

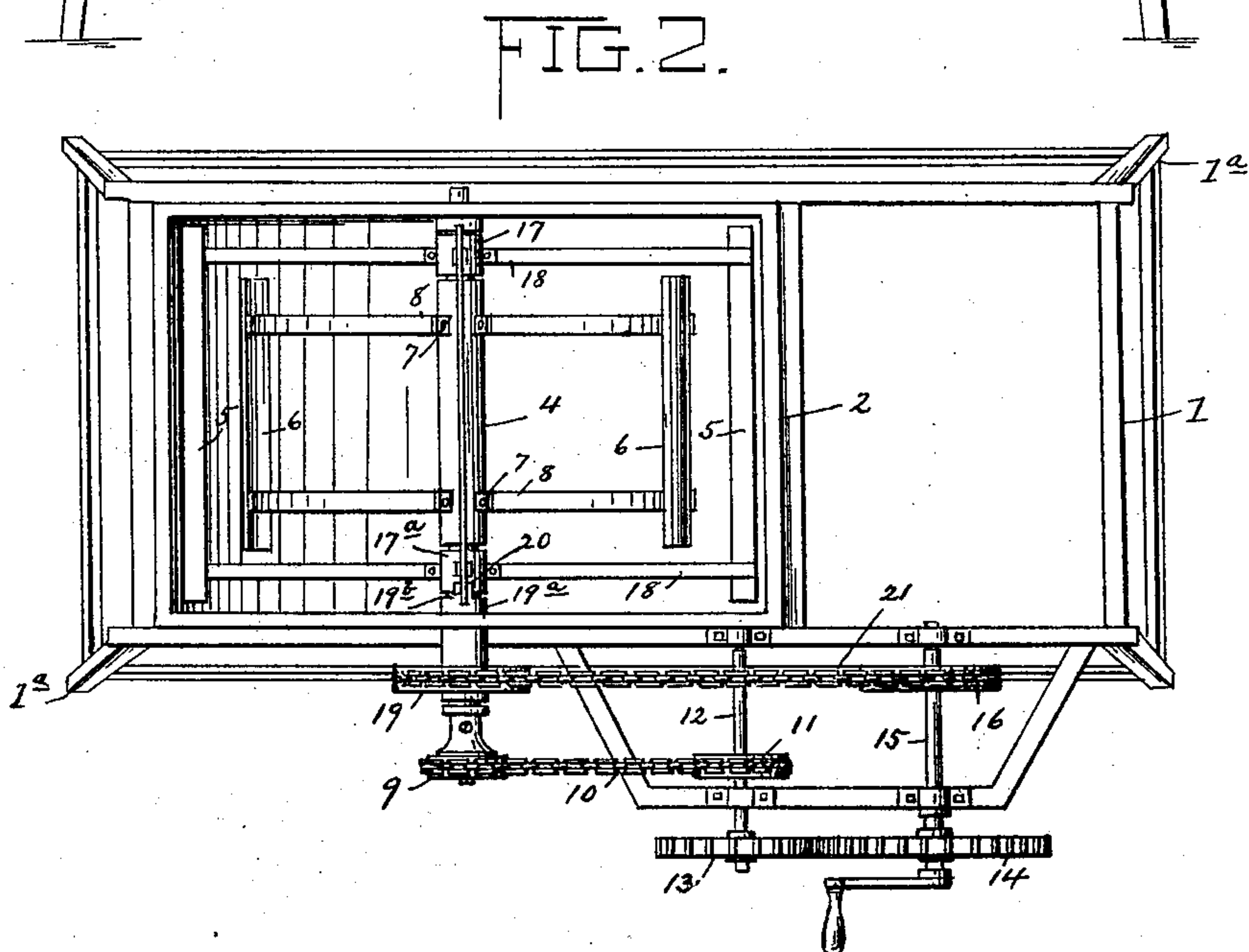
