Dec. 29, 1942. W. W. TRICKEY 2,306,510

DISTRIBUTING APPARATUS

Filed Jan. 31, 1941

Fig. 1

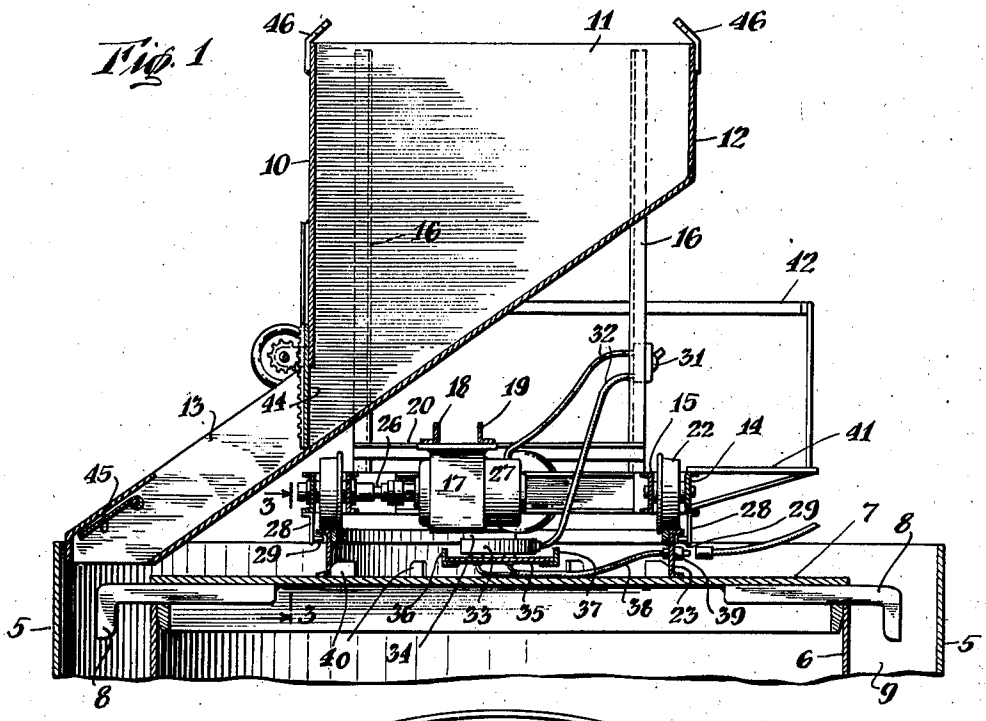


Fig. 2

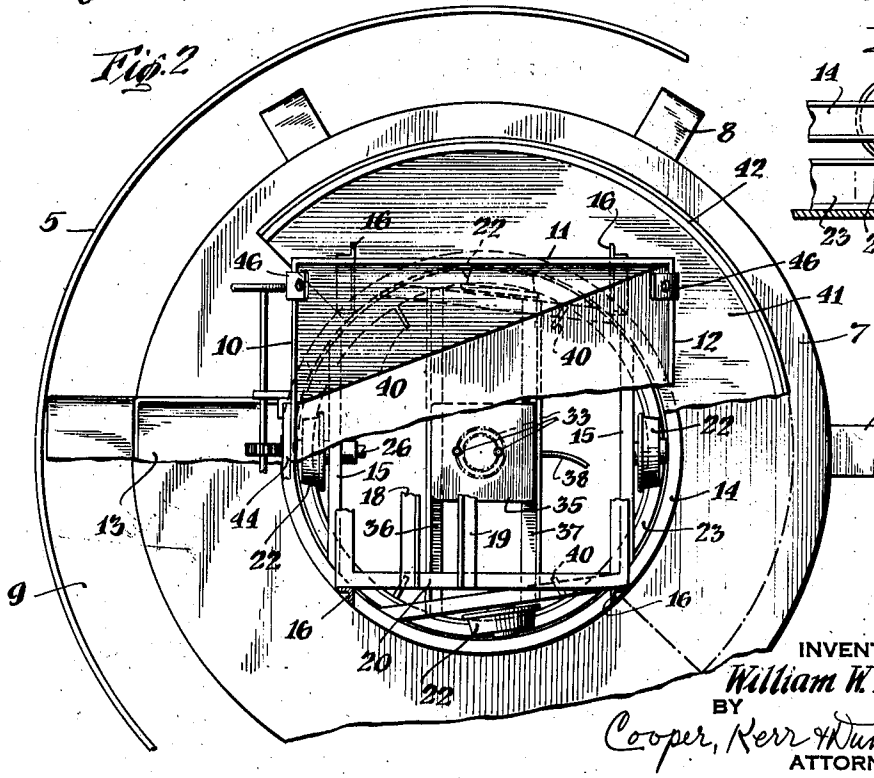
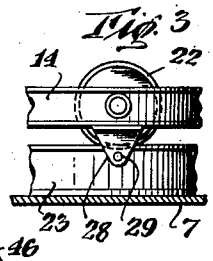


