

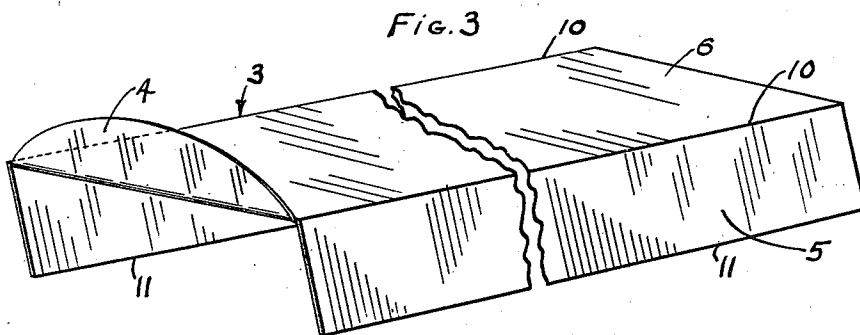
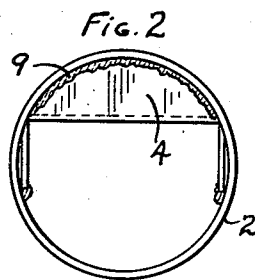
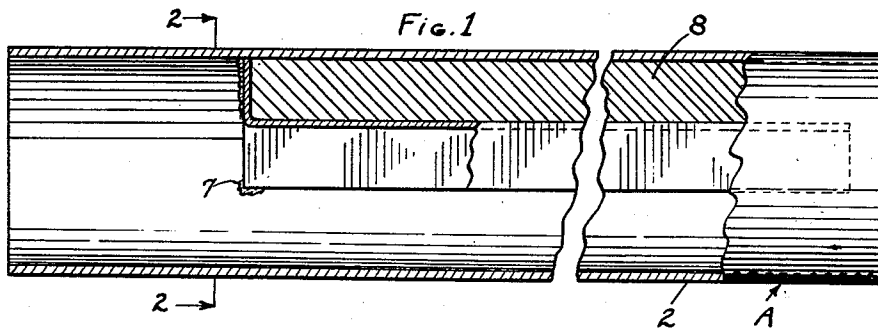
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ROTOR FOR VIBRATING DEVICES

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ROTOR FOR VIBRATING DEVICES

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9 Claims. (Cl. 259—1)

My invention relates to eccentrically weighted rotors for concrete vibrators and this application is a continuation in part of my co-pending application, Serial No. 300,785.

In the construction of a concrete vibrator which is most ideally suited to the work for which it is designed, there are a number of limitations with respect to the size and weight of the vibrator which must be taken into consideration. The diameter of the vibrator must be kept at a minimum (preferably less than 2½ inches) so that it may be easily manipulated among closely spaced reinforcing bars and in order to obtain a sufficient amount of work output from a vibrator of such a small diameter it is necessary to elongate the vibrating element so that vibrations emanate from a substantial surface area.

When diameter of the vibration producing rotor is sacrificed, it is necessary to provide the rotor with as much eccentric mass as possible in proportion to the total weight of the rotor. Consequently, the use of lead as the eccentric weight affords a more concentrated eccentric mass resulting in a more effective vibrator. Lead, however, being incapable of supporting itself when rotated at high speeds, must have a support member.

The primary object of my invention is to provide an improved supporting structure for the lead weight over the structure shown in my Patent No. Re. 21,684.

In the accomplishment of this object my present invention contemplates a supporting structure which is less expensive to manufacture and which is much easier to assemble than the supporting structure shown in Patent No. Re. 21,684. The invention also contemplates a structure which provides additional supporting strength for preventing bowing of the rotor under high speeds.

Another object of my invention is to provide a simpler means for forming a sealed compartment within which the lead or other molten metal is to be poured.

Other objects and advantages will become apparent upon examination of the following specification, reference being had to the accompanying drawing in which:

Fig. 1 is a side elevational view of the rotor shown partly in section;

Fig. 2 is an end view of the rotor taken on line 2—2 of Fig. 1; and

Fig. 3 is an enlarged perspective view of the supporting structure which is assembled within the rotor shell.

In general the rotor A is formed of a tubular shell 2 which is supported by bearings within a stationary outer shell as shown in my Patent No. Re. 21,684. In commercial usage the rotor is rotated within the stationary shell at speeds of from 5,000 to 10,000 R. P. M. Within the rotor shell 2 is mounted the structural support member 3. This support member 3 is in the form of a stamping, shaped similar to a channel iron. Formed at one end of support member 3 is a lip or flap 4 which is integral therewith. The flap 4 is semi-circular in shape so as to conform to the interior wall of the rotor shell 2.

