

(No Model.)

2 Sheets—Sheet 1.

W. N. VILLAVASO.
MOLASSES MIXER.

No. 444,470.

Patented Jan. 13, 1891.

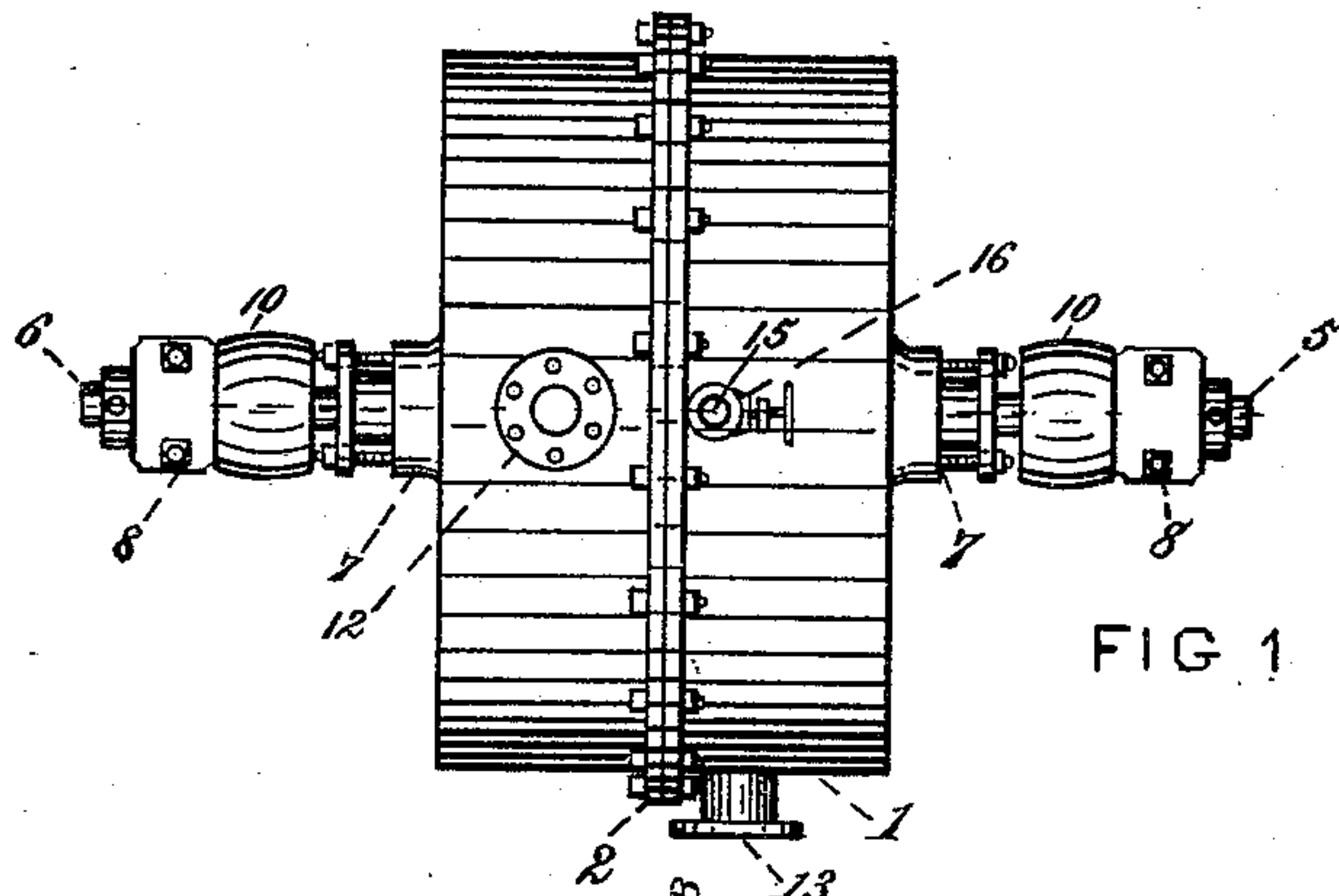


FIG 1

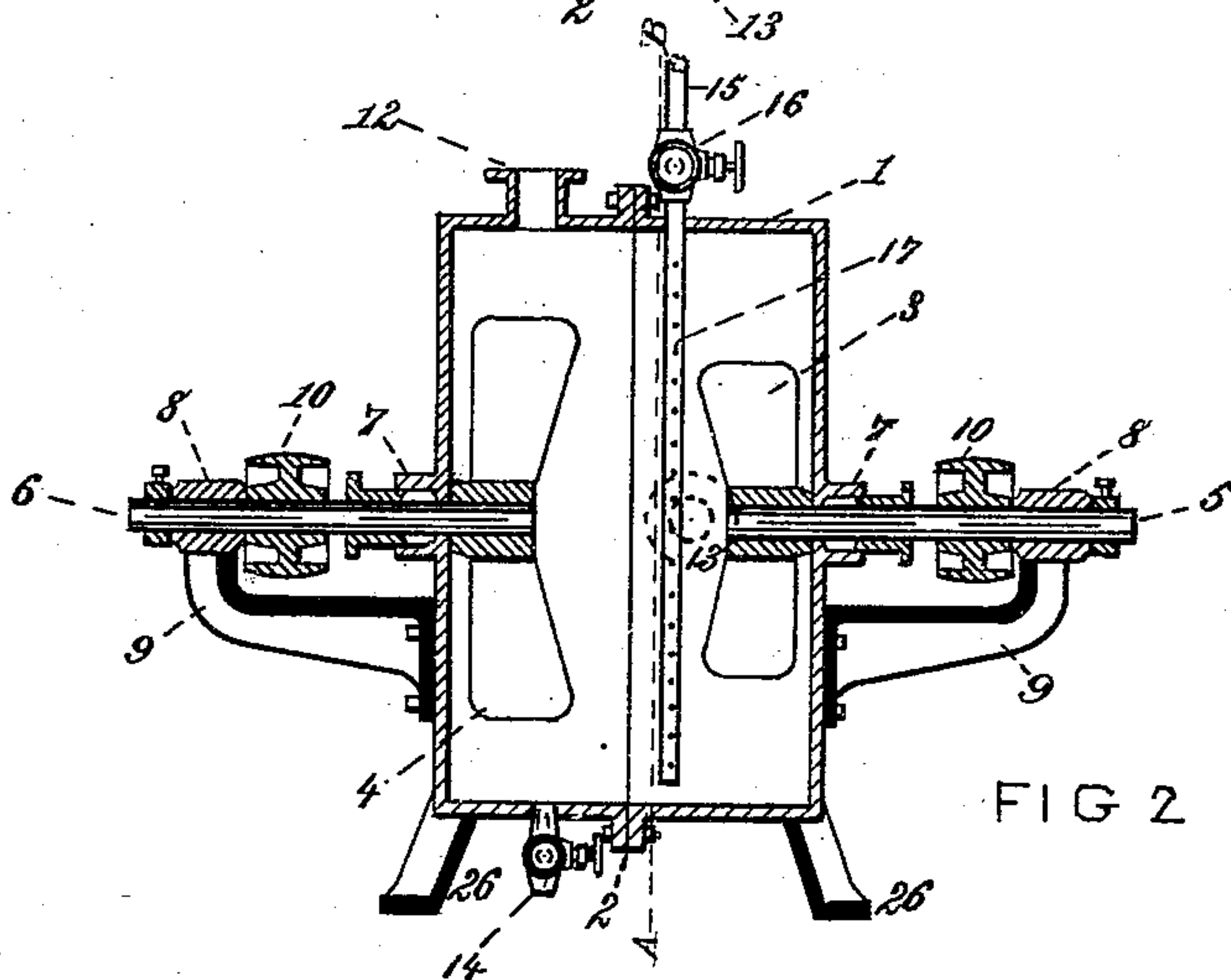


FIG 2

