

March 31, 1931.

H. ROBINSON

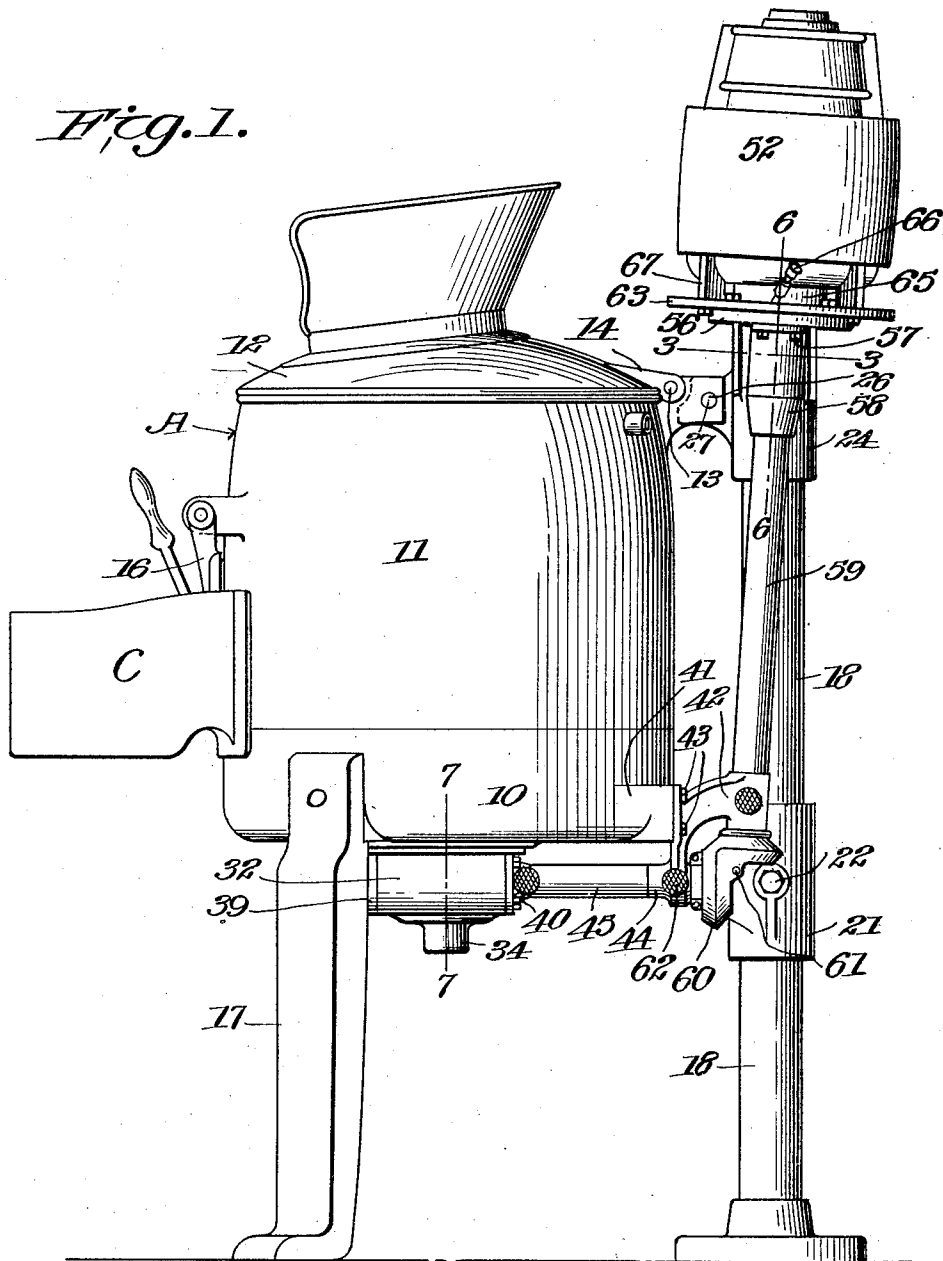
1,799,136

DRIVING AND RIGIDIFYING ASSEMBLY FOR AGITATING, ETC., MACHINES

Filed Feb. 17, 1930

3 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

