

June 19, 1923.

1,459,148

A. I. FLYNT

MIXING AND BEATING DEVICE

Filed Dec. 27, 1921

3 Sheets-Sheet 1

Fig. 1.

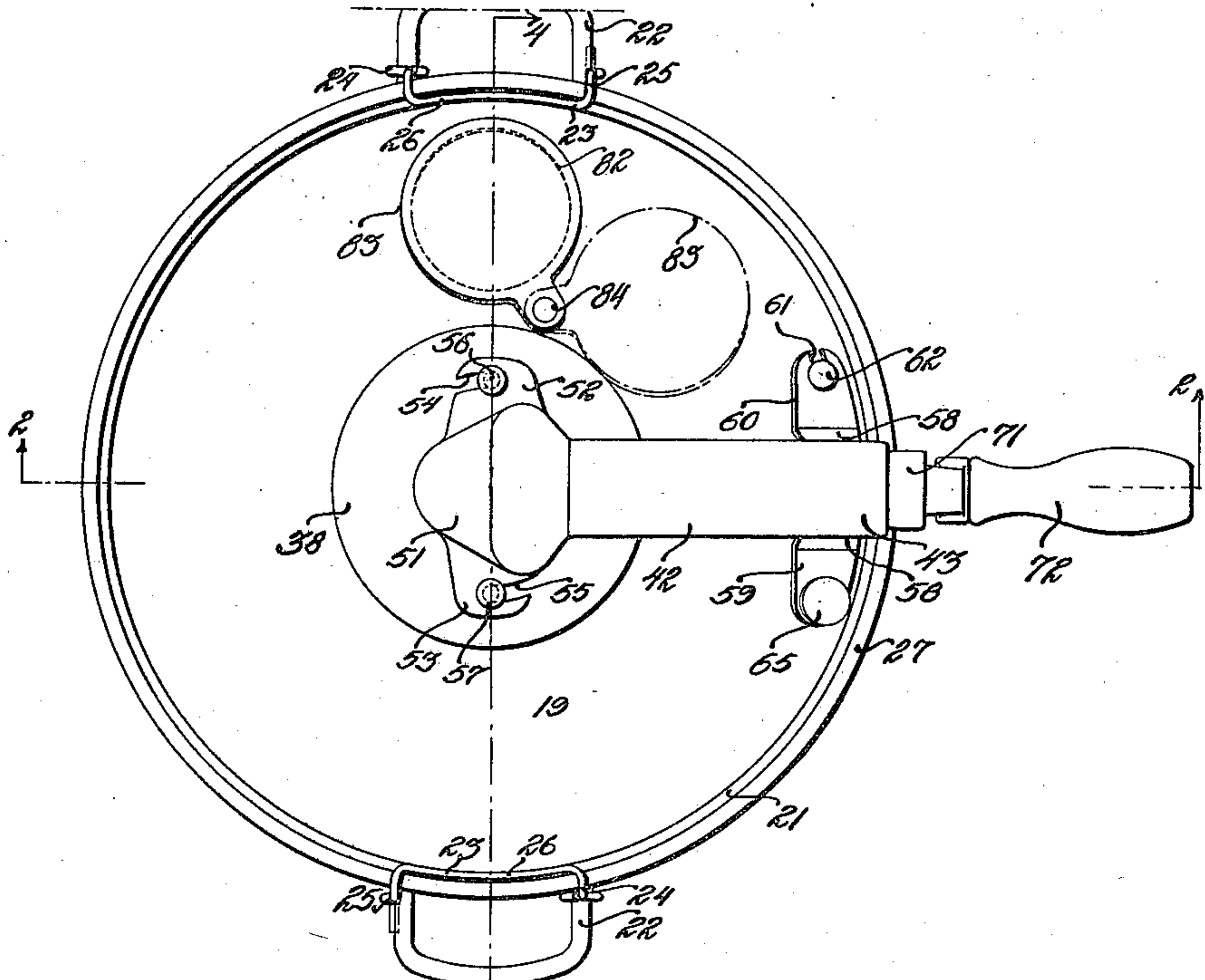
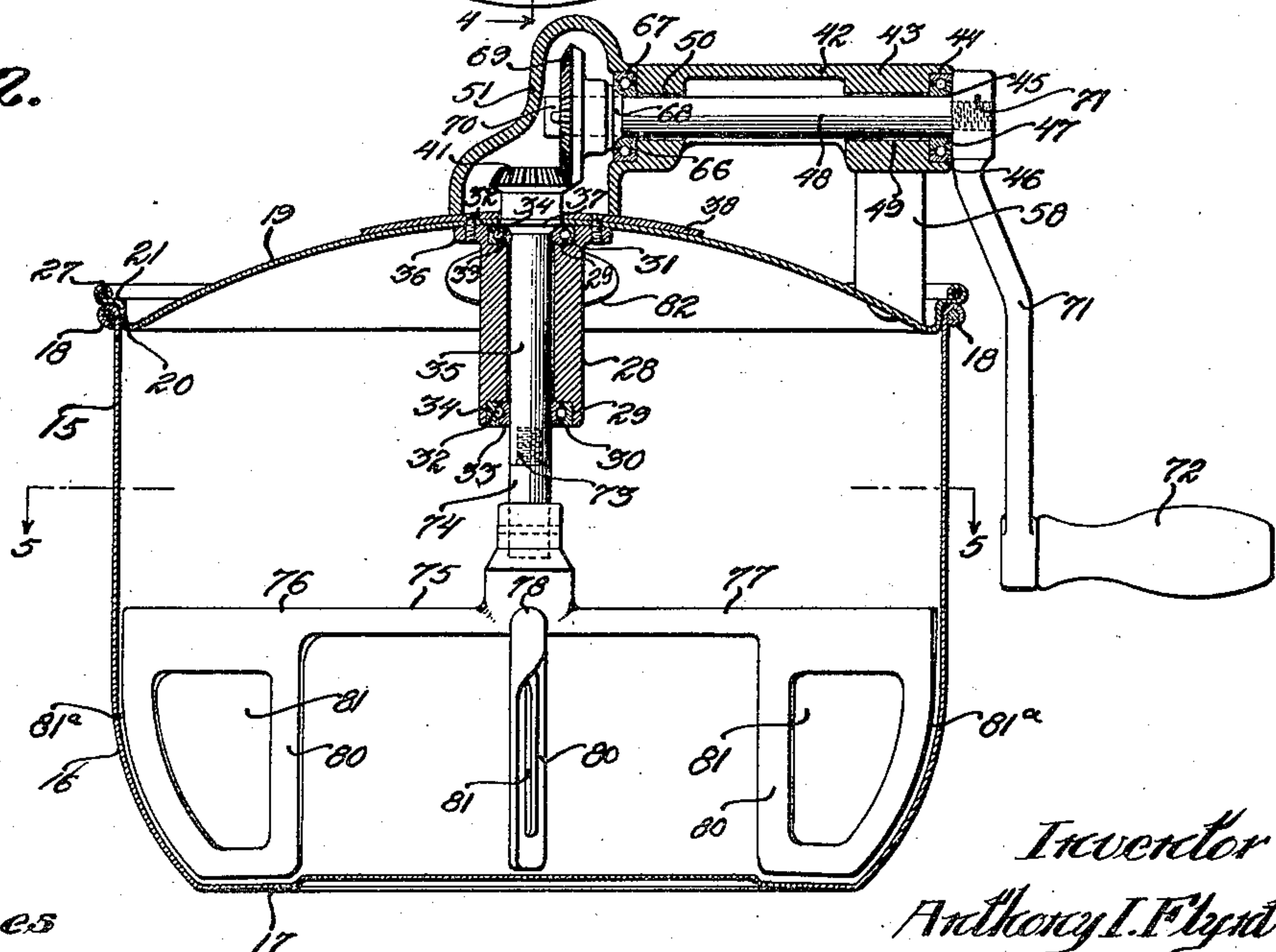


