March 22, 1966 O. B. CALLAHAN 3,241,174

CORNER TROWEL

Filed Jan. 27, 1964 2 Sheets-Sheet 1

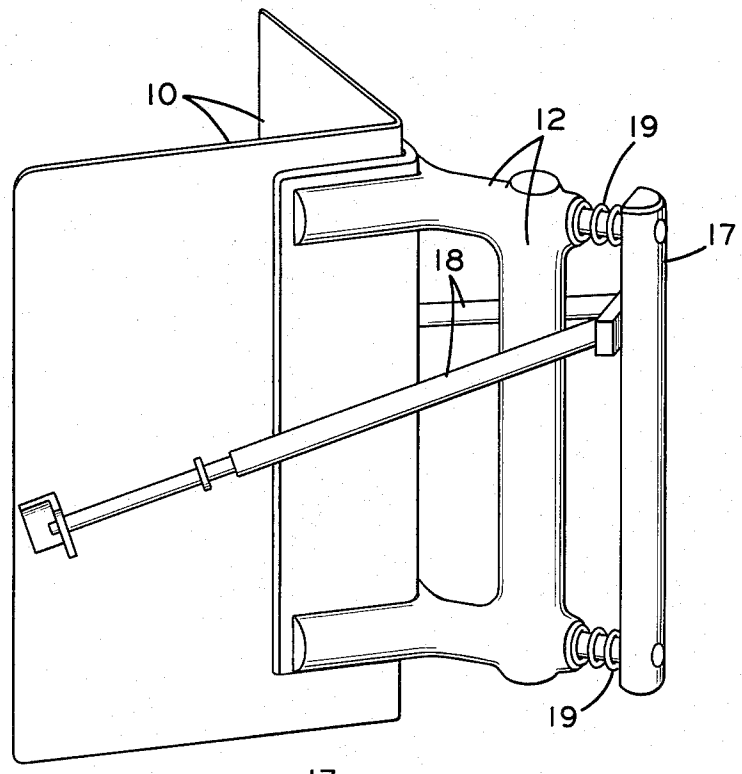


FIG. 1

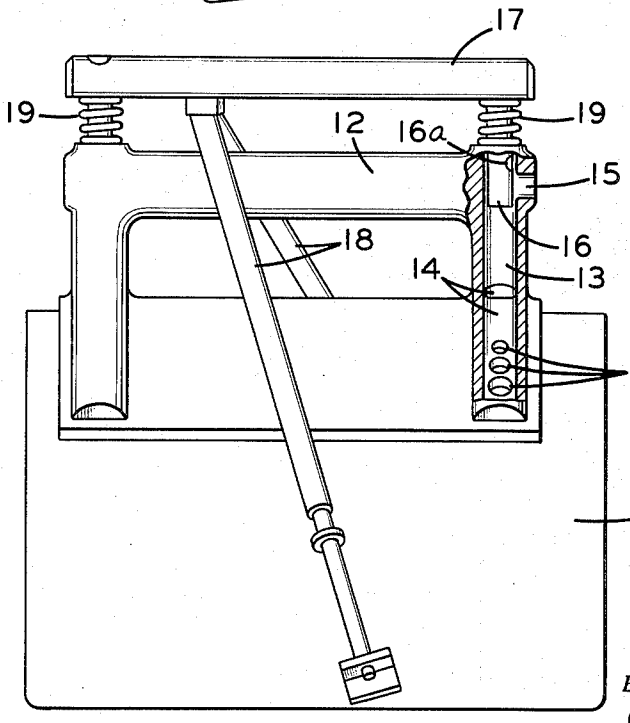


FIG. 2

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CORNER TROWEL

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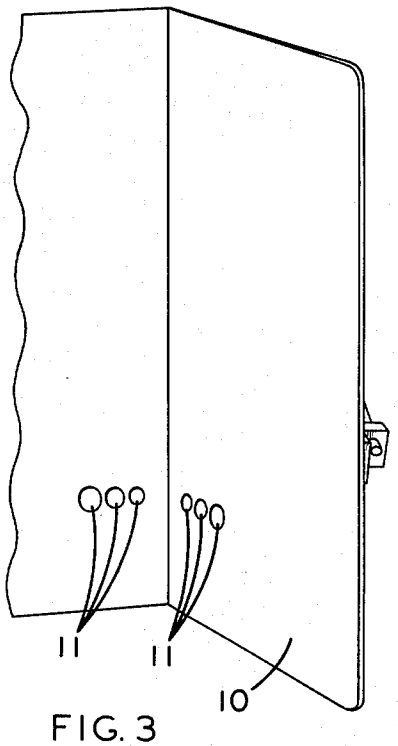


