July 27, 1948. W. J. SPONSELLER 2,446,028

CONCRETE FINISHING DEVICE

Filed May 3, 1945

Fig. 1.

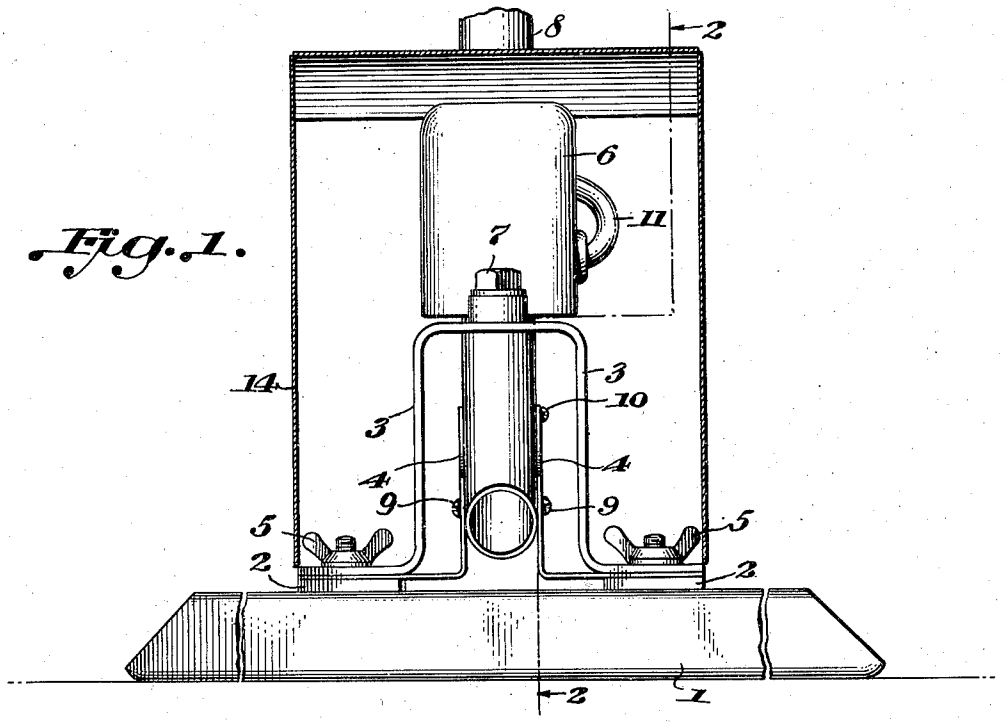
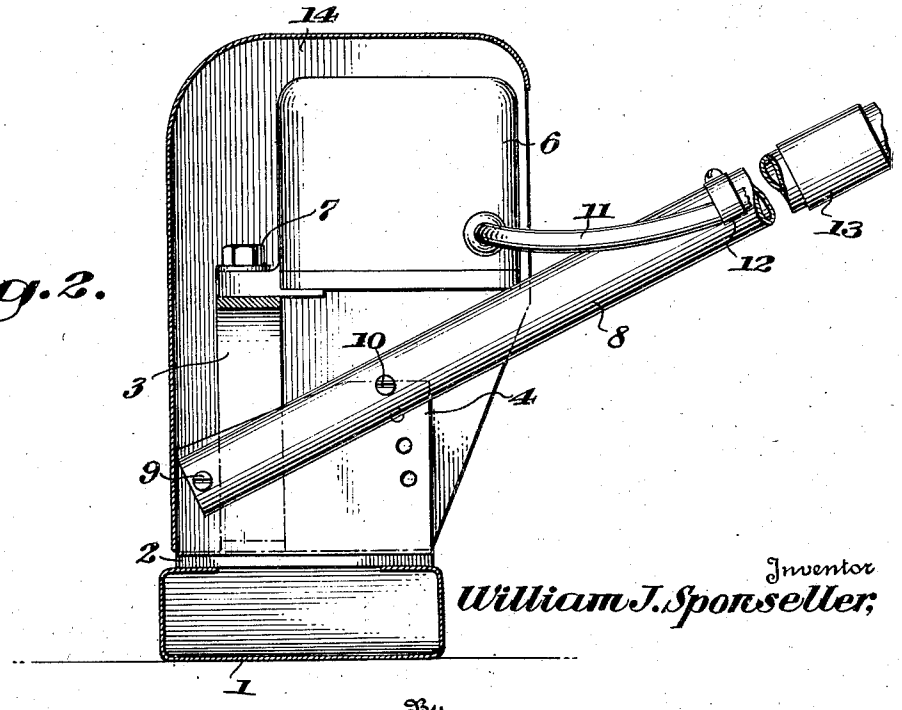


