Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).
Description

TECHNICAL FIELD

[0001] The present invention relates generally to the spreading of adhesive materials, and more specifically to a tool for spreading a layer of adhesive over a surface, such as a floor.

BACKGROUND ART

[0002] Numerous types of flooring are laid upon underlying sub floors or concrete slabs and fixed using adhesive materials. The adhesive must be spread evenly over the underlying surface prior to the placement of the covering material. For example carpets, tiles, laminate boards and roll out flooring materials are all applied over an adhesive. It should also be noted that the present invention should not be limited to flooring but can be utilised in the laying of roofing materials as well.

[0003] Typically, the adhesives are spread by hand trowel such as the one described in EP 1,018,585A1, where the persons spreading the adhesive would carry out the work on their knees. This results in the work being physically difficult and relatively slow, especially where large areas like industrial complexes are concerned.

[0004] Attempts have been made in the past to improve on this known technique but with limited success. The improvements have typically involved the trowel being able to be used whilst the person is in an upright position. Examples of these can be seen in EP-566 467, which represents the state of the art according to the preamble of claim 1, and U.S. Patents 4,982,470, 3,803,662 and 3,611,470 where the tool can either be dragged or drawn to spread the adhesive layer.

[0005] As mentioned above, these adhesive spreaders have various limitations and are not as effective as they might be. It has been noted that there is still a need to be able to reliably spread an even layer of adhesive material using non-complex machinery, which can be easily cleaned after use. Machinery known in the field uses compressors and external electrical sources to apply the adhesive and power the machinery. This has the disadvantage of lacking versatility, due to their size and weight, and as large compressors are needed to be set up before the spreader can function and many building sites where the spreader may be used do not have guaranteed electrical sources.

[0006] It would be desirable to provide a spreader which could lay a membrane or layer of adhesive material of a predetermined thickness with tolerable accuracy and which is easy to use from a standing position. It would also be desirable if the spreader had some capability to reliably and evenly distribute the adhesive material ahead of the oncoming spatula blade. A further desirable attribute would be the ability to remove excess adhesive material when required. And to do all this with a tool which is easy to maintain and clean and which requires no external input other than the driving force given by the person operating it would also be most desirable.

DISCLOSURE OF THE INVENTION

[0007] The present invention consists of a length of trowel blade that may run the width of the tool and be held securely in place by a rigid frame. Said trowel blade edge may be serrated, toothed or exhibit any pattern so desired and the upper edge may possibly exhibit a different pattern, thus giving each blade two different pattern possibilities requiring that said trowel blade be only rotated to expose the required edge. The present invention may primarily be drawn by a handle arrangement that extends angularly from the rear and may be hingably connected with said frame to enable the present invention to be easily transported and stored. The present invention may also run on one or more axially aligned wheels which may be situated at the rear of the frame and whose position may be altered in the horizontal and vertical directions, respectively. The frame itself comprises one or more compartments itself comprising a suitably shaped opening in its base. The lid of said compartment may be comprised of a rigid, flat surface sealed by some means while still allowing said lid to slide vertically up and down within said compartment. A mechanism for raising and lowering said lid by predetermined amounts to exert a corresponding pressure might also be included. This system may enable said compartment(s) to accommodate a bag or amount of adhesive material which, when punctured and said lid is lowered by a predetermined amount, delivers a sausage of adhesive material through which the trowel blade will be drawn.

[0008] According to one embodiment of the present invention, the main body is basically a rectangular box which houses the compartment or compartments containing adhesive material and a frame on which the trowel blade is secured.