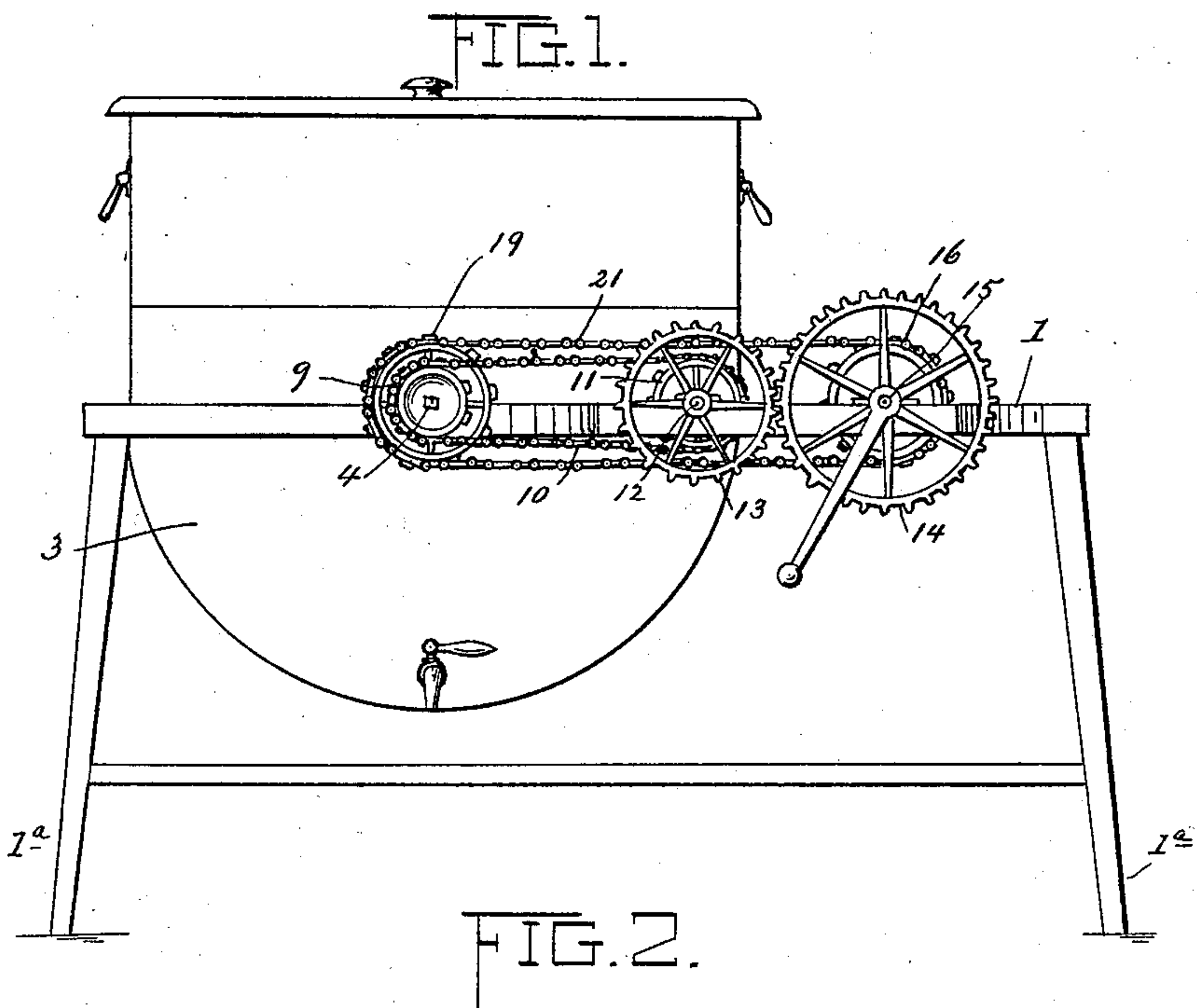
(No Model.)

