

(No Model.)

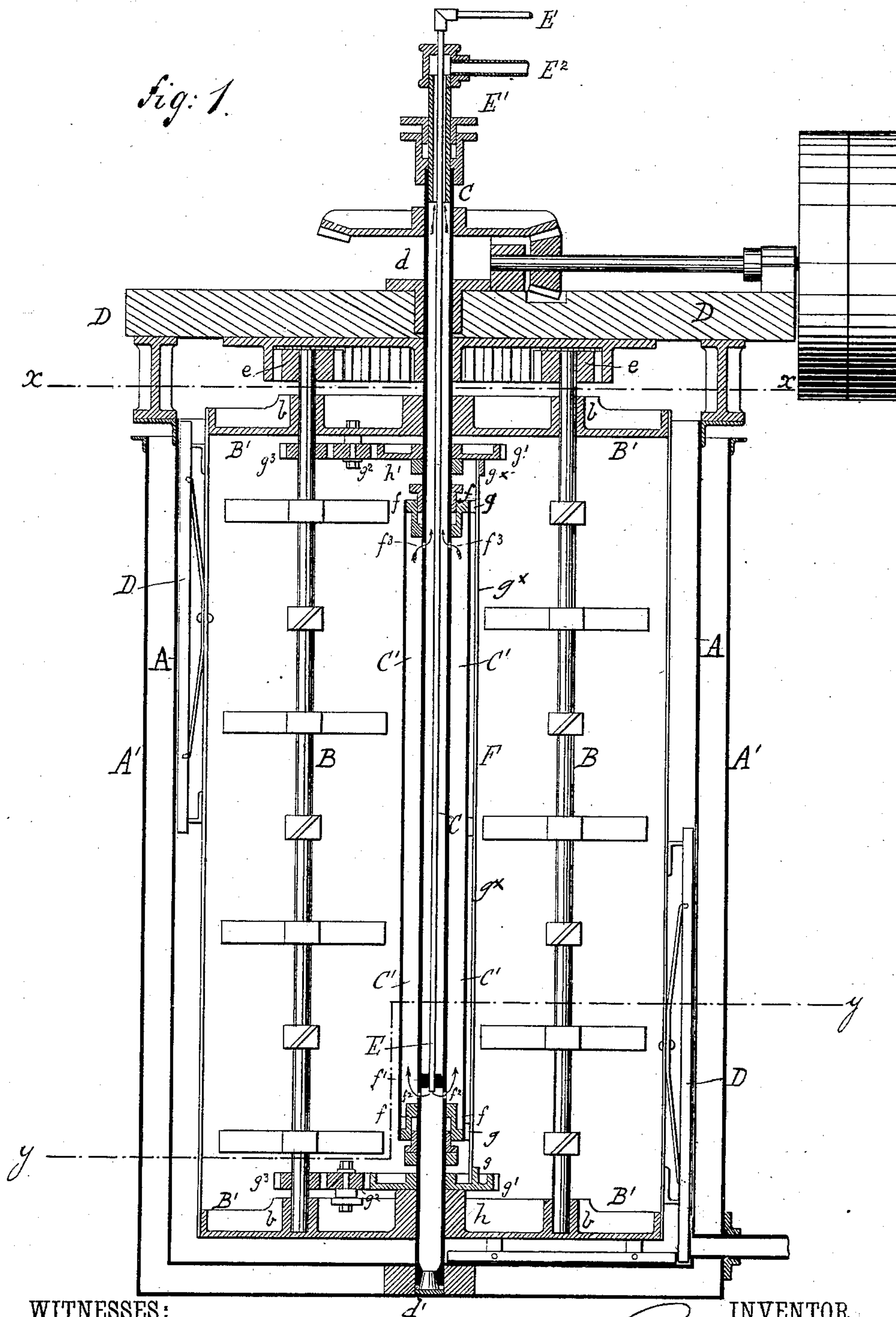
2 Sheets—Sheet 1.

F. FIEDERLEIN.

MACHINE FOR COOLING AND MIXING LARD.

No. 280,025.

Patented June 26, 1883.



WITNESSES:

A. Schehl.
Otto Risch.

INVENTOR

Fredrick Fiederlein
BY *Goepel & Raegenar*
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2 Sheets—Sheet 2.

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fig. 2.