[0009] The two juxtaposed side panels may be triangularly shaped at their base thus providing a point about which said main body can pivot. The aforementioned wheel axle as previously described can be moved in the vertical axis and by so doing increases or decreases the distance between the said trowel blade and subfloor as the main housing pivots about the point of the triangularly shaped base of the side panels much like a seesaw. Thus by securing the height of the wheel axle in predetermined positions, a corresponding height of the trowel blade above the subfloor may be translated via the triangular fulcrum of the side panels. A method as according to the first embodiment for securing the height of the wheel axle is to have the axle attached to one end of a rod, which is pivotally joined to the frame between the two ends, and where the remaining end can be moved up and down and secured to any of the plurality of pre-positioned holes located in the frame by way of a bolt which passes through both the hole in the end of the rod and one of the said pre-positioned frame holes. Thus, the height of the axle...
can be secured at predetermined positions by moving the lever end of the rod either up or down which moves pivotally about a point.

According to a second embodiment of the invention, the apparatus comprises a frame on which is secured a trowel blade which may be provided with side panels for the retention of the adhesive material within a desired region and may provide a housing, in the form of elongated holes, for one or more screws which may be adjusted to alter the height of the trowel blade above the sub-floor. The apparatus may also consist of a weight attached to the frame which provides the required downward pressure to the trowel blade.

This embodiment may also comprise a handle arrangement, attached to the frame and extending angularly therefrom, to enable the user to draw the apparatus along the sub-floor, through an amount of adhesive material, while in an upright position.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention itself, as well as a preferred mode of use, and further objects and advantages thereof, will be best understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with accompanying drawings, wherein;

Figure 1 is a side view of the first preferred embodiment of a spreader according to the present invention.

Figure 2 is a plan view of the first preferred embodiment of a spreader according to the present invention; and

Figure 3 is an isometric view of the second embodiment of a spreader according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 is a side view of a presently preferred spreader 1 according to the present invention. The spreader 1 includes a handle arrangement 2, which extends from the spreader 1 angularly and is hingably joined at its base. The spreader 1 also includes a double edged trowel blade 3 which is secured to the spreader’s front end by a plurality of bolts which can be loosened to enable the trowel blade 3 to be rotated and so expose its other edge which exhibits a different toothed pattern.

Figure 1 also shows that the preferred spreader includes a pair of compartments 4 where each compartment is in the form of a rectangular box and includes a hermetically sealed lid 5 which can be raised or lowered into the compartment 4 by way of the mechanism 6. In this embodiment, the lowering mechanism is comprised of a column 6a with a plurality of equidistant holes passing through said column 6a and a lever 6b hingably joined to the front end of the preferred spreader 1. Said lever 6b is positioned at the required height corresponding to the desired distance the lid 5 is required to be lowered and a bolt is passed through a hole in the lever 6b and the corresponding hole in the column 6a. A downward vertical force is then applied to said lever 6b which lowers the lid 5 into the compartment 4 and compresses the bag containing adhesive material 12 which has been punctured along the base in the area of the slit 11 shown in Figure 2, allowing the adhesive material to fall as a sausage onto the subfloor beneath.

Also shown in Figure 1 is the horizontal panel 8 which extends the width of the spreader 1 and can be retracted to its dormant position as shown in Figure 1 by pulling the handle mechanism 9 fully back. When the handle mechanism 9 is pushed forward, the horizontal panel 8 advances and descends towards the trowel blade 3 reaching the level of the subfloor just before the rear limit of the slit 11 shown in Figure 2. As the horizontal panel 8 is advanced, it scrapes along the subfloor advancing any adhesive material towards the trowel blade 3 which resists the oncoming adhesive material and forces the adhesive material onto the still advancing horizontal panel 8. This enables any excess adhesive material to be removed from the subfloor to enable the preferred spreader to be moved.

Figure 2 shows that the preferred spreader 1 also includes an axle situated at the rear and holding a pair of wheels 7 which can move independently of each other along the axle 13 to give the required degree of stability. It can be noted that when the wheels 7 are positioned towards the centre of the preferred spreader 1 any irregularities in the subfloor surface are reduced resulting in a more even thickness of adhesive material spread. Said wheel axle 13 can also move vertically as shown in Figure 1 resulting in the wheels being raised or lowered. This in turn results in the trowel blade 3 being lowered and raised, respectively, with the only point not experiencing a vertical movement being the pivot point 10. The mechanism to enable the wheels 7 to be raised or lowered to predetermined positions comprises a lever which is pivotally attached to the frame at some point between its two ends. One end is rigidly attached to the wheel axle 13 while the other contains a hole. A plurality of holes are found in the side of the spreader 1 laid out in a manner which will line up with the lever hole to give a plurality of different fixture position possibilities. These holes can be situated such that they correspond to a predetermined wheel axle 13 height which is deemed useful. Once the wheel axle 13 is at the desired height, a bolt may be inserted through the corresponding holes, thus
securing the position.

