

# PRINDLE & YERK.

Churn.

No. 61,567.

Patented Jan. 29, 1867.

FIG. 1

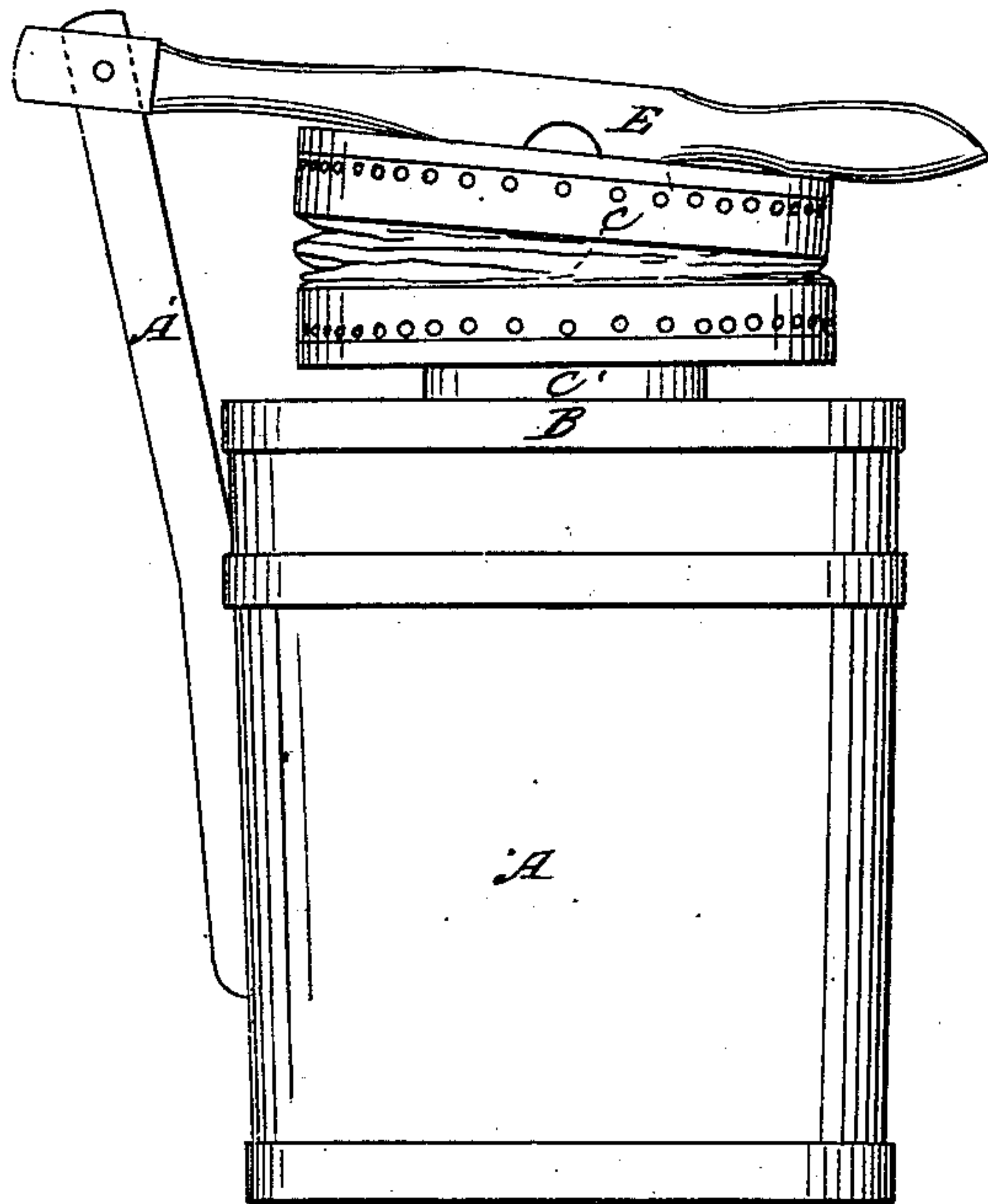


FIG. 2