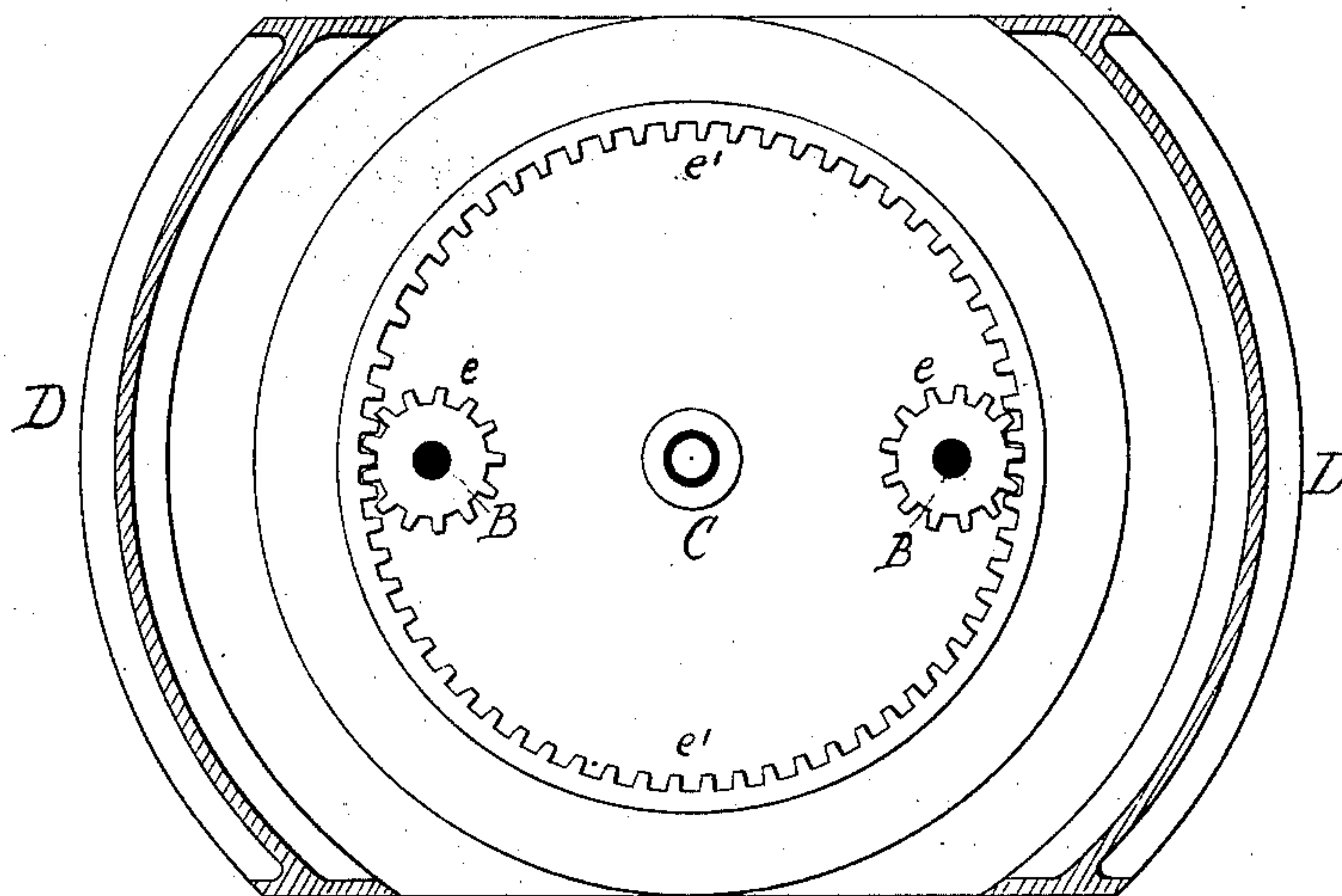
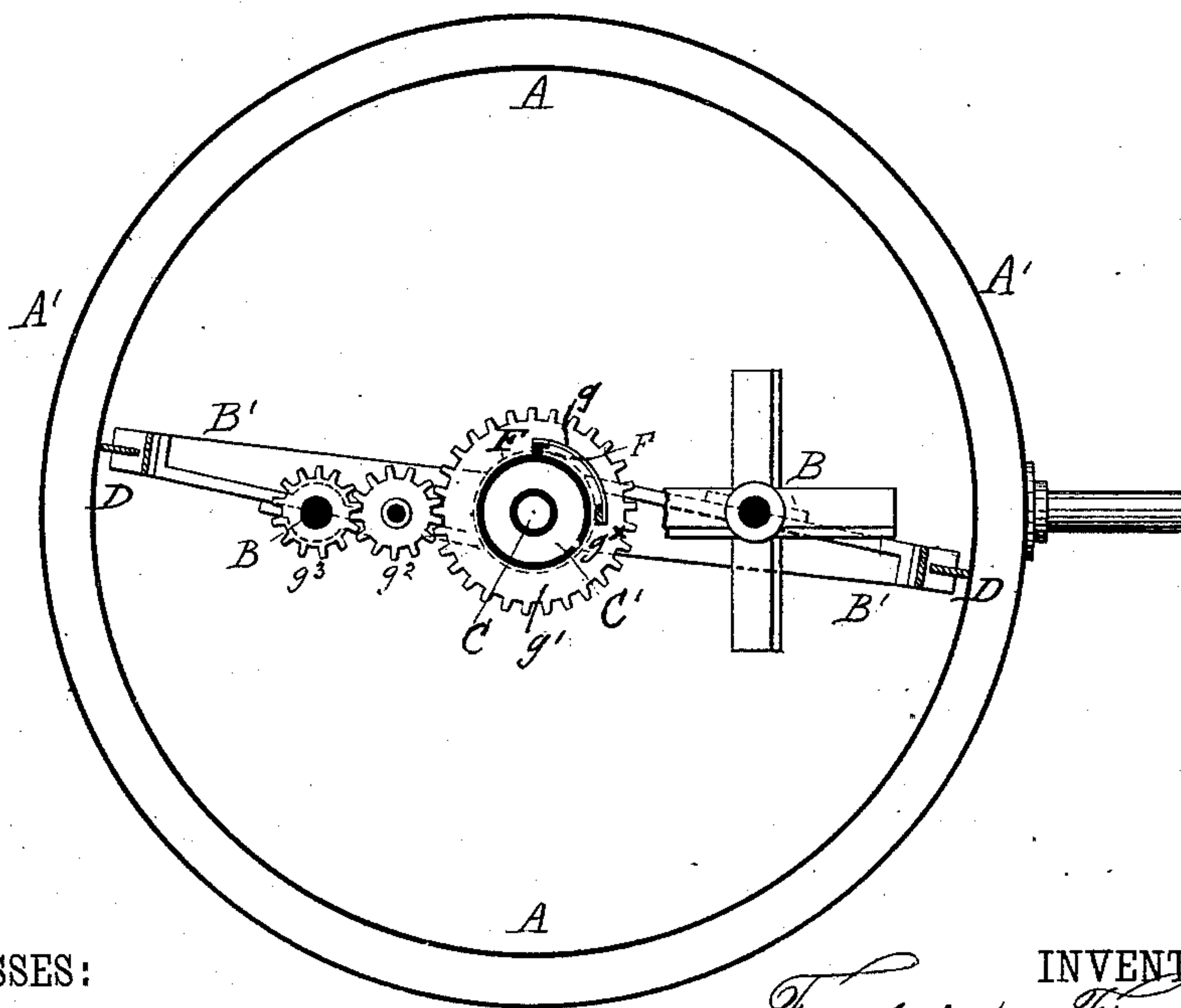