2 Sheets—Sheet 1.

O. B. PAULSEN.
CHURN.

No. 591,493.

Patented Oct. 12, 1897.



WITNESSES
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INVENTOR
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(No Model.)

2 Sheets—Sheet 2.

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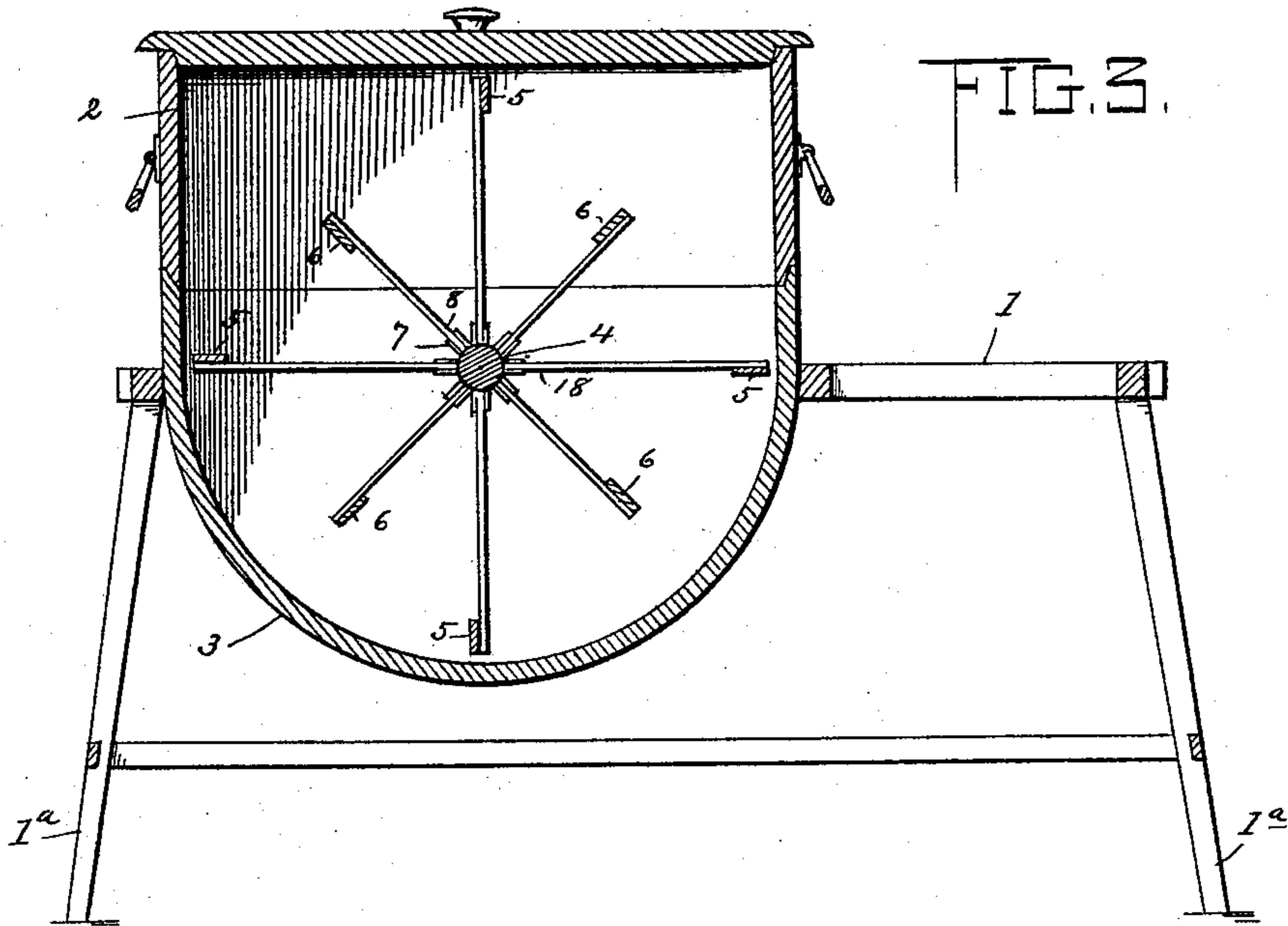


FIG. 3.