Fig. 2.



Witnesses

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Augustus B. Cooper

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Anthony I. Flynt

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3 Sheets-Sheet 2

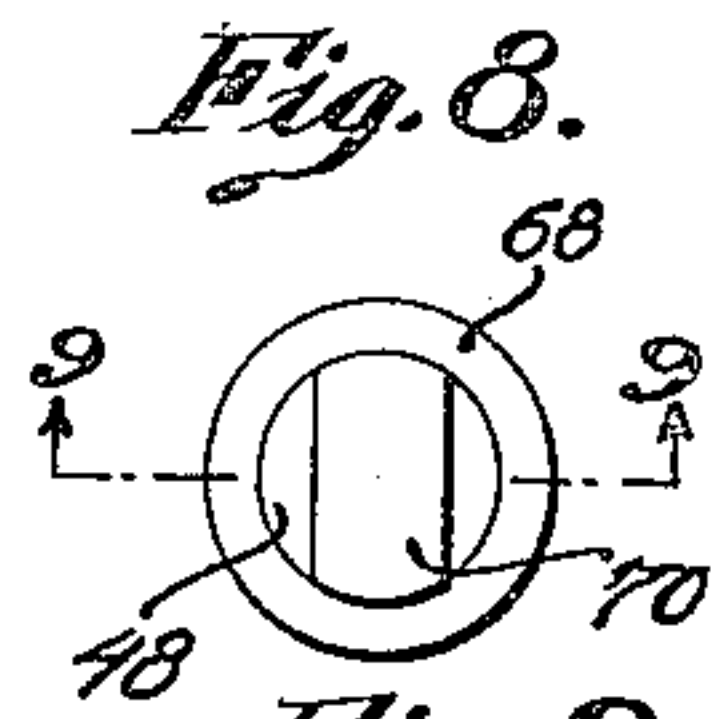


Fig. 9.

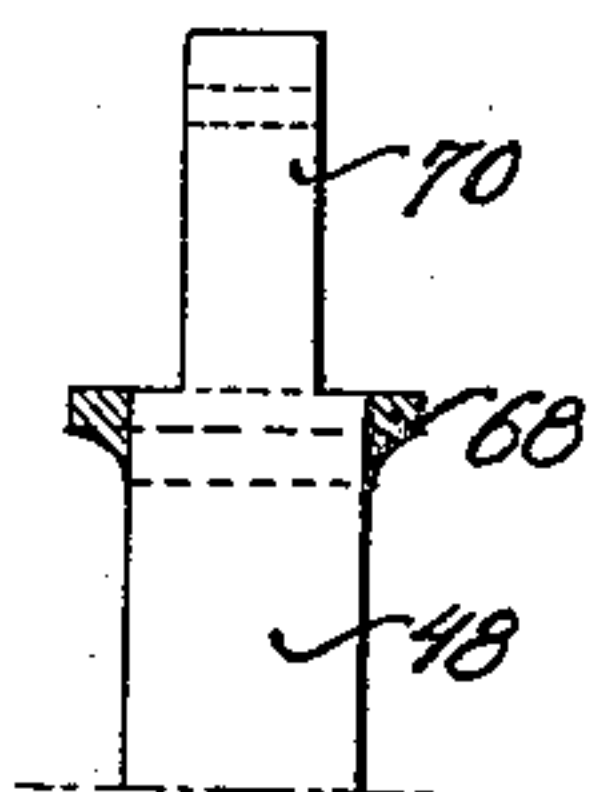


Fig. 10.

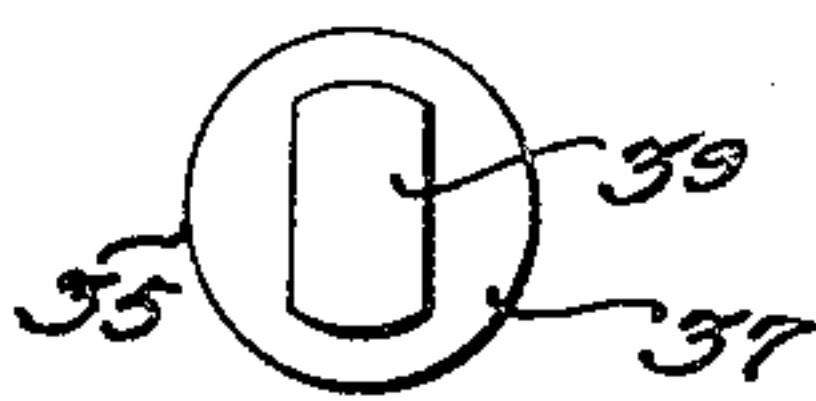


Fig. 12.