fig. 3.



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UNITED STATES PATENT OFFICE.

FREDRICK FIEDERLEIN, OF NEW YORK, N. Y.

MACHINE FOR COOLING AND MIXING LARD.

SPECIFICATION forming part of Letters Patent No. 280,025, dated June 26, 1883.

Application filed May 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK FIEDERLEIN, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Mixing and Cooling Lard, of which the following is a specification.

This invention has reference to an improved machine for mixing and cooling lard in such a manner that the entire body of lard is uniformly worked up by means of axially rotating and revolving stirrers; and the invention consists of a jacketed cylindrical cooling vessel or tank, axially-rotating stirrer-shafts applied to revolving arms having exterior spring-actuated scrapers, the said arms being applied to a hollow center shaft that is provided with a closed surrounding jacket and with means for supplying cold water through the hollow shaft to the jacket and reconducting the same to the outside. The spring-scraper is moved in opposite direction to and in close contact with the jacket of the center shaft by a planetary gearing receiving motion from one of the stirrer-shafts, so as to clear the surface of the jacket from chilled lard.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved machine for mixing and cooling lard. Fig. 2 is a horizontal section and bottom view on line *x x*, Fig. 1, and Fig. 3 is a horizontal section on line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

A in the drawings represents a cylindrical cooling vessel or tank, of suitable size, preferably of boiler-iron, which is surrounded by a jacket, A'. The space between the walls of the vessel A and the jacket A' is continually supplied with ice-water, by which the hot lard that is run into the tank is cooled.