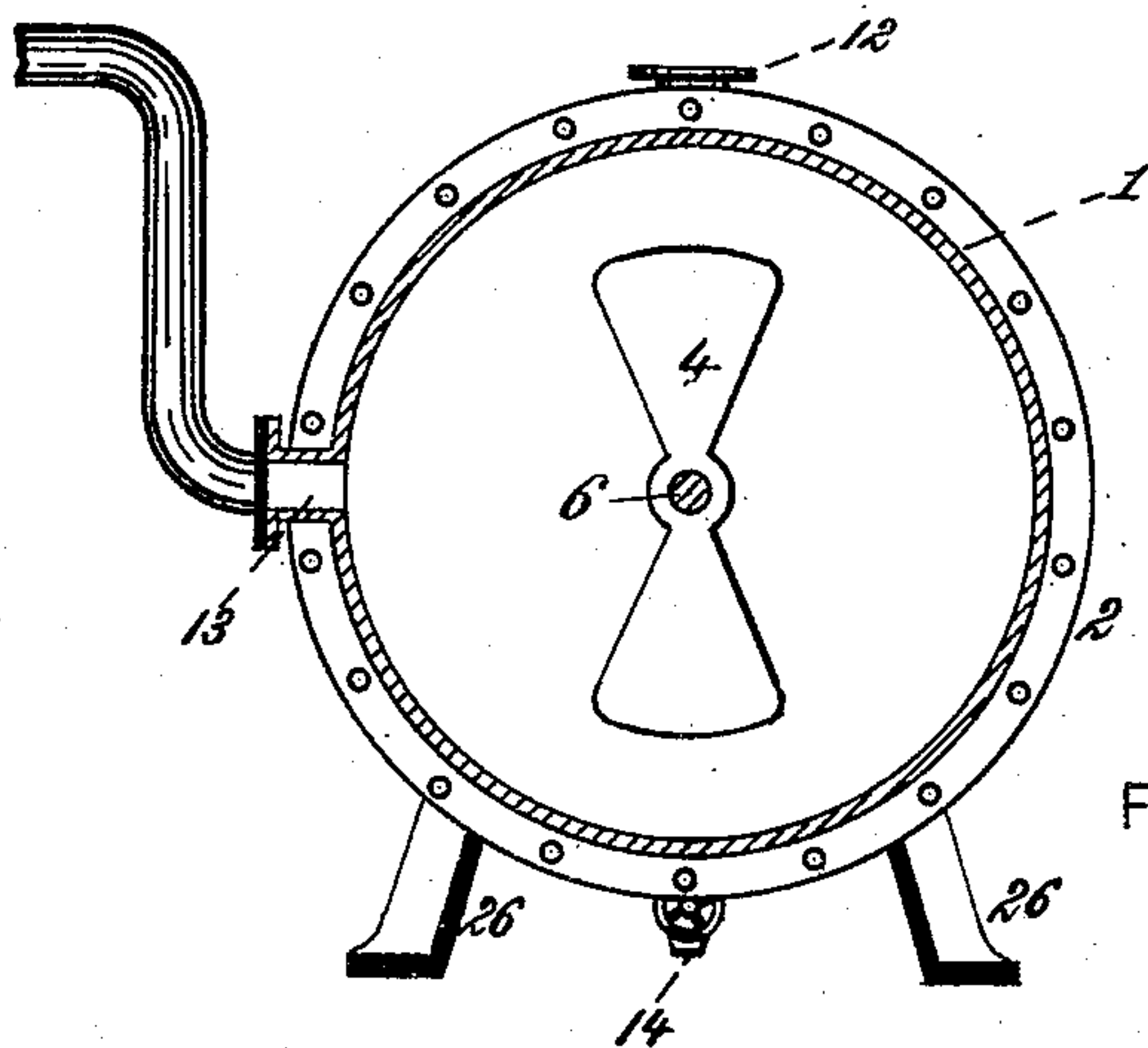


FIG 3

WITNESSES:

Robert Rius.
W. H. Cook

INVENTOR

William Nelson Villavaso.