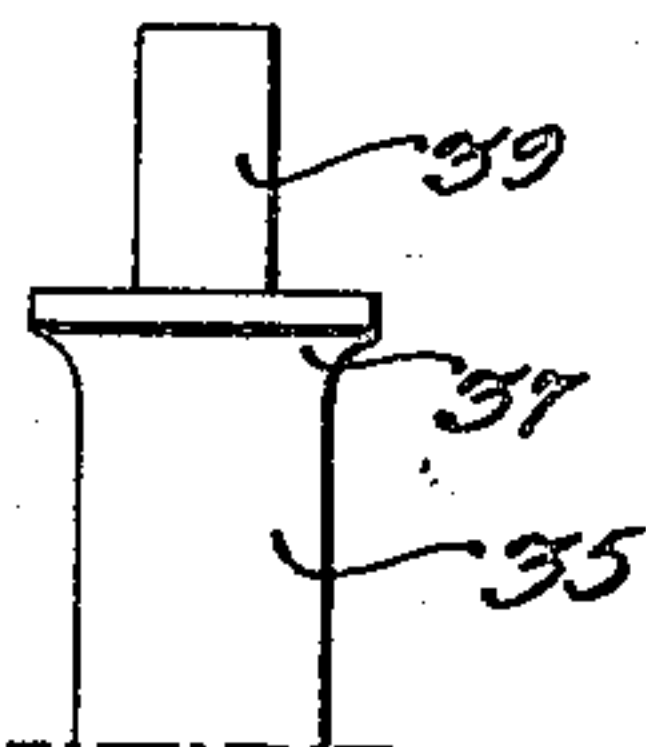


Fig. 13.

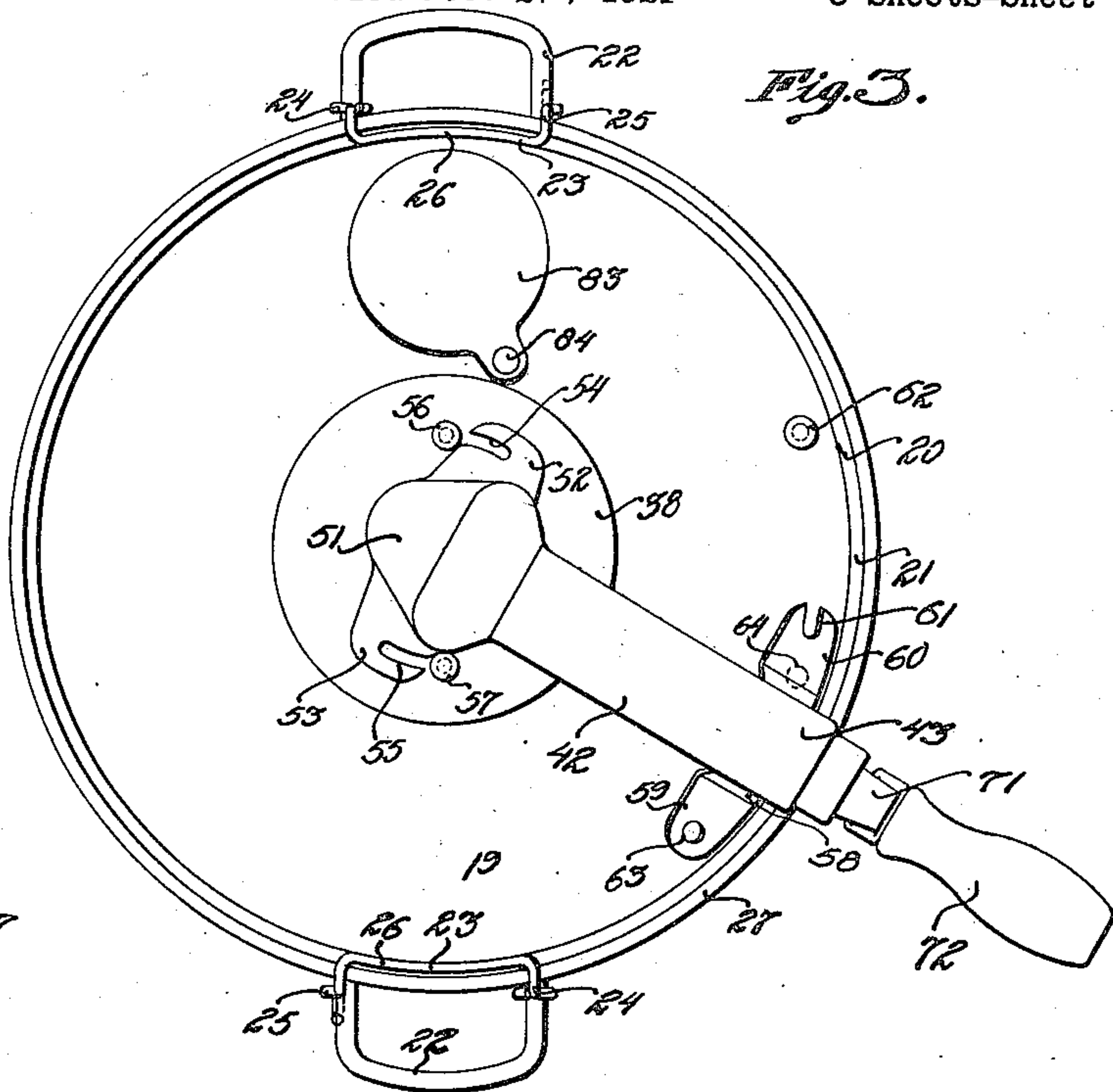
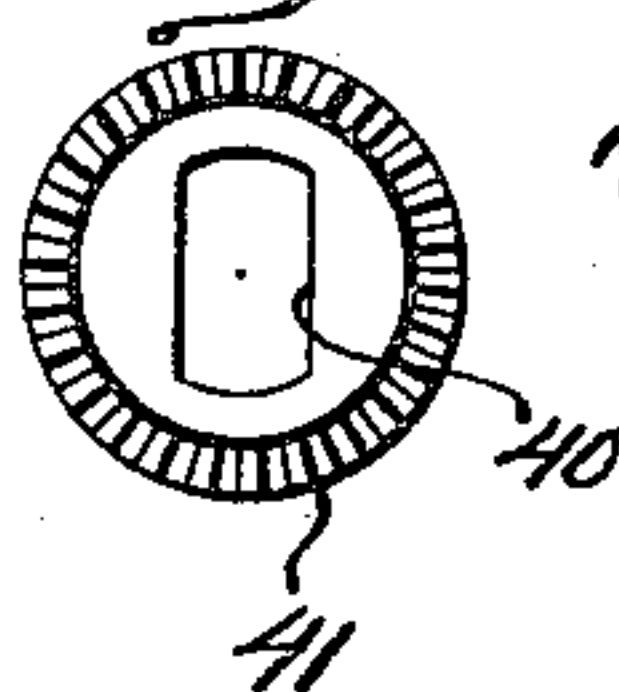


Fig. 4.

