The present invention relates to an improved screed assembly for leveling concrete floors and the like.

A principal object is to provide a screed support in the form of a screed pad. The screed pad has a horizontal flat base or flange which is arranged to be embedded in any suitable adhesive material, such as concrete, plaster of Paris, asphalt, tar, or the like. The pad has extending upwardly and centrally therefrom, a post or stud for detachably receiving a vertical rod or tubular member to which is adjustably connected a bracket for supporting one end of a horizontal screed bar or the like. The screed pad may be formed of metal or plastic and made of varying sizes and shapes, and is provided with a plurality of spaced anchor holes of any suitable circular or non-circular size and shape. The inner wall or periphery of each hole has tapered upwardly diverging sides to form dovetail openings so that adhesive material may pass through the holes and be spread outwardly to form a dovetail lock for insuring the screed pad being accurately and firmly maintained in a fixed position. Additionally, the pad has extending upwardly and centrally therefrom a post or stud to which a vertical rod may be detachably connected. Adjustably mounted on the vertical rod is a screed bracket or L-shaped member for receiving one end of a horizontal screed bar which may be supported at its opposite end by a similarly shaped screed support.

Other objects and advantages of the invention will become apparent from the following description when taken in conjunction with the accompanying claims and drawings.

Referring to the drawings in which are shown several preferred embodiments, the invention may be shown as follows:

Figure 1 is a perspective view showing the improved screed pad assembly positioned on a sub-floor of a room, with the screed bar at its proper height to level off the main concrete floor;

Figure 2 is a detailed side view of the screed pad assembly constructed in accordance with the present invention and showing in dotted lines one end of a screed bar;

Figure 3 is an enlarged plan view of a screed pad shown in Figure 1;

Figure 4 is a sectional view taken substantially along the line 4—4 of Figure 2;

Figure 5 is a plan view of a modified form of screed pad;

Figure 6 is an enlarged sectional view taken substantially along the line 6—6 of Figure 5; and

Figure 7 is a detailed side view of a further modified form of the invention.

Referring to the drawings, 10 indicates a sub-floor formed of any suitable, durable material and is provided with a top surface or film of any suitable adhesive material, such as concrete, plaster of Paris, asphalt, tar, or the like, 11, in which is arranged to be embedded one or more screed supports 12 for levelling off the finished floor material at the proper height, when poured over the sub-floor 10.

Each of the screed supports 12 includes what will be hereinafter referred to as a screed pad 13 which may be made of any suitable material, such as light, durable metal, plastic and the like. The pad which may be of any desired size and shape is shown for the purpose of illustration as circular, and has a horizontal smooth flat base or bottom 14 provided with a peripheral raised annular flange 15 (Fig. 4) and also diametrically disposed transversely inclined radial ribs 16 extending downwardly and centrally from a hub 16' of the pad 13 and disposed substantially at right angles to adjacent ribs. The top of the pad between the annular peripheral flange 15 and the hub 16' has a countersunk or recessed surface 14' (Fig. 4). The pad 13 may be provided centrally with an opening 17 (Fig. 4) through which extends an upwardly projecting post, stem, or stud 18 having an enlarged shoulder tapered portion 19 which engages a corresponding side wall of the opening 17, so as to be firmly secured thereto in any suitable manner. Manifestly, the post 18 may be formed integrally with the base 14 of the pad. As shown, the post 18 is externally threaded at 20 so as to engage the internal threads 21 in the socket 22 formed at the lower end of a vertical rod member 23. The radial ribs 16 separate the circular pad 13 into four quadrants (Fig. 3) and each of these quadrants is provided with circumferentially disposed radially spaced rows of anchor holes 24 which may be of any suitable circular or non-circular shape. Each of the holes, whether round, multi-sided, or oblong, has tapered side walls 25 that diverge upwardly from the bottom of the pad (Fig. 4) to form dovetail openings. Thus, it will be seen that, when the pad 13 is embedded in the adhesive material, this adhesive material before hardening is forced through each of the holes 24 and spreads outwardly and over the top of each adjacent rib 26 formed between the opening 24 so as to provide a dovetail lock 27 (Fig. 4) for firmly and securely maintaining the pad in a proper fixed position on the sub-floor or form 16.

The vertical rod 23 is of any suitable length and is arranged to adjustably carry at its upper end a substantially L-shaped bracket or member 28 having a horizontal arm 29 and a vertical arm 30 (Fig. 2). The horizontal arm 29 intermediate its length has an annular bulged portion 31 provided with a vertical through opening 32 through which loosely extends the rod 23. The vertical arm 30 may be formed with a threaded opening at its outer end for receiving a complementary threaded clamping bolt 33 that extends inwardly to engage the rod 23 in order to maintain the bracket member 28 in any desired vertically adjusted position when the bolt 33 is tightened to engage the bar 23 and to permit vertical movement of the bracket member 28 when the bolt 33 is moved away from the vertical rod. An elongated screed bar 34 is arranged to be adjustably supported in a horizontal position at opposite ends thereof by the spaced screed pads 13 (Fig. 1).