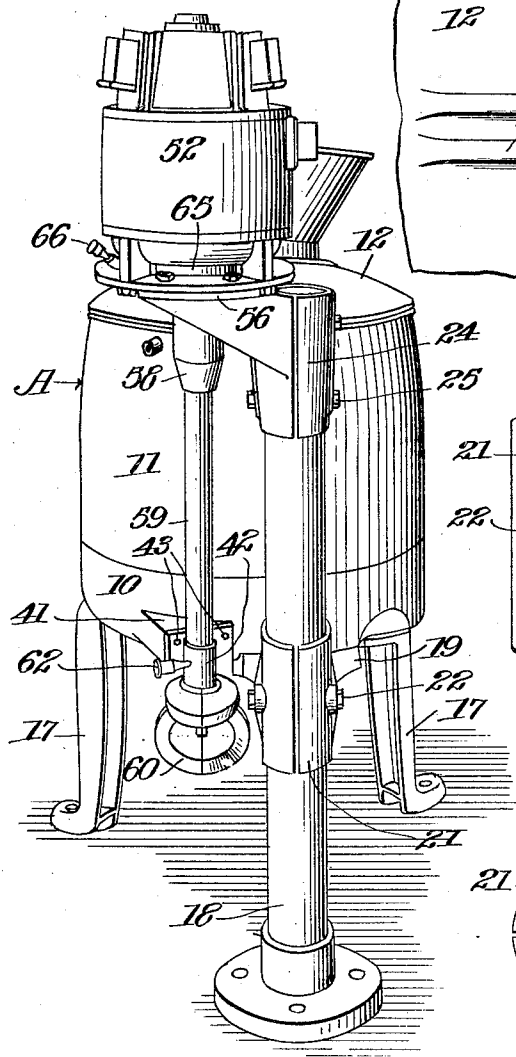


Fig. 3.

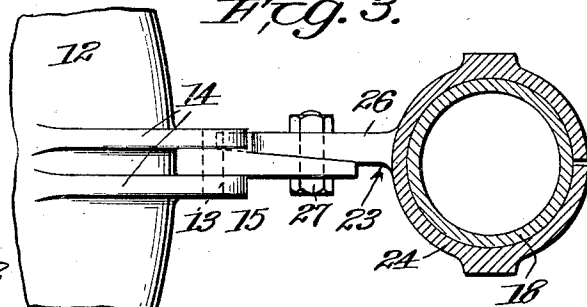


Fig. 4.

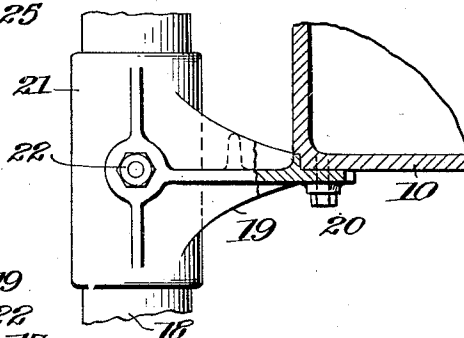
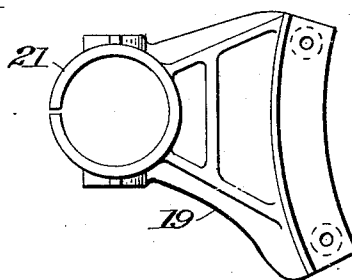


Fig. 5.



