Oct. 18, 1966 C. J. SEMAN 3,279,763

MACHINE FOR MIXING INGREDIENTS

Filed Sept. 25, 1964

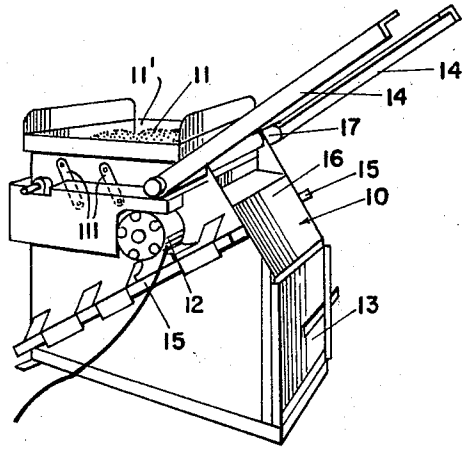


FIG. 1

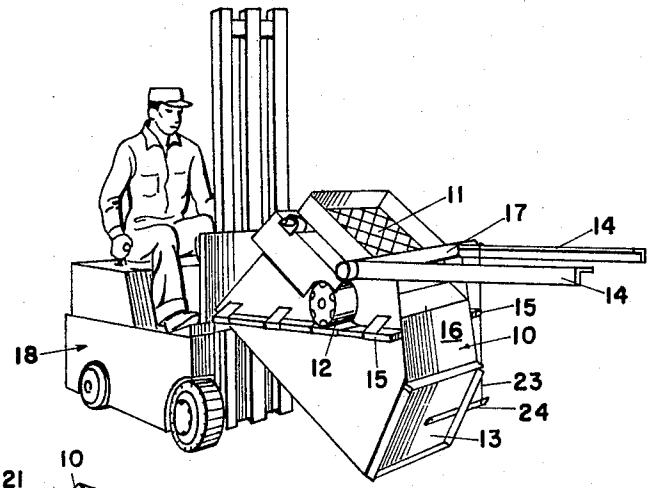


FIG. 2

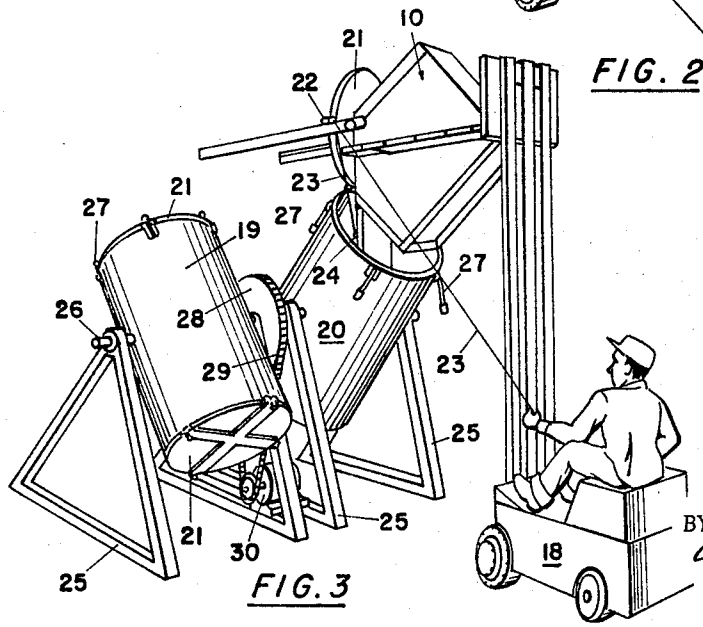


FIG. 3

INVENTOR.
COLMAN J. SEMAN
BY Charles L. Lovercheck

United States Patent Office

3,279,763

Patented Oct. 18, 1966

3,279,763

MACHINE FOR MIXING INGREDIENTS

Colman J. Seman, 1409 Springlake Drive, Erie, Pa.

Filed Sept. 25, 1964, Ser. No. 399,309

5 Claims. (Cl. 259—14)

This invention relates to a mixer and loader for concrete, cement products and other like loose materials and, more particularly, to an improved machine for mixing ingredients including loose materials such as cement products.

In the past there has been a problem of providing a machine to carry out an efficient and fast mixing of ingredients such as loose materials and cement products.

An object of this invention is to provide a device which can be used to carry out an efficient, rapid and thorough mixing operation for loose materials such as cement products.

Another object of the invention is to provide a loading mechanism including a hopper which may be lifted easily and placed into position for loading a drum mixer.

Another object of the invention is to provide mixing drums situated in pairs on an axis of rotation, each drum having its central axis disposed at approximately 90° to the other so that they counter balance each other.

A further object of this invention is to provide a rapid system of mixing cement ingredients at a relatively low equipment cost.

Another object is to provide a tumbling type mixer for cement products.

Another object is to provide a process of mixing cement using a tumbling principle.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

FIG. 1 is a perspective view of the loader in the invention;

FIG. 2 is a perspective view of the loader and fork lift truck in combination; and

FIG. 3 is a perspective view of the machine elements according to the invention situated as in use.

Now with more particular reference to the drawings, the loader **10** is shown in FIG. 1 which is of a rectangular shape in cross section having a top opening **11** in which the ingredients are received. A motor **12** which is located on the side is connected by means of a suitable drive to a riddling mechanism **11'** or agitator which will sift the ingredients as they are placed in the opening **11** supported on the loader by means of links **111** and vibrated by a suitable vibrating mechanism (not shown). The motor may be fixed to the side of the loader above the lifting supports **15**.

