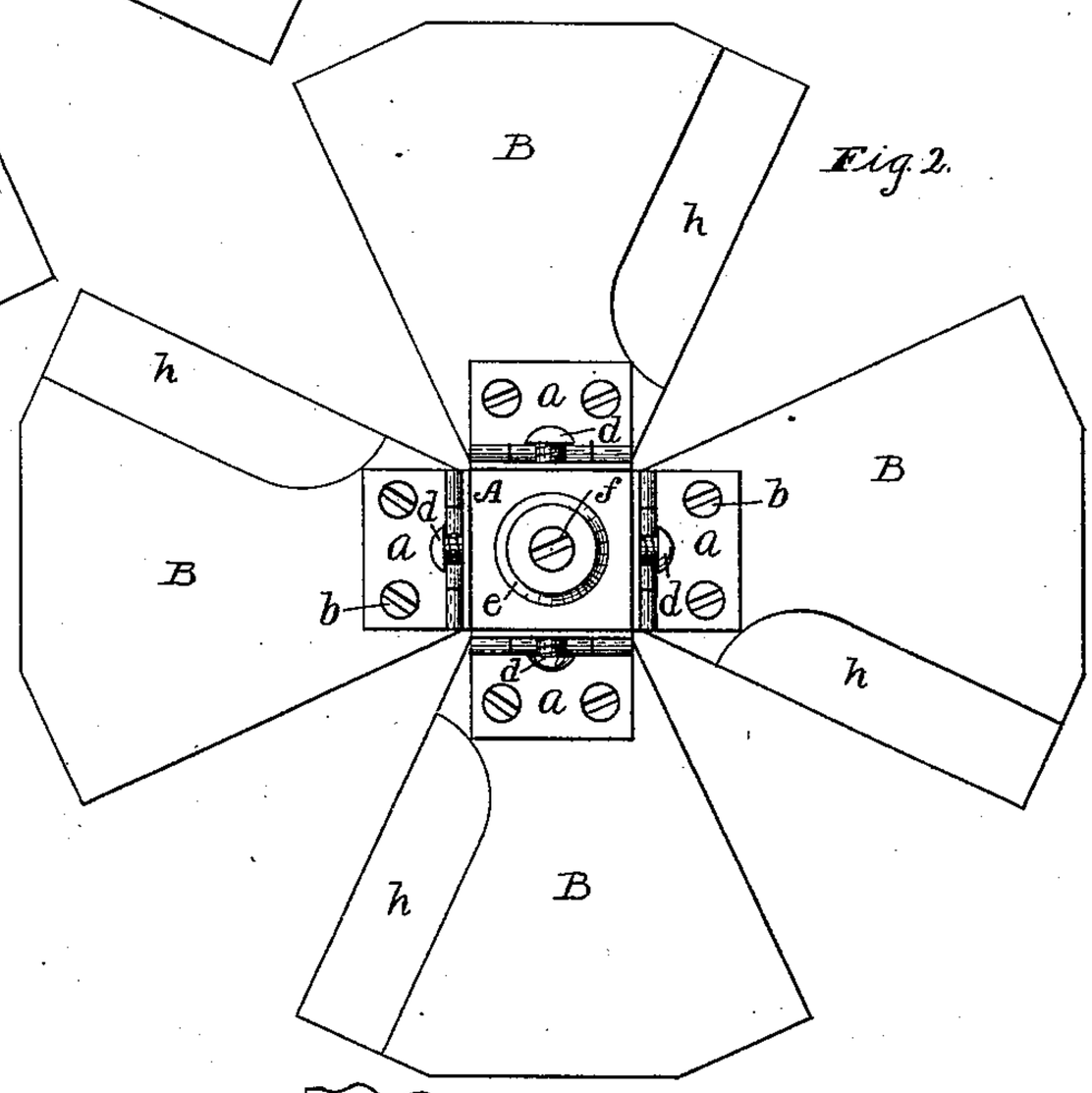


Fig. 6.

Fig. 5.

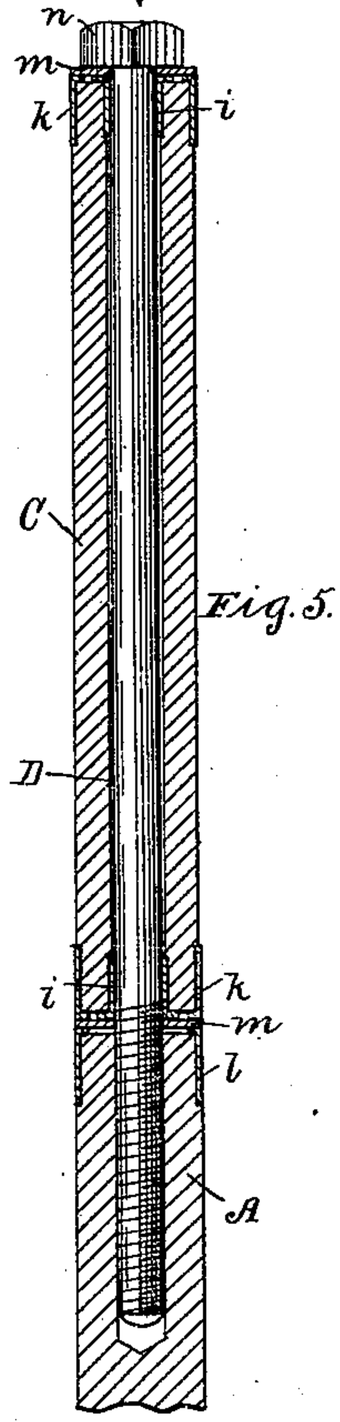


Fig. 7.