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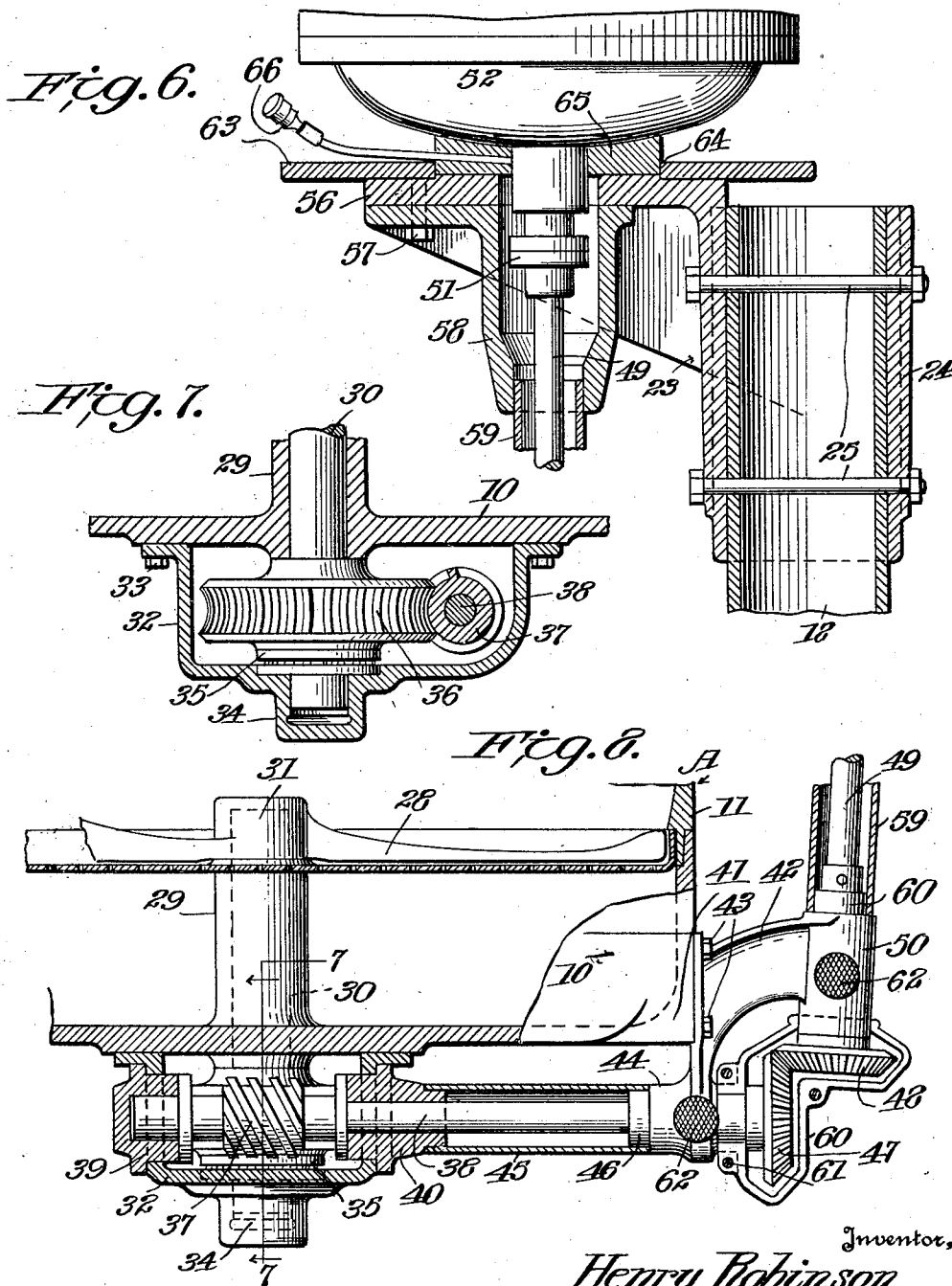
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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DRIVING AND RIGIDIFYING ASSEMBLY FOR AGITATING, ETC., MACHINES

Application filed February 17, 1930. Serial No. 429,156.

This invention relates to a driving means and rigidifying assembly for the various parts comprising a self-contained power driven agitating, culinary or equivalent machinery and especially potato paring and spinach washing machinery.

In connection with machinery for paring, washing, agitating or other culinary purposes or the like, it is essential that a positive constant, durable and direct motor drive be employed and so arranged that it will be away from the water used in the operations of the machines and from the water used in washing down such machines and in flushing the adjacent floor. At the same time, it is essential that the motor be so located that it will not require increased floor space for its installation and be easily accessible for inspection and repair. It is also necessary, as experience has shown me, in order to obtain the best results in economy and efficiency, there must at all times, prevail a certain fixed speed of operation which does not prevail in belt-driven or like types of such machinery.

With the foregoing in view, it is the aim of the present invention to provide such a drive or transmission and assembly as will overcome the objections to previous and existing types of such machinery and to specifically provide a direct gear drive from a vertical ball-bearing motor located overhead attaining the advantages of economy and space, elevation of the motor above the sphere of moisture accessibility, provide a dependable, constant speed under all weather conditions and especially such as are encountered on shipboard, the employment of gears preferably of fiber, and enclosing the same and driving shaft with the motor coupling suitable casings which I find to be ideal since it is practically silent and practically vibrationless.

It is further aimed to provide a very efficient and compact novel mount for the motor which also functions as a support for the machine and enables vertical attachment of the latter thereto at different heights which insures rigidity, greatly reduces vibration and eliminates the necessity of using con-

stantly loosening fastenings or parts between the sections of the containing chamber or cylinder of the machine, and in which the location of the mount does not interfere with effective opening of the chamber cover or lid and also a construction that will prevent the entrance of moisture below the motor and into the casing which protects the gears.

Various additional objects and advantages will become apparent from a consideration of the description following, taken in connection with accompanying drawings, illustrating one specific and operative embodiment.

