

J. PAFF.

Churn.

No. 29,189

Patented July 17, 1860.

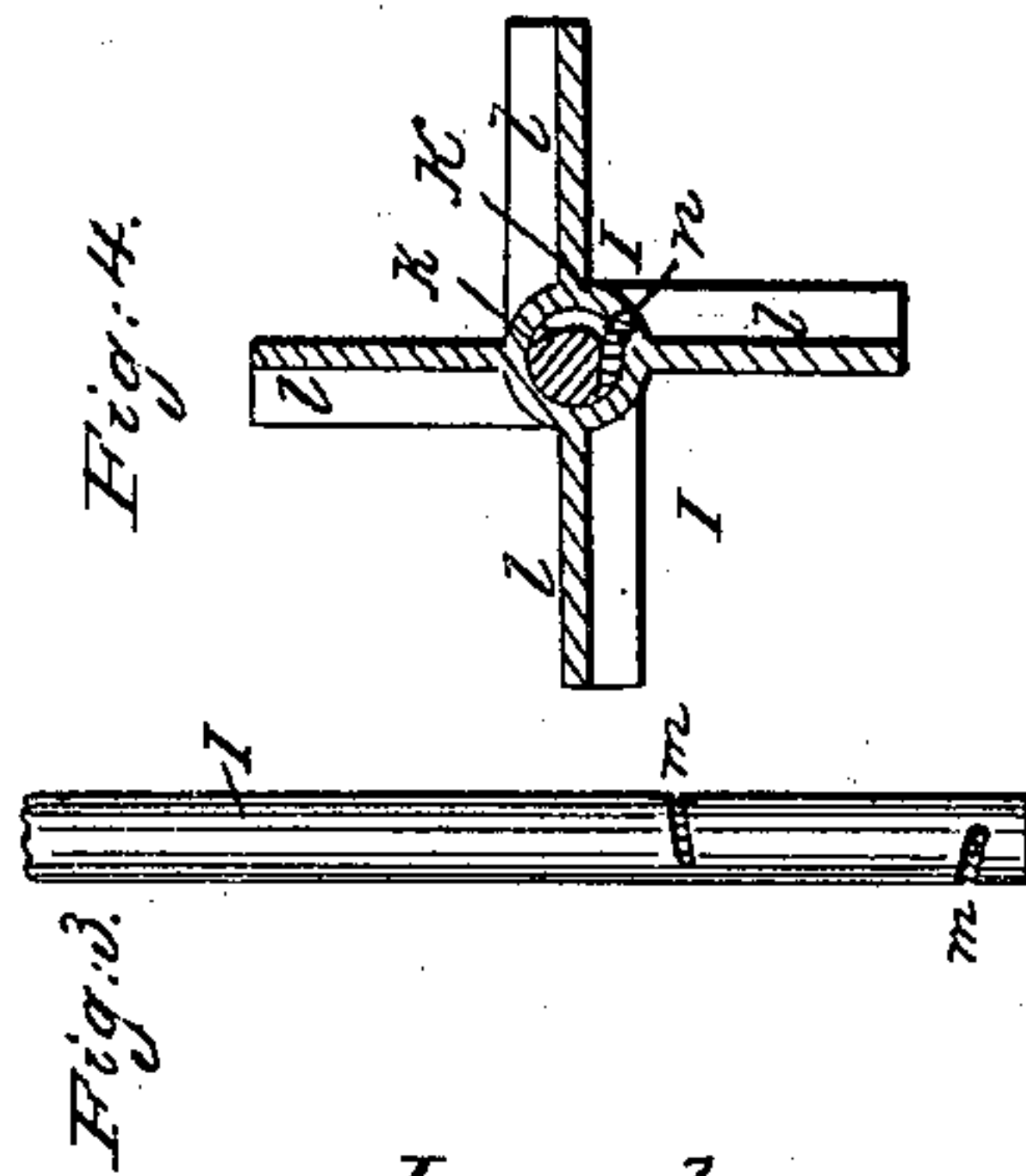
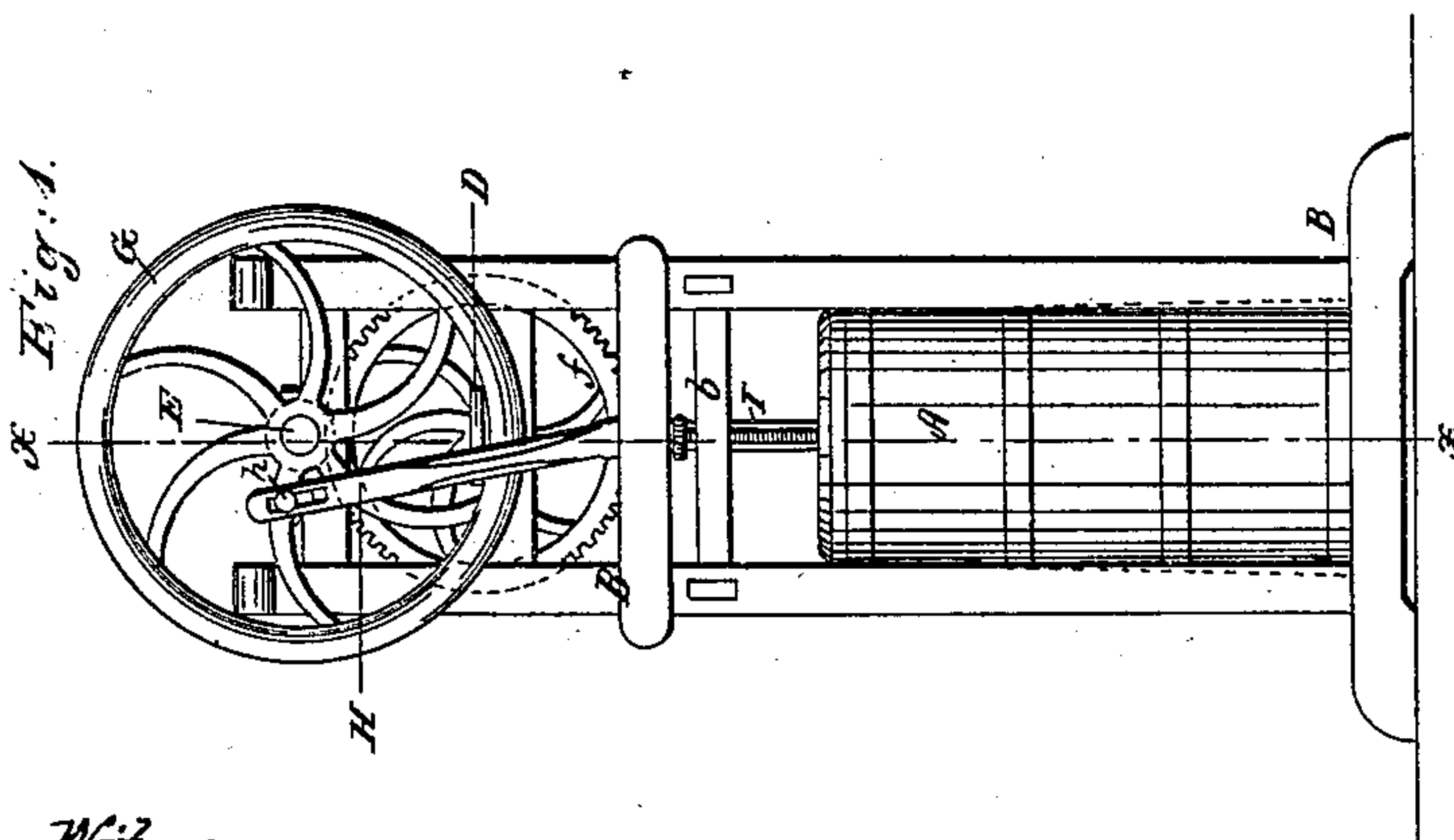