In the modified form of the invention shown in Figure 5, the circular screed pad 35 is provided with the diametrically disposed tapered ribs 36 which extend radially from a central post or stem 37 to the outer periphery of the pad so as to form four uniformly shaped quadrant openings 38. The side walls of the openings 38 are tapered at 39 (Fig. 6) and diverge upwardly from the bottom of the base 40 to provide dovetail openings so that, when the pad 35 is embedded in a film of adhesive material 11 (Fig. 1), this material will flow through the dovetail openings 38 and over the top of the horizontal flange portions 41 (Fig. 6) and spread out to form a dovetail lock for firmly maintaining the pad in a fixed position on a sub-floor or the like 10.

In Figure 7, the screed pad 42 may be substantially similar in construction to either the pad 13 or 35, and has an integral upwardly extending centrally disposed smooth.
3 post or stem 43 which is arranged to telescopically fit within the lower end of a tubular rod or member 44 which is locked in position therein in any suitable manner such as by a set screw 45. The rod 44 may extend vertically upwardly from the pad 42 any predetermined distance and otherwise is similar in construction and operation to the rod 23 so as to adjustably receive a screed bracket, such as 28, previously described, for leveling the finished floor material, such as concrete or the like.

In operation, assuming it is desired to level off the finished floor material at a certain height above the sub-floor 10, a pair of the screed pads 12 are initially positioned on the sub-floor 10, and a film of any suitable adhesive, such as concrete, plaster of Paris, asphalt, tar, or the like, is applied to the top surface of the sub-floor 10. Each screed pad 12 is then embedded in the adhesive material 11 so as to cause the same to pass through the dovetail openings such as 24 (Fig. 3) or 38 (Fig. 5). It will be seen that by reason of the tapered sides of each of these openings, the adhesive material, after passing through them, will spread out and over the adjacent ribs or surfaces of the pad (Fig. 4) between the annular flange 15 and the hub 16 so as to form a dovetail locking engagement with the pad in order to firmly and accurately maintain the same in a fixed horizontally level position. The vertical rod, such as 23 (Fig. 2), is then moved and adjusted by the set screw 33 to the proper position to support the adjacent end of the screed bar 34 so that the bar 34 is at the proper height to level off the finished floor material, such as concrete or the like, when it is poured on or over the sub-floor 10. After the main flooring of concrete material is leveled off or screeded, the bar 34 and the vertical rods 23 are removed so as to leave the screed pad 13 embedded in the finished flooring. Since the screed hook is accurately set by instrument for insuring proper grading or leveling, it will be seen that by providing the anchor holes in each of the base members with tapered sides that diverge upwardly from the base, simple, efficient, and economical means are provided for forming a dovetail connection of the adhesive material passing through the holes in the screed pad, so that the screed bar may be properly set and supported by the spaced screed pads at the proper height to insure the finished floor material, such as concrete or the like, being uniformly and evenly applied over the sub-floor or form 10.

It will be manifest that the screed pad assembly 12 may with equal efficiency be used for ground screeding, screening from wooden decks and on steel pans or steel floors and be maintained or held down firmly in place by dabs of asphalt, plaster of Paris, cement, or other suitable fastening means. Moreover, the screed pad may be used in paper membranes, steel and existing slabs, and fastened with concrete, asphalt and the like.

It will be understood that the forms of the invention shown are merely illustrative, and that such changes may be made as come within the scope of the following claims.

We claim:

A second support comprising a screed pad, a peripheral flange projecting upwardly above the upper surface of said pad, a central hub, inclined radial ribs extending downwardly from said hub to the peripheral flange, a stem projecting upwardly from said hub, a screed support detachably secured to said stem, and a series of apertures in said pad having upwardly diverging side walls whereby the pad can be pressed into an adhesive so that the adhesive will pass through said apertures and spread outwardly over said side walls.

References Cited in the file of this patent

UNITED STATES PATENTS
725,458 Levy  Apr. 14, 1903
1,626,269 Clark  Apr. 26, 1927
1,683,247 Grothe  Sept. 4, 1928
1,852,673 Pilj  Apr. 5, 1932
2,242,619 Richardson  May 20, 1941
2,580,231 Lamm  Dec. 25, 1951

FOREIGN PATENTS
446,155 Great Britain  Apr. 24, 1936
538,860 Great Britain  Aug. 19, 1941
UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION
Patent No. 2,823,539
Ronald C. Kersh et al.

February 18, 1958

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 18, for "second" read -- screed --.

Signed and sealed this 7th day of April 1959.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents