

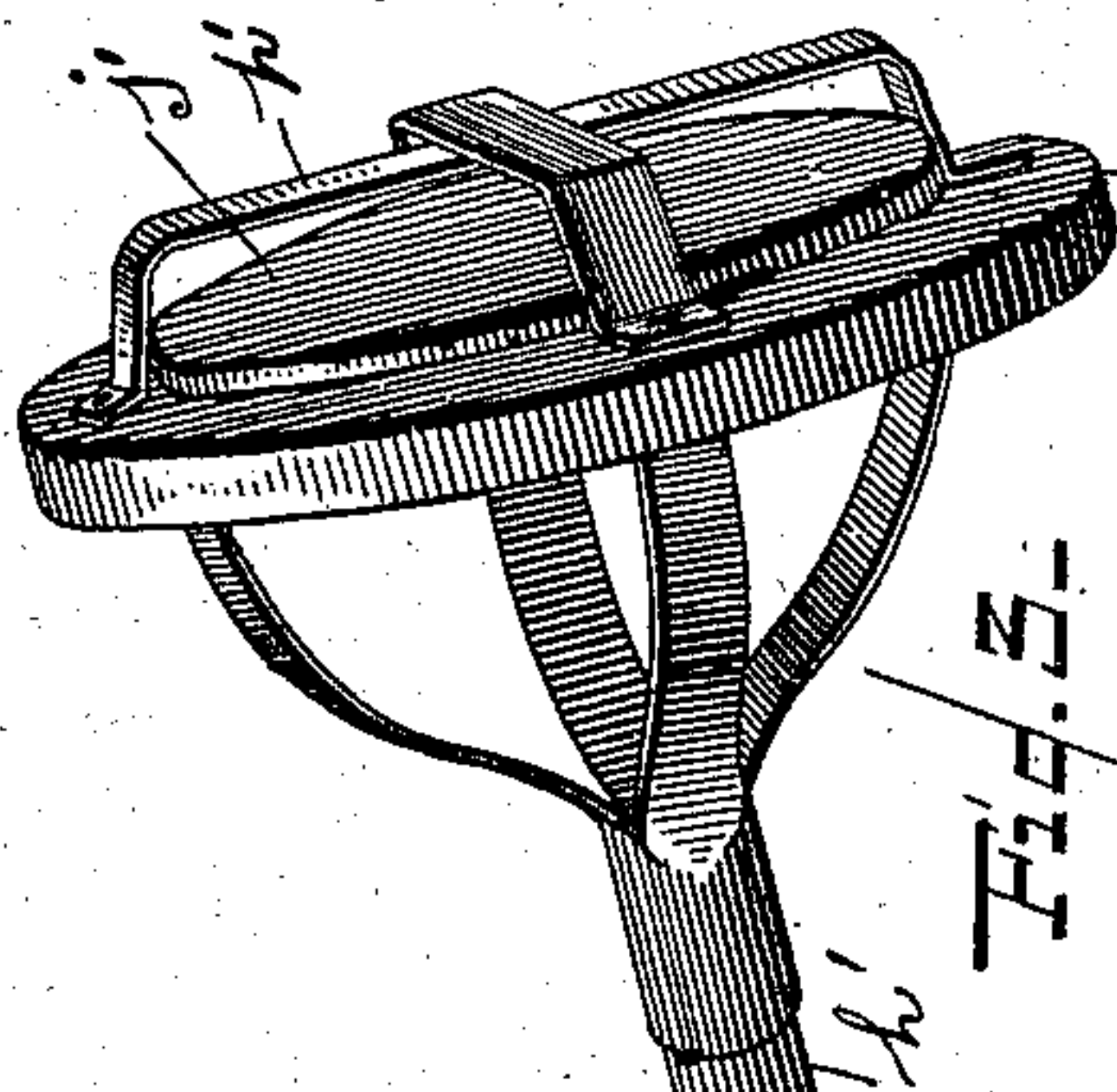
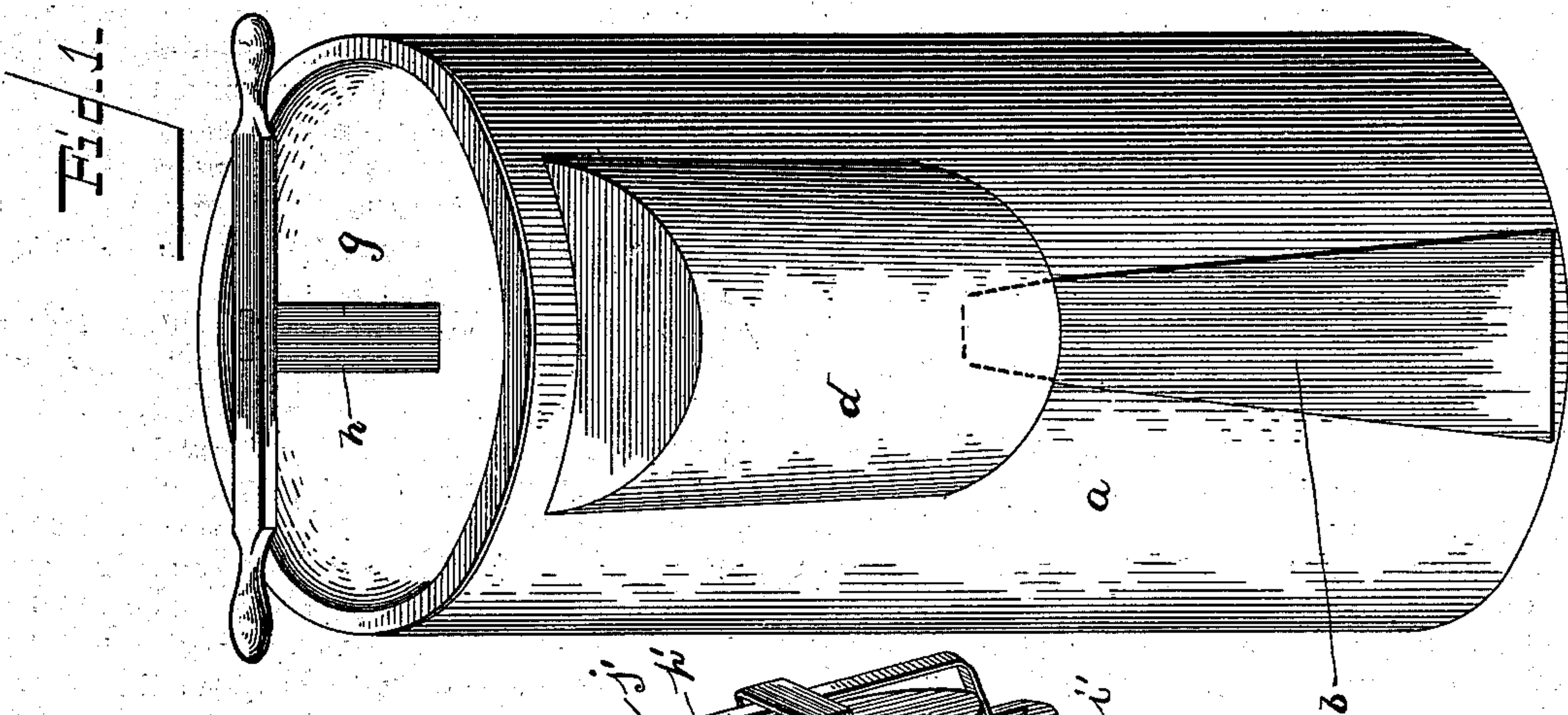