Fig. 3



INVENTOR
William W. Trickey
BY
Cooper, Kerr & Dunham
ATTORNEYS

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DISTRIBUTING APPARATUS

William Walter Trickey, Essex Fells, N. J., assignor to Lock Joint Pipe Company, East Orange, N. J., a corporation of New Jersey

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5 Claims. (Cl. 214—17)

This invention relates to apparatus for pouring concrete pipe. Among the objects of the invention is to provide apparatus for facilitating the pouring of concrete pipe of large sizes and to provide such apparatus in a unit which can be transported to different molds and quickly mounted in place and prepared for operation with a minimum amount of handling and without requiring special skill.

Another object of the invention is to provide a self-contained pouring unit and operating means therefor including a rotatable concrete distributing bucket, motor means for rotating the bucket, a circular track and electrical devices, all assembled together in such a manner that the entire assembly may be carried as a unit from mold to mold.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and claims and demonstrated by the drawing which shows by way of illustration a preferred embodiment and the principle of my invention and what I now consider the best mode in which I have contemplated applying that principle. Other embodiments of the invention employing the same principle may be used and structural changes made as desired by those skilled in the art within the spirit of the appended claims and without departing from the present invention.

In the drawing, Fig. 1 is an elevational view of the assembly showing parts in section.

Fig. 2 is a plan of the assembly with parts broken away for better illustrating lower portions thereof.

Fig. 3 is a detail taken on line 3—3 of Fig. 1.

The principal application for this invention is in making concrete pipe of large size. Frequently such pipe is made along the intended course of a proposed pipe line. In such a case arrangements are made to lay successive pipe sections as they are finished. It is desirable that the apparatus used in casting the sections of pipe be capable of movement from mold to mold with a minimum of disassembling and handling of parts. When using several molds, while pouring some, others are being emptied or prepared for pouring. By the use of the apparatus of the present invention, a pouring operation can be commenced practically as soon as a mold is ready. The apparatus may be quickly moved from mold to mold and it is designed to obviate delay which would otherwise be encountered if the parts associated with the distributing bucket had to be carefully erected and assembled each time a pipe section were to be cast. It is necessary only to attach a crane to the bucket and thereby transfer the bucket and all parts necessary for its operation in one carriage.

The mold for the concrete pipe includes an outer shell 5 and an inner shell 6 concentrically placed and standing on ends.

The support for the bucket may be a framework including spaced sills or a platform. A steel plate preferably supported by a wall of the mold serves the purpose very well, but the bucket and its track may be placed directly upon a mold wall if such arrangement is desired. A suitable support comprises a plate 7 which is large enough to serve as a platform extending across the central portion of the mold and above the inner mold wall by which it is supported. Structural elements 8 in the form of bars are secured to the underside of the platform 7 and may be made to extend, as shown in the drawing, within the circular mold cavity 9. When so extending these structural elements are utilized for properly spacing reinforcement for the finished pipe.

The assembly includes a chassis, a concrete distributing bucket, a circular track or race, and operating mechanism for traversing the chassis and bucket upon the track, all associated and transportable as a single unit. The bucket has a front wall 10, a pair of sloping side walls 11 and a back wall 12, all of which converge at their lower edges to the opening of a chute 13 by which the concrete within the bucket is distributed. The base of the chassis upon which the bucket is mounted has a ring 14 made of channel iron and transoms 15 of the same shapes which are mounted as chords of the ring. Uprights or standards 16 to which the bucket is secured and suitable struts complete the chassis. Other bars support the operating mechanism carried by the chassis.

A motor and reduction gear mechanism 17 is suspended from a pair of angle iron cross-bars 18, 19 which are in turn respectively supported at their ends by stringers 20 extending between and secured to pairs of standards 16.

The entire assembly is supported on rollers or wheels 22 which run on a circular race 23. This race is also part of the assembly which is removable from the mold. Each of four flanged wheels 22 is journalled in a circular frame member 14 and one of the transoms 15. Motor 27 and its reduction gearing 17 are directly connected to one of these wheels 22 by means of a shaft 26.

It is desired to be understood that the arrangement of motor and means for transmitting power

illustrated in the drawings is suggestive only and that known arrangements may be utilized. Under certain conditions the bucket may be traversed by man power as by a man walking upon platform 7 alongside the bucket (Fig. 2).

