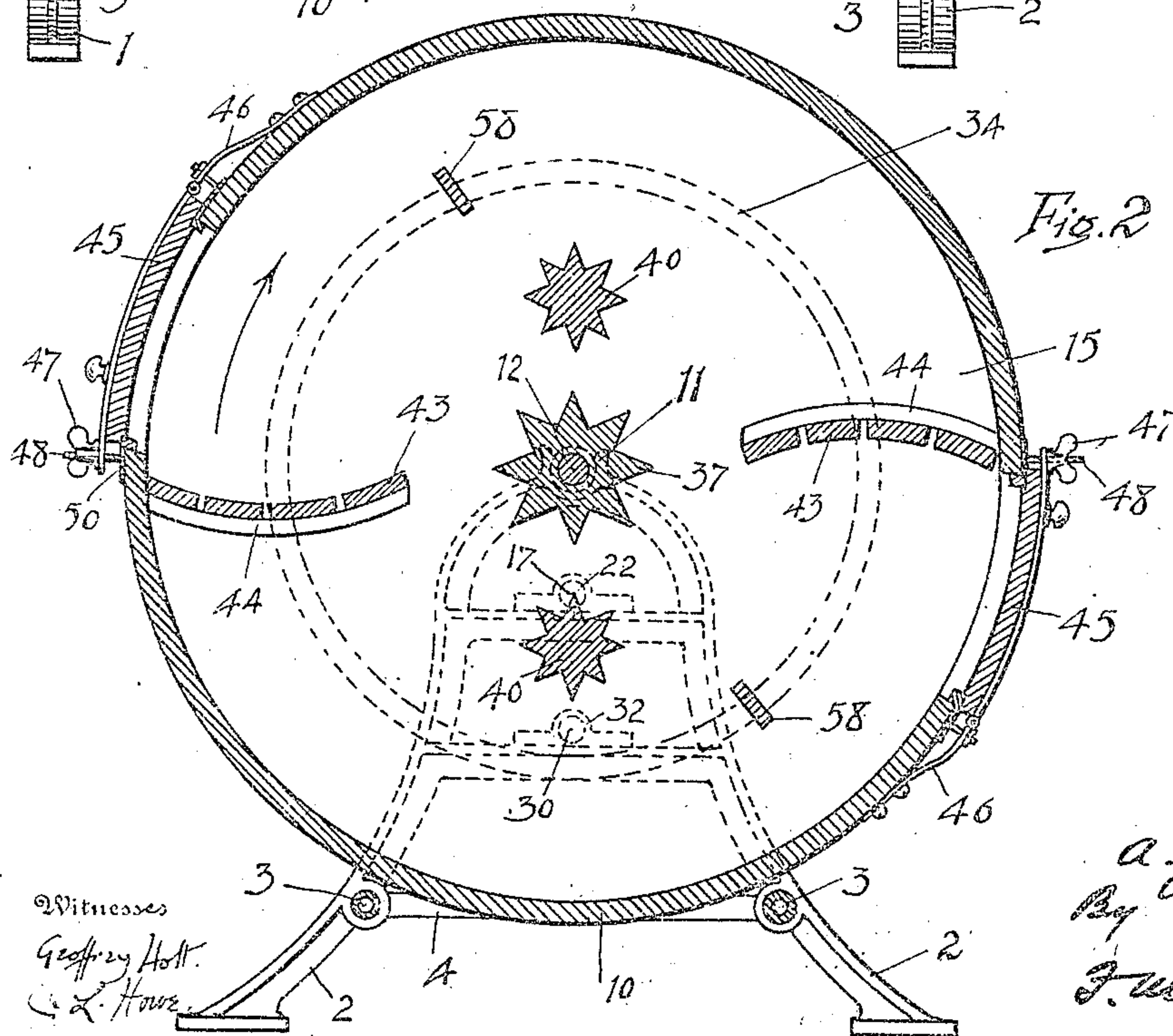
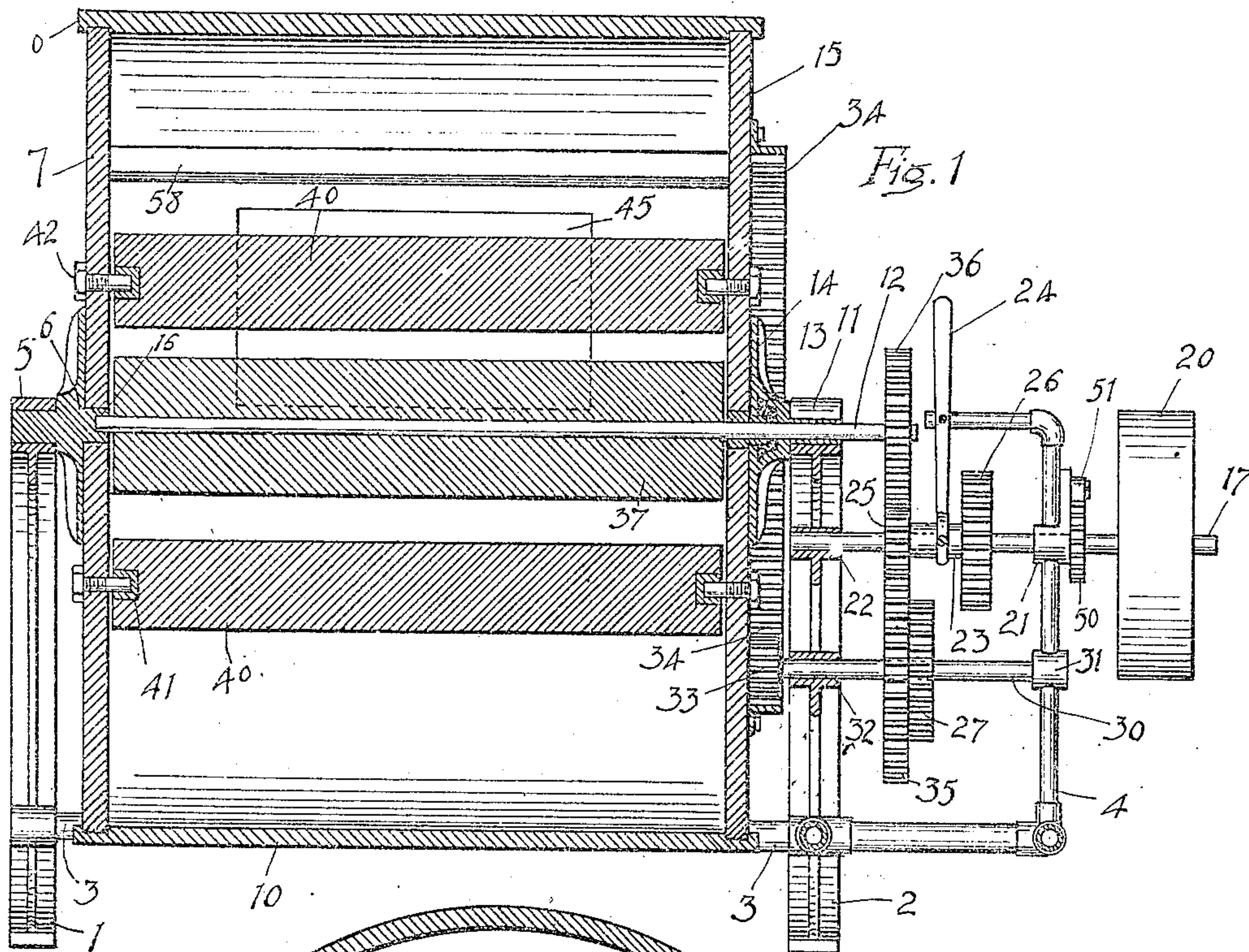


