April 20, 1965 J. T. DORAN 3,179,103

CEMENT SCARIFIER

Filed April 1, 1963

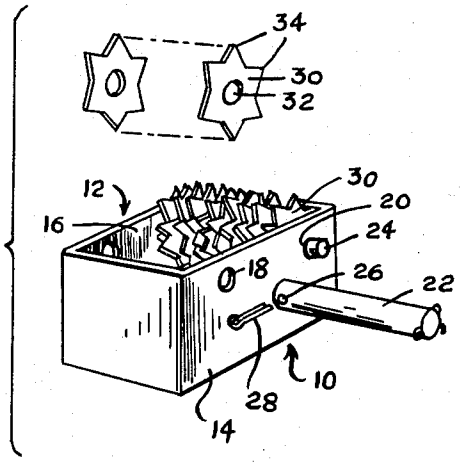


FIG. 1

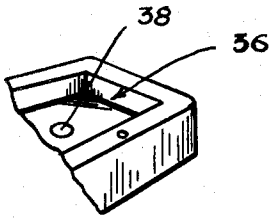


FIG. 2

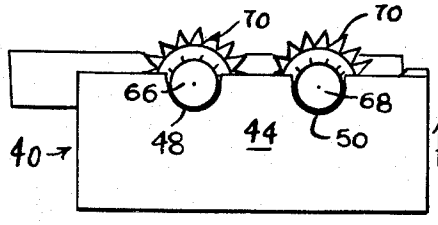


FIG. 3

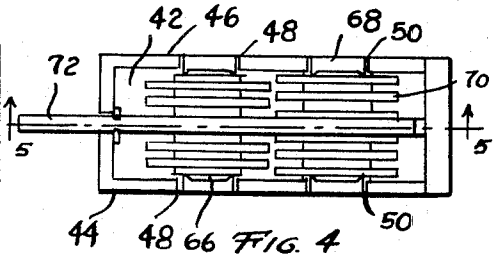


FIG. 4

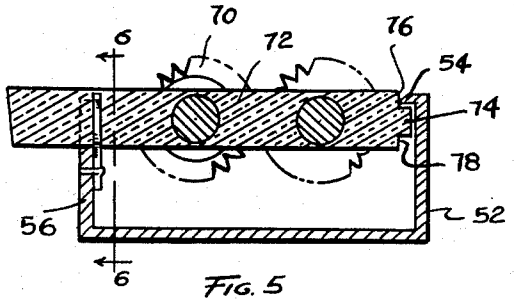


FIG. 5

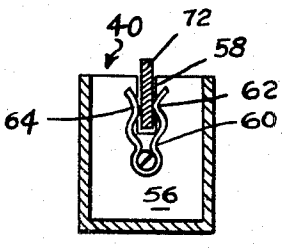


FIG. 6

INVENTOR.
JOHN T. DORAN
BY
Pattison, Wright & Pattison
ATTORNEYS

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CEMENT SCARIFIER

John T. Doran, Chevy Chase, Md.
(9710 Capitol View Ave., Silver Spring, Md.)

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This invention relates to cement working machines and more particularly and specifically to a grinding or scarifier assembly for use in a cement working machine.

This application constitutes a continuation-in-part of my co-pending application Serial No. 834,828, filed August 19, 1959, which issued July 23, 1963, as U.S. Letters Patent No. 3,098,329.

Numerous cement working machines are currently available which include rotating discs or plates on the underside of which are positioned fasteners for quick-detachably securing substantially rectangular abrading blocks, or the like, to act on a cement surface. An example of such a structure is the machine disclosed in my co-pending application, Ser. No. 834,828, and those shown in United States Letters Patents No. 1,832,267, issued November 17, 1931, and No. 2,171,060, issued August 29, 1939.

The principal object of the present invention lies in the provision of a cement grinding or scarifying device which may be readily, quick-detachably secured to a cement working machine of the type referenced, which device includes quick-replaceable sacrifying elements to permit renewal of the scarifying device.