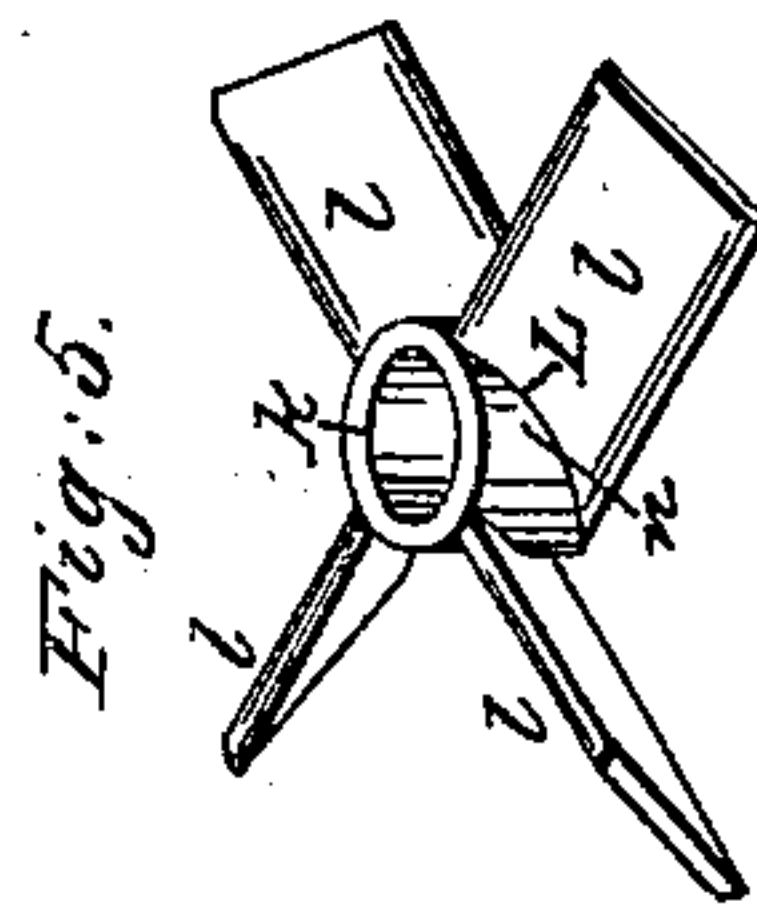