The lifting supports will be inclined upward from the rear of the loader **10** just above the bottom thereof and inclined upward and forward at an angle of about 45°. These lifting supports **15** may be made of angle iron or some similar material and be provided with generally flat lower sides to accommodate the forks of a lifting truck.

The front of the loader **10** will be provided with an unloading door **13** which will take up about half of the front end. Connected to the unloading door **13** which is hinged along the top will be a hopper door release bar **24** which when pulled by door release line **23** will unload the hopper. The front side of the loader has a rearwardly inclined front end **16** which extends from the unloading door **13** upwardly and to the load opening **11**. Directly above end **16** and connected to the front of the opening **11** will be a bar spacer **17** which supports the door lifting arms **14**. These arms **14** project forward parallel to the loader lifting supports **15** adjacent thereto.

In FIG. 2 a fork lift truck **18** is shown in position directly behind the loader **10** with the forks sliding in position under the loader lifting supports **15**. As the truck **18** begins to lift the loader **10** it tilts the loader until the lifting supports **15** are in a horizontal position along with the door lifting arms **14**. The loader **10** will be raised and moved into the position shown in FIG. 3.

In FIG. 3 two cylindrical tanks **19** and **20** are shown with an axle **26** at their center supporting them. The drums are disposed at 90° to each other and supported on the drum support frame **25** which is triangular in shape and has one frame member on each side of the drums **19** and **20**. These drums will be supported at the top angle by axle **26** with suitable bearings. A motor **30** with a gear and drive chain **29** running to a sprocket **28** located between the drums rotate the drums and mix the ingredients therein.

The loader **10** and mixing drum **20** are shown in loading position in FIG. 3. As the fork lift truck **18** and loader **10** come in close proximity with the drums the fork lift lifts the loader until the door lifting arms **14** come in contact with the lugs **22** on the door **21**. The lifting arms **14** will automatically lift the door into a perpendicular position thus allowing the unloading door **13** to be moved into position for releasing the contents from the loader **10** when door **13** is opened.

When the loader is in proper position for release the loader door release line **23** may be pulled by the operator and the door release bar will lift and open the door **13** thus releasing the contents into the cylinder drums. After the completion of this operation the loader **10** is removed by the fork lift truck **18** thus allowing the drum door **21** to close. The cover locks **27** will be swung into position and clamped and the cylinders will rotate so that the other cylinder drum **19** is ready for loading. The same procedure is repeated until both drums are loaded and ready for the rotation mix.

The mixer is then driven so that the contents tumble from end to end thereby agitating the materials therein. It has been discovered that successful mixing of cement powder can be accomplished when the drums are of such dimension that the length is approximately three times the diameter.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A loader comprising

a container generally rectangular in cross section and having an open top, and flat sides and flat ends, and a flat bottom,

one end of said container being inclined upwardly and inwardly at an angle of approximately 45° and terminating at an edge of said top opening,

a lifting support rail attached to each side of said loader,

said lifting rails being disposed at approximately 30° to said bottom, and extending from a position adjacent said bottom upward and terminating adjacent said upwardly and inwardly extending end,

said rails having a lower side adapted to be engaged by the forks of a lifting truck whereby said loader is tilted forward when lifted by said truck,

and a door in an end of said loader below said inclined end.

2. In combination, a loader and a mixer comprising
a mixer for loose materials comprising
a support,
two generally cylindrical shaped drums having closure means at each end thereof, disposed in side by side relation,
said axle being fixed to each said drum at diametrically opposite places thereon and approximately half way between the two ends thereof,
means to rotate said axle whereby said drums are moved in a tumbling action, the central longitudinal axis of said drums being disposed at approximately 90° to each other,
a loader comprising
a container generally rectangular in cross section and having an open top, and flat sides and flat ends, and a flat bottom,
one end of said container being inclined upwardly and inwardly at an angle of approximately 45° and terminating at an edge of said top opening,
a lifting support rail attached to each side of said loader,
said lifting rails being disposed at approximately 30° to said bottom, and extending from a position adjacent said bottom upward and terminating adjacent said upwardly and inwardly extending end,
said rails having a lower side adapted to be engaged by the forks of a lifting truck whereby said loader is tilted forward when lifted by said truck,
and a door in an end of said loader below said inclined end,
the diameters of said drums being greater than the width of said loader,
said loader being adapted to be lifted by a fork truck

having its forks engaging said rails and said end having said door thereon inserted into said drum open ends whereby the material in said loader may be dumped into said drums.

3. The loader recited in claim 1 wherein a riddle member is supported on said loader above said opening,
said riddle having a screen member closing said opening,
and means on said loader to vibrate said riddle.

4. The loader recited in claim 3 wherein said riddle is supported on said loader by means of link members, swingably connected to said loader and to said riddle,
and a crank member driven by a motor is provided to oscillate said riddle on said links.

5. The combination recited in claim 2 wherein said loader has spaced parallel lifting arms attached to the ends thereof adjacent said front surface,
said lifting arms being disposed generally parallel to said support rails,
said covers on said drums having means thereon engaged by said lifting arms whereby said covers are adapted to be opened by said lifting arms when said loader is lifted into loading position.

References Cited by the Examiner

UNITED STATES PATENTS

1,051,684	1/1913	Clark	259—81
1,227,839	5/1917	Bird	259—81
1,302,294	4/1919	Bogaerts	259—81
2,713,431	7/1955	Koehler	124—315

WALTER A. SCHEEL, *Primary Examiner.*

ROBERT W. JENKINS, *Assistant Examiner.*