Another object of the present invention resides in the provision of a unique and useful refillable scarifier device for use with cement working machines in which the device may be quickly and economically refilled to renew the device for continued operation.

Still another object of the present invention rests in the provision of a rugged and sturdy scarifier device, including an open-sided housing and plural packs of spurred wheels or discs removably secured in the housing in exposed condition through the open side thereof.

A still further object of this invention rests in the provision of a scarifier device taking the form of a metallic, open-sided housing dimensioned for quick attachment to the working plates or rotors of a cement working machine which incorporates within the housing a plurality of spurred working discs arranged in parallel rows to project in exposed condition through the open side of the housing, and which are so secured within the housing as to permit the quick removal of worn discs and their replacement by new discs.

Still other objects and advantages of the present invention will become more readily apparent to one skilled in the art when the following description is read in the light of the accompanying drawings.

The nature of the present invention may be stated in general terms as relating to a scarifier unit for use in a cement working machine consisting of a metallic housing having one open face therein, plural shafts quick-removably secured in parallel spaced relationship within the housing adjacent the open face thereof, and a plurality of spurred working discs loosely telescoped over said shafts in side by side, packed relationship thereon with portions thereof projecting radially outwardly of the open side of said housing.

Referring now to the accompanying drawings in which like numerals indicate similar parts throughout the several views thereof:

FIG. 1 is an exploded view of a scarifier unit;

FIG. 2 is a fragmentary pictorial section of a scarifier mounting element;

FIG. 3 is a side elevation of a modified scarifier unit;

FIG. 4 is a top plan view of the unit of FIG. 3;

FIG. 5 is a vertical section taken on line 5—5, FIG. 4; and

FIG. 6 is a vertical section taken on line 6—6, FIG. 5.

In FIG. 1 of the accompanying drawings there is shown one form of the improved and unique scarifier embodying the concepts of the present invention. This particular embodiment of the invention takes the form of a generally rectangular housing 10 having one open side 12 therein. Two opposed sides 14 and 16, defining the open side 12, are provided with two pairs of transversely aligned openings 18 and 20, spaced apart longitudinally of the housing. These openings are equally spaced below the open side of the housing and receive and support transversely of the housing two rods or shafts 22 and 24 each of which projects for a spaced distance beyond each of the opposed side walls. The projecting ends of each shaft are drilled, as at 26, and receive cotter pins 28, or the like, therein to removably lock each shaft in place in the housing.

Each shaft, 22 and 24, is provided longitudinally thereof within the housing with spurred or star discs 30 having central openings 32 of larger diameter than the rod or shaft and radially directed points 34 about the peripheries thereof. The discs are loosely packed longitudinally of each shaft to be freely rotatable thereon.

In use in connection with a cement working machine, a scarifier unit as described is inserted in a wedge pocket 36 formed on the underside of a rotating plate (not shown) on the machine with the open side of the scarifier downwardly disposed. The unit is then wedge-locked in the pocket for working operation with the plate on the cement surface.

When the hardened spurs on the discs have worn down, the unit is forced from the wedge pocket by a punch inserted in a knock-out hole 38 in the bottom of the pocket, whereupon each rod or shaft is removed from the housing as shown in FIG. 1, and whereupon the discs are quickly replaced. The renewed scarifier unit is then ready for use in the machine.

In FIGS. 3–6 of the drawings there is shown a modified form of the scarifier unit which consists of a generally rectangular metallic housing 40 having one open side 42 therein. The edges of the two opposed side walls 44 and 46, defining the open side 42 of the housing, are provided with aligned pairs of semi-circular depressions 48 and 50 therein. One end wall 52 of the housing is provided with a plate element 54 extending for a spaced distance above the open side thereof thus forming an overhanging lip at that end of the housing. The opposite end wall 56 of the housing is provided intermediate the transverse width thereof with a narrow slot or channel 58 extending from the edge thereof defining the open side 42 to an intermediate point in the depth of the wall.

