F. E. BRIXIUS.

ELECTROMAGNETIC VIBRATOR.

APPLICATION FILED AUG. 21, 1916.

1,226,635. Patented May 22, 1917.

Fig. 1.

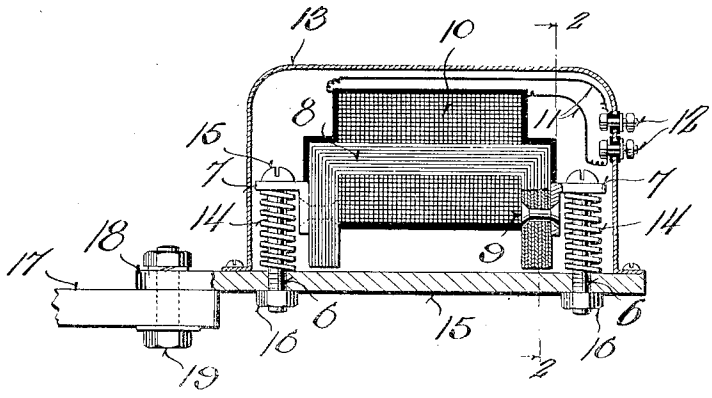
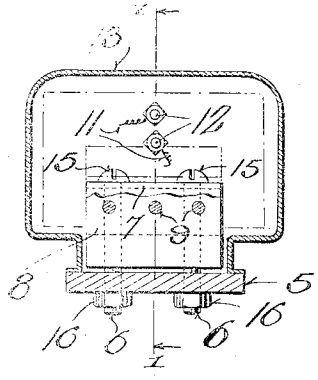


Fig. 2.



Witness:

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UNITED STATES PATENT OFFICE.

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ELECTROMAGNETIC VIBRATOR.

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To all whom it may concern:

Be it known that I, FRANK E. BRIXIUS, a citizen of the United States, and resident of Manitowoc, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Electromagnetic Vibrators; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to new and useful improvements in vibrating devices, and is more particularly directed to the provision of means for vibrating pattern plates disposed in molds, whereby the plates may upon vibration be disengaged from the sand of the mold, to permit ready withdrawal of the plates.

It is primarily the object of the invention to provide a vibrating device which is of an exceedingly simple and compact nature, and the present invention consists essentially in the provision of an electro-magnet loosely connected with a body of magnetic material and resiliently urged therefrom whereby upon the passage of successive electric impulses through said electro-magnet, it will be successively energized and deënergized, and through the co-action of the resilient means procure vibratory motion of the magnetic body, it being appreciated that the principle involved may be applied in many other instances than in vibrating pattern plates of molds.

A more detailed object resides in the provision of such a vibrating device which is adapted to be detachably yet rigidly connected with a pattern plate or other work member.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, arrangement and formation of parts more particularly hereinafter described and particularly pointed out in the appended claims.

In the drawings—

Figure 1 is a longitudinal sectional view through a vibrating device constructed in accordance with the present invention, as indicated by the line 1—1 of Fig. 2.

Fig. 2 is a transverse sectional view through the vibrating device on the line 2—2 of Fig. 1.

Referring now more specifically to the accompanying drawings, the particular embodiment of my invention shown therein, and adapted more particularly for use in connection with pattern plates of molds, comprises a body plate 5 formed of iron or other magnetic material, through the end portions of which are loosely passed transverse pairs of bolts 6, these bolts being also passed through angular brackets 7 of non-magnetic material which are secured to the inwardly turned end portions of a magnet core 8, preferably by the rivets 9. In the present instance this magnet core comprises a laminated series of soft iron strips and disposed about the body, or bight of the core, which, by the lateral turning of its ends is formed in U shape, is a coil 10 from which wires 11 extend to a pair of binding posts 12 carried at one end of a casing 13 which surrounds the electro-magnet thus formed, and the bolts 6. Expansile springs 14 are disposed on the bolts and bear against the body plate 5 and the bracket plate 7, thus normally urging the electro-magnet away from the body plate, whereby the free ends of the legs of its U-shaped core 8 are held in slightly spaced relation to the body plate, the brackets 7 bearing against heads 15 on the outer ends of the bolts, and to provide for adjustment of the tension of the springs, nuts 16 are threaded on the inner ends of the bolts which project through the plate.

Thus upon passing successive electric impulses through the magnet, to successively energize and deënergize the magnet, the body plate 5 will be alternately drawn toward and urged away from the magnet to set up a vibration of said body plate. To procure these successive electrical impulses, the binding posts 12 are preferably connected with the terminals of an alternating current circuit.

To provide for attachment of the vibrating device to a suitable portion of a pattern plate, shown at 17 in Fig. 1, one end of the body plate 5 is extended past the casing and provided with an aperture 18 through which and through the portion of the pattern plate is passed a securing and clamping bolt 19, to rigidly hold the body plate to the pattern plate.

It is to be appreciated that the present device is to be limited in no manner by its illustrated application to a pattern plate, as it may in certain instances be desired to utilize the device for vibrating certain types of work tables, or for many other purposes,

and it is also noted that in such instances as the work member would be of metallic material, the electric magnet could be loosely connected directly therewith. It is therefore to be appreciated that the present invention is limited only by the scope of the appended claims.

What is claimed is:

1. A vibrating device comprising a magnetic plate having one end adapted for rigid securement to work material whereby said device may be supported by said work material, an electro-magnet loosely connected with the plate and resiliently urged therefrom, and said plate forming an armature for the magnet.

2. A vibrating device comprising a magnetic plate, means for rigidly securing said plate to work material, an electro-magnet, said plate forming an armature for the electro-magnet, bolts loosely connecting the magnet and plate and expansile springs on said bolts between the electro-magnet and plate.

3. A vibrating device comprising a magnetic plate, means for rigidly securing said plate to work material, an electro-magnet including a U-shaped core and a coil disposed about the bight of the core, the ends of said core being adapted to abut against the plate, means loosely connecting the electro-magnet with the plate, and means resiliently urging said electro-magnet from the plate.

4. A vibrating device comprising a magnetic plate, an electro-magnet including a core having its ends laterally directed, non-magnetic brackets secured to the laterally directed ends of said core, bolts loosely connecting said brackets and magnetic plates and expansile springs on the bolts between said brackets and magnetic plates, whereby the ends of the core are resiliently held in spaced relation to the plate.

5. A vibrating device comprising a magnetic plate, an electro-magnet loosely connected with the magnetic plate and resiliently urged therefrom, a casing surrounding said electro-magnet and secured to the plate, a portion of the plate being extended past the casing, and means associated with said extended portion of the plate for rigidly securing the plate to work material.

In testimony that I claim the foregoing I have hereunto set my hand at Manitowoc, in the county of Manitowoc and State of Wisconsin, in the presence of two witnesses.

FRANK E. BRIXIUS.

Witnesses:
RUDE STOCKINGER,
KATHARINE STOCKINGER.