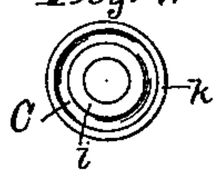
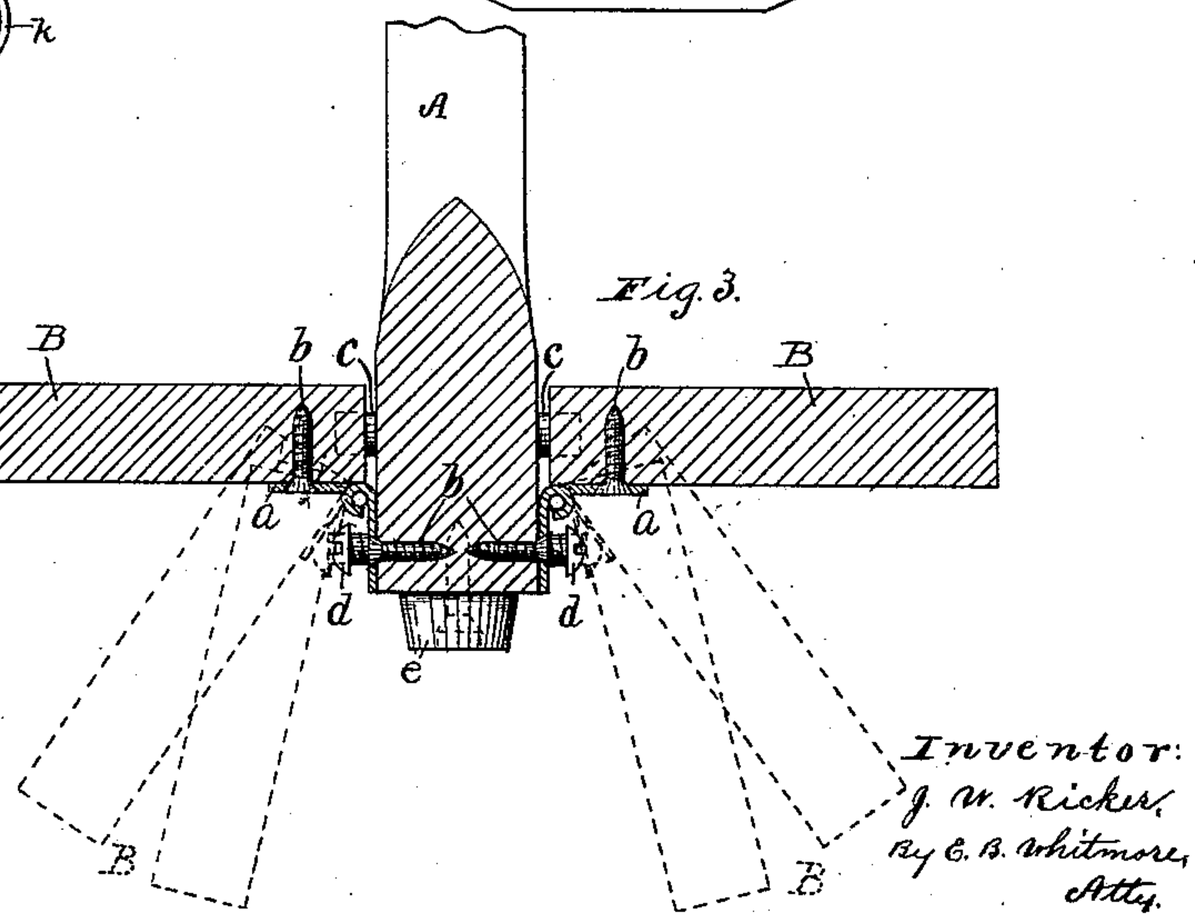


Fig. 3.



Attest:
M. L. Winston.
Henry Hart.

Inventor:
J. W. Ricker.
By C. B. Whitmore,
Atty.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. RICKER, OF CHELSEA, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO GEORGE A. HORN, OF NEWARK, NEW YORK.

CHURN-DASHER.

SPECIFICATION forming part of Letters Patent No. 521,920, dated June 26, 1894.

Application filed November 9, 1893. Serial No. 490,472. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. RICKER, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Churn-Dashers, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention relates to vertical reciprocating churn dashers held in the hand, and one of the main objects of the invention is to provide a dasher having hinged floats that will conform to the varying diameter of a tapering churn body.

The invention is hereinafter fully described and more particularly pointed out in the claim.

