F. P. TESSMER.

VIBRATOR.

APPLICATION FILED MAY 17, 1915.

1,164,889. Patented Dec. 21, 1915.

Fig. 1

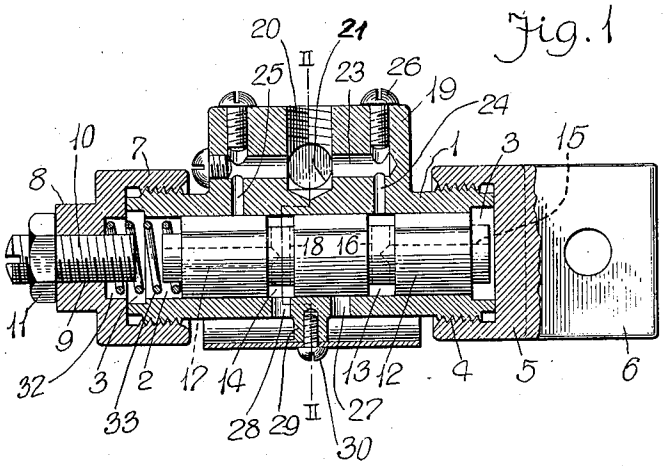


Fig. 2.

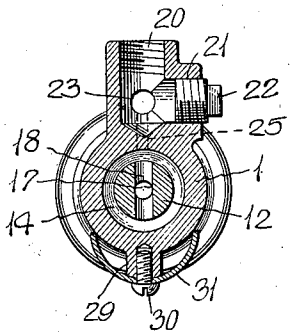


Fig. 4.

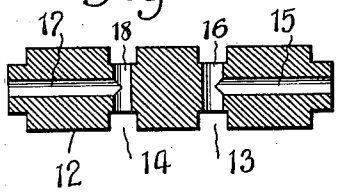
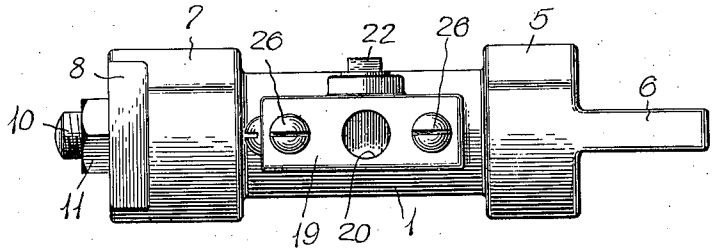


Fig. 3.



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VIBRATOR.

1,164,889. Specification of Letters Patent. Patented Dec. 21, 1915.

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To all whom it may concern:

Be it known that I, FREDERICK P. TESSMER, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Vibrators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to vibrators, and the primary object of my invention is to provide a vibrator that can be used on match plates, benches, tubs, core plates, etc., in the production of castings to insure perfect size and weight, and save time compared to the method of hand rapping usually resorted to.

Another object of this invention is to furnish a vibrator of the above type with adjustable means adapted to limit the stroke of the piston or plunger of the vibrator, and thereby obviate the necessity of using vibrators of various sizes in connection with different types of molds.

A further object of this invention is to provide a novel, durable and inexpensive vibrator that can be thoroughly cleaned and lubricated from time to time to maintain the same in an operable condition by which vibrating effectiveness may be obtained.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing, wherein—

Figure 1 is a longitudinal sectional view of a vibrator, partly in elevation; Fig. 2 is a cross sectional view, taken on line II—II of Fig. 1, Fig. 3 is a plan of the vibrator, and Fig. 4 is a longitudinal cross sectional view of the piston of the vibrator.

In the drawing, the reference numeral 1 denotes a cylinder having the bore 2 thereof enlarged at its ends to provide chambers 3. The ends of the cylinder are exteriorly screw-threaded, as at 4, and screwed upon the outer end of said cylinder is a cap 5 having an apertured tongue or tang 6 by which the vibrator is connected to a match plate or similar structure. The cap 5 closes the outer end of the cylinder 1, thereby closing the chamber 3 at this end of the cylinder. The opposite end of the cylinder is provided with a cap 7 having flat facets 8 to facilitate screwing the cap upon the inner end of the cylinder. The cap 7 has an opening 9 with the walls thereof screwthreaded to accommodate an adjustable screw 10 which is held in an adjusted position by a jam or lock nut 11 against the end of the cap. This adjustable screw regulates the stroke of a piston or plunger within the cylinder.

Reciprocable in the bore 2 of the cylinder 1 is a piston 12 of less length than the bore 2, said piston having annular grooves 13 and 14. The outer end of the piston has a longitudinal port 15 in communication with the outer chamber 3 and with a transverse port 16 communicating with the groove 13 of the piston. The inner end of the piston has a longitudinal port 17 communicating with the inner chamber 3 and with a transverse port 18 communicating with the annular groove 14. The top of the cylinder 1 has a longitudinal enlargement 19 bored or drilled to provide main air inlet ports 20 and 21, the latter being disposed at a right angle to the former for the convenience of making a desirable hose or conduit connection. The main air inlet port 21 has been shown closed by a detachable plug 22 whereby the port 20 can be used. Communicating with the main air inlet ports is a longitudinal port 23 and branch ports 24 and 25, said branch ports establishing communication between the main air inlet ports and the bore 2 of the cylinder. The longitudinal port 23 and the branch ports 24 and 25 are produced by drilling the enlargement 19 and then plugging the outer ends of the ports with screws 26 or similar means.

The bottom of the cylinder is provided with exhaust ports 27 and 28 and with a small enlargement 29 intermediate the ports. Secured to the small enlargement 29 by a screw 30 or other fastening means is a semi-cylindrical shell or cover 31 having the side edges thereof engaging the cylinder 1 and the ends of the shell or cover open. This shell or cover prevents sand, dust or other matter from entering the bore 2 of the cylinder and said shell or cover also serves functionally as a muffler for the exhaust from the ports 27 and 28. The inner end of the cap 7 has a recess 32 affording a seat for a coiled compression spring 33 which engages the inner end of the piston 12, the spring preventing accidental shifting of the piston 12 and maintaining the same normally ex-

tended in the cylinder with the groove 13 in communication with branch port 24 of the enlargement 19.

Assuming that the vibrator is connected to a suitable supply of air under pressure, the air entering the main port 20 passes through the ports 23 and 24 into the groove 13 and then through the ports 16 and 15 into the outer chamber 3 of the vibrator, the air forcing the piston to a retracted position. As the piston is shifted the air exhausts through port 27 and the groove 14 is placed in communication with the port 25, whereby the inner chamber 3 receives air which forces the piston 12 to an extended position, the air from the inner chamber exhausting through port 28. In this manner the piston 12 can be continuously reciprocated within the cylinder to tap and vibrate the cap 5, which is connected to a match plate, core plate or similar structure to be vibrated.

While in the drawing there is illustrated a preferred embodiment of my invention, it is to be understood that the structural elements are susceptible to such variations and modifications as fall within the scope of the appended claim.

What I claim is:—

A vibrator comprising a cylinder provided with air inlet and exhaust ports, caps on the ends of the cylinder, a piston reciprocable in said cylinder and adapted to impinge one of said caps, a screw in the other cap adapted to limit the stroke of said piston, and means engaging the same cap around the screw thereof adapted to retain said piston in an operable position relative to an air inlet port of said cylinder.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:

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