The side walls 5 of the support member 3 are preferably perpendicular to the base 6. The stamping is formed so as to be self-locating when it is inserted into shell 2, i. e., the longitudinal upper and lower edges 10 and 11 respectively of the side walls are all in contact with the interior wall of the shell 2 when the support member 3 is inserted therein. By reason of the contacting engagement of the longitudinal edges of the support member 3 with the interior wall of the shell 2, the sides 5 act as braces to secure the base portion 6 against dislodgment. The support member 3 is preferably spot welded in two or three places (such as at 7) to the wall of shell 2 thereby assuring that said member will not become dislodged relative to the shell 2.

The flap 4 in combination with the base portion 6 forms a compartment within shell 2 into which molten lead 8 or some other suitable metal of high specific gravity is poured. In order to assure that this compartment is sufficiently liquid tight, I prefer to use welding material 9 around the entire semi-circular periphery of flap 4. Thus when the support member 3 is inserted into shell 2 and has been welded in place to prevent dislodgment, then the only remaining step is to stand the shell on end and pour the metal 8 (while in a molten state) into the compartment defined by the flap 4, base portion 6 and the interior wall of the shell 2.

The side walls 5 in addition to making the support member self-locating also serve to reinforce the rotor shell 2 against any tendency to bow due to centrifugal force when rotated at high speeds.

Thus it can be seen that I have provided a rotor having an eccentric weight supporting structure which is easy to assemble and inexpensive to manufacture and which provides "anti-bowing" support for the rotor shell.

I claim:

1. A rotor for a vibrator comprising a hollow

housing, a weight disposed within the housing eccentrically of the axial center thereof, said weight being adapted to be poured into the housing while in a molten state, means for retaining the weight in its position of eccentricity, said means comprising a single sheet metal channel shaped stamping extending longitudinally of the housing, a semi-circular flap formed integrally with and at one end of the stamping and extending transversely of the housing.

2. A rotor for a vibrating device comprising a hollow housing, an eccentric weight supporting member disposed within the housing, said member being formed with a web portion extending across the interior of the housing, a pair of side walls extending at substantially right angles to the web portion and having contact with the interior wall of the housing, a semi-circular flap formed integrally with and at one end of the web portion, and an eccentric weight disposed within the compartment defined by the web portion, flap and interior wall of the hollow housing.

3. A rotor for a vibrating device comprising a hollow housing, a weight disposed within the housing eccentrically of the axis thereof, means for supporting said weight in its position of eccentricity comprising a member having a base and side walls extending therefrom, a flap at one end of the base, said weight being disposed in the compartment defined by the flap, base and interior wall of the housing.

4. A rotor for a vibrating device comprising a hollow housing, a weight disposed within the housing eccentrically of the axis thereof, means for supporting the weight in its position of eccentricity comprising a member having a base, side walls, extending from said base, the longitudinal edges of said side walls being in contact with the interior wall of the housing, a flap at one end of the base, said weight being disposed in the compartment defined by the flap, base and interior wall of the housing.

5. A rotor for a vibrating device comprising a hollow housing, weight disposed within the housing eccentrically of the axis thereof, means for

supporting the weight in its position of eccentricity comprising a member having a base, side walls extending from the base, the longitudinal edges of said side walls being in contact with the interior wall of the housing, said weight being disposed in the space defined between the base and the interior wall of the housing.

6. A rotor for a vibrating device comprising a tubular housing, a weight disposed within the housing eccentrically of the axial center thereof, means for supporting the weight in its position of eccentricity, comprising a channel shaped stamping rigidly secured within the housing, the upper and lower longitudinal edges of the sides of said stamping being in contact with the interior wall of said housing, said weight being disposed in the space defined between the base and the interior wall of the housing.

7. A rotor for a vibrating device comprising a hollow housing, a weight disposed within the housing eccentrically of the axis thereof, means for supporting said weight in its position of eccentricity comprising a single stamping disposed within the housing, said stamping having a base portion, a pair of side walls depending from the base portion and a flap at one end of the base portion depending therefrom in a direction opposed to the depending direction of the side walls, the peripheral portion of said flap being shaped to conform to the interior wall of the housing, whereby a compartment for the eccentric weight is defined by the base, flap and interior wall of the housing.

8. A rotor as defined by claim 7 wherein the longitudinal edges of the side walls contact the interior wall of the housing whereby to lend increased rigidity to the rotor.

9. A rotor as defined by claim 3 wherein the upper and lower longitudinal edges of the side walls of the weight supporting means are all in contact with the interior wall of the housing, whereby the supporting means is self-locating when inserted into the housing.

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