Sept. 4, 1928.

1,682,970

R. KNAPP

MIXER

Filed May 19, 1927

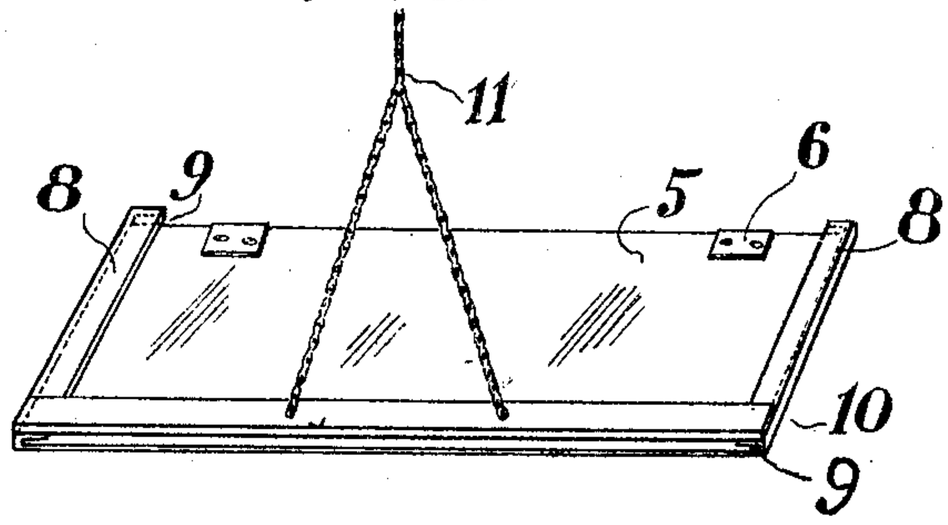

Fig. 3

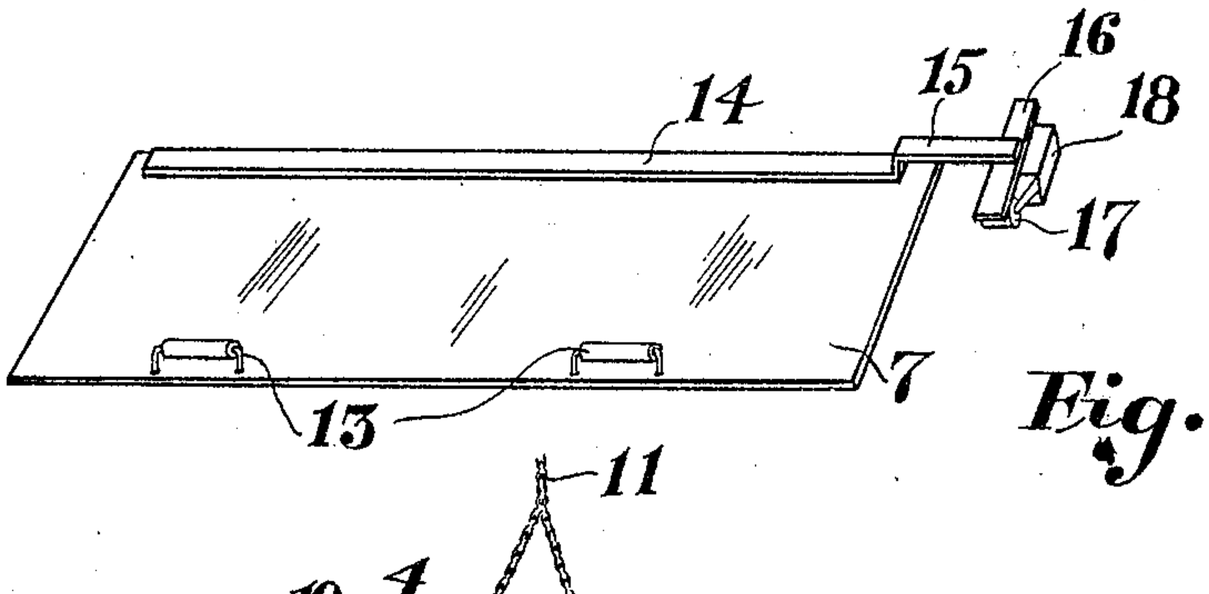

Fig. 2

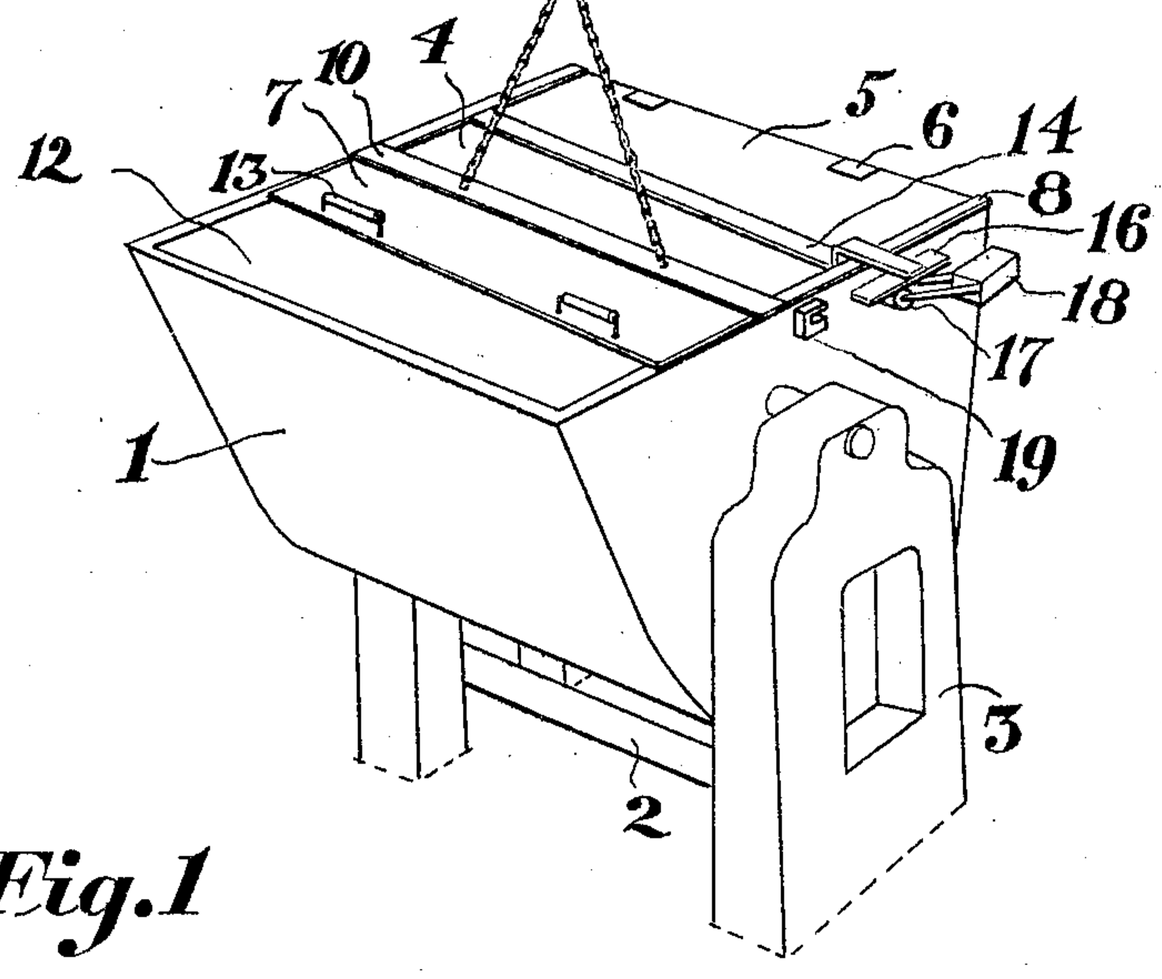

Fig. 1

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UNITED STATES PATENT OFFICE.

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MIXER.

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This invention relates to a mixing apparatus and the like, and especially aims to produce a novel and improved closure to be used in connection with said mixing apparatus.

The invention consists in the features, combinations and arrangements, hereinafter described or claimed, for carrying out the above stated object, and such other objects as will hereinafter appear.

The invention can be understood by reference to one illustrative embodiment thereof described in the following specification, such embodiment being typified by a flat, open top mixing container and a closure fitted to the container over the flat open top. The closure comprises a unit composed of a plurality of complementary sections fitted together and attached to the container. Construction of the closure unit is such that the entire unit may be opened to give full access to the interior of the container or one section of the unit may be opened to give only partial access therein. A contact connection is provided on the closure unit and associated with a switch mechanism to render same operative when both sections of the unit are closed and inoperative when either of the sections of the unit is manipulated to certain positions. That section of the unit which is adapted to move relatively to the other section is connected with the switch so that same will be out of contact with the switch when the section is opened to an extreme position, but not out of contact when partially opened, thereby permitting the operator to inspect the contents of the mixer without cutting off the source of power.

