Oct. 31, 1950 J. G. POLAK 2,527,761

MORTAR MIXER

Filed July 2, 1948 3 Sheets-Sheet 1

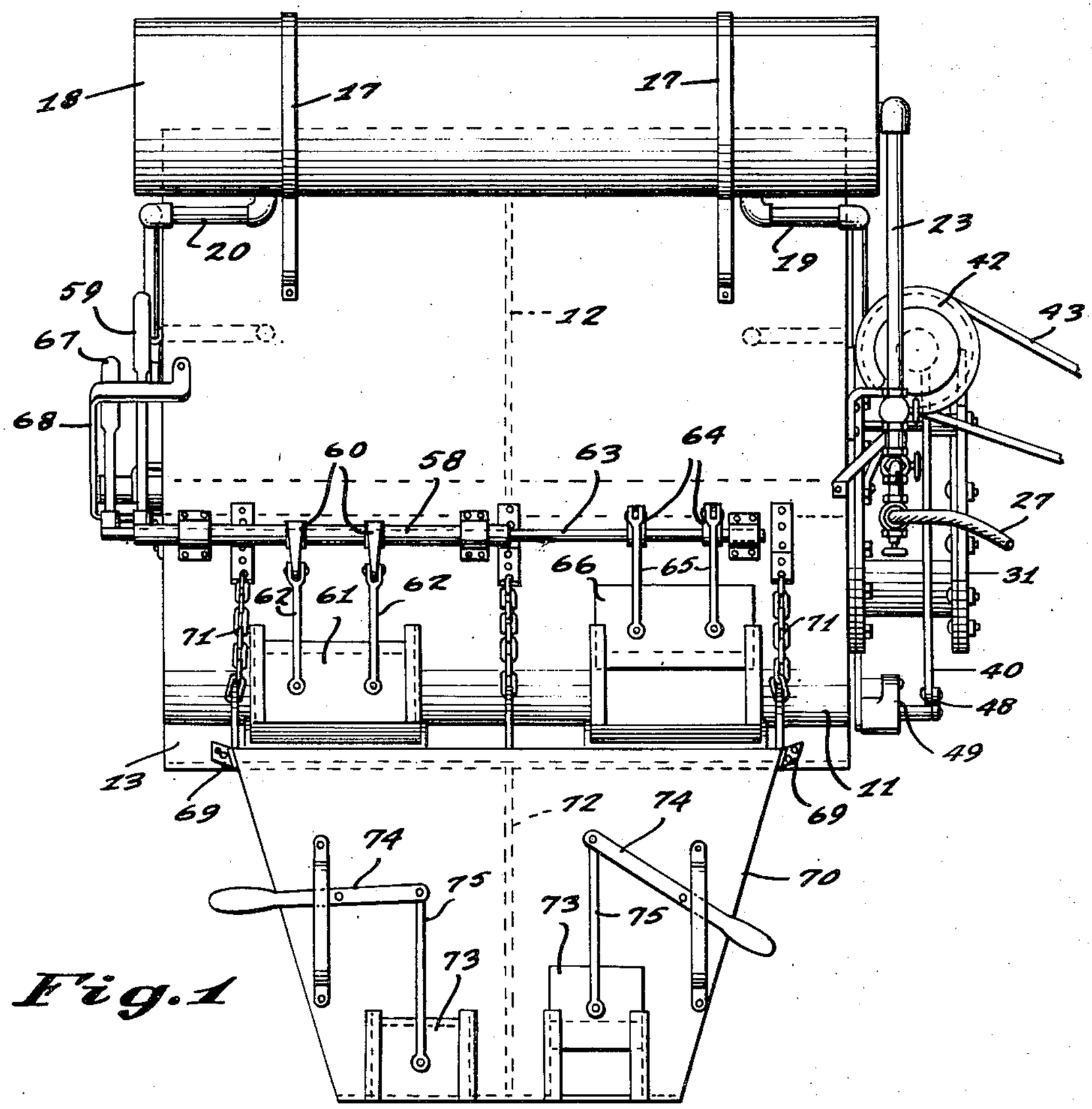

Fig. 1