As shown in Figure 3 and according to the second embodiment of the invention, the apparatus comprises a frame 14 which secures a trowel blade 15 in its correct position in relation to the sub-floor over which the trowel blade 15 is moving, and upon which the trowel blade 15 is being pressed down with the aid of a weight 16 situated on the frame 14 between the trowel blade 15 and a set of wheels 17.

In order to adjust the height of the trowel blade 15 above the sub-floor there are provided two adjustment screws 18 whose bottom ends glide along the sub-floor. Furthermore, the second embodiment is provided with side panels 19 which confine the adhesive material within the length of the trowel blade 15 as the apparatus moves across the sub-floor in direction 20.

The height of one of the wheels 17 can be advantageously adjusted in relation to the height of the other wheel and used in connection with the spreading of a significant thickness of adhesive material whereby one wheel 17 may run along the sub-floor while the other may roll along the recently laid flooring surface, i.e. the wheels 17 are rolling at different heights. The trowel blade 15 is preferably changeable as indicated by the presence of three screws 21 to secure the trowel blade 15 to the frame 14. Furthermore, it can be seen that these screws 21 are placed in elongated holes, whereby the trowel blade’s position with regard to the frame 14 can be adjusted. Figure 3 also shows a handle arrangement 22 which extends angularly from the frame 14 to which it is rigidly attached.

Although the present invention has been described in terms of the above two embodiments, it is understood that the scope of the invention is not limited to these embodiments but that a person skilled in the art may conceive other embodiments without departing from the scope of the invention as defined by the accompanying claims.

Claims

1. An apparatus for the application of adhesive materials, e.g. flooring or tile adhesive or similar for the laying of flooring or roofing surfaces, said apparatus comprising a frame for the securing of a trowel blade (3, 15) for determining the thickness and/or structure of said materials in its correct position with regard to the subfloor over which it is being moved, characterised in that said frame is provided with means for adjusting its position relative to said subfloor, whereby the correct position of said trowel blade (3, 15) relative to the subfloor is obtained.

2. An apparatus according to claim 1, characterised in that it comprises at least one point (10) about which said frame may pivot.

3. An apparatus according to claim 2, characterised in that said pivot (10) is comprised of two juxtaposed side panels having a triangularly or rounded shaped base.

4. An apparatus according to claim 1, characterised in that it comprises one or more containers (4) with a suitable opening in the base.

5. An apparatus according to claim 4, characterised in that said suitable opening (11) is comprised of a slit running the width of the container.

6. An apparatus according to claim 4, characterised in that said suitable opening (11) is comprised of an array of holes running the width of the container.

7. An apparatus according to claim 4, characterised in that said container includes a lid (5).

8. An apparatus according to claim 7, characterised in that said lid (5) can move freely vertically within said compartment.

9. An apparatus according to claims 1 and 2, characterised in that it comprises at least one wheel (7, 17).

10. An apparatus according to claim 9, characterised in that said wheel or wheels (7, 17) can move horizontally along its axle (13).

11. An apparatus according to claim 9, characterised in that said wheel or wheels (7, 17) can move vertically.

12. An apparatus according to claims 1 and 2, characterised in that it comprises a trowel blade (3, 15) which blade is patterned on both upper and lower edges.

13. An apparatus according to claim 12, characterised in that said trowel blade (3, 15) is changeable.

14. An apparatus according to claims 1 and 2, characterised in that it comprises a movable, flat and horizontal panel (8) rigidly attached to a handle mechanism (9).