FIG. 3

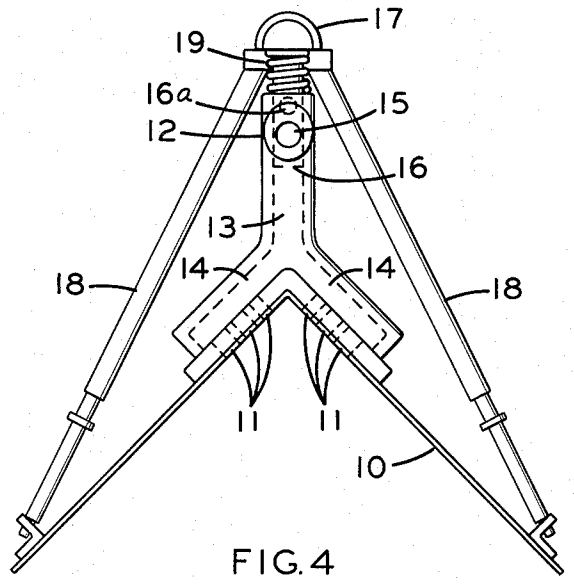


FIG. 4

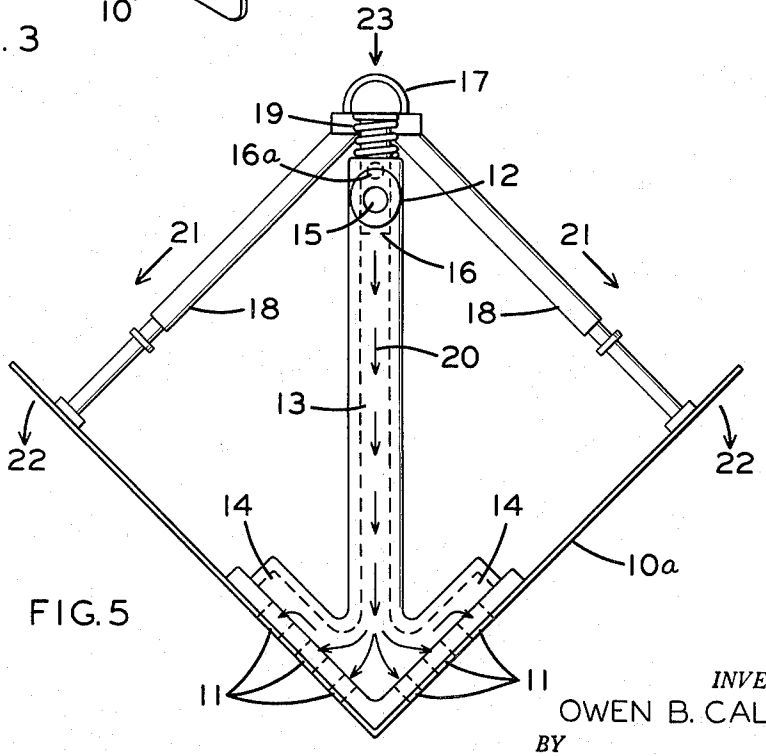


FIG. 5

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3,241,174

CORNER TROWEL

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8 Claims. (Cl. 15—511)

The present invention is concerned with the application of cementitious material and more particularly with a device for the application and/or smoothing and feathering of said material.

In the art of plastering or "taping" the treatment of corners is time-consuming and tedious. Much care is necessary to insure a reasonably true corner. In the case of taping, the overcoat of plaster covering the perforated tape, should feather out and smoothly meet the walls on either side of the corner. To feather each side of a corner with a conventional trowel requires a great deal of time and even then the quality of the job depends upon the skill of the worker.

Certain prior art trowels which have corner-conforming plates, are constructed so that the plate forms an angle of ninety degrees. Using devices of this type the plaster or mastic is not applied in a uniform manner. The worker must guess at the proper distance the trowel should be held from the corner in order to insure a good film of mastic at the apex of the corner. Proper feathering is almost impossible with a ninety degree trowel. Other prior art corner-conforming trowels have provided that the angle of the plate be slightly less or slightly more than that of a right angle, however, such devices have no flexibility, and are expensive.

It is an object of the present invention to provide a new and novel implement for the application of cementitious material.

Another object of the invention is to provide a corner trowel which is designed to apply and properly feather the plaster material to a corner.

A further object of the invention is to provide a corner surfacing tool for smoothing the surface of cementitious material and causing said material to taper gradually or feather to the plane of the walls.

A still further object is to provide a corner trowel adapted to facilitate the pressure-fed application of cementitious material.

