(No Model.)

# J. GIFFORD.

## CHURN.

No. 432,032. Patented July 15, 1890.

FIG. 1.

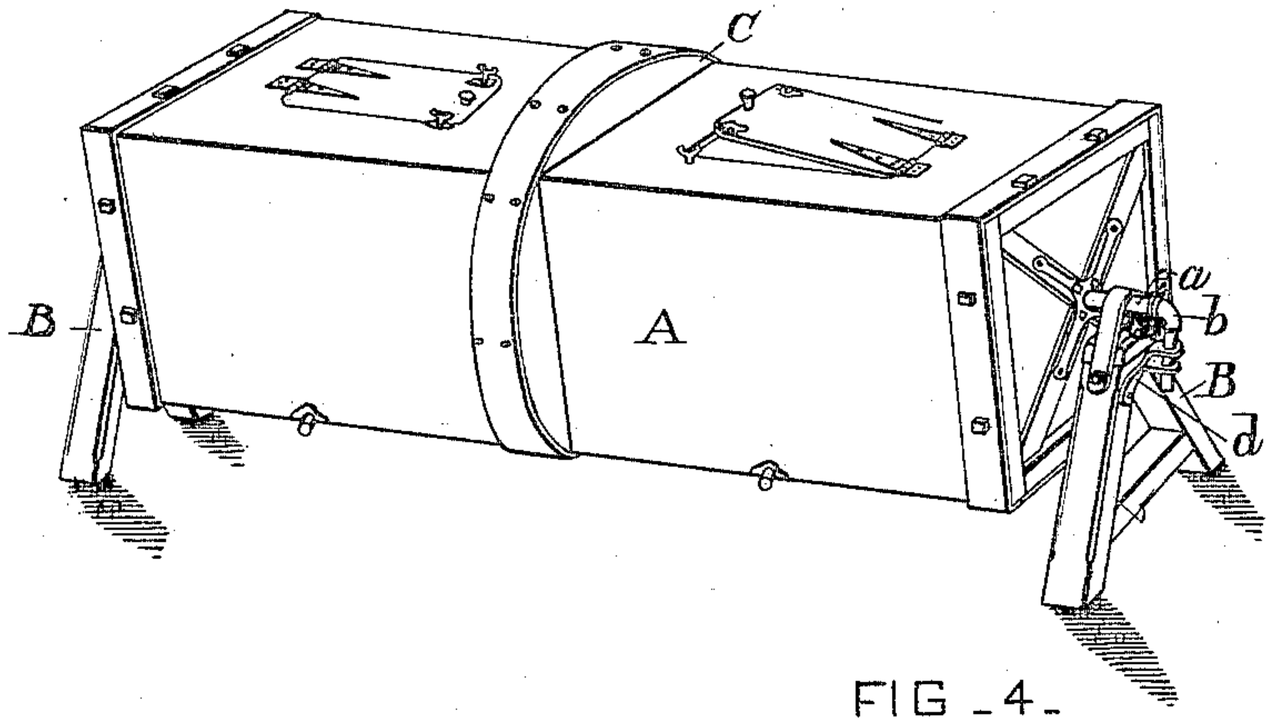



FIG. 4.

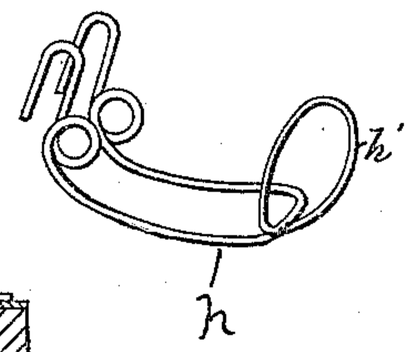



FIG. 3.

