ADJUSTABLE TROWEL DEVICE

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FIG. 1

FIG. 2

FIG. 6

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ADJUSTABLE TROWEL DEVICE

FIG. 3

FIG. 4

FIG. 5
This invention relates to angularly adjustable trowels, and it particularly relates to trowels adapted to provide an even, finished surface to plastic, hardenable materials such as cement.

Although various types of adjustable trowel devices adaptable to the angle or contour of the surface to be worked on have heretofore been introduced, all these prior devices were subject to one or more disadvantages. For example, if such prior trowel devices were sufficiently effective to adequately accomplish the work, they were generally cumbersome, bulky, heavy and overly complex in structure. On the other hand, if these prior devices were more simply and cheaply constructed, they could not effectively accomplish their task and tended to become easily broken. Furthermore, all these prior devices were usually difficult to clean so that their effective useful life became inordinately short.

It is one object of the present invention to overcome the above disadvantages by providing a trowel device which, although simple in construction and easy to use, is most effective in accomplishing the required tasks and is not subject to easy damage.

Another object of the present invention is to provide an adjustable trowel device which can be easily cleaned and kept in good repair.

According to the invention, the finishing trowel has a laterally disposed blade for surfacing a cement mass, weight means to maintain the blade in operative contact with the cement surface, an elongated handle associated with the weight means and rotatable relative thereto to tilt the blade on an axis normal to the axis of the handle whereby to facilitate the manipulation of the blade in the forward and rearward strokes common to the cement finishing art as well as to the substantially circular motions prevalent therein, and includes means to readily detach the handle member from the apparatus.

Other objects of the present invention are to provide an improved trowel device, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Fig. 1 is a fragmentary, top plan view of a trowel device embodying the present invention.

Fig. 2 is a side elevationary view of Fig. 2, with parts broken away in section.

Fig. 3 is an elevationary view, with parts broken away, taken on line 3-3 of Fig. 2.

Fig. 4 is a fragmentary elevational view of the device viewed transversely to the view of Fig. 3.

Fig. 5 is a rear view taken on line 5-5 of Fig. 1.

Fig. 6 is an elevationary view of the clamping ring on one part of the device.

Fig. 7 is a view taken on line 7-7 of Fig. 2.

Fig. 8 is a sectional view taken substantially along the line 8-8 of Fig. 2 as viewed in the direction indicated by the arrows.

Referring now in greater detail to the drawings wherein similar reference characters refer to similar parts, there is shown a trowel device, generally designated 10, which comprises a blade 12 which is of flat, generally elongated shape with its opposite longitudinal edges bent up to form beads 14 and 16.

Attached to the central portion of blade 12 by any suitable means such as spot welding or by countersunk studs 18, is a transversely extending plate 20 which is integrally provided with an upstanding bracket consisting of a pair of spaced, parallel ears 22. Pivotedly positioned between these ears 22 is the slightly flattened front end 24 of a cylindrical shaft 26. The end 24 is pivotedly retained between the ears 22 by a pivot bolt 28 held in place by a nut 30.

The shaft 26 is telescopically received within a tubular barrel 32 within which it is rotatable. In order to guide and limit the relative rotation between the shaft 26 and the barrel 32, the barrel 32 is provided with a transverse slot 34 through which extends the head of a threaded pin 36; this pin 36 being threadedly engaged in a threaded opening in shaft 26 (as best shown in Fig. 5).

In order to provide an oscillatory connection between the shaft 26 and the barrel 32, there is provided a post 38 which extends upwardly from the blade 12 adjacent to but laterally spaced from the barrel 32. This post 38 is provided with a lateral socket opening 40 into which extends the stem 42 of a threaded stud 44 having a hex-nut portion 46. The end of stem 42, within socket 40, is provided with a ball 48, while its opposite end is threaded into a boss 50 extending laterally from barrel 32. This stud, ball and socket assembly provides a linkage which causes tilting of the blade 12 on an axis passing through the pivot bolt 28 in response to rotary movement of the barrel 32 relative to shaft 26 (as illustrated by the full and dotted outline positions of the blade shown in Fig. 4).

The barrel 32 forms the lower portion of an elongated handle 52 which is detachably connected to the barrel 32 as by a threaded nipple 54 adapted to be threadedly engaged within the corresponding open end of barrel 32 (as best shown in Fig. 2). In order to prevent relative rotation of the handle 52 and barrel 32, a locking means is provided which consists of an annular ring 56, connected in any suitable manner to the end of barrel 32, and a tab 58 on the end of handle 52 adjacent nipple 54. Ring 56 has a series of openings 60 while tab 58 is provided with an aperture 62. When the barrel 32 and handle 52 are secured together, the opening 62 of tab 58 is brought into registry with one of the openings 60 in ring 56 and a cotter pin 64 is passed through these mating openings and bent into locking position (as shown in Fig. 6). Thus the rotative position of the hand of the operator serves to retain the surface of the blade 12 in a desired angular relation to the handle 52, and such angle may be readily varied by a simple twist of the wrist.

The friction generated by the relative rotation between shaft 26 and barrel 32 is taken care of by lubrication introduced through an orifice 66 in barrel 32 (as shown in Fig. 1). In the use and operation of the device as, for example, when a relatively long handle is used, as the blade 12 is moved farther away from the operator, the handle 52 may be rotated manually to rotate the boss 50 which, through stud 44 and post 38 will pivot the handle about the axis formed by bolt 28 to decrease the angle between the surface of blade 12 and handle 52. As the blade is drawn toward the operator, a mere flexing of the operator's wrist is sufficient to increase the angle as much as necessary to hold the trowel blade in
3 substantially flush relation with the surface upon which it is used at all times without any other bodily exertion on the part of the operator.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A linkage for the connection of a trowel blade having a shaft pivotally connected to a bracket on said blade, said linkage including a barrel rotatable on said shaft, a boss carried by said barrel, a laterally extending stud connected to said boss, a post on said blade spaced from said barrel and the pivoted connection between the blade and shaft and having an opening therein, and a bolt on said stud rotatably seating in said opening.

2. A linkage for the connection of a trowel blade having a shaft pivotally connected to a bracket on said blade, said linkage including a barrel rotatable on said shaft, a boss carried by said barrel, a laterally extending stud connected to said boss, a post on said blade spaced from said barrel and the pivoted connection between the blade and shaft and having an opening therein, a bolt on said stud rotatably seating in said opening, said barrel having a transverse slot therethrough, and a screw extended through said slot engaging in said shaft to limit rotation of said barrel.

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