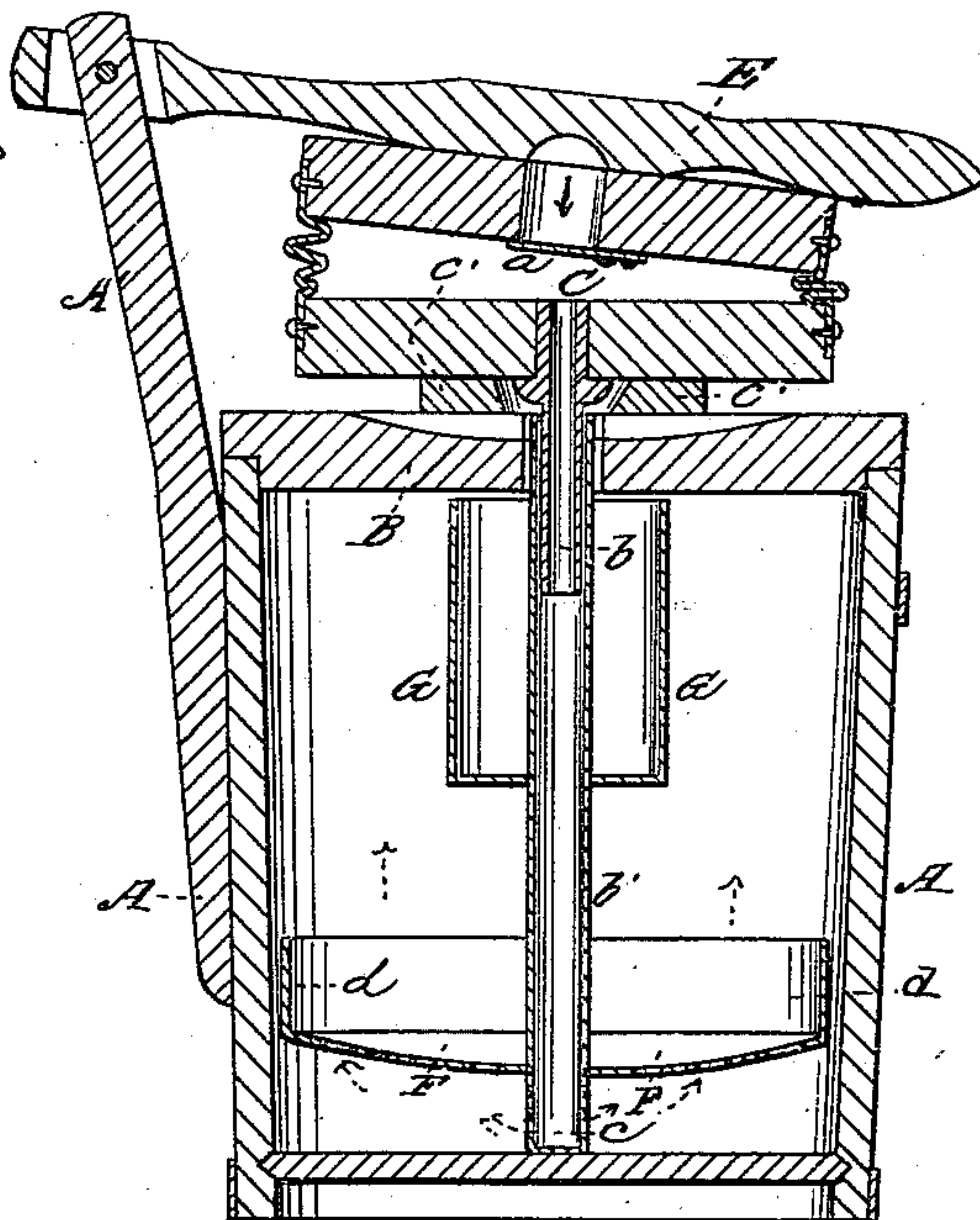


FIG. 3

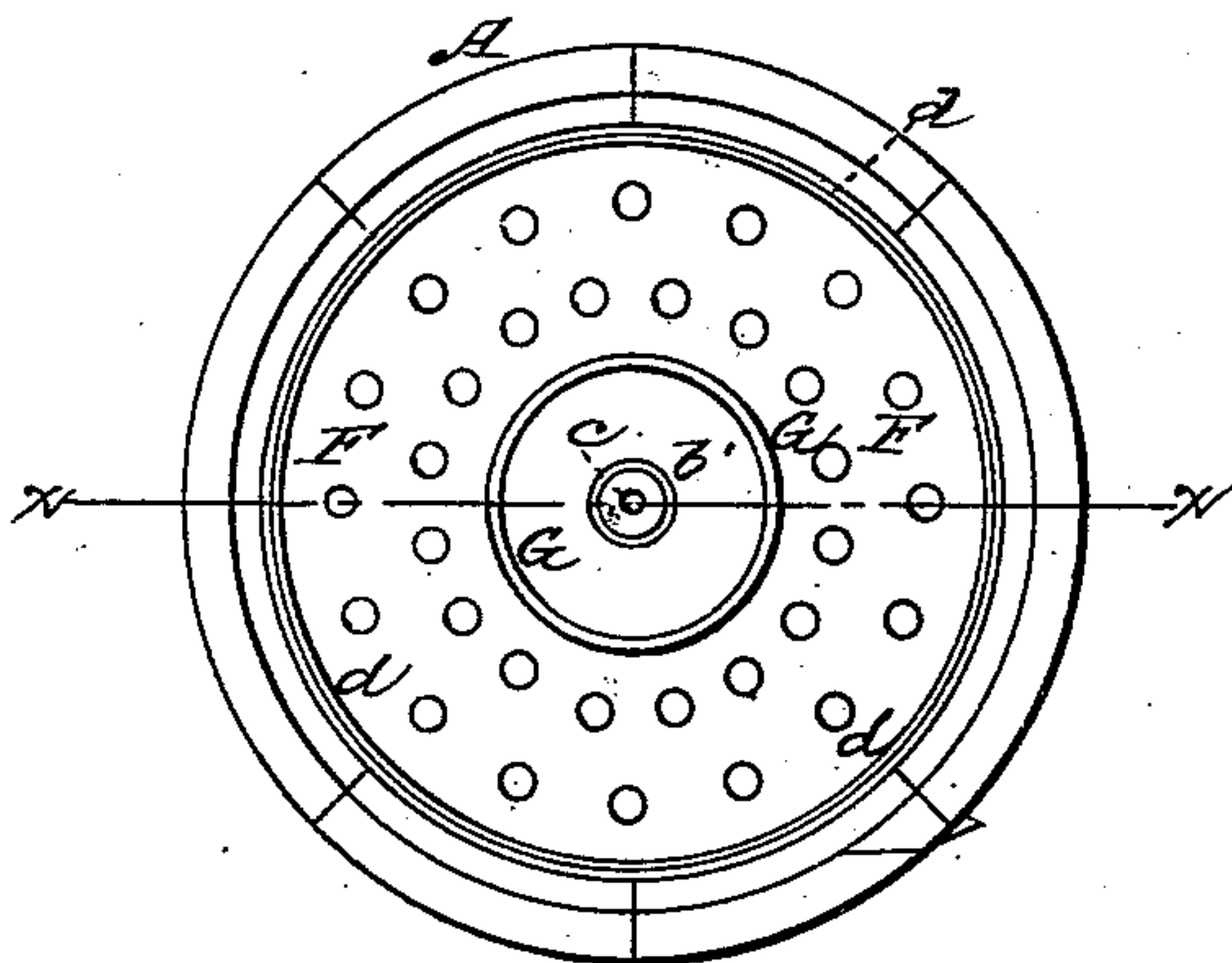
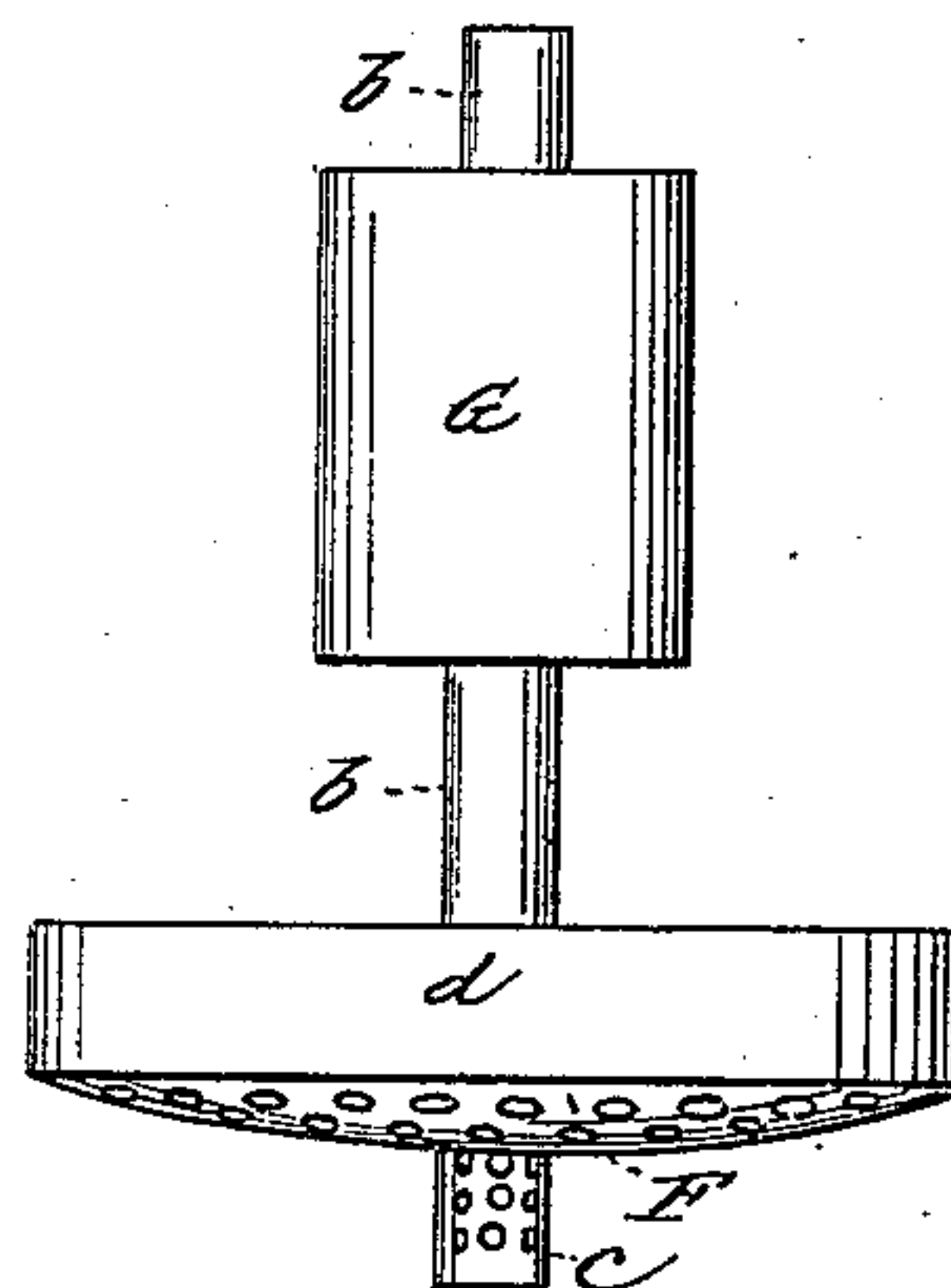


FIG. 4



WITNESSES

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INVENTORS:

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*C. M. Yerkes*  
*by Mann & Jones*



# United States Patent Office.

WILLIAM D. PRINDLE, AND CHARLES M. YERK, OF TIFFIN, OHIO.