Vertical stirrer-shafts B, having radial stirrer-arms, are supported in neck and step bearings *b b* of radial arms B', which are rigidly applied to the center shaft, C, which latter is also supported in a neck-bearing, *d*, of a frame, D, on the top of tank A, and in step-bearing *d'* of the bottom of the same. The center shaft, C, is rotated by a bevel-gear transmission from a suitable driving-shaft. The stirrer-shafts B are provided at their upper ends with pinions *e*, which mesh with the teeth of a fixed sur-

rounding gear-wheel, *e'*, that is rigidly applied to the supporting-frame D at the top of the tank A. By this gearing the stirrer-shafts B receive an axial motion simultaneously with the revolving motion that is imparted to them by the radial arms B' of the center shaft.

To the radial arms B' of the center shaft, C, are attached spring-pressed scrapers D, that remove that portion of the lard which adheres to the inner surface of the tank by the chilling action of the ice-water. All the parts so far described are old and have been used heretofore, and I do not lay any claim to the same.

In my improved machine the center shaft, C, is made hollow and provided at that part of its length within the tank A, with a surrounding jacket, C', which jacket is closed at its upper and lower ends by means of tightly-fitting stuffing-boxes *f f*. A supply of ice-water is also conducted to the interior of the shaft-jacket C' by a supply-pipe, E, that extends through a stuffing-box at the upper end of the shaft thereof, where it passes through a diaphragm, *f'*. The cooling-water passes from the lower end of the supply-pipe E through openings *f''* of shaft C, below the diaphragm *f'*, into the lower part of the surrounding jacket C', then in upward direction through the jacket, and through openings *f'''* of the center shaft, C, below the upper stuffing-box, *f*, back into the upper part of the shaft, and through the stuffing-box E' and a discharge-pipe, E², by which it is conducted off. The water is heated in its passage through the shaft C and jacket C', after having given off its cold to the lard to be cooled.

A scraper, F, is attached to spring-arms *g* and pressed by the same against the exterior surface of the surrounding jacket C' of shaft C. The spring-arms *g g* are attached at their opposite ends to a vertical strip, *g''*, applied to gear-wheels *g' g'*, which are placed loosely on the center shaft, C, the lower one being supported on the hub *h* of the lower supporting-arm, B', the upper on a fixed collar, *h'*, of the shaft C, as shown in Fig. 1. The gear-wheels *g' g'* mesh with intermediate pinions, *g''*, which turn on fixed shafts of the radial arms B', and which mesh again with pinions *g'''*, keyed to one of the stirrer-shafts B, as shown clearly in Figs. 1 and 3. By this gearing the scraper

F is moved in an opposite direction to that imparted by the driving-gear to the jacket C' and center shaft, C, so as to continually remove the lard that adheres to the exterior surface of the jacket C' by the chilling action of the water in the same. The surface of the jacket C' is thereby enabled to exert an effective cooling action on that body of lard at the center of the tank.

10 The tubular center shaft, the cooling-jacket, and its scraper form the new features of my invention, as thereby the column of lard at the center of the tank around the center shaft, which heretofore could not be properly agitated by the stirrer-arms, is thereby cooled quickly and effectively, so that a more rapid mixing and cooling of the lard is obtained.

20 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

25 1. In a machine for mixing and cooling lard, the combination, with a jacketed tank, of axially-rotating and revolving stirrer-arms, a central hollow driving-shaft, a tubular jacket surrounding said center shaft, and means for supplying water through the hollow shaft to the jacket and for conducting it off again, substantially as set forth.

2. In a machine for mixing and cooling lard, the combination of a hollow center shaft, a water-jacket surrounding said shaft, a water-supply pipe extending through a stuffing-box at the upper end of the shaft, and through a diaphragm at the lower part of the same, circulating-openings arranged in the shaft near the upper and lower ends of the jacket, and a discharge-pipe for conducting off the water that is heated in its passage through the jacket and shaft, substantially as set forth.

3. In a machine for mixing and cooling lard, the combination of a hollow central driving-shaft, a cooling-jacket surrounding said shaft, means to supply cold water to the jacket and shaft, means for conducting it off, a spring-actuated scraper held in contact with the exterior surface of the jacket, and means by which motion is imparted to said scraper in opposite direction to that of the driving-shaft, substantially as specified.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FREDRICK FIEDERLEIN.

Witnesses:

OTTO RISCH,
SIDNEY MANN.