15. An apparatus according to claim 14, characterised in that said horizontal panel (8) can be manoeuvred to scrape the subfloor clean of adhesive material.

16. An apparatus according to claims 1 and 2, characterised in that it comprises a handle arrangement (2) hingably attached to said frame.

17. An apparatus according to claim 16, characterised
in that said handle arrangement (2) extends angularly to a height comfortable for the user to draw said frame.

18. An apparatus according to claims 1, 9, 11 and 13, characterised in that it comprises adjustment means for the trowel blade’s (15) height above the sub-floor.

19. An apparatus according to claims 1, 9, 11, 13 and 18, characterised in that it comprises a weight (16) which applies the required downward pressure upon the trowel blade.

20. An apparatus according to claims 1, 9, 11, 13, 18 and 19, characterised in that the trowel blade is provided with side panels (19) for the confinement of the adhesive material within a desired region.

**Patentansprüche**


2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß sie mindestens einen Punkt (10) aufweist, um den der Rahmen schwenken kann.

3. Vorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der Schwenkpunkt (10) zwei nebeneinanderliegende Seitenplatten mit einer dreieckig oder abgerundet geformten Unterseite aufweist.

4. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß sie einen oder mehrere Behälter (4) mit einer geeigneten Öffnung in der Unterseite aufweist.

5. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß die geeignete Öffnung (11) einen Schlitz aufweist, der über die Breite des Behälters verläuft.

6. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß die geeignete Öffnung (11) eine Anordnung von Löchern aufweist, die über die Breite des Behälters verlaufen.

7. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß der Behälter einen Deckel (5) aufweist.

8. Vorrichtung nach Anspruch 7, dadurch gekennzeichnet, daß sich der Deckel (5) in der Kammer frei senkrecht bewegen kann.

9. Vorrichtung nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß sie mindestens ein Rad (7, 17) aufweist.

10. Vorrichtung nach Anspruch 9, dadurch gekennzeichnet, daß sich das Rad oder die Räder (7, 17) waagerecht entlang seiner (ihrer) Achse (13) bewegen kann (können).

11. Vorrichtung nach Anspruch 9, dadurch gekennzeichnet, daß sich das Rad oder die Räder (7, 17) senkrecht bewegen kann (können).

12. Vorrichtung nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß sie eine Kellenklinge (3, 15) aufweist, wobei die Klinge sowohl an einer Ober- als auch an einer Unterkante strukturiert ist.

13. Vorrichtung nach Anspruch 12, dadurch gekennzeichnet, daß die Kellenklinge (3, 15) austauschbar ist.

14. Vorrichtung nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß sie eine bewegliche, flache und waagerechte Platte (8) aufweist, die an einem Griffmechanismus (9) starr angebracht ist.

15. Vorrichtung nach Anspruch 14, dadurch gekennzeichnet, daß die waagerechte Platte (8) so manövriert werden kann, daß sie Klebermaterial vom Unterboden abschabt.

16. Vorrichtung nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß sie eine Griffanordnung (2) aufweist, die am Rahmen gelenkig angebracht ist.

17. Vorrichtung nach Anspruch 16, dadurch gekennzeichnet, daß sich die Griffanordnung (2) in einem Winkel auf eine Höhe erstreckt, die für den Benutzer zum Ziehen des Rahmens zweckmäßig ist.

18. Vorrichtung nach den Ansprüchen 1, 9, 11 und 13, dadurch gekennzeichnet, daß sie eine Einstelлинrichtung für die Höhe der Kellenklinge (15) über dem Unterboden aufweist.

19. Vorrichtung nach den Ansprüchen 1, 9, 11, 13 und 18, dadurch gekennzeichnet, daß sie ein Gewicht (16) aufweist, das den erforderlichen Abwärtsdruck auf die Kellenklinge ausübt.