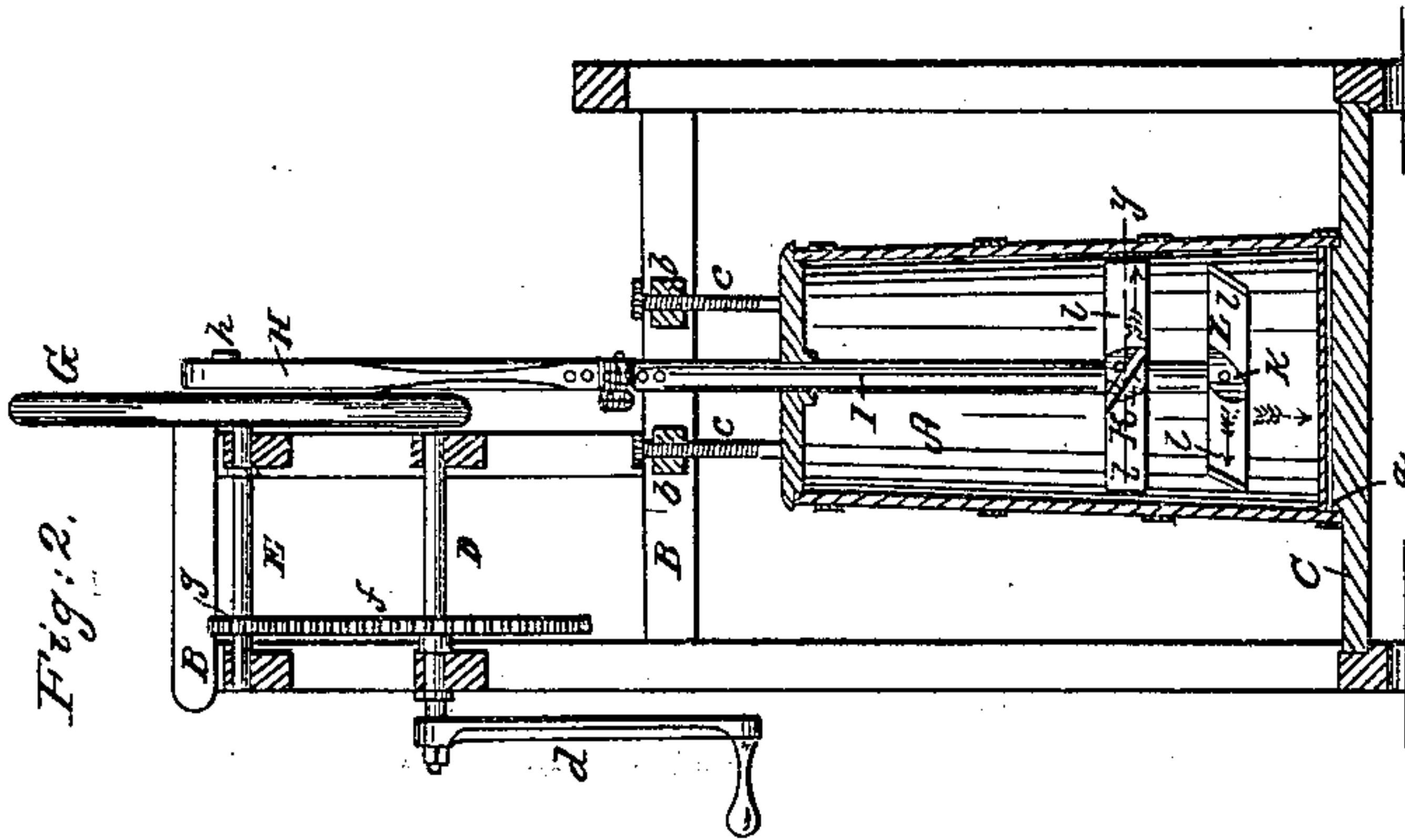
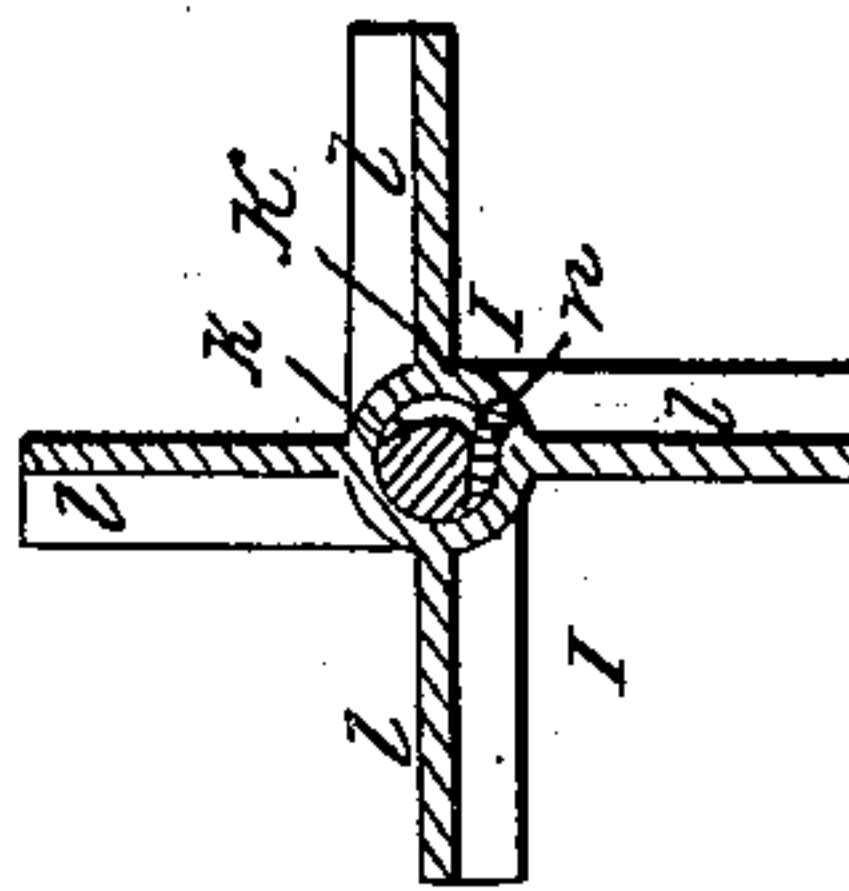