These and other objects, advantages and features of the invention will become apparent from the following detailed description of preferred specific forms illustrated in the accompanying drawings to exemplify the generic inventive concepts defined in the broader of the claims thereof:

FIGURE 1 is a perspective view of an outside corner trowel within the scope of the present invention.

FIGURE 2 is a side view, partly in section, of another outside corner trowel within the scope of the invention.

FIGURE 3 is a front perspective view, partly broken away, of the trowel of FIGURE 2.

FIGURE 4 is an end view of the trowel of FIGURE 2.

FIGURE 5 is an end view of an inside corner trowel within the scope of the present invention.

In the drawings similar characters of reference represent corresponding parts in each of the several views.

The corner trowel of the present invention comprises a corner plate having semi-flexible sides; a corner-conforming handle is affixed to said plate; a corner plate-flexing actuating means is carried by said handle; a pair of push-rods extend from said actuating means to a point on each of said sides near the corner-parallel edges thereof; said push-rods respond to movement of the actuating means and flex the sides of the corner plate.

The present invention is adapted for use either as a

pressure-fed applicator which smooths and feathers the cementitious material, see FIGURES 2–5, or as merely a smoothing and feathering trowel for cementitious material which has been applied by other means, see FIGURE 1.

The pressure-fed applicators of FIGURES 2–5 will be described first. FIGURES 2–4 depict various views of a pressure-fed outside corner trowel and FIGURE 5 illustrates one view of a pressure-fed inside corner trowel within the scope of the present invention.

In FIGURES 2–4 a semi-flexible outside corner trowel plate **10** has outlet orifices **11** formed therein. The three pairs of orifices are shown having increasing diameters in order to equalize the amount of mastic applied to a corner. A handle **12** is affixed to said plate **10**. In one end of said handle a feed passage **13** divides into branch passages **14**, which communicate with outlet orifices **11**. Inlet orifice **15** is located at the end of handle **12** and is separated from feed passage **13** by a valve **16**. Valve **16** responds to the movement of actuator bar **17**. Springs **19** are located between and act against handle **12** and actuator bar **17**. Push rods **18** extend from actuator bar **17** to a point near the corner-parallel edges of the corner plate **10**.

The preferred pressure-fed outside corner trowel of the present invention comprises an outside corner plate having semiflexible sides, said sides having at least one discharge orifice therein. The handle affixed to said plate comprises a pair of spaced Y-shaped members which are bridged by a member spanning the leg of each member. The crotch of the Y-shaped members conform and are attached to the angle of said plate. At least one of said Y-shaped members is hollow and the arms forming the crotch thereof communicate with the discharge orifices in the sides of said corner plate. The hollow leg of said Y-shaped member has an inlet orifice and positioned between said inlet orifice and said crotch is a valve. A valve-actuating means is carried by said handle. A pair of push-rods extend from said valve-actuating means to a point on each of said sides near the corner-parallel edges thereof.

The trowel is operated in the following manner: A source of cementitious material, e.g. plaster, is placed under pressure. A feed line from said source is connected to the inlet orifice of the trowel. The trowel is placed in position in a corner which is to have plaster applied thereto. The right angle of the corner-plate corresponds roughly with the right angle of the room corner before the plaster is permitted to flow. However, as the valve actuating means is operated, the valve begins to open permitting plaster to flow and simultaneously the push-rods exert a force on the sides of the trowel plate in the direction of the walls. This force causes the apex of the trowel plate to move a small distance away from the apex of the room corner and each plate in effect forms an acute angle with the walls of the room. Actually the trowel plate side of the acute angle is slightly curved due to the flexing of said side. The plaster fills the acute angle and the operator moves the trowel along the corner to complete the application of the plaster. In this manner an extremely smooth and perfectly feathered plaster corner is formed.

FIGURE 5 shows an inside corner trowel adapted to apply, smooth and feather pressure-fed mastic which is essentially the same as the outside trowel of FIGURES 2–4 except that **10*a*** is an inside corner plate and the plate-contacting portion of handle **12** conforms to this corner. The arrows **20** in feed passage **13** and branch passages **14** indicate the direction of flow of the cementitious material when actuator bar **17** is pushed in the direction shown by arrow **23**. This movement of bar **17** also moves push-rods **18** in the direction of arrows **21** which in turn flex the outer regions of the sides of plate

10*a* in the direction of arrows 22. As indicated above, this movement causes the apex of the trowel plate to move a small distance away from the apex of the room corner, forming the desired acute angle.