Fig. 2.



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CONCRETE FINISHING DEVICE

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4 Claims. (Cl. 94—45)

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This invention relates to a device for finishing concrete surfaces and more particularly to an improved vibratory device for that purpose.

One of the objects of the present invention is to provide a hand manipulated concrete finishing device equipped with an electrical pulsating magnet vibrator and means to transmit these vibrations to a concrete surface.

Another object of the present invention is to provide a device of the character described which may be readily assembled and is durable and efficient in use.

A further object of the present invention is to provide a device of the character described in which the electric pulsating magnet vibrator and handle for manipulating the device are independently mounted to prevent excessive vibrations from being transmitted to the operator.

With these and other objects in view, which will be apparent from the subsequent description, the present invention embraces the concept of providing a compact, easily operated concrete finishing device provided with an electric pulsating magnet vibrator. The device may be readily and economically constructed and the vibrator and handle for manipulating the device are independently mounted to prevent excessive vibrations from being transmitted through the handle to the operator.

A hand operated vibratory device of this type is highly desirable for use in smoothing and finishing the surface of flat concrete slabs such as are employed in making sidewalks, roads, floors, decks and the like. In operation the vibrations are transmitted to the surface of the unfinished concrete. While the operator is passing the device over the surface in a forward and backward movement, the vibrations cause the leveling off of any ridges or depressions on the surface and cause the coarse aggregate to work down from the surface and the fine aggregate and cement to come to the surface. This action, together with the backward and forward movement, rapidly provides a finished surface.

In the drawings:

Figure 1 is a front elevational view of the device with the cover in transverse section.

Figure 2 is a cross sectional view taken along the lines 2—2 of Figure 1, looking in the direction of the arrows.

For purposes of illustration, there is shown in the drawings a concrete finishing device made in accordance with the invention. This device comprises an elongated trowel 1, upon the upper surface of which is bolted or welded a pair of steel

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bars 2, which are disposed in parallel relation and extend transversely across the screed 1. These bars 2 form base members upon which are mounted a bridge 3 and a pair of right angle brackets 4. While a trowel has been shown, it is obvious that other concrete working implements may be used with this device, including a float or the like.

The bridge 3 is of inverted U-shaped construction and is provided with laterally extending flanges containing apertures by means of which the bridge is secured to the base members 2 by a bolt and wing nut arrangement 5. One leg of each of the brackets 4 is also apertured and secured to the base member 2 by the same arrangement.

The device is provided with an electrical pulsating magnet vibrator 6 which is secured to the bridge 3 by a bolt 7. This vibrator may be of a type which operates on 110 volts and 60 cycles, and preferably is capable of producing 7200 vibrations per minute. The vibrations are transmitted through the bridge 3 to the trowel 1. Preferably the vibrator is offset from the bridge.

The right angle brackets 4 are arranged to present a pair of vertically extending legs arranged in parallel relation, and are spaced to receive the lower extremity of a handle 8. The remaining legs of the brackets 4 extend laterally in opposite directions and are anchored to the base members 2 in the manner which has previously been described.

The handle 8 is pivotally attached to the brackets 4 by means of a pair of screws 9. One of the brackets 4 is also provided with a plurality of apertures, the centers of which are drilled on an arc of this pivotal mounting. This arrangement allows the handle 8 to be adjustably mounted by the insertion of the pin 10 in a selected aperture.