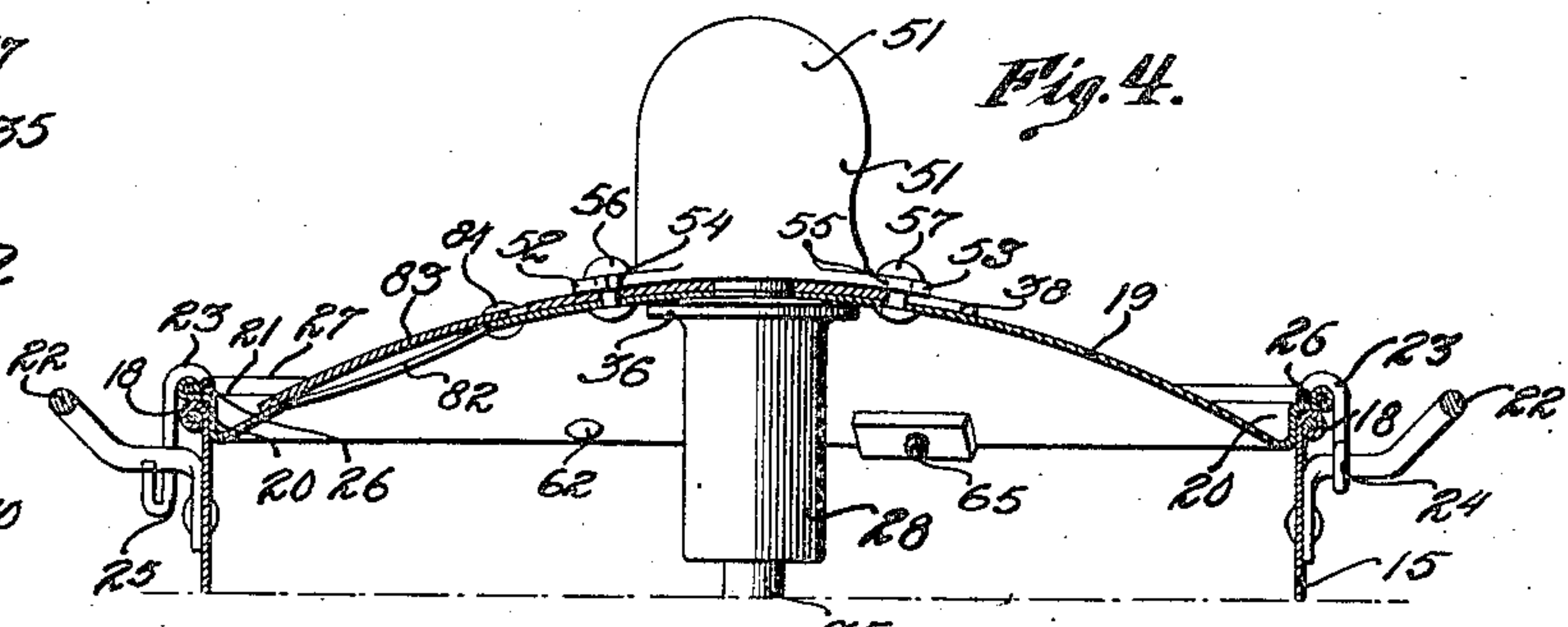
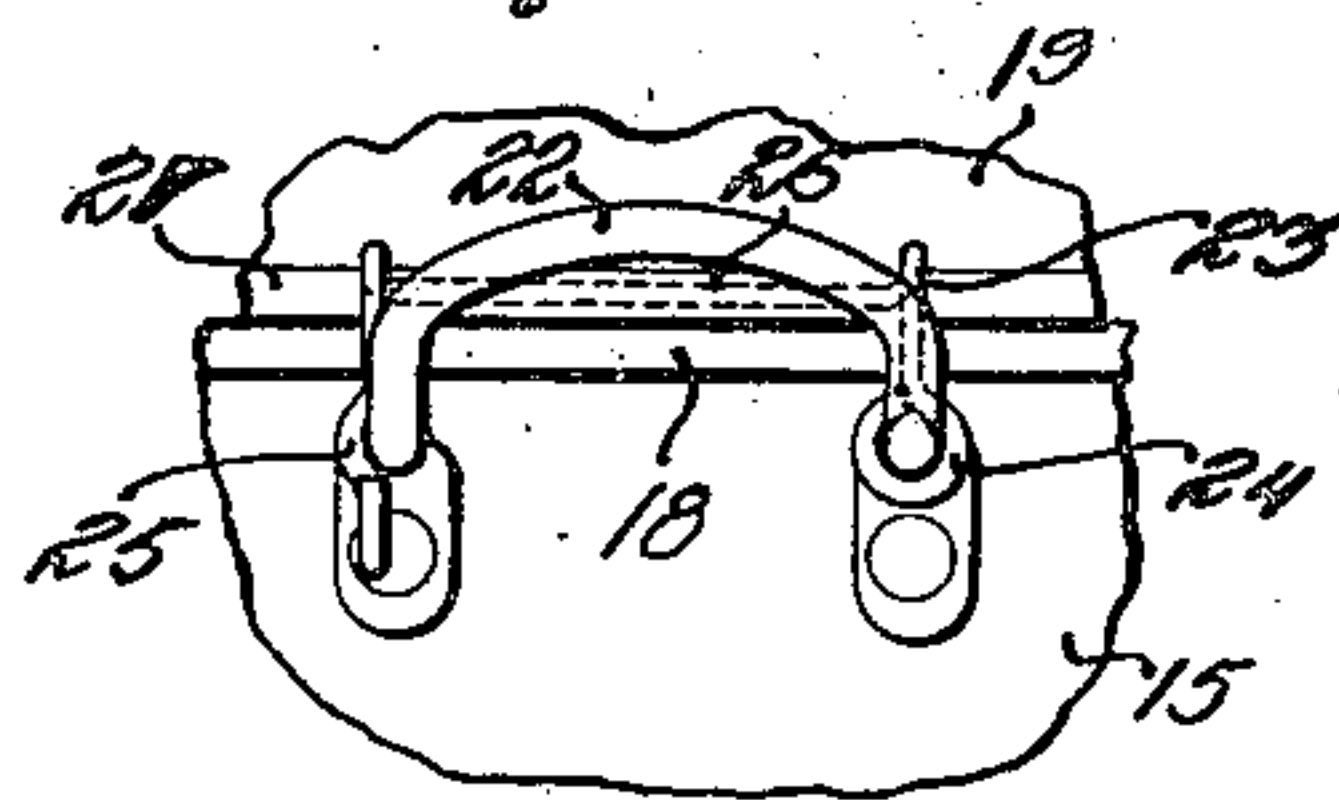