In order that the circular race constitute a part of the portable assembly, means are provided for lifting the track whenever the bucket is transferred from its position upon the mold platform. For this purpose I provide a plurality of brackets 28, each having a pin 29 extending under the flange of the circular track 23, but preferably not in contact therewith except when the track or race is being lifted through the chassis. This construction is illustrated in detail in Fig. 3, although it is not necessary that the means engaging the race and the chassis for this purpose be of this particular construction. The brackets are secured to and depend from the circular frame member 14.

Electrical connections for the motor include a switch 31, cable 32, and brushes and collector rings 33 which are carried by a bracket 34 upon the motor. The brushes are mounted upon a table 35, which is carried by a pair of angle irons 36 and 37 whose ends are secured to the circular track 23. A cable 38 terminating with a socket connects these brushes with a plug 39 which is mounted in the web of the circular track 23. The collector rings and brushes are complementary and their relationship is reversible, as is well understood.

It is to be observed that the entire assembly and electrical devices so far disclosed are self-contained in a unit so that it may be readily moved from mold to mold. When it is set in place upon a mold there remains only to make electrical connection with the plug 39. When this has been accomplished the assembly is ready for distributing concrete or other plastic and moldable material.

The support or platform of each mold is provided with a number of lugs 40, fixed in place in such a way as to engage the circular race and center the assembly with respect to the mold as the assembly is lowered to the platform.

The assembly also includes an operator's platform 41 with a railing 42. A sliding gate 44 is provided at the bottom of the hopper for closing the same and for controlling flow. A deflector 45 is mounted in the chute.

The hopper is provided with a plurality of ears 46, one at each corner, by which the entire assembly may be lifted.

According to the usual procedure for using the apparatus an operator will ride upon the platform and control the rotation of the assembly and the distribution of concrete in the annular recess of the mold. The concrete is evenly distributed about the mold in layers or ribbons whose thickness is dependent upon the speed of rotation of the bucket and the amount of gate opening. The operating platform is so arranged that the operator can observe the manner in which the mold is being filled so that any unusual formation can be immediately remedied. Ordinarily, the motor traverses the bucket at a constant speed, but change speed mechanism may be used if desired.

The bucket is provided with material, as needed, by the use of a travelling crane or derrick and transporting buckets, as is well understood. The same hoist can be used for transporting the assembly to an empty mold. For this purpose it is necessary only that the cable connected at plug 39 be disconnected and hooks engaged with the lifting ears 46.

What is claimed is:

1. In combination with a support for a traversable bucket for distributing concrete to a circular pipe mold, a circular race removably supported upon said support, means for locating said circular race with relation to the center of said support, a concrete distributing bucket, a chassis for said concrete distributing bucket, said chassis being adapted for traverse upon said race and having wheels attached thereto and bearing upon said circular race, a motor carried by said chassis and having connection with at least one of said wheels for driving the same, and means engaging said chassis and said circular race for lifting the race from said support and as part of a portable unit including said chassis, distributing bucket and motor.

2. The combination of a concrete distributing bucket adapted for use with a circular pipe mold, a chassis for supporting said bucket, wheels secured to said chassis for traversing said chassis and bucket about a vertical axis passing through the bucket, a circular race upon which said wheels travel, motor means for driving at least one of said wheels for traversing said chassis and bucket on said circular race, said motor means being mounted on said chassis, and means engaging said chassis and said circular race for lifting the race when said chassis and distributing bucket are lifted from their position of use with respect to said mold.

3. The combination of a concrete distributing bucket adapted for use above a circular pipe mold, a chassis for supporting said bucket, a circular race and wheels for mounting said chassis for traverse with respect to the mold, motor means for driving at least one of said wheels for traversing said chassis and bucket, said motor means being mounted on said chassis, collector rings and brushes for the motor and carried by said chassis, and means engaging said circular race for securing the race to the chassis for removal therewith when said chassis, distributing bucket motor and collector rings and brushes are lifted from their mounting above said motor.

4. For use with a circular pipe mold for casting concrete pipe and having stationary supporting means at the center of the mold, the combination comprising a circular race detachably supported upon said stationary supporting means, a concrete distributing bucket, a chassis for said concrete distributing bucket, said chassis being adapted for traverse upon said race and having wheels attached thereto and bearing upon said circular race, an operator's platform secured to said chassis, a motor having connection with at least one of said wheels for driving the same, and means connected to said chassis and having provision for engaging said circular race for lifting the same from its supporting means as part of a rotatable assembly including said chassis, distributing bucket, platform and motor.

5. Apparatus for pouring concrete into a circular pipe mold comprising a chassis having wheels journalled therein and arranged for circular traverse about a vertical axis, a circular race for supporting said wheels and upon which said chassis and associated elements are mounted for rotation, a distributing bucket carried by said chassis and having a chute extending beyond the diameter of said circular race, and means whereby said circular race is secured to said chassis so as to enable transportation of said chassis and race as a unitary assembly.

WILLIAM WALTER TRICKEY.