Feb. 20, 1934. C. JACKSON 1,947,941

APPARATUS FOR TREATING CONCRETE AND LIKE PLASTIC MATERIALS

Filed Sept. 6, 1932

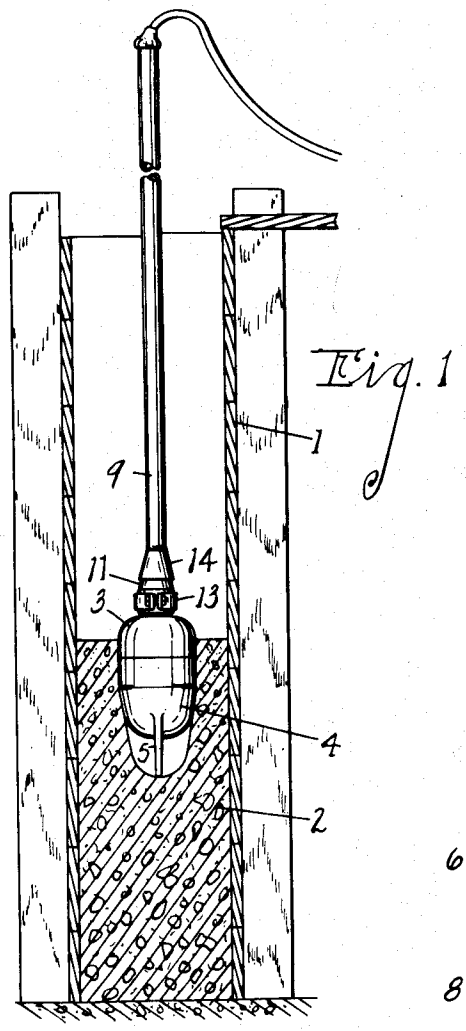


Fig. 1

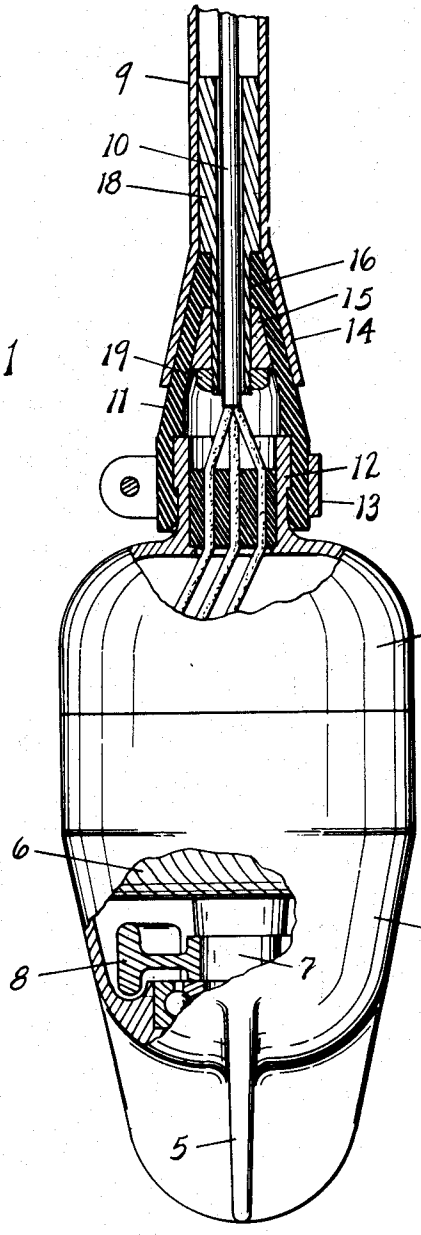


Fig. 2

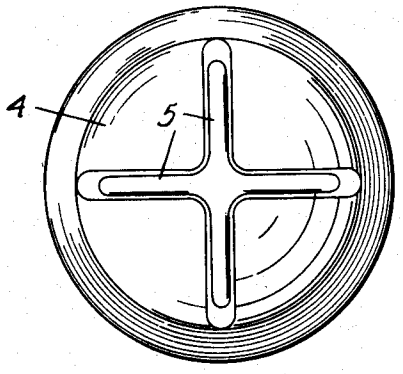


Fig. 3

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APPARATUS FOR TREATING CONCRETE AND LIKE PLASTIC MATERIALS

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Application September 6, 1932. Serial No. 631,806

10 Claims. (Cl. 25—1)

The main objects of this invention are:

First, to provide an apparatus for treating concrete and like materials, for example, the placing of concrete in walls, dams and various other situations.

Second, to provide an apparatus for treating or placing concrete or like plastic materials which greatly facilitates placing thereof in positions difficult of access for placing by usual tamping methods.

Third, to provide an apparatus for treating and placing concrete which enables the placing of concrete of such low water content as would be difficult or impossible to place by the usual tamping methods.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of my invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary view illustrating the manner of using my improved apparatus, a fragment of a wall being shown for this purpose.

Fig. 2 is an enlarged fragmentary view of my apparatus partially in longitudinal section.

Fig. 3 is an inverted view.

In the accompanying drawing 1 represents a wall or like form and 2 a body of concrete therein. My device or apparatus in the commercial embodiment illustrated comprises a housing 3 preferably cylindrical and having a downwardly tapered portion 4 at its lower end terminating in the crossed or angularly disposed blades or fins 5. This housing is adapted as a motor housing, an electric motor being indicated at 6.