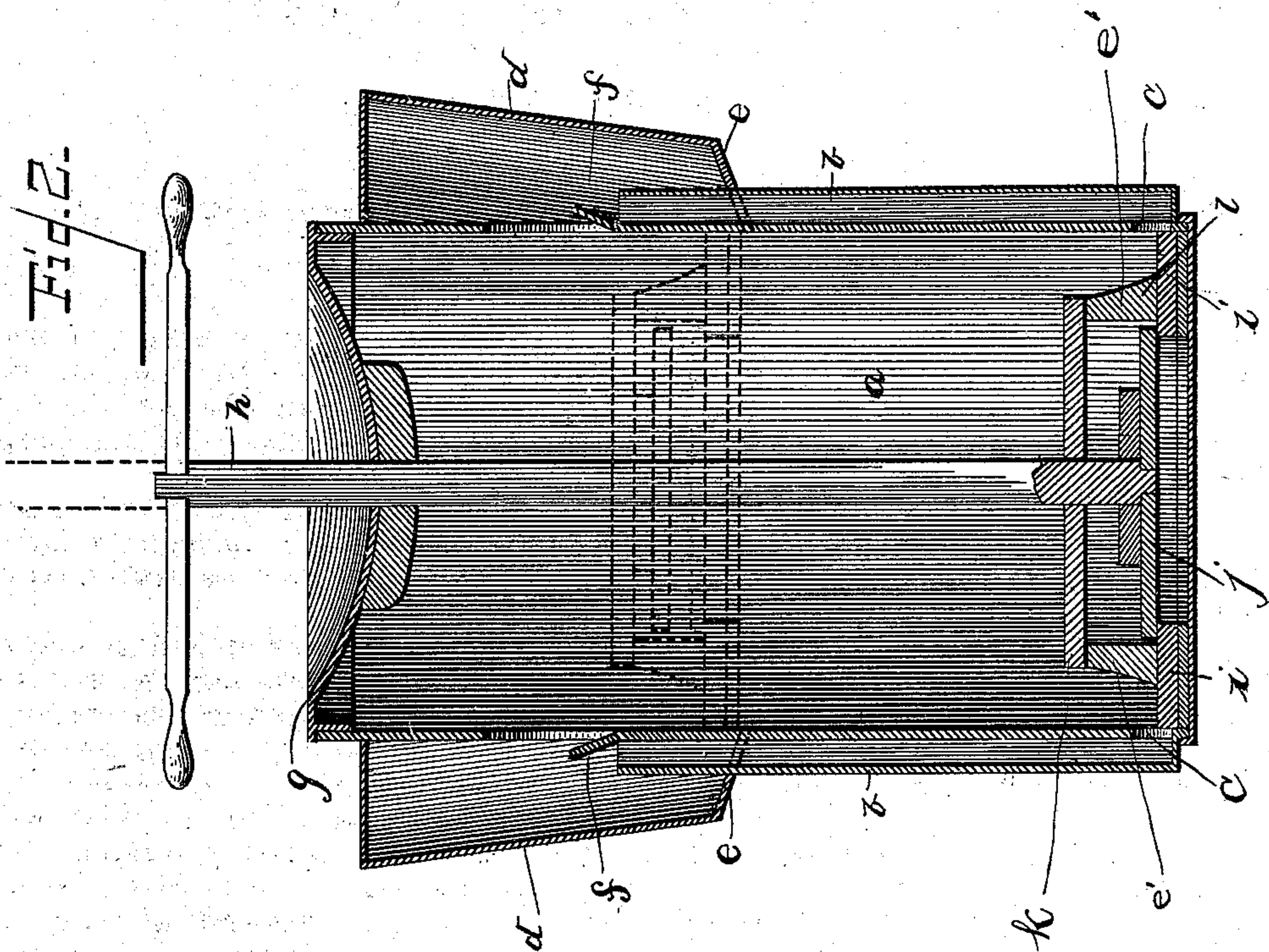
(No Model.)