No. 855,178.

PATENTED MAY 28, 1907.

A. JENSEN.
COMBINED CHURN AND BUTTER WORKER.
APPLICATION FILED MAR. 28, 1907.



Witnesses
Geoffrey Holt.
L. H. Hove.

Inventor
A. Jensen,
By
J. W. Wright,
Attorney

UNITED STATES PATENT OFFICE.

AAGE JENSEN, OF EUREKA, CALIFORNIA.

COMBINED CHURN AND BUTTER-WORKER.

No. 855,178.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed March 28, 1907. Serial No. 365,193.

To all whom it may concern:

Be it known that I, AAGE JENSEN, a citizen of the United States, residing at Eureka, in the county of Humboldt and State of California, have invented new and useful Improvements in Combined Churn and Butter-Workers, of which the following is a specification.

The object of the present invention is to provide a combined churn and butter worker containing as few wearing parts as possible, which will have practically no exposed metal surface in the interior of the churn to give a metallic reaction with the butter, of which the interior shall be readily accessible for removal of the butter, which will effect the operation of churning and working of the butter as expeditiously as possible, and which will be simple and cheap in construction.

In the accompanying drawings, Figure 1 is a longitudinal section of my combined churn and butter worker, certain parts being shown in side elevation; Fig. 2 is a transverse section of the same.

Referring to the drawing, 1, 2, indicate standards, which are connected by longitudinal bars 3. Said bars are extended at one end and connected to a frame 4. In a bearing 5 formed in the top of the standard 1 rotates the trunnion of a hub 6 secured to a head 7 of a drum 10 of the churn, and in a bearing 11 formed in the standard 2 rotates a roller shaft 12, which, adjacent said bearing, passes through a stuffing box 13 formed in a hub 14 secured to the other head 15 of the drum, the remote end of said shaft 12 having a bearing in a socket 16 formed in the hub 6.