The shaft 7 of this motor is disposed vertically and is provided with an unbalancing weight 8 so that the motor constitutes a vibrating unit disposed within and entirely housed by the housing, which is closed so that it may be introduced or submerged in the body of concrete. The rod-like handle 9 is tubular and constitutes a conduit for the electric cable 10 for supplying current to the motor. The handle is resiliently connected to the housing, the connection in the embodiment illustrated being in the form of a tapered tubular coupling 11. The lower end of this coupling is sleeved and clamped upon the neck 12 on the upper end of the housing. This neck is shouldered so that the clamp 13 binds the coupling member firmly to the neck.

The lower end of the handle is outwardly flared at 14 to receive the upper end of the coupling member, this coupling member being expanded and clamped into the end of the handle by means of the annular wedge 15 which is arranged upon the reduced stem portion 16 of the plug 18. The nut 19 is threaded upon the lower end of this reduced portion to force the wedge upwardly and into clamping engagement with the coupling member. The coupling member is of rubber or a suitable fabrication containing rubber so that it acts as a flexible resilient connection for the handle to the housing, thereby relieving the operator of the vibrations which would otherwise be imparted to the handle. At the same time the connection is sufficiently stiff or rigid so that the vibrating unit is held in approximately axial alinement with the handle and may be freely manipulated thereby.

In use the body of cement is placed in the form or other position and the housing pushed or allowed to sink into the body of concrete or other plastic mass. High frequency vibrations are imparted to the mass which effectively settles and compacts it into place. The fins or blades 5 tend to overcome the tendency for the housing to rotate, thereby rendering the device easier to operate. These fins may be variously placed but I preferably locate them on the lower end of the housing, as illustrated. The housing is closed so that water cannot reach the motor. In use the concrete or body of plastic material being treated constitutes a cooling medium for the motor.

The handle is preferably of considerable length as one of the advantages of the apparatus is that it may be used for the treating of concrete in situ at points that are inaccessible for ordinary placing operations. Further, the apparatus is particularly well adapted for the placing of mixtures having such low water content as is commonly regarded as unworkable, or in accordance with the method disclosed in my Patent No. 1,787,449, issued January 6, 1931.

The apparatus enables the very rapid and effective placing of concrete with comparatively little effort on the part of the operator.

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

1. An apparatus for treating concrete and like plastic materials comprising an electric motor provided with an unbalancing weight, a closed cylindrical housing for said motor provided with a downwardly tapered portion at its lower end terminating in crossed blades and having a shouldered neck portion at its upper end, a tubular

handle adapted as a cable conduit and having a downwardly flared portion at its lower end, and a resilient tapered tubular coupling having its lower end sleeved and clamped upon said housing neck and its upper end telescoped and clamped within the flared portion of said handle.

2. An apparatus for treating concrete and like plastic materials comprising an electric motor provided with an unbalancing weight, a closed housing for said motor having a shouldered neck portion at its upper end, a tubular handle adapted as a cable conduit and having a downwardly flared portion at its lower end, and a resilient tapered tubular coupling having its lower end sleeved and clamped upon said housing neck and its upper end telescoped and clamped within the flared portion of said handle.

3. An apparatus for treating concrete and like plastic materials comprising an electric motor, the rotor of which is provided with an unbalancing weight, a closed housing containing said motor and adapted to be inserted into a body of plastic material, said housing being tapered at its lower end and terminating in crossed blades, and a handle disposed axially relative to the axis of the rotor and having a resilient connection to said housing.

4. An apparatus for treating concrete and like plastic materials comprising an electric motor, the rotor of which is provided with an unbalancing weight, a closed housing containing said motor and adapted to be inserted into a body of plastic material, and a handle disposed axially relative to the axis of the rotor.

5. An apparatus for treating concrete and like plastic materials comprising a housing adapted to be inserted into a body of plastic material and provided with fins, a motor within said housing provided with an unbalancing weight, and an elongated handle disposed axially of the shaft of the motor and having a resilient connection to said housing.

6. An apparatus for treating concrete and like plastic materials comprising an electric motor, the rotor of which is provided with an unbalancing weight, a closed housing containing said motor and adapted to be inserted into a body of plastic material and provided with longitudinal fin-like projections, and a handle disposed axially relative to the axis of the rotor.

7. An apparatus for treating concrete and like plastic materials comprising a closed motor housing adapted to be embedded in a body of plastic material, a motor arranged within said housing and provided with an unbalancing weight also arranged within said housing, and a handle having a resilient connection to said housing, said handle constituting a conduit for the power supply connections to said motor.

8. An apparatus for treating concrete and like plastic materials comprising a motor housing adapted to be inserted into a body of plastic material, a motor disposed within said housing and comprising a rotor having a vertically disposed shaft with a bearing carried by the walls of the housing, the shaft having an unbalancing weight, and a handle for manipulating said housing.

9. An apparatus for treating concrete and like plastic materials comprising a motor, the rotor of which is provided with an unbalancing weight, a closed housing containing said motor and adapted to be inserted into a body of plastic material, and a handle disposed axially relative to the axis of the rotor.

10. An apparatus for treating concrete and like materials comprising a motor, the rotor of which is provided with an unbalancing weight, a closed housing containing said motor and unbalancing weight and adapted to be embedded in a body of plastic material, and a handle for manipulating said housing.

CORWILL JACKSON.