*Letters Patent No. 61,567, dated January 29, 1867.*

## IMPROVEMENT IN ATMOSPHERIC CHURNS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM D. PRINDLE and CHARLES M. YERK, of Tiffin, Seneca county, State of Ohio, have invented a new and useful Improvement in Atmospheric Churns; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of the churn.

Figure 2 is a vertical central section through the churn.

Figure 3 is a top view of the churn with the bellows removed.

Figure 4 is a side view of the movable perforated diaphragm, water-chamber, and air pipe.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain improvements on that class of churns which are denominated atmospheric churns, for the reason that air is injected through the cream for the purpose of agitating and breaking up the butter globules. The object of our invention is to employ, in conjunction with a churn-box and bellows, an air-pipe leading to the bottom of said box, and having connected to it a perforated diaphragm and a water-chamber; said pipe being constructed with its lower end perforated so that the air will be discharged therefrom below the diaphragm, and caused to rise through it and to be divided into numerous streams, so as to thoroughly agitate the cream, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the churn-box, B the cover thereof, and C a bellows, which is used for forcing air through the cream. This bellows C has a lever secured to its top board, which lever is pivoted at one end to a standard, A', that is secured to the churn-box, as shown in figs. 1 and 2. The inlet-valve *a* is applied to the top board of the bellows, and the inlet pipe *b* is applied to the bottom board, and passes down through the top or cover of the churn, through a large opening which is made through this cover. The bottom board of the bellows, C, is secured to a narrow board C', so that by removing the pin which connects the lever E to the standard A', the bellows can be removed without removing the cover B. Within the churn-box A is a pipe, *b'*, into which fits the inlet pipe *b*, as shown in the drawings. This pipe *b'* extends to the bottom of the churn-box, and is supported thereon; its lower end is perforated with numerous small holes, as shown at *c*, for the escape of air forced down from the bellows. A short distance above the lower end of pipe *b'*, and secured centrally to it, is a perforated diaphragm F, which is nearly equal in diameter to the interior diameter of the churn-box, and which has a flange or rim, *d*, projecting up from its outer edge so as to form a vessel for the removal of the butter. Above this diaphragm F, a cylindrical vessel, G, is secured centrally to the pipe *b'*, for containing hot or cold water, as may be required. The pipe *b'* is held in place at its upper end by the short pipe *b*, and at its lower end by the diaphragm F, so that by removing the bellows C and cover B, the pipe *b'*, with its attachment, can be lifted out of the churn-box. When the parts are all in place, as shown in fig. 2, and the churn-box filled with cream, the level of the cream being below the top of the water-chamber G, the bellows C is worked and air forcibly injected into the churn-box below the diaphragm F, as indicated by the arrows in fig. 2. As the streams of air rise, they pass through the perforations which are made through the diaphragm F, and are again divided and distributed into the body of cream above the diaphragm. This division and distribution of the air cause a thorough agitation of the cream in the churn-box, and rapidly produce the butter. The bellows C and cover B are then removed, and the butter taken out of the churn-box in the diaphragm F, which becomes a strainer for gathering the floating particles of butter, and allowing the buttermilk to pass through it.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a movable bellows, C, which is applied on the cover B of the churn-box, we claim the pipes *b* *b'*, perforated diaphragm F, and water-chamber G, arranged substantially as described.
2. The construction of the air pipe *b'*, with a perforated foot *c*, a perforated and flanged diaphragm F, and a water receptacle, G, upon it, to be used substantially as and for the purposes described.

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Witnesses:

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D. J. GOODRELL.