BY

Frederic Cook
ATTORNEY

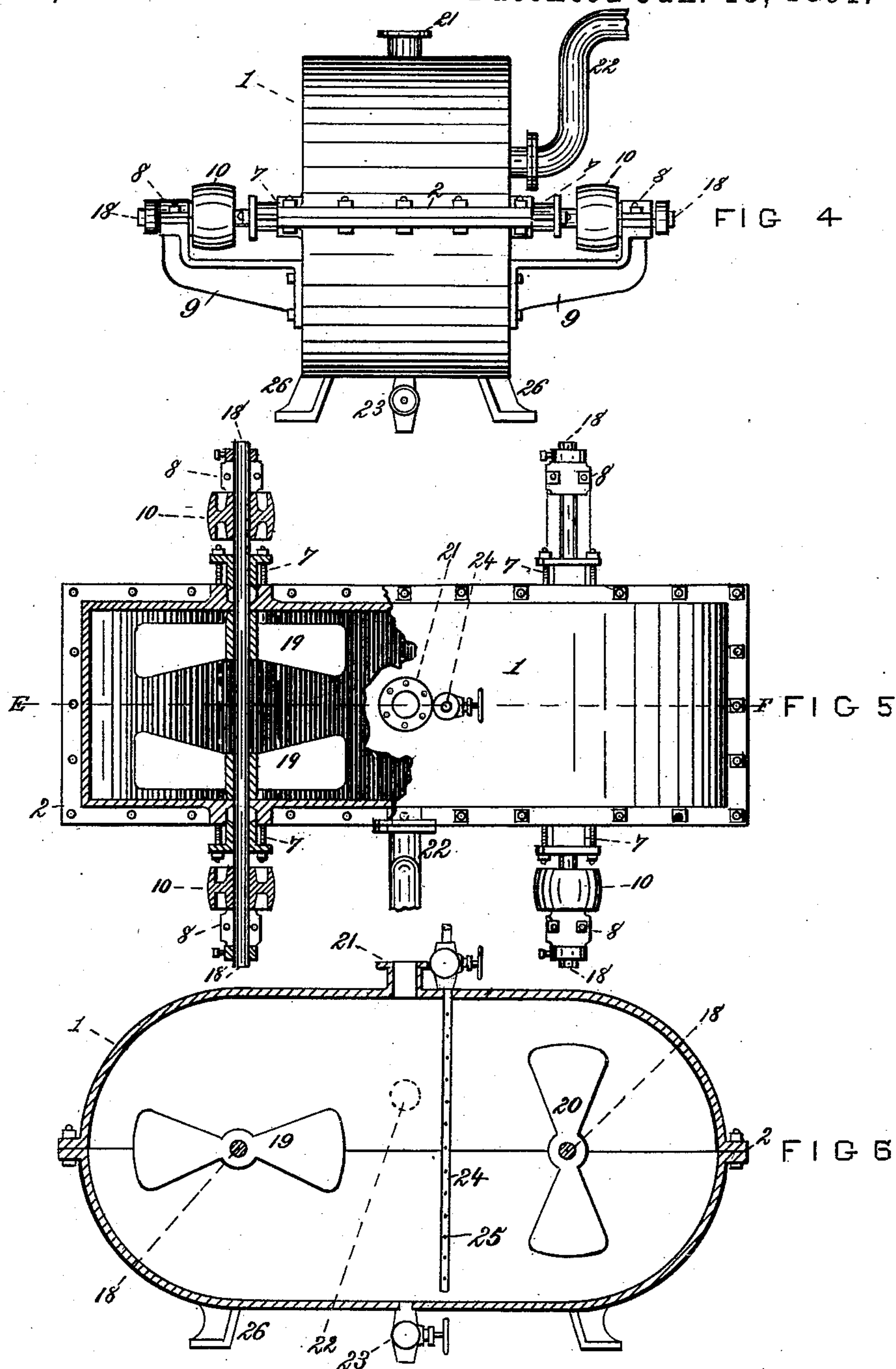
(No Model.)

2 Sheets—Sheet 2.

W. N. VILLAVASO.
MOLASSES MIXER.

No. 444,470.

Patented Jan. 13, 1891.



WITNESSES:

Robert Ries
W. H. Cook

INVENTOR

William Nelson Villavaso

BY

Frederick Cook

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM NELSON VILLAVASO, OF NEW ORLEANS, LOUISIANA.

MOLASSES-MIXER.

SPECIFICATION forming part of Letters Patent No. 444,470, dated January 13, 1891.

Application filed December 26, 1889. Serial No. 334,974. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NELSON VILLAVASO, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Molasses-Mixers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon.

My invention relates to apparatus for manufacturing sugar and molasses; and the purpose thereof is to provide a machine which will receive the molasses and mix the same, reducing the density thereof by means other than the use of steam or "blow-ups," whereby the reddening of the molasses by direct contact with the steam, and its inversion which is produced by the steam, shall be avoided. It is my purpose, also, to provide a molasses-mixer in which the density may be reduced to any required degree by means of warm water, which is mingled with the molasses in a closed vessel or chamber and under agitation, whereby a thorough and uniform reduction is effected, the quality of the molasses improved, and the reboiling to obtain second and third sugars materially facilitated.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and then definitely pointed out in the claims following this specification.

To enable others skilled in the art to practice my said invention, I will proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a mechanism embodying my invention. Fig. 2 is a central vertical section taken in the axial line of the shafts. Fig. 3 is a transverse vertical section in the line A B, Fig. 2. Fig. 4 is an end elevation of the mechanism shown in Figs. 5 and 6. Fig. 5 is a sectional plan view showing a slightly-modified construction. Fig. 6 is a vertical section on the line E F of Fig. 5.