Fig. 13.



Witnesses

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3 Sheets-Sheet 3

Fig. 5.

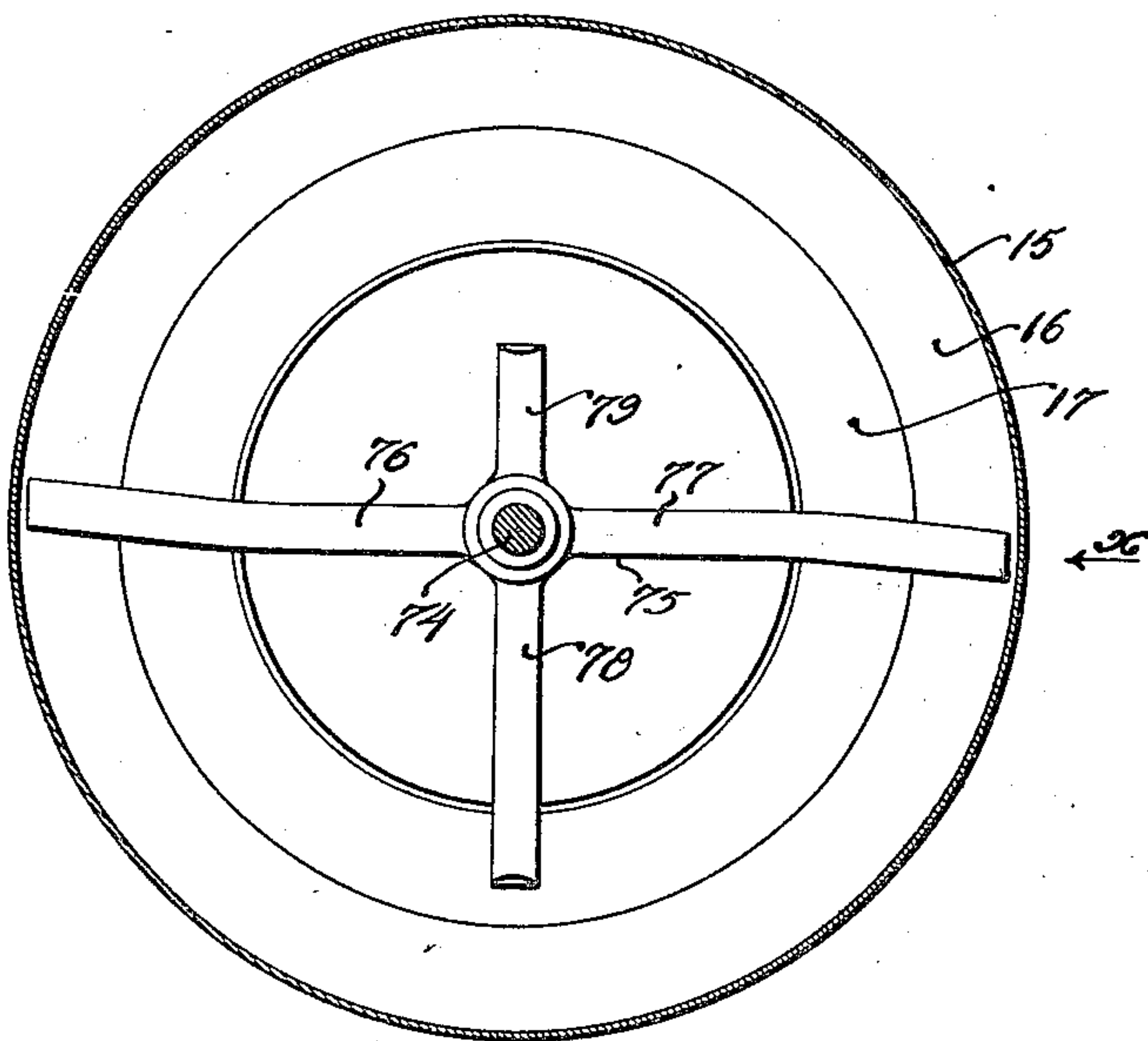


Fig. 6.