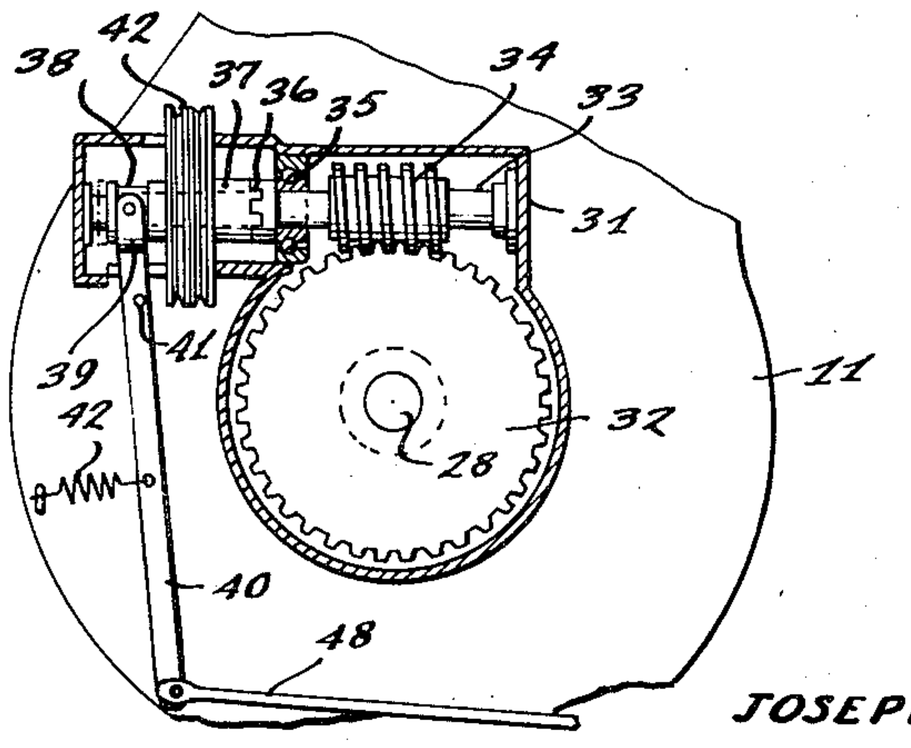

Fig. 6

INVENTOR.
JOSEPH G. POLAK
BY
McMorrow, Berman & Davidson
ATTORNEYS

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