Feb. 18, 1930. J. C. PELTON 1,747,555

APPARATUS FOR COMPACTING PLASTIC MATERIALS

Filed Oct. 24, 1927

FIG. 1.

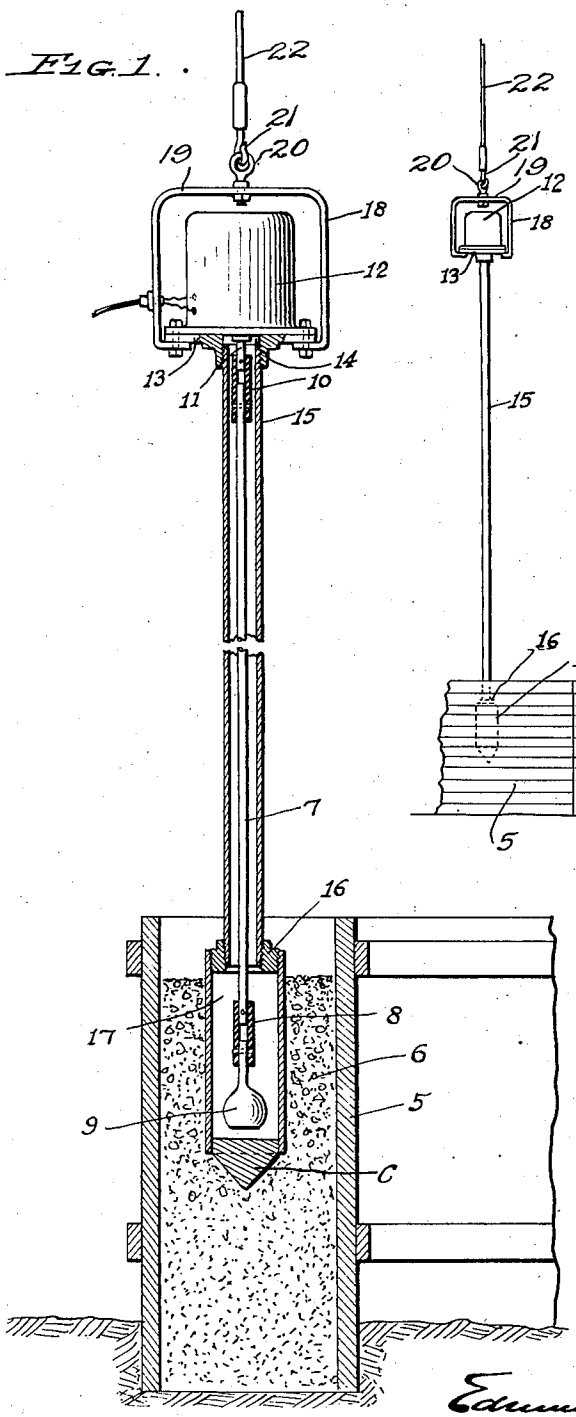
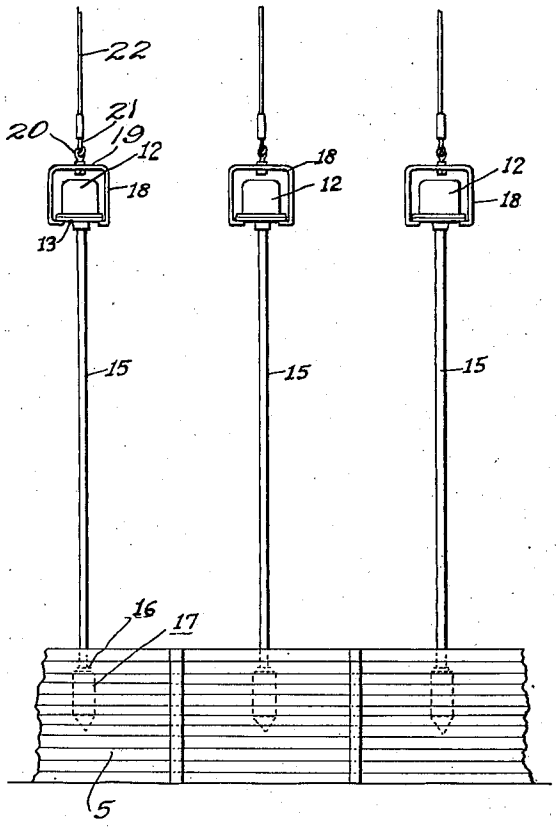


FIG. 2.



INVENTOR.
JOHN C. PELTON.
Edmund A. Strauss.
ATTORNEY.

Patented Feb. 18, 1930 1,747,555

UNITED STATES PATENT OFFICE

JOHN C. PELTON, OF SANTA BARBARA, CALIFORNIA, ASSIGNOR OF FORTY PER CENT TO PEREZ R. BABCOCK, OF SANTA BARBARA, CALIFORNIA, AND THIRTY PER CENT TO HARRY HAWGOOD, OF SOUTH PASADENA, CALIFORNIA

APPARATUS FOR COMPACTING PLASTIC MATERIALS

Application filed October 24, 1927. Serial No. 228,256.