A preferred corner trowel of the type illustrated in FIGURE 5 may be described in the following manner. An inside corner plate, having semi-flexible sides, has at least one discharge orifice therein. The handle of the trowel comprises a pair of spaced arrow-shaped members which are bridged by a member spanning the shank or stele thereof. The heads of the arrow shaped members conform and are attached to the angle of said plate. At least one of said arrow shaped members is hollow and the head thereof communicates with the discharge orifices in the sides of said corner plate. The hollow shank or stele of said member has an inlet orifice and positioned between said inlet orifice and the head of said member is a valve. A valve-actuating means is carried by said handle. As in the case of the outside trowel, a pair of push rods extend from said valve-actuating means to a point on each of said sides near the corner-parallel edges thereof.

FIGURE 1 depicts a corner trowel which is not adapted for the pressure-fed application of plaster. It is essentially the same as that illustrated in FIGURES 2–4 except that it has no discharge orifices, feed passage, valve and inlet orifice. This device is designed to smooth and feather cementitious material that has already been applied to a corner by some other means.

This trowel may be described as comprising a corner plate having semi-flexible sides; a corner-conforming handle affixed to said plate; an actuating means carried by said handle; and a pair of push-rods extending from said actuating means to a point on each of said sides near the corner parallel edges thereof.

The actuating means for the feed and feather device which controls the valve and pushes the push-rods, or the means in the simpler smooth and feather device which merely pushes the push-rods, may be a spring-resisted bar of the type illustrated in the drawing or any convenient means performing the same function. The push-rods may be a single piece member or of more than one piece, such as a telescoping member. The object being to flex the sides of the corner plate to provide the desired acute angle between the walls and the sides of said plate.

By "semi-flexible" as used herein is meant a tendency of the corner plate sides to return to their normal plane after being curved or bent by the action of the push-rods.

The type of valve employed may be a simple slide valve or any one of a number of other conventional valves.

The devices of the present invention may be constructed of metal, e.g., aluminum, steel, brass, etc. or an appropriate plastic or resins alone or in combination with certain metal parts.

As is evident from the foregoing the invention is not to be limited to formation of the rather specific illustrative device. Modifications and variations as well as the substitution of equivalents may be made without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. A corner trowel comprising a corner plate having semi-flexible sides; a handle conforming with and affixed to the corner of said corner plate; push-rod actuating means carried by said handle; and a pair of push-rods extending from said actuating means to a point on each of said sides near the corner parallel edges thereof, said pair of push-rods being adapted to respond to movement of said actuating means so as to flex the sides of the corner plate.

2. The trowel of claim 1 wherein said corner plate is an inside corner plate.

3. The trowel of claim 1 wherein said corner plate is an outside corner plate.

4. A corner trowel adapted for the pressure-fed application of cementitious material comprising a corner plate having semi-flexible sides, said sides having at least one discharge orifice therein; a corner-conforming handle affixed to said plate, said handle having a valve-controlled feed-passage communicating an inlet orifice with said discharge orifice; a valve-actuating means carried by said handle; and a pair of push-rods extend from said valve-actuating means to a point on each of said sides near the corner-parallel edges thereof.

5. The trowel of claim 4 wherein said corner plate is an inside corner plate.

6. The trowel of claim 4 wherein said corner plate is an outside corner plate.

7. An outside corner trowel adapted for the pressure-fed application of cementitious material comprising an outside corner plate having semi-flexible sides, said sides having at least one discharge orifice therein; a handle affixed to said plate, said handle comprising a pair of spaced Y-shaped members which are bridged by a member spanning the legs thereof; the crotch of the Y-shaped members conform and are attached to the angle of said plate; at least one of said Y-shaped members is hollow and the arms forming the crotch thereof communicate with the discharge orifices in the sides of said corner plate, the hollow leg of said Y-shaped member has an inlet orifice and positioned between said inlet orifice and said crotch is a valve; a valve-actuating means is carried by said handle; and a pair of push-rods extend from said valve-actuating means to a point on each of said sides near the corner-parallel edges thereof.

8. An inside corner trowel adapted for the pressure-fed application of cementitious material comprising an inside corner plate having semi-flexible sides, said sides having at least one discharge orifice therein; a handle affixed to said plate, said handle comprising a pair of spaced arrow-shaped members which are bridged by a member connecting the shanks thereof, the heads of the arrow-shaped members conform and are attached to the angle of said plate; at least one of said arrow-shaped members is hollow and the head thereof communicates with the discharge orifices in the sides of said corner plate, the hollow shank of said arrow-shaped member has an inlet orifice and positioned between said inlet orifice and the head of said member is a valve; a valve-actuating means is carried by said handle; and a pair of push-rods extend from said valve-actuating means to a point on each of said sides near the corner-parallel edges thereof.

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