J. G. POLAK

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Fig. 2

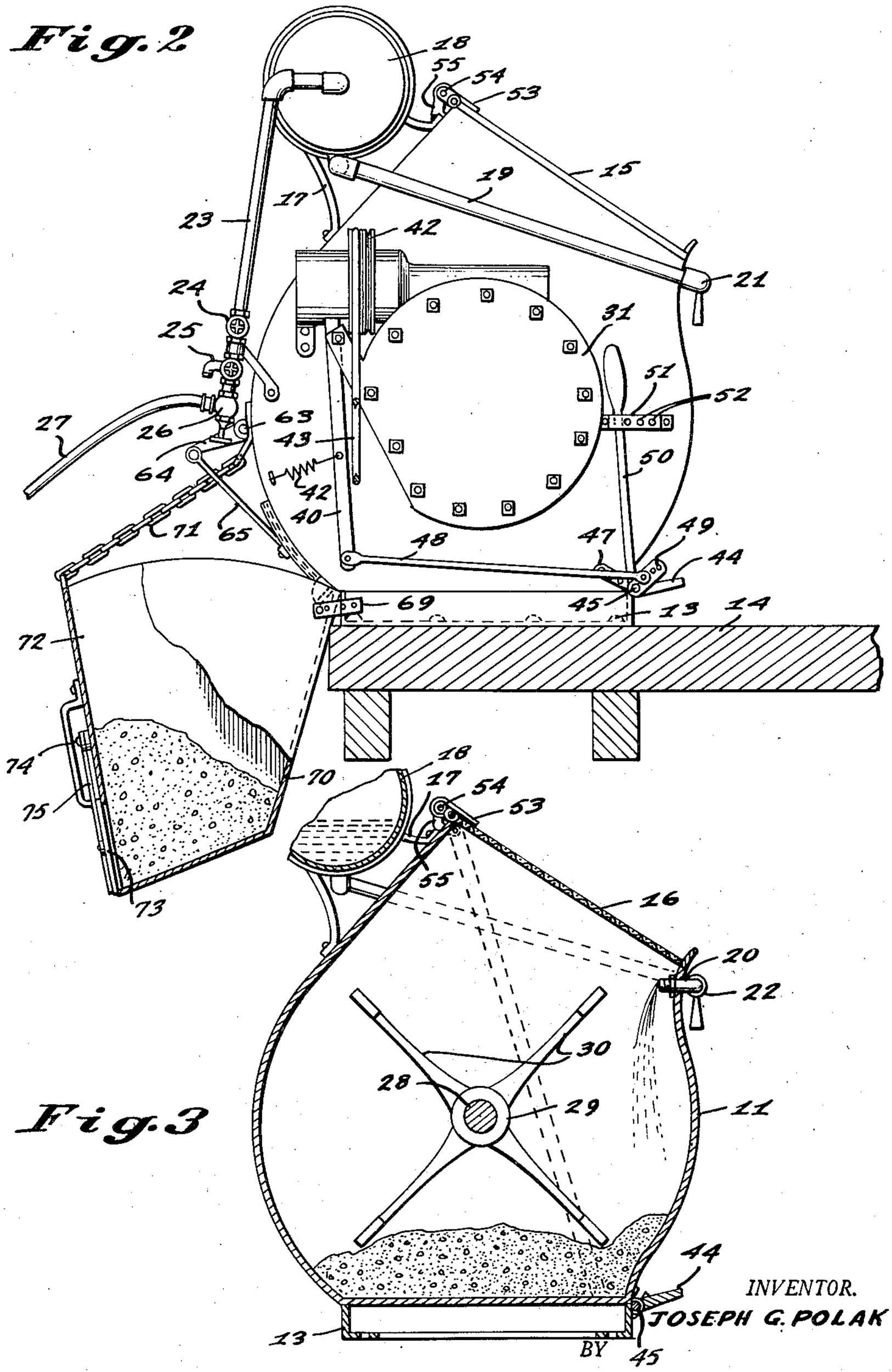

Fig. 3

INVENTOR.