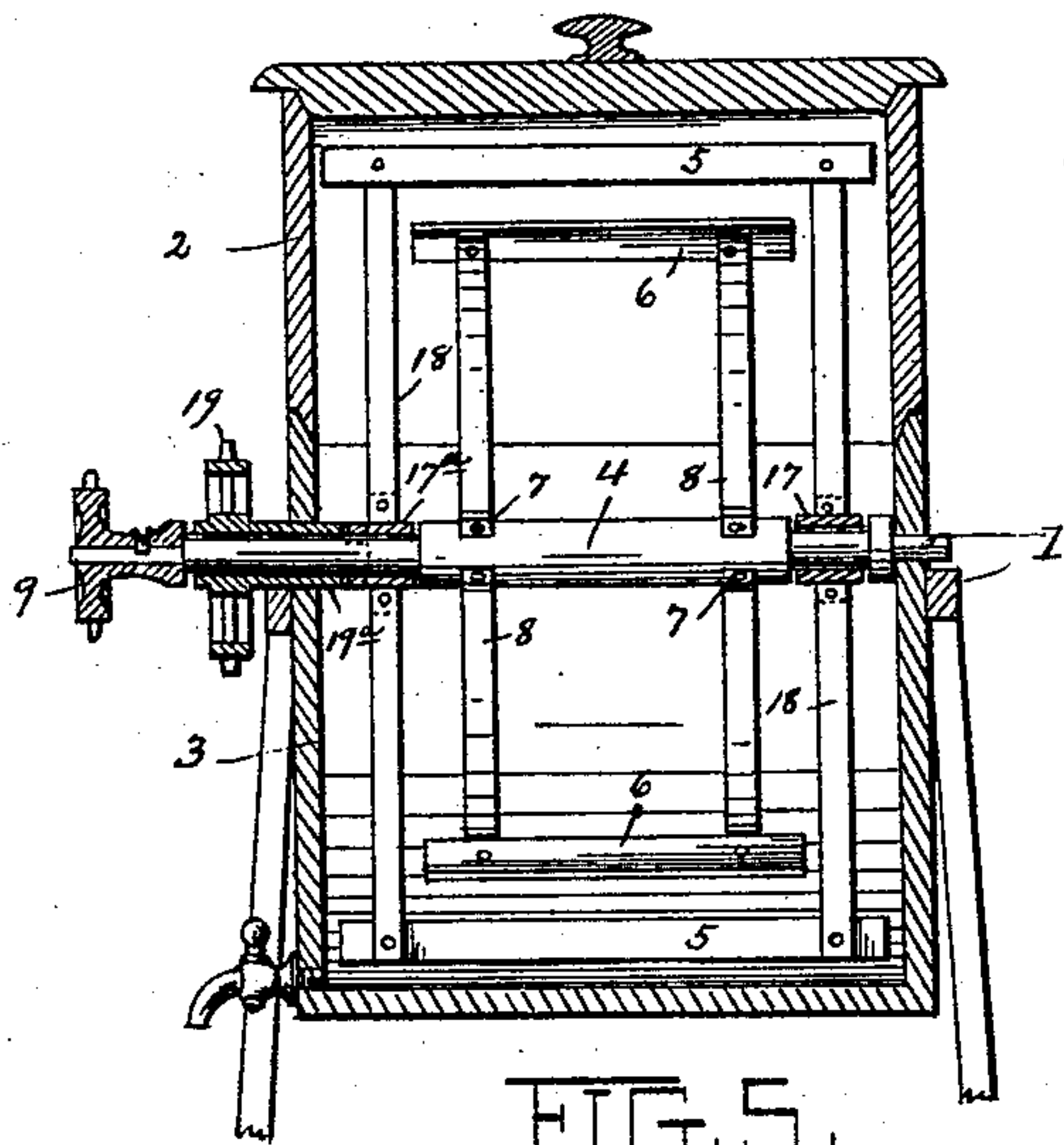


FIG. 4.