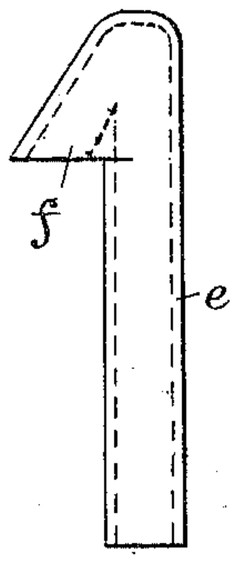
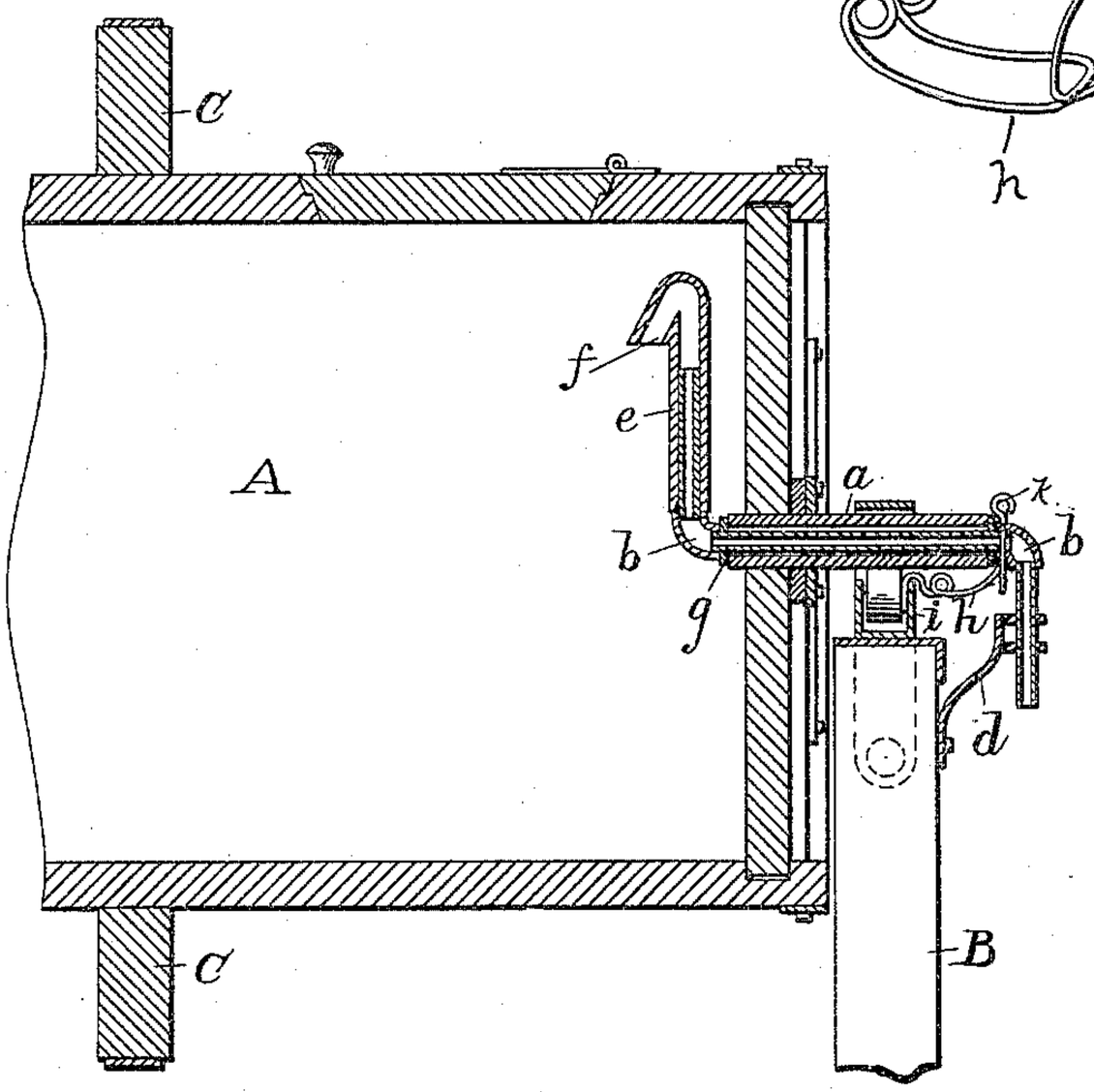



FIG. 2.




WITNESSES:—

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# UNITED STATES PATENT OFFICE.