JOSEPH G. POLAK
BY

McMorrow, Berman & Davidson
ATTORNEYS

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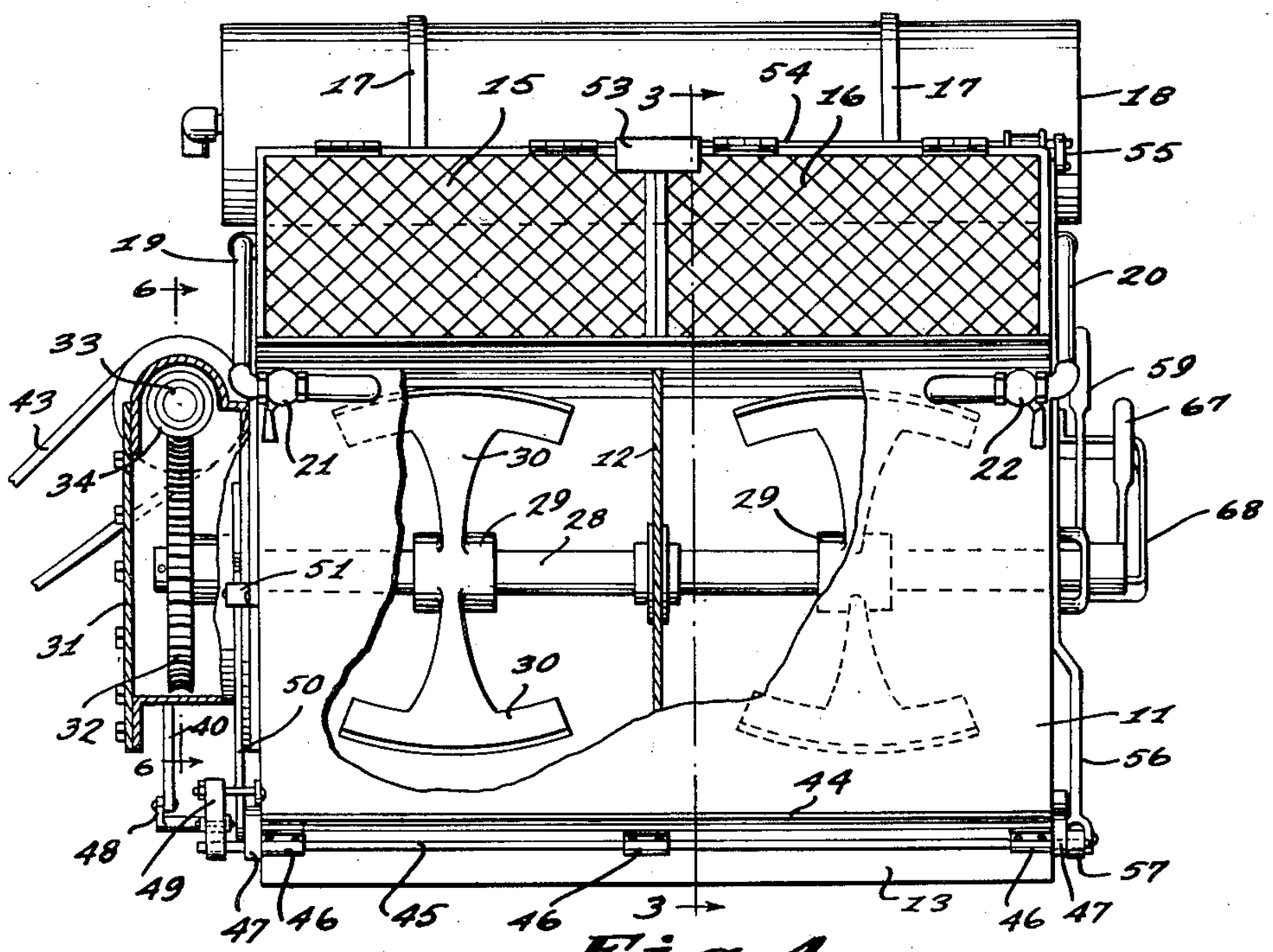