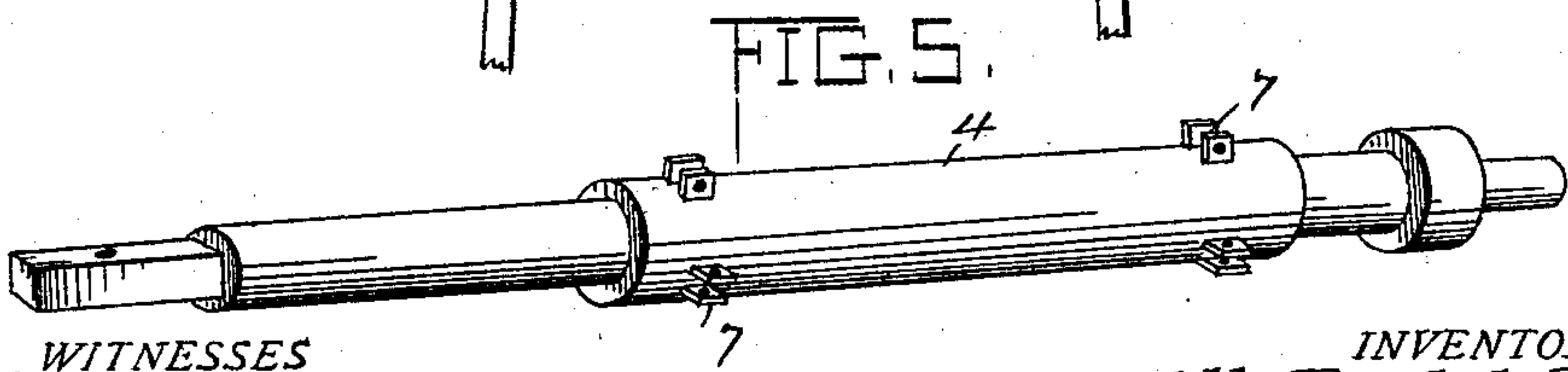


FIG. 5.

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UNITED STATES PATENT OFFICE.

OTTO BRECKELS PAULSEN, OF NEW YORK, N. Y.

CHURN.

SPECIFICATION forming part of Letters Patent No. 591,493, dated October 12, 1897.

Application filed March 24, 1897. Serial No. 628,976. (No model.)

To all whom it may concern:

Be it known that I, OTTO BRECKELS PAULSEN, of New York, (Kings Bridge,) in the county of New York and State of New York, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in churns wherein the dashers are intended to rotate in opposite directions, the object being to provide means whereby this motion is given to the dashers and the rapidity of rotation thereto greatly increased.

The invention comprises certain novel features of construction and arrangement of parts whereby it is made simpler, less expensive, and better adapted for the purposes for which it is intended, and whereby certain other important advantages are attained, as will be hereinafter fully described, and specifically defined in the appended claim.

In the accompanying drawings, Figure 1 represents a side elevation of a churn constructed in accordance with my invention. Fig. 2 is a plan view of the same with the cover removed. Fig. 3 is a vertical central longitudinal section thereof. Fig. 4 is a central transverse section, and Fig. 5 is a detail perspective view of the shaft removed.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

1 represents the framework, shown as substantially rectangular in outline and supported at each corner thereof upon the legs 1^a.

The churn-body comprises an upper and a lower section 2 and 3, the former being of rectangular form and removably connected to the latter, which is firmly secured to the frame, its bottom being curved, as clearly shown. A shaft 4 is journaled in the sides of the lower section 3, and upon the shaft the dashers 5 and 6 are arranged, one set being adapted to revolve within the other and in opposite directions by their peculiar arrangement and by means of operating mechanism which I shall presently describe.