In said drawings:—

Figure 1 is a side elevation of my improved machine;

Figure 2 is a perspective view of the said machine;

Figure 3 is a detail section taken on the line 3—3 of Figure 1;

Figure 4 is a detail, particularly showing the supporting bracket for the base of the chamber;

Figure 5 is a top view of said bracket;

Figure 6 is a detail vertical section taken on the line 6—6 of Figure 1;

Figure 7 is a detail section taken on the line 7—7 of Figure 1; and

Figure 8 is a fragmentary central vertical sectional view particularly showing the gearing.

Referring specifically to the drawings, wherein like reference characters designate like or similar parts, the machine, by way of example, may be of the general character disclosed in my pending applications, Serial Numbers 387,472 and 387,473 for improvements in vegetable paring and agitating, etc. machines. The chamber for containing the vegetables or materials under treatment is shown at A and comprises a base section 10 and a cylinder section 11 separably mounted thereon. A lid, cover or closure 12 is hinged to the cylinder by a bolt 13 passing through lugs 14 and 15 integral with the closure and cylinder, respectively. Cylinder 11 has a lateral discharge opening covered normally by a door or closure 16 and surrounded by a discharge chute C as disclosed in my appli-

cation for Letters Patent filed of even date herewith.

Said chamber A is supported by two legs 17 secured to the base section 10 supplemented by a standard or post 18, a bracket 19 being bolted at 20 to said base 10 and having a split sleeve 21 surrounding the post or standard and secured thereto as by a bolt 22. Said legs 17 and standard 18 are preferably bolted to the floor or supporting structure.

Another bracket or head 23 has a split sleeve 24 surrounding the standard 18 adjacent the top thereto which is secured thereto by bolts or the like at 25. Integral with said sleeve 24 is a lug 26 which is overlapped by the aforesaid lug 15 and which is secured thereto by a removable bolt 27. Thus the chamber A is secured at different elevations and particularly adjacent the top and bottom, to the standard 18 which greatly rigidifies the construction and minimizes vibration and keeps it from turning around by the motion of the parts therein or from falling or displacement of the machine in a storm on shipboard.

Operable within the chamber A is an agitating element 28 which may be of any desired form and, for example, of the type disclosed in the aforesaid applications Serial Numbers 387,472 and 387,473. Said base section 10 has a bearing sleeve 29 rising therefrom which supports or journals a vertical shaft 30 which is fastened at its upper end to a socket 31 of agitating member 28 so that it may drive the same. A casing 32 is bolted or otherwise fastened as at 33 against the under surface of base section 10 and is adapted to contain a bath of oil. Said casing 32 has a bearing portion 34 receiving the lower end of shaft 30 which provides for mounting a ball thrust bearing 35 on which a worm wheel 36 rests and which is keyed to said shaft 30 and travels in the oil bath. In mesh with worm wheel 36 is a worm 37, also traveling in the said bath. Worm 37 is part of or integral with a shaft 38 which is suitably journaled in thrust or other bearings 39 and 40, mounted by the casing 32.

Base section 10 has an enlargement at 41 to which a bearing bracket 42 is bolted as at 43, the same having a horizontal bearing 44 for the said shaft 38. A protective housing or casing tube 45 surrounds shaft 38, at one end fitting the stepped portion of bearing 40 and at the other end fitting a stepped portion 46 of bracket bearing 44. Beyond said bearing 44, a bevel gear wheel 47 is keyed to shaft 38 and is arranged in mesh with another bevel gear wheel 48. These gear wheels 47 and 48 are preferably made of fiber so that they will operate practically noiselessly. Gear wheel 48 is keyed to a shaft 49, journaled in an upright bearing sleeve 50 integral with the bracket 42. Shaft 49 at its upper end is coupled at 51 in any suitable manner

to a driving motor 52, which is preferably an electric motor. Integral with the bracket 23 and projecting laterally therefrom, is a shelf 56. Bolted to the shelf 56 as at 57 is a housing section 58 which encloses the coupling 51 and adjacent portions of the motor and shaft 49. A casing or protective sleeve 59 surrounds shaft 49, fitting a stepped portion 60 of bearing sleeve 50 and extending into the section 58. A protective housing 60 of sectional form, is secured about the bevel gears 47 and 48, engaging adjacent portions of the bearing sleeve 50 and sleeve 44 for mounting. The sections of such housing 60 are detachably bolted or otherwise secured together as at 61. The bearings 44 and 50 may have oil cups 62 attached thereto so that the adjacent parts may be lubricated.