Fig. 4

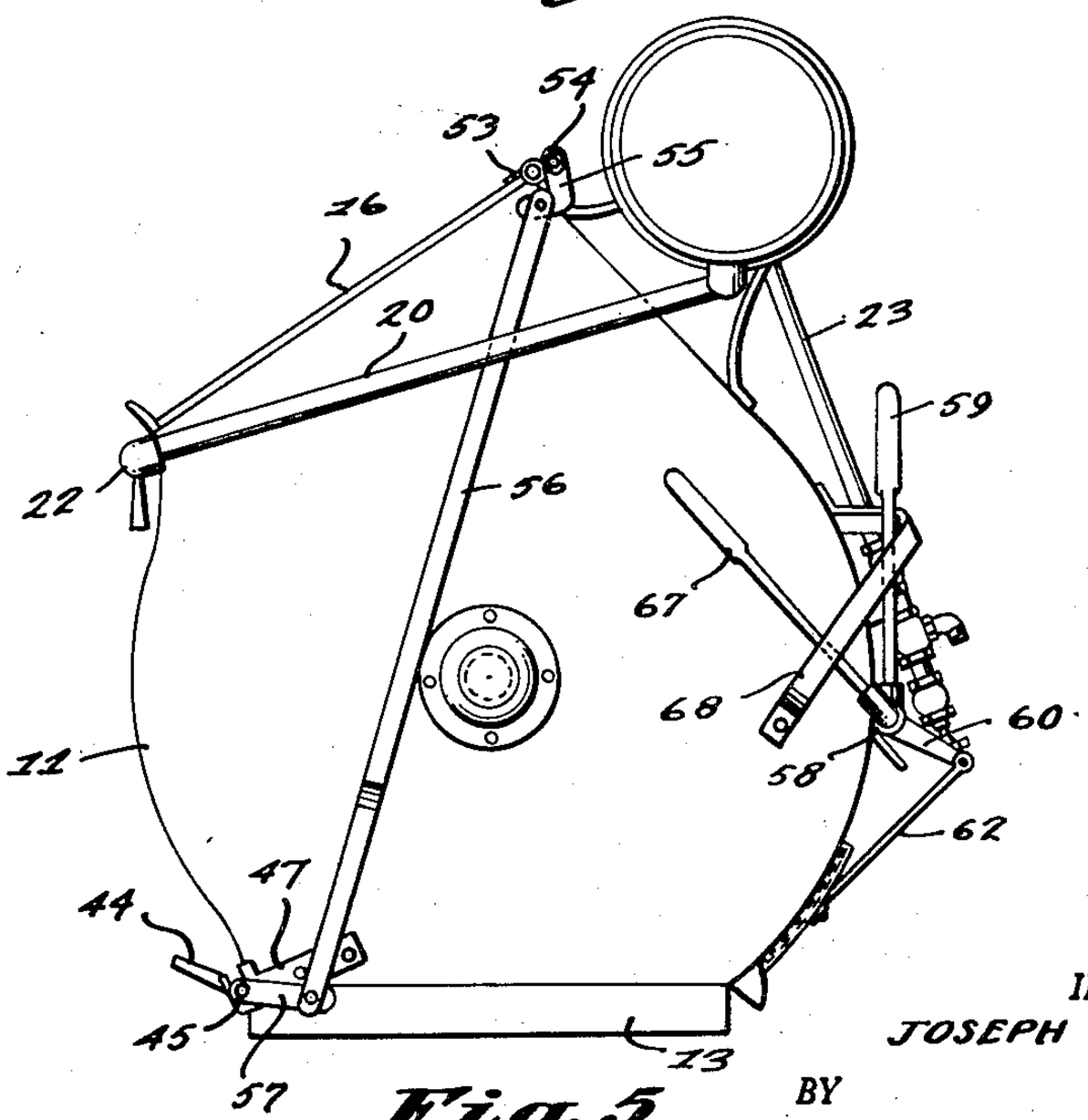

Fig. 5

INVENTOR.
JOSEPH G. POLAK

BY

McMorrow, Berman & Davidson
ATTORNEYS

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MORTAR MIXER

Joseph G. Polak, Bethlehem, Pa.

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3 Claims. (Cl. 259—178)

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This invention relates to mortar mixing machines, and more particularly to a mortar mixing machine of the type wherein the ingredients of the mortar are mixed by rotating blades in a cylindrical drum.

A main object of the invention is to provide a novel and improved mortar mixer which is simple in construction, easy to operate, and which includes safety means for automatically terminating the operation of the mixing blades whenever any one of the mortar mixing compartments is opened, whereby operating hazards are greatly reduced.

A further object of the invention is to provide an improved mortar mixing machine which may be mounted on a truck or other vehicle for convenient transportation, said machine having multiple mortar mixing compartments, and having automatic control means for terminating the operation thereof when any of said compartments is opened, the machine being compact in size, rugged in construction, easy to load and dependable in performance.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is an elevational view of the discharge side of a mortar mixing machine constructed in accordance with the present invention.

Figure 2 is a right end elevational view partly broken away, of the mortar mixing machine of Figure 1.

Figure 3 is a transverse fragmentary cross-sectional view of the machine taken on line 3—3 of Figure 4.

Figure 4 is a front elevational view, partly in cross-section of the mortar mixing machine of Figure 1.

Figure 5 is a left end elevational view of the machine of Figure 1 with the discharge hopper removed.

Figure 6 is a cross-sectional detail view taken on line 6—6 of Figure 4.

Referring to the drawings, 11 designates the main body of the machine, which comprises a housing having a central transverse partition 12 which divides the housing into two mortar mixing compartments. Body 11 is secured to a rectangular base frame 13 formed of angle bars or the like, which may be secured on a truck or on any other suitable support, such as shown at 14.