In the said drawings the reference-numeral 1 denotes a cylindrical casing or drum, which is cast in halves and secured together by

means of bolts engaging flanges 2, the plane of division being either vertical, as shown in Fig. 1, or horizontal, as seen in Figs. 4 and 5. Within the cylinder or drum are arranged beaters 3 and 4, which closely resemble screw-propellers, carried, respectively, by shafts 5 and 6, which have bearings in stuffing-boxes 7 and in journal-boxes 8, supported by brackets 9, attached to and projecting from the walls of the drum. Each of these shafts is provided with a pulley 10, whereby it may be driven from any suitable source of power.

I prefer to make one of the propellers, as 3, of a smaller size than the other, and they should be driven in different directions at a speed determined by the operator, according to circumstances.

In the top of the drum an opening 12 is formed, with which a pipe communicates, said pipe leading from the centrifugals or from a tank, as the case may be, a gate or cock being provided to regulate the flow. The molasses entering through this pipe and through the opening 12 passes out of the drum through an outlet 13, consisting of a pipe having its highest point a little above the top of the drum to insure that the latter shall always remain filled. A drain-valve 14 is placed in the bottom of the drum to empty it and permit the interior to be washed.

Penetrating the top of the drum 1 is a pipe 15, which drops vertically in the interior to or nearly to the lower side of the said drum. This pipe is provided with a cock 16, and the portion which extends within the drum is provided with perforations or openings 17, through which warm water may flow when the cock 16 is opened. When water is admitted to the drum in this manner, it is speedily and uniformly mingled with the molasses by the action of the propeller-blades 3 and 4, and the fine grains of sugar remaining in the molasses are speedily and entirely melted.

I may construct the drum as shown in Figs. 5 and 6, wherein it is shown of oblong form. In this construction the shafts 18, carrying the propellers 19 and 20, are continued directly through the drum, as seen in Fig. 5, and two parallel continuous shafts are employed, one in each end of the drum, in place of two separate shafts, as shown in Fig. 2. This form of mixer is much more capacious than the cy-

lindrical drum and is constructed in substantially the same manner, being provided with a molasses-inlet 21 and an outlet 22, with a drain-cock 23 in its bottom. The warm-water pipe 24 is inserted through the top of the drum and drops nearly to the bottom thereof, being provided with openings 25 for the water. The drum of whatever form may be supported by legs 26.

By this invention the density of the molasses can be varied by simply opening the warm-water pipe 22. Heretofore this result has been accomplished by means of apparatus generally known under the name of "blow-ups," which consists of open tanks containing perforated steam-coils. Steam, being thrown into the coils, comes into direct contact with the molasses and condenses the water mingling with it. The direct contact of the steam, however, reddens the molasses and causes inversion, whereas in my invention, as warm water is substituted for the steam, the quality of the molasses is improved, and there being no inversion it may be reboiled for second and third sugars, and will produce much more sugar than is otherwise obtainable.

What I claim is—

1. An apparatus for treating and varying the density of molasses, consisting of a closed vessel having a pipe-connection for introducing the molasses and a pipe-connection for the discharge thereof, a pair of propellers rotating in reverse directions for agitating and mixing the molasses, and a valved perforated water-conducting pipe extending across the chamber for delivering water into the body of agitated molasses to vary the density thereof and

dissolve the fine grains of sugar therein, substantially as described.

2. An apparatus for treating and varying the density of molasses, consisting of a closed vessel having a pipe-connection for introducing the molasses and a pipe-connection for the discharge thereof, a pair of independent revolving shafts, each carrying a propeller for agitating and mixing the molasses at different points in the closed chamber, and a valved perforated water-conducting pipe extending across the chamber between the propellers for delivering water into the body of agitated molasses to vary the density thereof and dissolve the fine grains of sugar therein, substantially as described.

3. An apparatus for treating and varying the density of molasses, consisting of a closed vessel having a pipe-connection for introducing the molasses and a pipe-connection for the discharge thereof, a pair of independent shafts revolving in reverse directions and each carrying a propeller for agitating and mixing the molasses at different points in the closed chamber, and a valved perforated water-conducting pipe extending across the chamber between the propellers for delivering water into the body of agitated molasses to vary the density thereof and dissolve the fine grains of sugar therein, substantially as described.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM NELSON VILLAVASO.

Witnesses:

W. H. COOK,
ROBERT RIES.