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 [21] Appl. No. **824,624**  
 [22] Filed **May 14, 1969**  
 [45] Patented **July 13, 1971**  
 [32] Priority **July 4, 1968**  
 [33] **Germany**  
 [31] **P 17 84 061.8**

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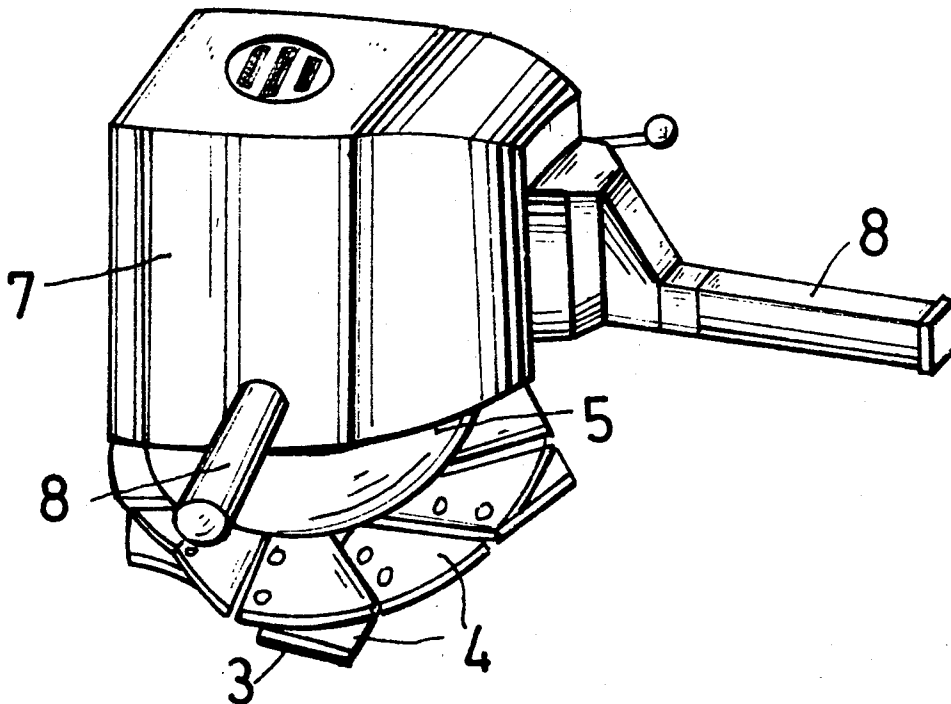
[54] **MACHINE FOR POINTING CERAMIC TILES OR  
 THE LIKE SLABS**  
**7 Claims, 6 Drawing Figs.**

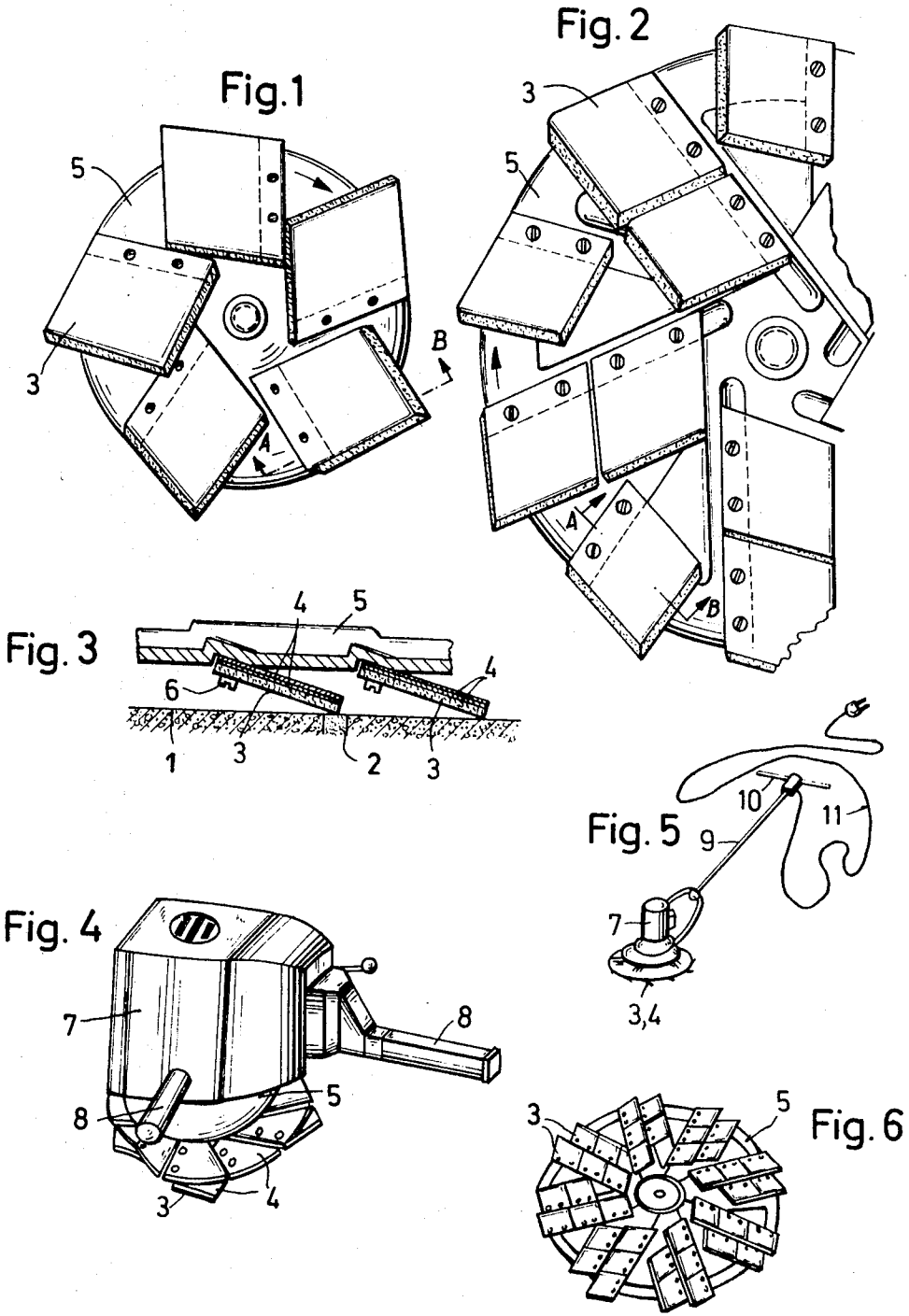
[52] U.S. Cl..... 15/98,  
 264/162, 264/261, 25/1 F, 15/230.16  
 [51] Int. Cl..... **E01c 19/42**  
 [50] Field of Search..... 15/98, 49  
 R; 25/1 F