Body 11 is provided with a pair of hinged closures 15 and 16, overlying the respective mortar mixing compartments, said closures being swing-

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able upwardly from their closed positions to provide access to said compartments for loading the compartments with the mortar ingredients. Mounted on the upper portion of body 11 by means of brackets 17, 17 is a water tank 18. Extending from water tank 18 into the respective mixing compartments are water feed conduits 19 and 20 provided with the respective control valves 21 and 22. Water is furnished to tank 18 by means of a supply conduit 23. Supply conduit 23 is provided with a control valve 24, a first faucet connection 25 and a second faucet connection 26, of conventional construction. A hose 27 may be employed to connect either faucet 25 or 26 to a suitable water supply main.

Axially journalled in the end walls of housing 11 and in partition 12 is a shaft 28. Secured to shaft 28 in each mixing compartment are the agitator assemblies 29, each agitator assembly having a plurality of radial mixing blades 30. One end of shaft 28 projects into a gear housing 31 and secured to said shaft end within the gear housing is a worm gear 32. Designated at 33 is a worm shaft journalled in housing 31 and carrying a worm 34 which meshes with worm gear 32. Shaft 33 is rotatively supported at its intermediate portion in a bearing 35 and carries a toothed clutch plate 36 outwardly adjacent said bearing. Rotatably and slidably mounted on shaft 33 adjacent clutch plate 36 is a sleeve member 37 formed at one end with clutch teeth interengageable with clutch plate 36. Sleeve member 37 is annularly grooved adjacent its other end, as shown at 38, and said grooved portion is rotatably received in the fork 39 of a clutch shifting lever 40 pivoted to the end wall of body 11 at 41. A spring 42 connects the lower portion of lever 40 to the portion of said end wall to the left thereof, as viewed in Figure 6, biasing lever 40 clockwise, and normally urging sleeve 37 into interengagement with clutch plate 36. When lever 40 is rotated counterclockwise, sleeve member 37 is disengaged from clutch plate 36.

Sleeve member 37 carries a pulley 42 which is coupled by a belt 43 to a suitable power source, as for example, an electric motor.

Hinged to the lower front margin of body 11 is a treadle bar 44, said bar 44 being rigidly secured to the hinge shaft 45 by brackets 46, and the ends of the shaft passing rotatably through bearing lugs 47, 47 secured to the end walls of body 11. The lower end of lever 40 is connected by a link rod 48 to an arm 49 secured to one of the projecting end portions of shaft 45. Also secured to said projecting shaft end portion is an

upstanding hand lever 50 whose upper portion passes through a U-shaped bracket 51 secured to the housing end wall. When either treadle bar 44 or hand lever 50 is rotated clockwise, as viewed in Figure 2, link rod 48 rotates lever 40 counterclockwise to disconnect clutch sleeve 37 from clutch plate 36, causing termination of rotation of agitator shaft 28. Bracket 51 may be provided with suitable locking means for securing lever 50 in a clockwise rotated position, for example, apertures 52 adapted to receive retaining pins to hold lever 50 against counterclockwise rotation.

Designated at 53 is a plate member rigidly secured to a shaft 54 rotatably mounted on housing 11 rearwardly adjacent to and parallel with the hinge axes of the closures 15 and 16. Plate member 53 overlaps the inner rear corner portions of both closures 15 and 16, as shown in Figure 4. Secured to the end of shaft 54 is an arm 55. Arm 55 is connected by a link rod 56 to the end of an arm 57 rigidly secured to the projecting right end of shaft 45, as viewed in Figure 4. Therefore, when either of the closures 15 or 16 is rotated upwardly to an open position, plate member 53 is rotated clockwise, as viewed in Figure 5, causing arm 55 and link 56 to rotate arm 57 and shaft 45 counterclockwise. The counterclockwise rotation of shaft 45 causes the clutch sleeve 37 to disengage from clutch plate 36 and terminate operation of the agitator shaft 28.