In the accompanying drawings:

Fig. 1 is a perspective view of the mixer embodying the features of the invention;

Fig. 2 is a plan view of one section of the closure unit;

Fig. 3 is a plan view of the other section of the closure unit.

Referring to the drawings, numeral 1 represents a mixing container within which a spindle is adapted to revolve to mix ingredients placed therein for making a batch of dough. The spindle (not shown) is actuated through driving mechanism 2 which may be supported with the container upon a single base 3, the container being rotatably supported by trunnions or similar means as is commonly employed in devices of this kind so that it can be tilted. Any source of power such as an electric motor may be employed to operate the driving mechanism. Container 1 illustrates the flat top type of mixer and is provided with a novel and improved closure, denoted generally at 4, which fulfills all sanitary requirements, completely protects the operator of the mixer, and permits safe inspection of the contents during operation of the machine.

The closure comprises complementary sections fitted together to form the unit 4, one of said sections 5 being attached to the container by hinges 6 and the other section 7 being movably attached to the section 5. Section 5, hereinafter referred to as the guide plate, may advantageously be formed from a single strip of sheet metal with overturned flanges 8 at both ends to provide guide grooves 9 between the flanges and the base of the guide plate. Attached to the flanges and flush with one edge of the guide plate is a cross-bar 10 to provide a means to which chain 11, suspended from some fixed support, may be engaged to support the closure when the container is tilted on its trunnions. The guide plate is substantially one half the width of the container top in order to provide an opening 12 which the other section 7, hereinafter referred to as the slide plate, is adapted to close, when said slide plate is slid to one of its extreme positions.

Slide plate 7 is preferably formed from sheet metal and cut in dimensions to cover opening 12 and overlap the margin of the guide plate when the slide plate is closed. Handles 13 are provided to actuate the slide plate and are positioned to contact with the cross-bar to limit the open position of said plate. The slide plate may advantageously be reenforced by some means such as rib 14, the rib being conveniently extended at 15 to carry contact plate 16 which provides a track on the underside to contact within predetermined limits with roller 17 of the switch 18. This rib also contacts with the cross-bar to limit the closing position of the slide plate when same is flush with the rim of the container. In this closed position, catch 19 which is fastened to the container is situated to engage rib 14 for locking the closure unit securely to the container.

In operation of the machine, ingredients are placed in the mixer through the opening 12 when the mixer is in a vertical position and slide plate 7 is open, the slide plate 7

being opened to extreme position with the handles 13 contacting with the cross-bar 10 and the current cut off. This slide plate is then closed with the rib 14 contacting with the cross-bar and track 16 contacting with the switch roller 17. Any time during operation of the machine, the slide plate may be slid open for inspection of the contents without interrupting the operation of the machine. After the batch is mixed the container is tilted, the chain support at the same time suspending the closure, and the contents discharged.

Obviously, the invention is not limited to the details of the illustrative apparatus and method of manufacture, all or any of which may be variously modified. Moreover, it is not indispensable that all features of the invention be used conjointly, as certain features may be employed to advantage in various different combinations and sub-combinations.

Having thus described one embodiment of my invention, I claim:—

1. A mixing apparatus comprising an open top container, a closure unit for the container having complementary sections, one of which is adapted to slide relatively to the other, a control switch adjacent the container, means on the sliding section for operating the control switch, and a catch for engaging the unit.

2. A mixing apparatus comprising an open top container, a closure unit attached to the container having complementary sections, one of which is movable relatively to the other section, a control switch adjacent said container, and an elongated plate attached to the movable section for contacting with the control switch during a substantial range of movement.

3. A mixing apparatus comprising an open top container, a closure unit for the container having complementary sections, one of which is adapted to slide relatively to the other, a control switch adjacent the container, and means on said sliding section for operating the control switch.

4. A closure unit comprising a plate, flanges on opposite sides of the plate to provide grooves along the margins thereof, a cross-bar connected to the flanges and spaced from the base of the plate, a second plate adapted to slide in the grooves of the first plate, means carried by the second plate to contact with the cross-bar to limit the movement thereof, and a contact means movable with said second plate for operating a control device.

5. A closure unit comprising a guide plate, a plate attached to and movable relatively to the guide plate, and an elongated plate attached to the movable plate adapted to contact over a substantial range with a switch mechanism.

6. A closure unit comprising a guide plate, a plate attached to and movable relatively to the guide plate, a reenforce extending along the margin of the movable plate, a stop extending from the reenforce to limit the movement of said movable plate in one direction, and a switch control bar attached to the stop.

In testimony whereof, I affix my signature.

RAY KNAPP.