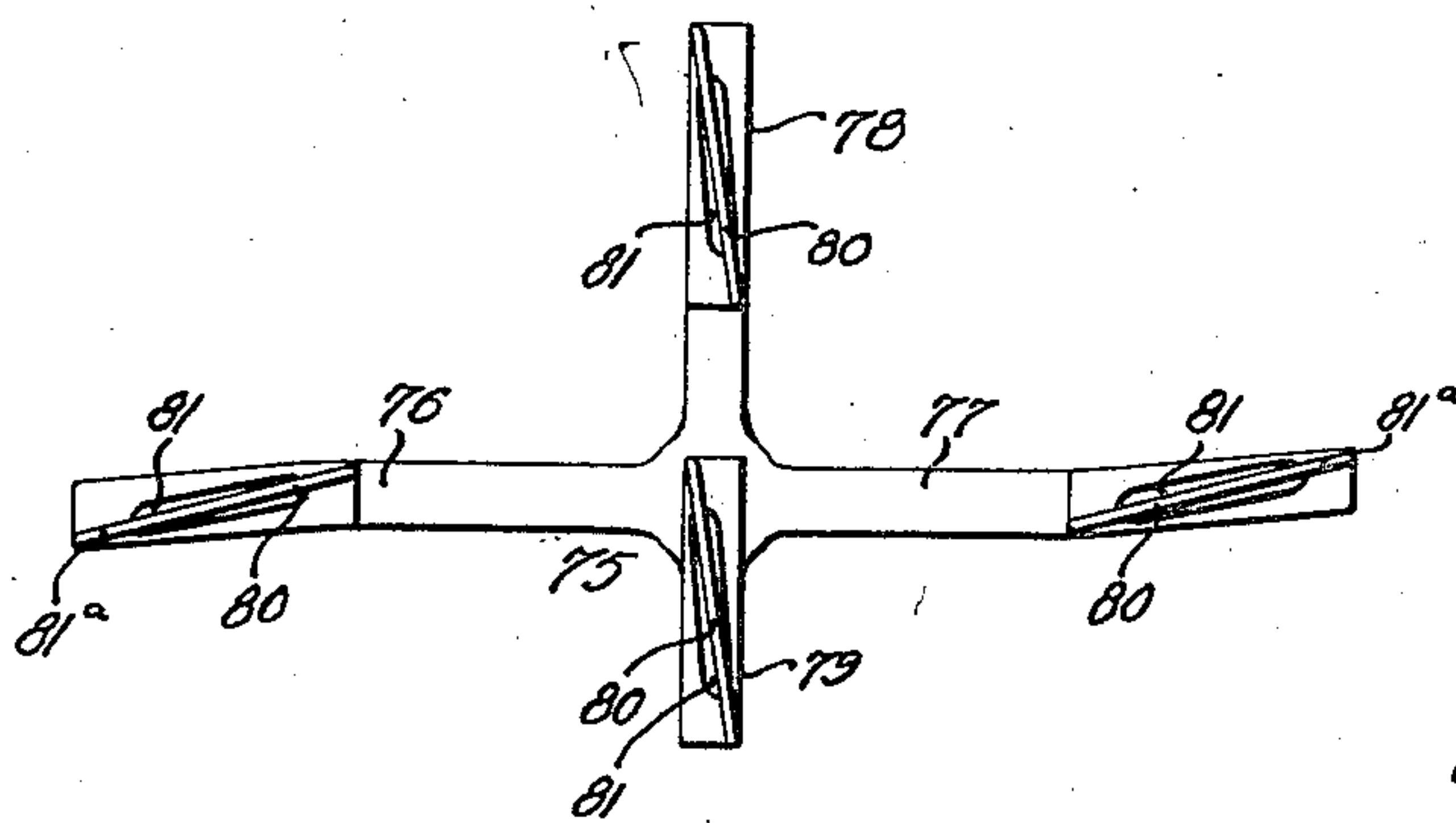
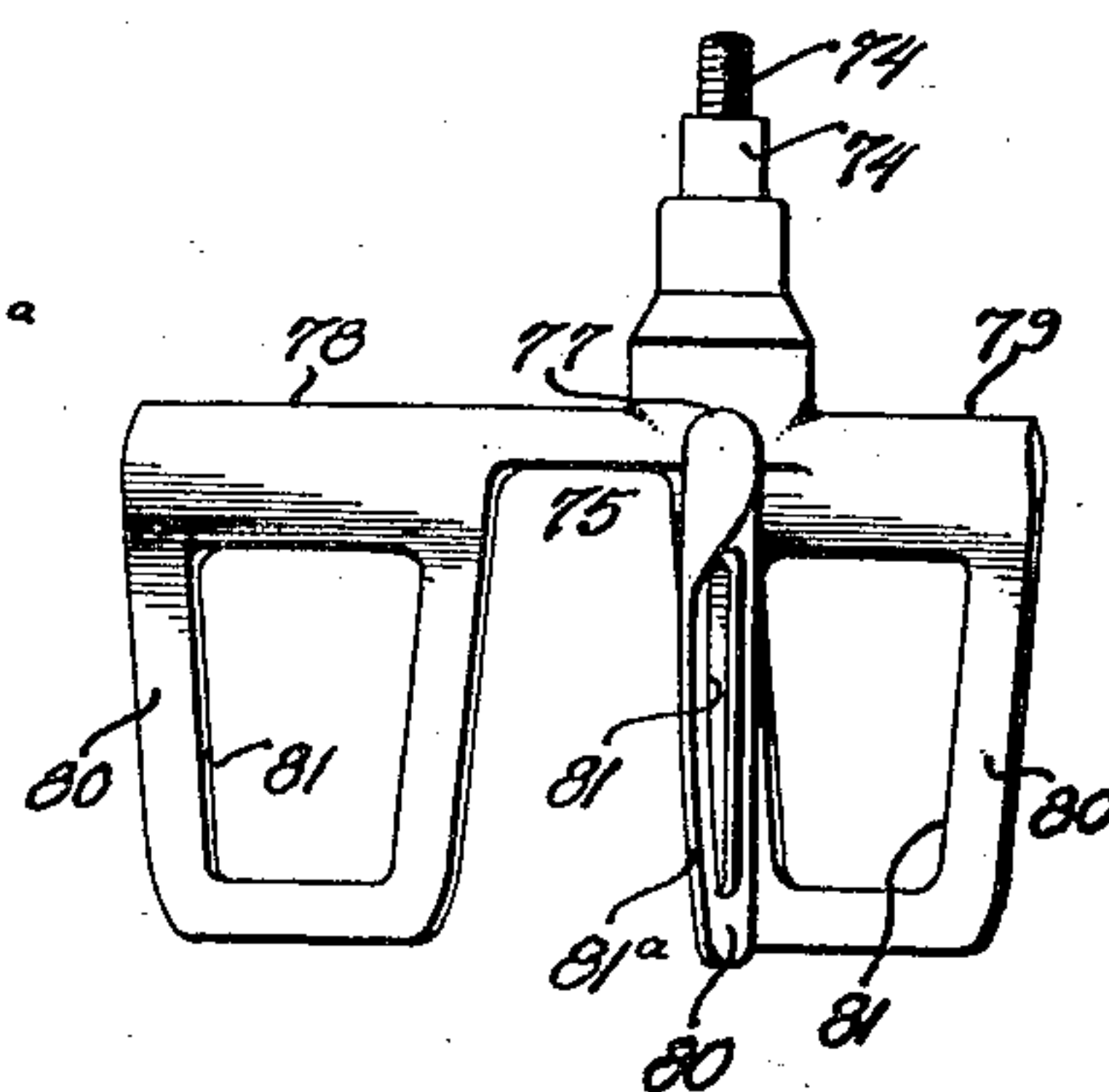


Fig. 7.