Journalled to the rear wall of body 11, as shown in Figure 1, is a horizontal sleeve member 58, to the end of which is secured an upstanding hand lever 59. Secured to sleeve member 58 are outwardly projecting arms 60, 60. Designated at 61 is a vertically slidable gate member carried at the lower left portion of body 11 and connected to arms 60, 60 by link rods 62, 62. Gate member 61 normally closes off a discharge opening for the left mixing compartment, as viewed in Figure 1. When lever 59 is rotated counterclockwise, as viewed in Figure 5, arms 60, 60 and sleeve member 58 are rotated counterclockwise, whereby link rods 62, 62 move the gate member 61 upwardly to open position.

Extending rotatably through sleeve member 58 to the right side of body 11, as viewed in Figure 1, is a shaft 63 provided with outwardly extending arms 64, 64. Arms 64, 64 are connected by link rods 65, 65 to a vertically slidable gate member 66 carried at the lower right portion of body 11 and normally closing off a discharge opening for the right mixing compartment, as viewed in Figure 1. Secured to the end of shaft 63 adjacent lever 59 is an upwardly extending hand lever 67. When hand lever 67 is rotated counterclockwise, as shown in Figure 5, gate member 66 is opened. Rotation of hand levers 59 and 67 is limited by a strap member 68 extending around said hand levers and secured at its ends to the body 11.

Secured to base frame 13 sub-adjacent the discharge gates 61 and 66 by brackets 69, 69 is a discharge hopper 70, the outer portion of said hopper being supported by chains 71, 71 connecting the outer corner portions of the hopper to the body 11. Hopper 70 has a central partition 72 dividing it into two compartments, and the lower portion of the front wall of the hopper is provided with vertically slidable gate members 73, 73 normally closing off openings communicating with the respective hopper compartments. Pivoted to said hopper front wall are hand levers 74, 74 connected by link rods 75, 75 to the respective gate members 73, 73, whereby said gate members may be opened

by moving the handle portions of levers 74, 74 downwardly.

By opening gate members 61 and 66, as above described, the mixed mortar may be discharged into the respective hopper compartments, and the respective mixtures may then be discharged from said compartments by opening gate members 73, 73.

When the mortar ingredients are to be furnished to the mixer compartments the opening of the closures 15 or 16 automatically terminates the rotation of the agitator shaft 28 in the event that the operator has failed to terminate said rotation either by stepping on the treadle bar 44 or by pulling lever 50.

This substantially decreases the danger of injury to the operator from the agitator blades 30.

As soon as the operator closes the covers 15 and 16 and releases the lever 50 and the treadle bar 44 the clutch sleeve 37 interengages with clutch plate 36 and rotation of agitator shaft 28 is resumed.

The provision of two compartments in housing 11 enables two different mortar mixtures to be simultaneously prepared by the machine.

While a specific embodiment of a mortar mixing machine has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a mortar mixing machine having a housing, a top closure for said housing, an agitator shaft journaled in said housing and means for driving said agitator shaft, said means including a clutch, a treadle bar hinged on said housing, links operatively connecting said treadle bar to said clutch for movement of the clutch to disengaging position responsive to depression of said treadle bar, and links operatively connected between said cover and said treadle bar for depressing said treadle bar upon movement of the cover to open position thereby disengaging said clutch.

2. In a mortar mixing machine having a housing, a closure for said housing, an agitator shaft journaled in said housing, and means for driving said agitator shaft, said means including a clutch, a treadle bar hinged on said housing, means operatively connecting said treadle bar to said clutch for movement of the clutch to disengaging position responsive to depression of said treadle bar, and means operatively connected between said cover and said treadle bar for depressing said treadle bar upon movement of the cover to open position thereby disengaging said clutch.

3. A mortar mixing machine comprising a housing divided into adjacent mixing compartments, an agitator in each of said compartments, a hinged closure member for each of said compartments, means for actuating said agitators including a clutch operable for disengaging said agitators from said actuating means, a treadle bar pivoted on said housing, means connecting said closure members with said clutch for disengaging said clutch from said actuating means upon opening of each of said closure members, and means connecting said treadle bar with said connecting means between said closure members and said clutch.

JOSEPH G. POLAK.

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