A guard plate 63 is bolted or fastened to the top of shelf 56 and has a central opening 64 which is occupied snugly by a guard ring 65. The ring 65 at the upper surface, intimately fits the adjacent portion of electric motor 52 and prevents water or moisture entering the section 58 or tube 59 and reaching the gears 47 and 48 or associated parts.

An oil cup 66 may be associated with ring 65 to lubricate the adjacent parts as shown in Figure 6. The electric motor 52 may be secured rigidly in place by bolts or the like 67 passed through the guard plate 63 and threaded to the motor casing.

Attention is called to the fact that the shaft 49 and associated parts are preferably arranged at an angle as shown in Figure 1, in order to better coact with the standard 18, in rigidifying or mounting the machine for operation substantially without vibration and also so as to give sufficient clearance for opening of the closure 12, although, if desired, such shaft 49 and associated parts, may be vertical.

As a result of the construction described, the chamber A is mounted so that it will operate practically without vibration and the gearing will operate substantially noiselessly. The motor 52 is located out of the range of water or moisture which may be used in or about the machine and the gears and different parts are protected so that water or moisture cannot reach or affect the same. At the same time, the electric motor support also forms a support for the machine and the motor itself is compactly disposed with respect to the machine and does not require additional floor space or room for its disposition and operation.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:—

1. In a machine of the class described, a chamber means, a standard supporting one side of said chamber means, leg means supporting the other side of said chamber means,

an agitating device within the chamber means, a motor, a mounting for the motor on said standard disposing the motor in laterally offset relation to the axis thereof and adjacent the top of the chamber means, and driving means between said motor and agitating device.

2. In a machine of the class described, a chamber, a movable closure adjacent the top thereof, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, a motor, means mounting said motor on said standard above the plane of engagement between said closure and chamber and in laterally offset relation to the longitudinal axis of said standard and a driving connection between said motor and agitating device.

3. In a machine of the class described, a chamber, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, a motor supported on said standard in laterally offset relation to the axis of the standard, and a drive means extending downwardly from said motor and thence away from the standard to the agitating device to operate the latter.

4. In a machine of the class described, a chamber, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, a motor supported on said standard, a shaft driven by said motor in laterally offset relation to said standard and extending at an angle downwardly and inwardly from the motor, and a driving connection between said shaft and said agitating device.

5. In a machine of the class described, a chamber, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, a bracket connected to the standard adjacent the top thereof and also connected to the chamber, a laterally offset shelf on said bracket, a motor supported on said shelf, and a drive extending from said motor to said agitating device.

6. The subject matter of claim 5 including bearing means on the chamber for the drive, and enclosing means for the drive coacting with said bearing means for mounting.

7. In a machine of the class described, a chamber, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, detachable means rigidly connecting the chamber adjacent top and bottom to said standard, a motor supported on said standard, an angularly disposed shaft at one side of the standard to brace the structure, said shaft depending from the motor

and being journaled on the chamber adjacent the base thereof, and a drive connection between said shaft and agitating device.

8. In a machine of the class described, a chamber, a standard supporting one side of said chamber, leg means supporting the other side of said chamber, an agitating device within the chamber, a lug extending laterally from the chamber adjacent the top thereof, a closure for the chamber pivoted to said lug, a bracket on said standard, means detachably securing the lug and bracket to each other, a laterally disposed shelf on said bracket, a motor supported on said shelf, and a drive at one side of the standard between the motor and agitating device.

9. In combination, a motor, a standard, said motor being mounted at one side of the axis of said standard, said standard adapted to form a support for a machine, a drive gearing depending through and below that portion of the standard mounting said motor, enclosing means for the drive gearing, and means to prevent the entrance of moisture between the base of the motor to said drive gearing.

10. In combination a motor, a standard adapted to form a support for a machine, a bracket on said standard having a shelf supporting said motor out of alignment with the axis of said standard, drive gearing depending from the motor through and below said shelf and at one side of the standard, and means enclosing said gearing below the shelf.

11. In combination a motor, a standard adapted to form a support for a machine, a bracket on said standard having a shelf supporting said motor, a guard plate on said shelf having an opening therethrough, drive gearing depending through and below said guard plate and shelf at one side of the standard, a ring disposed in said opening and surrounding said gearing, and means enclosing the drive gearing below the shelf, said ring serving to prevent the entrance of moisture into the drive gearing.

In testimony whereof I have affixed my signature.

HENRY ROBINSON.