The central portion of the shaft is provided with perforated ears 7, to which the inner

extremities of a series of dashers 8 are fastened, rotative movement being given thereto through the medium of the sprocket 9, secured to the outer end of the shaft and to which motion is imparted by the chain and sprocket 10 and 11. The sprocket 11 is fastened to a counter-shaft 12, journaled to the frame 1, and upon the outer end of said shaft is secured a gear-wheel 13, which meshes with and receives motion from a gear-wheel 14, carried upon a counter-shaft 15, also journaled to the frame and upon which is securely fastened a sprocket-wheel 16. As clearly shown in the drawings, the shaft is reduced in diameter at certain portions thereof, and upon each of these reduced portions a sleeve 17 and 17^a is placed, shown as made in two sections and provided with lateral perforated extensions to receive suitable bolts or rivets with which to secure the same in place thereon, but in such manner as to allow of rotative movement thereof. The sections are each provided with perforated ears adapted to receive and hold the end of a series of dashers 18, which are adapted to move upon the outside of the dashers mounted upon the shaft, but in an opposite direction, through the medium of a sprocket 19, secured to one end of a sleeve 19^a, the opposite end being provided with teeth 19^b, adapted to engage depressions 20 in the end of the sleeve 17^a. A chain 21 engages the sprockets 16 and 19 and communicates motion thereto, and it will be obvious that the several wheels may be so arranged with relation to each other that the speed of movement to the dashers may be increased or lessened, as desired.

The outer end of the shaft 15 is provided with a crank-handle when it is desired to operate the churn by hand, or it may be supplied with a pulley when it is intended to be driven by power, and it will be observed that when a motion to the right is given to the shaft the gear-wheel mounted thereon will impart a motion in the opposite direction to the gear mounted on the counter-shaft 12. Thus the sprocket-chains will be driven in opposite directions, imparting a similar motion to the dasher, and it will also be obvious that the sleeves 17 and 17^a will revolve loosely upon the reduced portions of the shaft 4, the oil or fatty matter resulting from the churn-

ing working its way under the sleeves, thus giving sufficient lubrication thereto.

5 The upper section of the churn-body is provided with a suitable cover which can be readily removed when it is desired to supply the churn with cream, and with handles at the end, by which it may be lifted out of engagement with the lower section.

10 It will thus be seen that my invention provides in a simple and inexpensive manner a churn which may be regulated to move at a rapid rate, which is durable and not easily gotten out of order, and which is so constructed that the dashers effectually and thoroughly agitate and mix the cream to a successful issue.

20 Modifications may be made without departing from the essential features of my invention, and I reserve the right to make such changes and alterations as may fairly fall within its spirit and scope.

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

25 A churn comprising a body portion, a shaft journaled therein and having a reduced portion near the outer face thereof, sleeves movably mounted on the said reduced portions of the shaft, the enlarged portion and the said sleeves of the shaft being formed with radially-arranged parallel pairs of ears,

inside dashers secured in the ears on the shaft and rotatable in one direction therewith, outside dashers of greater dimension surrounding the inside dashers and secured 35 to the ears on the sleeves, one of the said sleeves being formed with depressions in its one edge, a sleeve mounted on one of the reduced portions of the shaft and having its inner edge formed with teeth and engaging 40 the depressions in the adjacent sleeve to which a portion of the outside dashers are attached, a gear-wheel keyed to said last-mentioned sleeve, a gear attached to the outer reduced portion of the shaft, driving-gears having 45 sprocket-wheels in connection therewith, and chains surrounding the sprocket-wheels and the gears of the shaft and sleeve, the end of the shaft opposite to that at which the driving mechanism is located being formed with 50 a collar by reducing the shaft at this point to limit the movement of the dasher-sleeve and also of the shaft itself, substantially as described.

In testimony whereof I have signed this 55 specification in the presence of two subscribing witnesses.

OTTO BRECKELS PAULSEN.

Witnesses:

CURT FELIX,
F. B. PAULSEN.