Witnesses.

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Patented June 19, 1923.

1,459,148

UNITED STATES PATENT OFFICE.

ANTHONY I. FLYNT, OF PHILADELPHIA, PENNSYLVANIA.

MIXING AND BEATING DEVICE.

Application filed December 27, 1921. Serial No. 525,060.

To all whom it may concern:

Be it known that I, ANTHONY I. FLYNT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Mixing and Beating Devices, of which the following is a specification.

One object of my invention is to provide an improved device which can be conveniently used for mixing and beating various materials, such for example as cake batter, cream or chocolate frosting and other substances which require similar treatment either before or after cooking.

Another object is to so construct the various parts thereof that they may be easily taken apart for cleaning purposes and readily assembled without any of the parts getting out of proper alignment with cooperating parts.

A further object is to make my improved device of light weight and of simple, durable and comparatively inexpensive construction.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a top plan view of a device made in accordance with my invention.

Figure 2 is a section taken on the line 2—2 of Figure 1,

Figure 3 is a view of the same general character as that shown in Figure 1 illustrating how certain of the operating parts can be removed for inspection, cleaning or repairing,

Figure 4 is a fragmentary sectional elevation taken on the line 4—4 of Figure 1,

Figure 5 is a sectional plan view taken on the line 5—5 of Figure 2,

Figure 6 is an inverted plan view of the beater or mixer illustrated in Figure 5,

Figure 7 is an elevation of said mixer looking in the direction of the arrow *x* in Figure 5.

Figure 8 is a view of one end of the horizontal actuating shaft which forms a part of my invention,

Figure 9 is a fragmentary section taken on the line 9—9 of Figure 8 illustrating the collar or ring in its position which it operatively occupies,

Figure 10 is a top plan view of the ver-

tical shaft or spindle which forms a part of my invention,

Figure 11 is a side elevation of the top portion of said shaft or spindle as shown in Figure 10,

Figure 12 is a face view of one of the bevel gears illustrating the character of the hole in said gear for locking engagement with its shaft, and

Figure 13 is a fragmentary side elevation illustrating one of the lid-securing clips.

Referring to the drawings, 15 represents a receptacle preferably in the form of an aluminum pot or kettle; the lower portion of the side thereof being curved inward at the portion shown at 16 down to the bottom 17. The kettle 15 is made of circular horizontal cross section and at its top edge is beaded and preferably includes a reinforcing core 18 which can be made of wire in the form of beaded edge construction for articles of this character.

A lid 19 is made convex and has a portion 20 adapted to fit within the upper end of the kettle; said portion 20 terminating in an outward flange 21 adapted to seat itself on the upper edge of the kettle. Yoked handles 22 are secured to the outer surface of the kettle and extend laterally therefrom at positions diametrically opposite. Wire securing clips 23 are provided and each of these clips has an eyelet 24 pivotally mounted on one side of a respective handle; the other ends of the clips having bent portions 25 adapted to snap resiliently over the opposite side of the handle. These clips have cross bar portions 26 adapted to fit over the upper rolled edge 27 of the lid 19 so that when the portions 25 are snapped in engagement with the handle, the lid will be firmly held to the kettle.

A bearing sleeve 28, which is preferably made of aluminum, has cavities 29 in its opposite ends in which fit ball bearing rings 30 and 31. These rings are made in two annular sections 32 and 33 with the balls 34 between them. The rings are forced in the cavities 29 and an upright spindle 35 is forced through the sections 33 of the rings 30 and 31; the bearing sleeve 28 having a flange 36 which is screwed to the top of the lid 19. The spindle 35 at its upper end has an integral enlarged portion 37 which tapers downward and engages the inner section 33 of the top ring 31 so that the spindle 35 is

held against vertical movement within the bearing sleeve, but is free to rotate; the inner sections of the rings rotating in conjunction with the spindle. Thus the spindle 35 can be made of aluminum and there will be no parts of the aluminum contacting since the small bearing rings can be made of steel and the contact will be between the sections of the rings and the balls which are mounted therebetween.

The lid 19 can also be made of aluminum and I have also illustrated a plate 38 secured to the top of the lid 19 by the same screws which hold the flange 36 of the bearing sleeve 28; said lid and plate having holes through which the upper end of the spindle projects and it will be noted that this upper end of the spindle, as shown at 39, is made angular and fits within an angular hole 40 in a bevel gear wheel or pinion 41.

An elongated bearing member 42 includes a horizontally extending portion 43 which, at one end, has a cavity 44 in which fits a ball bearing ring 45 which can be made of steel. This ball bearing ring is made in the same form as the rings 30 and 31 and includes a ring section 46 which is fitted within the cavity 44 and a ring section 47 which can be secured in tight fitting engagement with an aluminum shaft 48 which extends through holes 49 and 50 of the bearing member 42. The end of the bearing member 42 opposite the cavity 45 is made in the form of an integral gear housing 51, the bottom of which includes lateral extensions 52 and 53 which have notches 54 and 55 formed therein; said notches being positioned in arcs concentric with the axis of the spindle 35 and gear wheel 41 when the member 42 is in position.

The plate 38 has upwardly projecting pins 56 and 57 which have heads spaced above the plate 38 a distance equal to the thickness of the extensions 52 and 53; said pins being so placed that when the member 42 is moved from the position shown in Figure 3 to the position shown in Figure 1, the pins will occupy spaces within the notches 54 and 55 with the heads of the pins projecting above the notches so as to prevent the extensions, and consequently the member 42, from being lifted relatively to the lid. Furthermore the member 42 has a depending extension 58 which terminates in oppositely disposed feet 59 and 60. The foot 60 has a notch 61 adapted to engage under the head of a pin 62 which is secured to the lid 19 when the member 42 is moved from the position shown in Figure 3 to the position shown in Figure 1. The foot 59 has a hole 63 therein adapted to register with a screw threaded hole 64 in the lid 19 when the parts are moved into the position shown in Figure 1 and a screw 65 is adapted to be inserted through the hole

63 and screwed into the hole 64. Thus when it is desired to secure the member 42 to the lid it is first positioned as shown in Figure 3 and then turned until the pins 56 and 57 are within the notches 54 and 55 and the pin 62 is within the notch 61, then the screw 65 can be inserted and will hold the parts against displacement.