This invention relates to a method of compacting concrete as the same is poured into stationary mold forms, and a simple apparatus that may be employed in connection therewith.

In the construction of concrete building walls, dams, roadways and the like it has been the practice after the concrete has been poured to manually tamp the same in order to settle the plastic mass and form structures free from the usual imperfections, such as sand holes, air cavities and the like. While such methods of tamping have in the main proven satisfactory, yet there are a number of disadvantages connected therewith, such as the expense of hand labor, and the time consumed in the operations. Further the finished concrete structures do not always possess the density desired.

By means of the herein described method and apparatus plastic masses may be continuously agitated as poured into the stationary mold forms to thoroughly compact and settle the same and form structures free from air or sand cavities or other imperfections that usually occur in hand tamped concrete operations.

It is, therefore, a chief object of my invention to provide a simple portable mechanism that may be introduced directly into the plastic mass to firmly compact or agitate the same during the pouring operations.

A further object is to provide a mechanically operated tamping mechanism that may be conveniently suspended above the mold forms and readily moved from one position to another in the concrete mass during the pouring operations.

Briefly, the invention disclosed herein consists of an encased vibratory member adapted to be inserted in a mass of plastic material such as concrete having a shaft flexibly connected to a source of power such as an electric motor for vibrating the member, suitable suspension means being provided for the apparatus in order that the encased vibratory member may be inserted in and withdrawn from the plastic mass at will.

In the drawings forming a part of the following specification,

Fig. 1 is a longitudinal section through the apparatus, the same being shown in an operative position within a concrete mold form.

Fig. 2 is a front elevation of a concrete wall mold form showing a plurality of impacting apparatus mounted thereabove.

In the drawings, 5 designates a concrete wall mold form and 6 the concrete that has been poured therein. The compacting mechanism preferably consists of a vertically disposed shaft 7 connected at its lower end by a flexible coupling 8 to a vibratory member 9 substantially globular in form. The upper end of this shaft is also connected by a flexible coupling 10 to the shaft 11 of an electric motor 12 of any suitable type for imparting a rotary movement to the shaft 7 when the apparatus is in operation.

The motor 12 is here shown as bolted or otherwise secured to a plate 13 having a centrally disposed flanged opening 14 interiorly threaded for the reception of the threaded upper end of a shaft encasing tube 15. The lower end of this tube terminates adjacent the lower end of shaft 7 and secured in threaded engagement thereto is an apertured plug 16. Secured to the plug is a cylindrical plunger casing 17 having an end closure C conical in form in order that the same may be readily forced into the plastic mass at the beginning of a compacting operation. As the power shaft 7 and the vibratory member flexibly attached to the lower end thereof are completely sealed by the casings, it will be clear that the wet concrete or other plastic materials which are being operated upon will be prevented from interfering with their operations.

The motor 12 is provided with a bail 18 bolted to the plate 13 and its horizontal arm 19 has an eye bolt 20 adapted to be engaged by a hook 21 of a hoisting cable 22 operated over sheaves not shown.

The operation of the apparatus is quite simple. The casing 17 is inserted in the concrete as soon as the same is poured, the motor then being operated to rotate the shaft 7, and as the vibratory member 9 is flexibly connected to the shaft and the shaft is simi-

larly connected to the motor, it will be apparent that the vibratory member 9. will contact with the cylindrical wall of the plunger casing 17 during its rotation to vibrate the same. I have ascertained by actual experiments that a mass of plastic material of about four cubic feet can be compacted in about thirty seconds. As soon as the mass has been compacted, the apparatus is withdrawn therefrom and inserted in a freshly poured portion with like results.

In Fig. 2 I have shown a plurality of compacting apparatuses illustrating that a number may be successfully and efficiently employed in building operations, each of the mechanisms being operated by its individual motor or connected in series by suitable power transmission means.

While I have shown an electric motor as an operating means, it will, of course, be understood that I may employ other operating means such as hydraulic or pneumatic for actuating the vibratory shafts without departing from the scope of the appended claims.

From the above description, it will be apparent that I have devised a simple compacting method and apparatus therefor that will quickly and efficiently compact or settle a mass of plastic material into a solid structure without the imperfections that usually occur in hand tamping operations.

What I claim is:

1. An apparatus for compacting plastic materials comprising a vibratory member, a a power shaft flexibly connected thereto, means to operate said shaft, and a casing for enclosing the shaft and the vibratory member, said vibratory member contacting with said casing during its operation to vibrate the same.

2. An apparatus for compacting plastic materials comprising a weighted member, a shaft flexibly coupled thereto, an electric motor flexibly connected to said shaft for operating the same, and casings for the shaft and the weighted member.

3. An apparatus for compacting plastic masses comprising a suspended vibratory member and operating means therefor, said vibratory member adapted to be inserted wholly within the plastic mass during its vibratory movement, and means to withdraw said member from the mass after a compacting operation.

4. An apparatus for compacting concrete masses comprising a weighted suspended vibratory member, said member adapted to be inserted wholly within the concrete mass during its operation, and means to lower said member into the concrete mass and to remove the same after a compacting operation.

In testimony whereof I affix my signature.

JOHN C. PELTON.