Within the housing, on the inner face of end wall 56, there is secured a generally U-shaped spring clip 60 having converging, bowed arms 62 and 64 biased together intermediate the depth of the slot.

To complete this scarifier unit, two parallel spaced shafts or rods 66 and 68 are supported transversely of the housing which support and present in radial projection through the open side thereof a plurality of spurred or star discs 70. The scarifier assembly and support of the discs in the housing is accomplished by utilization of an elongated, flat bar element 72 of greater length than said housing and having a centrally extending tang 74 at one end defining two shoulders 76 and 78 on each side of the base end of the tang. The bar 72 is transversely drilled at spaced points longitudinally thereof to receive therethrough the two shafts 66 and 68.

In assembly of the scarifier unit, the two shafts are inserted through the bar 72 to extend for an equidistance on either side thereof. Star or spurred discs 70, having

central openings larger than said shafts, are telescoped over each end of each shaft alternately with spaced washers 78 which are of lesser diameter than said discs. Each end of each shaft is packed to a point where the total length of discs and washers on the shaft is slightly less than the inside transverse dimension of the housing. Thereupon, a lock washer 80 is telescoped on each end of the shaft, to hold the discs and washers loosely in place thereon.

The tang end of the bar 72 is then inserted below lip 54 on the open end of the housing, the second end of the bar is forced into the slot 58 within the grip of the clip 60, and the extended ends of the shafts 66 and 68 are disposed in the aligned pairs of semi-circular depressions 48 and 50 in the opposed side walls of the housing. The scarifier is then ready for inversion and insertion in a wedge pocket on the floor working machine as has been described with respect to the initial embodiment herein disclosed.

Renewal of the scarifier element is readily and quickly accomplished without removal of the housing from the wedge socket by the simple snap-out removal of the bar element 72 from which worn discs may be removed and replaced, whereupon the bar element is re-inserted in the housing.

Having thus described and explained the construction and operation of the novel concepts embodied in this invention, what is desired to be claimed is:

1. For use in a floor finishing machine having an element rotatable in spaced proximity above a floor surface, a scarifier adapted to be secured to and in dependency from said rotatable machine element comprising, a rigid rectangular housing having one open face longitudinally thereof, transversely paired bearing surfaces formed at spaced distances along those longitudinal side wall edges of said housing defining the open face therein, rigid shaft elements supported one between each transverse pair of bearing surfaces, plural spurred discs loosely telescoped on each shaft element with the peripheries of said discs projecting outwardly from the open face of said housing, and means quick detachably securing said shaft elements in engagement with said bearing surfaces.

2. For use in a floor finishing machine having an element rotatable in spaced proximity above a floor surface,

a scarifier adapted to be secured to and in dependency from said rotatable machine element comprising, a rigid rectangular housing having one open face longitudinally thereof, transversely paired bearing surfaces formed at spaced distances along those longitudinal side wall edges of said housing defining the open face therein, one end of said open face having an overhanging lip transversely of said housing, that end wall of said housing remote to said overhanging lip having a vertical slot formed therein, an elongated rigid bar member disposed longitudinally of said housing with one end portion engaged beneath the overhanging lip and the other end portion vertically engaged in said end wall slot, a spring clip secured within the housing adjacent said slot frictionally engaging and retaining said bar member, and plural shaft elements supported transversely of said bar in longitudinally spaced relationship therealong, the remote ends of each shaft element being supported between each transverse pair of bearing surfaces longitudinally of said housing, and plural spurred discs loosely telescoped on each shaft with the peripheries thereof projecting outwardly from the open face of said housing.

3. A scarifier as defined in claim 2 wherein said spring clip consists of a U-shaped resilient spring member secured to the end wall of said housing beneath the bottom terminus of said vertical slot with the open mouth of said U structure disposed upwardly in vertical alignment with an intermediate portion of said slot.

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J. SPENCER OVERHOLSER, *Primary Examiner.*

JOHN C. CHRISTIE, *Examiner.*