The inner end of the member 42 has a cavity 66 in which is fitted a ball bearing ring 67 which is made in a manner similar to the ball bearing rings previously described. This ring 67 has an inner ring section through which the shaft 48 extends and after said shaft has been positioned a collar 68 is slid thereon and said shaft is projected through a gear wheel 69 which has an angular hole similar to the hole 40 in the gear wheel 41; the shaft 48 having an angular extension 70 which fits the angular hole of the gear wheel 69. This gear wheel 69 is adapted to mesh with the gear wheel 41.

A crank 71 is screwed on the outer end of the shaft 48 and has a handle 72 thereon by which the shaft 48 can be rotated and the motion imparted to the shaft 48 will be transmitted to the spindle 35 through the medium of the intermeshing gear wheels 69 and 41.

The lower end of the spindle 35 has a screw threaded cavity 73 into which is screwed the upper end of a shank 74 of a mixer 75. This mixer has, in the present instance, four radially extending arms 76, 77, 78 and 79; the arms 76 and 77 preferably being of the same length while the arm 78 is shorter than either of the arms 76 or 77 but is longer than the arm 79. Each of the arms at its outer end portion has a depending ear or spoon 80 which at its outer edge 81, on the arms 76 and 77, is curved to correspond to the contour of the lower portion of the kettle 15 so that the spoons 80 on the arms 76 and 77, during rotation of the spindle 35 will move in close proximity to the lower inner surface of the kettle and any material which is being mixed or beaten in the kettle will be agitated close up to the inner surface of the kettle. These portions 80 on each of the arms extend at an angle preferably at about 15° to the plane of the arms as shown in Figure 6. Furthermore each of the portions 80 has an aperture 81 relatively large so as to permit some of the material which is being operated upon to pass therethrough during the rotation of the mixer.

By arranging the portions 80 of the arms 78 and 79 at different distances from the axis of the spindle, all of the material will be operated upon so as to effect an even and uniform mixture. Furthermore by having the portions 80 at a slant or angle, the material will be shifted constantly toward the center or axis of rotation so as to present

new portions to the parts 80 on successive rotations of the mixer. The mixer and all of its parts can be made of aluminum and I am thus enabled to produce an extremely light structure and at the same time provide bearings which will prevent rotatable aluminum parts from contacting with other aluminum parts.

I preferably provide the lid 19 with an aperture 82 which during operation can be closed by a cover 83 which is pivoted at 84 to the lid. If it is necessary at any time after the parts have been secured in position, to insert any ingredients within the material, such for example as for inserting salt, sugar or any material which has been forgotten, the cover can be swung into an open position to uncover the aperture and after the material has been inserted the cover can be again swung into a closed position.

It will be noted that when the member 42 is swung into the position shown in Figure 3 that the structure including the gear wheel 69, shaft 48 and crank 71 can be lifted bodily off the lid; thus disengaging the gear wheels and if desired the parts can be quickly removed for cleaning purposes.

While I have mentioned the term aluminum it will be noted that other light weight metal can be used.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. A device of the character described including a receptacle; a lid on the receptacle having a hole; a spindle supported by said lid; a mixer on said spindle within the receptacle; a bearing member; a shaft mounted within said bearing member, said lid having headed pins thereon, a portion of said bearing member having notches and adapted to be swung with the notches embracing said pins below their heads; and means operatively connecting said shaft with the spindle; substantially as described.

2. A device of the character described including a receptacle; a lid on the receptacle having a hole; a spindle supported by said lid; a mixer on said spindle within the receptacle; a bearing member; a shaft mounted within said bearing member, said lid having headed pins thereon, said bearing member having a part forming a housing; extensions provided with notches;

headed pins mounted on said lid; a gear wheel on said shaft positioned within said housing; and a gear wheel on said spindle adapted to be enclosed by a housing when the latter is placed thereover, said bearing member when swung being operative to move the notched portions with the notches embracing the pins below their heads; substantially as described.

3. A device of the character described including a receptacle; a lid on the receptacle having a hole; a spindle supported by said lid; a mixer on said spindle within the receptacle; a bearing member; a shaft mounted within said bearing member, said lid having headed pins thereon, said bearing member having a part forming a housing; extensions provided with notches; headed pins mounted on said lid; a gear wheel on said shaft positioned within said housing; a gear wheel on said spindle adapted to be enclosed by a housing when the latter is placed thereover, said bearing member when swung being operative to move the notched portions with the notches embracing the pins below their heads; and a crank handle secured to said shaft; substantially as described.

4. A device of the character described including a receptacle; a lid on the receptacle having a hole; a spindle supported by said lid; a mixer on said spindle within the receptacle; a bearing member; a shaft mounted within said bearing member, said lid having headed pins thereon, said bearing member having a part forming a housing; extensions provided with notches; headed pins mounted on said lid; a gear wheel on said shaft positioned within said housing; a gear wheel on said spindle adapted to be enclosed by a housing when the latter is placed thereover, said bearing member when swung being operative to move the notched portions with the notches embracing the pins below their heads; a crank handle secured to said shaft, said lid having a screw threaded hole, said bearing member having a portion provided with a hole for registry with the hole in the lid when the notches are in embracing positions with said pins; and a securing screw adapted to be inserted in said latter holes for preventing turning movement of the bearing member relatively to the lid; substantially as described.

5. A device of the character described including a receptacle; a lid on the receptacle having a hole; a spindle supported by said lid; a mixer on said spindle within the receptacle; a bearing member; a shaft mounted within said bearing member, said lid having headed pins thereon, said bearing member having a part forming a housing; extensions provided with notches; headed pins mounted on said lid; a gear wheel on said shaft positioned within said

housing; a gear wheel on said spindle adapted to be enclosed by a housing when the latter is placed thereover, said bearing member when swung being operative to
5 move the notched portions with the notches embracing the pins below their heads; a crank handle secured to said shaft, said lid having a hole therein, said bearing member having a portion provided with a hole for
10 registry with the hole in the lid when the notches are in embracing positions with said pins; and a securing member adapted to be

projected through said latter mentioned holes for preventing turning movement of the bearing member relatively to the lid; 15 substantially as described.

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

ANTHONY I. FLYNT.

Witnesses:

ELIZABETH GARBE,
CHAS. E. POTTS.