Fig. 4.



Witnesses:
E. V. Smith
J. B. Woodruff

Inventor:
John Paff
by his Attorney
R. L. Osgood.

UNITED STATES PATENT OFFICE.

JOHN PAFF, OF EDEN, NEW YORK.

CHURN.

Specification of Letters Patent No. 29,189, dated July 17, 1860.

To all whom it may concern:

Be it known that I, JOHN PAFF, of Eden, in the county of Erie and State of New York, have invented a new and Improved Churn; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a side elevation of the churn; Fig. 2, a central, vertical section thereof, the plane of section being indicated by the line $x\ x$, Fig. 1; Fig. 3, an enlarged view of a portion of the dasher rod detached; Fig. 4, a horizontal section of one of the dashers and the dasher rod, in the plane indicated by the line $y\ y$, Fig. 2. Fig. 5, a view in perspective of one of the dashers.

Like letters designate corresponding parts in all the figures.

The usual cylindrical churn-body A, such as is used with the common vertically acting dasher, is the best adapted to my improvement, since my dasher rod and dashers have the same upward and downward movement as the ordinary dasher. The dasher rod I, may be actuated in any convenient manner, either directly from the hands of the operator, or by a suitable mechanism for the purpose. I prefer the following arrangement:—A suitable frame B, is provided, for supporting the churn-body, and for sustaining the driving parts of the machine. The bed or platform C, of this frame, on which the bottom of the churn-body rests, has a circular raised portion a , (shown in section in Fig. 2,) of just such diameter as to fit closely within the chimes of said churn-body, and of such height as to prevent the churn-body from slipping off. Above the top of the churn-body, are two cross-pieces b, b , of the frame, situated at a suitable distance apart, through which screws c, c , respectively pass, said screws screwing down on the top of the churn-body. Thus, the churn-body is held firmly in place, and can not be removed except by turning back the screws. At a suitable position in the frame A, above the churn-body, is situated a shaft D, having on its outer end a winch d , for actuating the driving parts; and within, a cog-wheel f , gearing into a pinion g , on another shaft E; which said shaft has, at its inner end, a fly-wheel G, situated above the churn-body, substantially as represented. On the face of the fly-wheel, at a suitable distance from the center thereof, is jointed a

pitman H, by means of a pivot h , or its equivalent, the lower end of said pitman being also jointed to the upper end of the cylindrical dasher-rod I, by a pin i , or in any other convenient manner so that the two parts may be readily detached. Arranged thus, when motion is communicated to the winch d , the dasher-rod is actuated rapidly up and down. If desired, the pivot h , may be so arranged as to be adjusted to a greater or less distance from the center of the fly-wheel, thereby giving a greater or less length of stroke to the dasher-rod.