17 indicates the main shaft, which is rotated by means of a pulley 20 from any suitable source of power. Said shaft rotates in bearings 21, 22, formed respectively in the frame 4 and standard 2. Upon said shaft is a slidable sleeve 23 rotating with the shaft, said sleeve being moved on said shaft by means of a lever 24 in the manner usual for variable transmission. Said sleeve has secured thereto a small gear wheel 25 and a large gear wheel 26, which latter can mesh with a gear wheel 27 mounted on a shaft 30, which rotates in bearings 31, 32, formed respectively in the frame 4 and standard 2, said shaft 30 carrying a pinion 33 which meshes with an interior gear ring 34 secured to the head 15 of the drum. When said wheels 26 and 27 are in mesh with each other, the wheel 25 is inoperative, so that the only motion communicated

by the rotation of the shaft is a rapid rotation of the drum, by which rapid movement the butter is churned. But by sliding the sleeve 23 away from the drum, the gear wheel 26 is moved out of mesh with the gear wheel 27, and the gear wheel 25 is moved into mesh with a gear wheel 35 on the shaft 30 and also into mesh with a gear wheel 36 on the roller shaft 12 and thereby the churn is rotated in the same direction as before, but at a slower speed, and at the same time a rotary movement is imparted to a roller 37 carried by the shaft 12. By this movement the butter which has been previously churned is worked.

Between the heads of the drum, in addition to the working roller 37, are mounted two diametrically opposite idler rollers 40, each roller being rotatively supported by means of sockets 41 in the ends thereof rotating on the ends of pins 42, screwed through the heads of the drum. This construction permits of easy removal of the rollers, and does not require that the heads of the drum should be made with joints, or that said heads should be separated from each other, to remove the rollers and replace them in position. Between the heads of the drum also extend two butter shelves 43, diametrically opposite to each other, and in a direction substantially at right angles to the plane through the axes of the idler rollers 40, each shelf being formed of slats spaced from each other and supported at their ends upon concave ribs 44 secured upon the heads of the drum. Each shelf in the rotation of the drum drops the butter into the space between the working roller and the idler roller in front of said shelf, the guide 58 in front of said shelf insuring that the butter is so dropped. By the positive rotation of the working roller, coacting with the idler roller, the butter is drawn between said rollers and is thereby worked, and is passed toward the edge of the other shelf, which causes the butter to divide, part passing in front of said shelf and part behind it, the latter portion of the mass being subsequently caught up by the same shelf on which it was just carried. The effect of this is to repeatedly divide each mass or body of butter into two portions, one of which is then mixed with the other mass, so that, the two masses being continually mixed together, the butter is reduced to a uniform texture.

The butter having been thoroughly worked,

the drum is stopped with the door in a position proper for the removal of the butter therethrough, and is retained in this position by means of a ratchet wheel 50 secured to the driving shaft and engaged by a pawl 51 secured to the frame 4. The door is now opened, the butter is removed from the shelf, and, said door being again closed, the drum is given a half rotation, the other door is opened, and the butter is removed from the other shelf.

The following advantages of this invention are to be noted. First, by providing the central working roller and the two diametrically opposite idler rollers, in combination with the shelves for passing the butter between each working roller and one of the idler rollers in turn, there is obtained a construction for working the butter which is very simple and effective, utilizing the power applied in the highest degree. Also by supplying the shelves in the relative locations shown, the butter is caused to be thoroughly mixed and brought to a uniform texture. Moreover said shelves are so constructed and arranged that they act both as dashers to churn the butter and as carriers in the working thereof. The arrangement of the two doors, one over each shelf, enables the operation to be carried on quickly and conveniently. It will also be seen that there is no metallic part in the interior of the drum to come in contact with the butter.

I claim:—

1. A combined churn and butter worker comprising a rotatable drum, an axial working roller therein, means for rotating said roller, a pair of diametrically opposite idler rollers, and two shelves for raising the butter,

diametrically opposite each other, and arranged substantially at right angles to the plane of the idler rollers, substantially as described.

2. A combined churn and butter worker comprising a drum, an axial working roller therein, two shelves for raising the butter arranged diametrically opposite to each other, and a door in the round side of the drum immediately above or in front of each shelf, substantially as described.

3. A combined churn and butter worker comprising a drum an axial working roller therein, and diametrically opposite shelves, each shelf having a concave upper or front face formed of longitudinal slats spaced from each other, said shelves extending from the side of the drum in the direction of the working roller but spaced therefrom, substantially as described.

4. A combined churn and butter worker comprising a drum, an axial working roller, diametrically opposite idler rollers, diametrically opposite shelves arranged substantially at right angles to the plane through the idler rollers, each shelf composed of slats spaced from each other and extending from the circumference of the drum toward the working roller but spaced therefrom, and guides extending longitudinally of the drum, one in front of each shelf, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

AAGE JENSEN.

Witnesses:

F. M. WRIGHT,
D. B. RICHARDS.