J. J. PURSLEY.

CHURN.

No. 402,542.

Patented Apr. 30, 1889.



WITNESSES
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JOHN J. PURSLEY, OF HUBBELL, NEBRASKA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 402,542, dated April 30, 1889.

Application filed September 26, 1888. Serial No. 286,447. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. PURSLEY, of Hubbell, in the county of Thayer and State of Nebraska, have invented certain new and useful Improvements in Churns; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to an improvement in churns.

The object of my invention is to produce an improved churn which shall be exceedingly simple in both construction and operation, shall be composed of a minimum number of strong and durable parts, and which shall produce butter with much less labor and in a shorter length of time than the churns heretofore in use.

The invention consists in certain novel features of construction and combination of parts, more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of the device. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a detail perspective view of a different form of dasher.

In the drawings, the reference-letter *a* indicates the churn-body or receptacle, preferably cylindrical in shape, as shown, although it can be formed of any other suitable shape, as found most expedient and desirable.

The churn-body is provided with a duct, *b*, preferably located upon the exterior of the body and opening into the same at or near its bottom at point *c*, and from thence extending upwardly through the bottom *e* of and opening into a recess or pocket, *d*, formed in the upper portion of the churn by an outwardly-bulging portion or pocket of the outer wall of the churn opening directly into or in direct communication with the interior of the churn-body. The duct preferably tapers upwardly, or gradually decreases in size as it extends upward, and its upper end extends up into the pocket a suitable distance above the bottom of the same, and is preferably provided

with a deflecting plate or wing, *f*, upon its upper open end, extending from its inner edge upwardly and slightly inclined across the open end of the duct, for the purpose hereinafter set forth.

The churn-body is provided with a suitable removable cover, *g*, through which the operating-rod *h*, carrying the dasher, reciprocates.

The dasher-head or piston is made to snugly fit the size of the churn-body, so that it can be easily reciprocated within the same, and in the present instance is composed of the body *i*, formed to snugly and loosely fit the interior of the churn, and provided with a central transverse aperture adapted to be closed and opened by a valve-plate, *j*, secured to the lower end of the operating-rod *h*. The valve is loosely secured to the body above the central aperture in the same and to allow it sufficient play to and away from the aperture by a stop or frame, *k*, secured to and held a suitable distance above the head by lugs or arms *e'*, secured to the body and frame *k* and located a suitable distance apart to allow for the free passage of liquid between them. The operating-rod extends through the frame *k* and operates the valve to close and open the aperture in the dasher-head.

The churn-body can be provided with any suitable number of connecting ducts or tubes, which are preferably arranged upon the opposite sides of the churn, as shown.

The construction and arrangement of the various parts of the device having been set forth, I will now proceed to describe its operation. Suppose the dasher to be in the position shown in Fig. 2 and the churn-body to be filled with the desired quantity of milk. The dasher is then drawn upward, the strain upon the operating-rod lifting the valve from its seat and opening the aperture in the dasher-head, so that as the dasher passes upward the milk flows between the lugs *e'* and down through the aperture in the head; but when the dasher reaches the limit of its upward movement and is started upon its downward movement the downward pressure upon the operating-rod forces the valve to its seat in the dasher-head, thereby preventing the passage of the milk through the dasher, but which forces it up through the ducts *b*, and

out of the upper ends of the same into the pockets under great pressure. As the milk passes from the ducts, it is thrown against the walls of the pockets with great force, the milk being guided inwardly as it leaves the ducts by the deflectors or wings, thereby quickly and thoroughly agitating and breaking the globules of the milk. The milk flows from the pockets back into the body upon the dasher, and as the dasher is reciprocated within the churn the above operation is repeated with great rapidity, soon reducing the milk to butter, the milk shooting from the upper end of the ducts against the walls of the pockets with great force, which is further increased by the upwardly tapering form of the ducts.

Heretofore churn-dashers, in some instances, have been provided with tubes, through which the contents of the churn are forced when the dasher is reciprocated; but these devices destroy the fine qualities of the butter by forcing it through the tubes, which breaks the granulation and renders it oily or salvy, while in the herein-described device the milk only is forced through the tubes from the bottom of the churn, and as the butter is inclined to float on the top of the milk it is not forced through the tubes and so injured.

In Fig. 3 a somewhat different construction of dasher is shown. The body *i'* is constructed, as before described, with a central aperture, and the operating-rod *h'* is secured to the same by open frame-work, as shown. The valve *j'* plays loosely and vertically upon the underside of the head to close or open the aperture in the same, and is loosely confined to the head by an open frame, *p'*. Thus it will be seen that when the dasher is forced downward the upward pressure of the milk will force the valve to its seat, closing the opening in the dasher-head, and when the dasher is drawn upward the weight of the milk forces the valve downward and opens said aperture.

The device is not limited to the use of the pockets *d* or to the deflectors, as their object is to furnish a rigid wall or surface against which the milk can be forced or thrown under high pressure, and it is evident that other devices could be employed to accomplish the same purpose. It should also be noted that the operating-rod can be provided with any suitable actuating mechanism, the handle upon the upper end of the same being merely shown in the present instance as a convenient form and to save space. The cover

is shown as being centrally depressed or concaved, so that all liquids adhering to the operating-rod and dropping upon the cover will not flow off of the same, but will be carried toward the center of the same, escaping into the churn through the aperture in which the rod operates.

The great utility and many advantages of the herein-described construction can be readily seen and understood by all persons; hence it is not considered necessary to fully enumerate the same herein. It is also evident that various changes might be made in the arrangement of the various parts described without departing from the spirit and scope of the invention; hence I do not wish to limit myself to the precise construction herein set forth, but consider myself entitled to all such changes.

What I claim is—

1. A churn-body provided with outwardly-bulging pockets near its upper portion opening into the interior of the body, in combination with ducts longitudinally located upon the exterior of the body, the lower ends thereof opening into the lower portion of the body, and their upper ends opening into said pockets and extending up through and above the bottom of the same, as set forth.

2. A churn-body provided with pockets at its upper portion opening into the interior of the body, ducts opening into the body at or near its bottom and extending upwardly into said pockets, and deflectors upon the upper open ends of said ducts to throw the liquid passing from the same against the walls of the pockets, in combination with a reciprocating dasher in the body to force the liquid through the ducts, substantially as described.

3. A churn-body having longitudinal communicating ducts, in combination with a reciprocating dasher in the same, composed of a head snugly fitting in the body and provided with an aperture, a closed vertical rod to reciprocate the head, a valve to close the head when the same is pushed down and force the liquid through the ducts and open the aperture for the passage of liquid when the head moves up, and an open frame loosely confining the valve to the head, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN J. PURSLEY.

Witnesses:

OSCAR B. WEBB,
FRANK A. PARKS.