Revendications

1. Un dispositif pour l’application de matériaux adhésifs, par exemple de l’adhésif pour revêtements de sol ou pour des carrelages ou similaires, pour la pose de surfaces de revêtement de sol ou de toitures, ledit dispositif comprenant un châssis pour la fixation d’une lame de truelle (3, 15) pour déterminer l’épaisseur et/ou la structure desdits matériaux à sa position correcte, eu égard au faux-fond sur lequel il est déplacé, caractérisé en ce que ledit châssis est muni de moyens pour ajuster sa position par rapport audit faux-fond, de manière que la position correcte de ladite lame de truelle (3, 15) par rapport au faux-fond soit obtenue.

2. Un dispositif selon la revendication 1, caractérisé en ce qu’il comprend au moins un point (10) autour duquel ledit châssis peut pivoter.

3. Un dispositif selon la revendication 2, caractérisé en ce que ledit pivot (10) est composé de deux panneaux latéraux juxtaposés ayant une base de forme triangulaire ou arrondie.

4. Un dispositif selon la revendication 1, caractérisé en ce qu’il comprend un ou plusieurs récipients (4) ayant une ouverture appropriée dans la base.

5. Un dispositif selon la revendication 4, caractérisé en ce que ladite ouverture (11) appropriée est composée d’une rainure courant sur la largeur du récipient.

6. Un dispositif selon la revendication 4, caractérisé en ce que ladite ouverture (11) appropriée est composée d’un groupe de trous implantés sur la largeur du récipient.

7. Un dispositif selon la revendication 4, caractérisé en ce que ledit récipient comprend un couvercle (5).

8. Un dispositif selon la revendication 7, caractérisé en ce que ledit couvercle (5) peut se déplacer librement verticalement à l’intérieur dudit compartiment.

9. Un dispositif selon les revendications 1 et 2, caractérisé en ce qu’il comprend au moins une roue (7, 17).

10. Un dispositif selon la revendication 9, caractérisé en ce que ladite roue ou lesdites roues (7, 17) peuvent se déplacer horizontalement le long de leur axe (13).

11. Un dispositif selon la revendication 9, caractérisé en ce que ladite roue ou lesdites roues (7, 17) peuvent se déplacer verticalement.

12. Un dispositif selon les revendications 1 et 2, caractérisé en ce qu’il comprend une lame de truelle (3, 15), ladite lame étant munie d’un motif sur les deux bords, supérieurs et inférieurs.

13. Un dispositif selon la revendication 12, caractérisé en ce que ladite lame de truelle (3, 15) est interchangeable.

14. Un dispositif selon les revendications 1 et 2, caractérisé en ce qu’il comprend un panneau (8) plat et horizontal mobile, fixé rigidement à un mécanisme de poignée (9).

15. Un dispositif selon la revendication 14, caractérisé en ce que ledit panneau horizontal (8) peut être manoeuvré pour racler le faux-fond, pour le débarrasser du matériau adhésif.

16. Un dispositif selon les revendications 1 et 2, caractérisé en ce qu’il comprend un agencement de poignée (2), fixée par charnière sur ledit châssis.

17. Un dispositif selon la revendication 16, caractérisé en ce que ledit agencement de poignée (2) s’étend sous un certain angle, à une hauteur confortable pour l’utilisateur, pour qu’il tire ou remorque ledit châssis.

18. Un dispositif selon les revendications 1, 9, 11 et 13, caractérisé en ce qu’il comprend des moyens d’ajustement pour la hauteur de la lame de truelle (15) au-dessus du faux-fond.

19. Un dispositif selon les revendications 1, 9, 11, 13 et 18, caractérisé en ce qu’il comprend une masse (16) appliquant la pression vers le bas souhaitée sur la lame de truelle.

20. Un dispositif selon les revendications 1, 9, 11, 13, 18 et 19, caractérisé en ce que la lame de truelle est munie de panneaux latéraux (19), pour assurer le confinement du matériau adhésif dans les limites d’une zone souhaitée.
REFERENCES CITED IN THE DESCRIPTION

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