JOHN GIFFORD, OF WATERTOWN, NEW YORK, ASSIGNOR TO THE GIFFORD MANUFACTURING COMPANY, OF SAME PLACE.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 432,032, dated July 15, 1890.

Application filed July 21, 1888. Serial No. 280,643. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN GIFFORD, of Watertown, in the county of Jefferson and State of New York, have invented a new and useful Improvement in Churns, which improvement is fully set forth in the following specification.

This invention relates to the construction of churns, particularly to churns intended for use in creameries to be driven by power. Such churns are commonly constructed with a rectangular body hung in bearings and adapted to revolve, the cream being dashed from side to side, and the butter thus formed without the use of paddles or dashers. A churn of this kind is described in my Patent No. 257,570, dated March 9, 1882. Such churns, when driven by power, are usually provided with a pulley on the end of the shaft carrying the churn. This construction requires the application of a great deal of power to rotate the churn, for the reason that the friction is largely on one of the bearings, and the weight of the churn itself, with its shifting contents, (weighing, say, upward of three hundred pounds,) causes it to run unevenly and with considerable jar or concussion.

According to the present invention a pulley is formed in the middle of the churn-body, preferably by means of segmental-shaped lugs bolted thereto, so that the power is applied midway between the bearings of the churn, and the latter can be driven with much less power and runs more evenly and smoothly than was heretofore the case. Moreover, by this construction the power is advantageously utilized, as the large size of the pulley gives leverage correspondingly great. The invention also includes certain details of construction in connection with the vent-pipe, as hereinafter set forth.

In the accompanying drawings, which form part of this specification, Figure 1 is a perspective view of a churn constructed in accordance with the invention; Fig. 2, a partial longitudinal section; Fig. 3, a detail of the hood covering the vent-pipe, and Fig. 4 a detail of spring *h*.

A represents the rectangular churn-body supported on arbors *a*, which have bearings in frames B. About midway between the two bearings is placed the pulley C, formed by bolting segmental-shaped lugs on the four sides of the churn-body. The vent-tube *b* is constructed in some respects like that described in my aforesaid patent. It consists of a bent or elbow tube having a horizontal part, which passes through the hollow arbor *a*, and is held stationary during the rotation of the churn by a clasp *d*. It is found, however, that there is great difficulty in keeping the tube open, as particles of cream lodge in the openings and soon clog them up. To obviate this difficulty, I now make the portion of the tube *b* inside the churn straight and provide a hood *e*, (of wood, metal, or other suitable material,) which fits closely over the end of tube *b*, but can turn freely thereon. This hood is closed at the top and has a lateral extension, in which is a hole *f*, of large diameter, extending up obliquely to meet the central perforation of the hood and constituting the continuation of the vent-pipe. In operation the cream is thrown over the back of the hood and runs down the slanting walls thereof; but on reaching the opening *f*, the latter being of considerable width, it does not close together and stop the opening. The hood is readily removable for cleaning.

Upon the horizontal part of tube *b* inside the churn is a washer *g*, and to keep this against the inner end of the hollow arbor *a* a spring *h* is provided, the shape of which is shown in Fig. 4. The looped end *h'* of this spring encircles tube *b*, while the other ends, which are hook-shaped, as shown, are caught over casting *i* just under arbor *a*. The spring *h* is thus compressed and pushes back against the pin *k* in tube *b*, pressing the tube and washer firmly against the end of arbor *a* and preventing leakage at this point. For large churns there may of course be one vent-tube at each end.

It is obvious that parts of the invention could be used without others, and that modifications could be made in details of construction without departing from the spirit of the invention.

I claim as my invention—

1. A churn having a rectangular rotating body on a horizontal axis and provided with a driving-pulley midway between its ends, substantially as described.

2. The combination, with the rotating churn-body, of the hollow arbor, the vent-tube passing through said arbor, the packing-washer surrounding said tube, and the spring for pressing said washer firmly against said arbor to prevent leakage, substantially as described.

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

JOHN GIFFORD.

Witnesses:
JAMES A. WARD,
PETER A. WARD.