Referring to the drawings Figure 1 shows a plan of the floats, the staff being transversely sectioned. Fig. 2 shows the under side of the floats. Fig. 3 is a vertical section on the line 3 3 in Fig. 1, parts being shown in two positions by full and dotted lines. Fig. 4 is a view at the end of a float, seen as indicated by arrow 4 in Fig. 1. Fig. 5 is a central longitudinal section of parts at the upper end of the staff. Fig. 6 shows the end of the staff viewed as indicated by arrow 6 in Fig. 5. Fig. 7 shows the upper end of the staff with the fastening bolt and upper washer omitted.

Referring to the parts shown, A is the staff of the dasher and B, the floats. The staff is usually made square in cross section at the lower end and the floats are four in number. These are connected with the staff by a series of hinges *a*, the pintles of which are in a plane at right angles with the axis of the staff. The hinges are secured to the staff and the respective floats by ordinary screws *b*. The floats are substantially sectoral in form, the narrow ends being adjacent to the staff, and equal in width to the width of the sides of the staff. The hinges are placed so that the floats may assume positions substantially at right angles with the staff, as shown in Fig. 3, or drop to inclined positions, as shown in dotted lines in said figure. Each float is provided with a buffer *c*, Figs. 1 and 3, inserted in its inner narrow end to meet the side of the staff when the floats assume their upper positions.

Adjustable stops *d*, Figs. 2 and 3, are provided beneath the floats to regulate the distance to which they may fall. As shown, these stops are button-headed screws passed through the respective hinges and threaded in the staff. The lower end of the staff is provided with a cushion *e*, of rubber or other yielding substance held to place by some simple fastener, as a screw, *f*. This cushion meets the bottom of the churn when the dasher descends, and softens the impact and also deadens the sound. The upper sides of the floats are usually cut away, at one edge of each, to form bevels *g*, Figs. 1 and 4; and their under sides are cut away, at the opposite edges, to form inclines *h*, Figs. 2 and 4. These inclined surfaces tend to cause the dasher to slightly turn on its axis, first one way and then the other, as it is pushed downward and drawn upward through the cream. When the dasher is pressed downward through the cream the reaction of the latter causes the floats to swing upward until the yielding stops or buffers *c* come in contact with the sides of the staff, as shown in Figs. 1 and 3. And when the dasher is drawn upward the floats swing downward or drop, as indicated by dotted lines in Fig. 3, both from the action of gravity and the action of the cream above them. Now, it is easier in practice to exert a downward pressure upon the dasher by the hands than an upward pull; and the dropping of the floats, as above described, causes them to meet with much less resistance from the cream when the dasher is raised than when it descends, thus decreasing the work for the hands when raising the dasher. The alternate rising and falling of the floats thus tend to equalize the work for the hands. The weight of the dasher also aids in making the downward stroke, and acts to retard the upward stroke. By regulating the distance through which the floats are permitted to descend this equalizing of the work upon the hands may be regulated at pleasure.

In case the dasher is used with a churn having a conical or tapering body it may be entered through the comparatively small mouth on account of the dropping of the floats; and the latter, on account of being joined to the staff by hinges, will open out as they meet and pass through the cream and continue to expand as the diameter of the churn increases

toward the bottom. Thus the floats will conform to the changing diameter of the churn, and their outer edges will be near to or in easy contact with the slanting walls of the churn all the way down. Also the dasher constructed as described will operate successfully in churns of different sizes.

I provide the upper end of the staff with a sleeve C, Fig. 5, held to the main part of the staff by a central longitudinal bolt D, threaded in the staff. The sleeve is provided at each end with internal flanged thimbles *i i*, and external flanged ferrules *k k*. The upper end of the staff is also provided with a flanged ferrule *l*. These ferrules are for strengthening the parts and for ornamentation, being usually made of brass. The thimbles are preferably made of iron and serve to form durable bearings for the bolt at each end of the sleeve. The bolt is formed with a head *n*, and I provide washers *m m*, one under the head of the bolt and the other between the sleeve and the main part of the staff. The latter washer is in contact with the adjacent ferrules *k* and *l*. The bolt is turned down so as to prevent any play of the sleeve in a longitudinal direction but to allow the sleeve to turn freely thereon.

In using the dasher the sleeve is grasped by the hands the dasher being thus permitted to turn freely upon its axis at all times, as above described.

It will be seen from Figs. 1 and 2, that the greater part of both the upper and the lower faces of the floats is plain or horizontal, only a small part of each being inclined. The small inclined parts are designed to be just sufficient to cause the dasher to slightly turn on its vertical axis one way or the other when moved in vertical directions through the cream.

What I claim as my invention is—

A churn dasher having a staff and a series of floats hinged thereto and adapted to have vertical movement, and adjustable stops held by the staff to control the downward movements of the floats, the latter being broader at their outer free ends than at the inner ends and having their opposing edges inclined, substantially as shown and described.

In witness whereof I have hereunto set my hand, this 7th day of October, 1893, in the presence of two subscribing witnesses.

JOHN W. RICKER.

Witnesses:

JAMES S. ST. CLAIR,

JOHN D. CROASNUM.