My invention principally consists in the construction of the dashers, and their arrangement on the dasher-rod. Two dashers K, and L, are used, each consisting of a hub k , and a suitable number of inclined or oblique, horizontal dasher arms or wings l, l ; the inclination of said wings being in relation to the axis of the hub. The wings of one dasher are all inclined in one direction, as to the right hand; while the wings of the other dasher are all inclined in the other direction, as to the left hand, for purposes presently to be described. These dashers are secured loosely on the dasher-rod, one at its lower end, and the other at a suitable distance above, as follows:—In those portions of the cylindrical dasher-rod covered by the hubs of the dashers, are respectively made smooth concentric grooves or channels m, m , (Figs. 3 and 4,) of suitable length for the purpose designed; one extending in one direction from the point of starting, while the other extends in the opposite direction. These grooves may be made horizontally around the dasher-rod, or they may incline upward a little as they extend around, as represented. The latter arrangement is preferable, since it allows an easier horizontal movement of the dashers. The dashers are secured to the dasher-rod by means of pins n, n , which pass respectively through the hubs k, k , their points resting in the grooves m, m , substantially as represented in Fig. 4. These effectually hold the dashers on the dasher-rod, but at the same time allow them a free horizontal motion. The dashers being arranged thus loosely on the dasher-rod, and guided and held by means of the grooves m, m , and pins n, n , it will be seen that if they are forced down through the milk or cream, that they will have, in addition to their vertical motion, a horizontal motion imparted to them, by means of the

resistance of the fluid on their inclined wings; the lower dasher turning in one direction, while the upper dasher turns in the opposite direction, as indicated by the arrows in Fig. 2. This compound motion of the dashers imparts a much more intense agitation to the milk or cream than would occur if the dashers were rigidly fixed to the dasher rod, since the wings of said dashers are constantly changing their position in regard to any fixed point, and also in regard to each other; thereby giving motion to different currents, and at the same time constantly allaying or checking them. The tendency to a greater horizontal movement which the lower dasher receives from passing a greater distance through the milk or cream, is counteracted by the upper dasher, in receiving a greater propelling force against its inclined wings, by the upward currents produced by the lower dasher striking against them. The upward movement of the dasher-rod produces an opposite horizontal motion of the dashers. By this equalized motion and action of the dashers in the milk or cream, no additional strain is imparted to the connection of the dasher rod and pitman.

In addition to the advantages above described, there is another important advantage gained by the use of the two horizontally turning dashers. In all churns where a vertically acting dasher is used, there is always a violent dashing of the milk or cream upward, toward the top of the churn-body, and consequently a large escape of it through the center, and around the edges, of the cover. The horizontal movements of the dashers K, L, serve as

counterchecks to their vertical action, by breaking the currents produced, and more especially the upper dasher, which constantly crosses and resists the upward currents produced by the inclined wings of the lower dasher. Thus while the agitation is increased, the violent dashing or surging of the milk or cream is allayed, and no inconvenience is experienced from its escape around the cover.

I am aware that inclined wings or arms fixed rigidly to the dasher rod, have before been used; and I am also aware that two dashers, fixed one above the other, have been employed; but so far as I am aware, two dashers with inclined wings, fixed loosely on a vertically acting dasher-rod, and having a horizontal motion produced by the resistance of the milk or cream, as well as a vertical motion, has never before been known.

Therefore, what I claim as my invention and desire to secure by Letters Patent, is—

The dashers K, and L, provided with inclined wings *l*, *l*, as described, secured one above the other, loosely on the dasher-rod I, the connection with said dasher-rod being effected by means of the grooves *m*, *m*, and pins *n*, *n*, the whole arranged, combined, and operating substantially in the manner and for the purposes herein specified.

In witness that the above is a true specification of my improved churn, I hereunto set my hand, before two witnesses, this 8th day of June, 1860.

JOHN PAFF.

Witnesses:

AZEL AUSTIN,
JAMES LORD.