This independent mounting of the vibrator 6 and handle 8 permits vibrations to be transmitted to the trowel without direct transmission of the vibrations to the operator through the handle. For this reason, the device can be conveniently operated without interference due to excessive vibration.

The wire 11 is of sufficient length to connect the vibrator 6 to a suitable source of electric current without interfering with the operation of the device. Brackets 12 are provided on the handle to hold this wire in place while the tool is in operation. A switch may be provided on the handle to make and break the current.

The handle may be of any suitable length and

is preferably of tubular construction to reduce the weight. In the illustrated form of the invention, the handle is provided with a sleeve or flrl 13, which allows the handle to be made in two pieces, the portion unattached to the device being demountable at the flrl. This provides a means for readily transporting the machine after the finishing operation has been completed.

A sheet metal cover 14 is provided to protect the assembly. This cover may be detachably mounted in any suitable manner. Preferably it is attached to the base members 2. In the illustrated form, this cover extends over three sides and the top of an area which is occupied by the vibrator 6, the bridge member 3 and the brackets 4 upon which the handle is mounted.

It is believed to be obvious from this description that a device made in accordance with the present invention can be readily operated, is durable and efficient, and can be readily transported. While for purposes of illustration only one form of the invention has been disclosed, the invention embodies various changes in the structure and material of the illustrated form.

I claim:

1. A concrete finishing device comprising an elongated concrete finishing implement, base members secured to the upper surface of said implement, a mounting provided with a pair of laterally extending flanges joining said base members, an electrical pulsating magnet vibrator secured to the mounting, a handle to manipulate the device, a pair of right angle brackets arranged to present two vertically extending arms spaced to receive the handle, the remaining arms of the brackets extending laterally in opposite directions, means to adjustably secure the handle to the vertically extending arms, means to connect the vibrator to a source of electricity, and means mounted on the said base members to secure the flanges of the mounting and the laterally extending arms of the brackets to the base members.

2. A concrete finishing device comprising an elongated concrete finishing implement, a pair of strips disposed in parallel relation and secured to the upper surface of the implement to form base members, a mounting provided with a pair of laterally extending flanges adjoining the said base members, an electrical pulsating magnet vibrator secured to the mounting, a pair of right angle brackets arranged to present two spaced vertically extending arms disposed in parallel relation, the remaining arms extending laterally in opposite directions, a handle to operate the device, said handle being positioned between the vertically extending arms, means to attach the handle to the vertically extending arms, means to connect the vibrator to a source of electricity, and means mounted on each of the said base members to secure respectively one of the flanges of the mounting and the laterally extending arm of one of the brackets, to each of said base members.

3. A concrete finishing device comprising an elongated trowel, a pair of strips disposed in parallel relation and secured to the upper surface of the trowel transversely thereof to form base members, a mounting provided with a pair of laterally extending flanges joining the said base members, an electrical pulsating magnet vibrator secured to the mounting, a pair of right angle brackets arranged to present two spaced vertically extending arms disposed in parallel relation, the remaining arms extending laterally in opposite directions, a handle to operate the device, said handle being positioned between the vertically extending arms, means to adjustably attach the handle to the vertically extending arms, means carried by the handle to connect the vibrator to a source of electricity, and bolt means mounted on each of the said base members to secure respectively one of the flanges of the mounting and the laterally extending arm of one of the brackets, to each of the said base members.

4. A concrete finishing device comprising an elongated trowel, a pair of strips disposed in parallel relation and secured to the upper surface of the trowel transversely thereof to form base members, a mounting provided with a pair of laterally extending flanges joining the said base members, an electrical pulsating magnet vibrator secured to the mounting, said vibrator being capable of approximately 7200 vibrations per minute, a pair of right angle brackets arranged to present two spaced vertically extending arms disposed in parallel relation, the remaining arms extending laterally in opposite directions, a handle to operate the device, said handle being positioned between the vertically extending arms, means to adjustably attach the handle to the vertically extending arms, means carried by the handle to connect the vibrator to a source of electricity, and bolt means mounted on each of the said base members to secure respectively one of the flanges of the mounting and the laterally extending arm of one of the brackets, to each of the said base members.

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