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**ABSTRACT:** Pointing tiles or the like slabs by means of a machine for pressing a filling material between the tiles, leveling the joining surfaces between the tiles and washing the level surfaces and tiles with wet wood powder; said machine comprising drive means and associated shaft for rotation of a plate at a speed of between 55 and 110 revolutions per minute, the underside of the plate being provided with resilient slanted readily exchangeable steel blades of equal size which are spread evenly over sectorlike areas of the plate and which are completely covered on the side facing the material to be processed with felt or plastics material pads wetted before use and having a thickness of from 5 to 15 mm.





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# MACHINE FOR POINTING CERAMIC TILES OR THE LIKE SLABS

The invention relates to a machine for pointing ceramic tiles or the like slabs such as mosaics, concrete slabs, natural stone or marble coverings for floors or walls.

Covering floors and walls with tiles or the like slabs is very popular but, unfortunately, is becoming more costly due to the time consuming manual operations of pointing, abrading and washing off the filled joints particularly when the slabs surfaces are not arranged on the same level. Persons carrying out the previously mentioned manual operations have to remain in a kneeling position which is not only tiring but also harmful to health and results in limited work output. Moreover, the quality of the covering depends upon the skill and ability of such persons.

According to the present invention a machine for pointing ceramic tiles or the like slabs such as mosaic, concrete slab, natural stone, marble and the like, suitably driven, is operated to carry out the following steps successively:

- a. pressing in liquid plastics material or a thick or thin cement sludge or a dry cement mixture to fill completely all joints and pores without leaving cavities or unevenness,
- b. levelling the surfaces of joints filled with cement, mortar or the like and also the pores of the slabs to obtain a continuous, smooth surface, and
- c. washing the smooth surfaces of both the joints and the slabs with wet wood powder.

In accordance with the invention the machine comprises a plate rotated at a speed of between 55 and 110 revolutions per minute, the underside of the plate being provided with resilient slanted readily exchangeable steel blades of equal size which are spread evenly over approximately sector-shaped areas of the plate and which are completely covered on the side facing the material to be processed with pads of moisture-absorbent material wetted before use and having a thickness of from 5 to 15 mm.

An advantage of the machine resides in the avoidance of tedious manual work and in enabling the pointing to be carried out easily and quickly by a person in an upright position. The cement sludge is pushed by the pads into the joints until they are filled completely and a continuous flush connecting surface is obtained between adjacent slabs. The pads will preferably be of Merino felt which is particularly durable and has good absorption properties. Abrading and washing down the joints and also the slab surfaces is effected in the same way by levigating the filling cement with the Merino felt pads on the underside of the jointing wheel driven preferably electrically at a low speed, which produces an even spreading of the filling material.

The even and constant pressure of the strip blades and hence of the Merino felt pads is exerted against the material used for pointing which is gradually pressed into the joints and pores. The resilience of the blades ensures that any unevenness, whether elevation or cavity, is engaged and flattened to form a compact and continuous surface. Wide joints of between 10 to 20 mm. are levelled completely so that there no longer remain any sharp edges.

The Merino felt pads ensure that the cement sludge is well distributed. The steel blades may be arranged singly or in groups to form a multiple lamina for additional resilience.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

FIGS. 1 and 2 are plan views from below of plates each fitted with 15 blades (those in FIG. 1 being double-ply) having felt pads secured thereto suitable for pointing wall coverings;

FIG. 3 is a section through a plate taken on the lines A-B of FIGS. 1 and 2;

FIG. 4 is a perspective view of a pointing machine, the plate of which is fitted with 10 blades (double-ply) and 5 felt pads and is provided with 2 handles for use when pointing wall coverings; and

FIG. 5 and 6 show a single plate pointing machine suitable for use on floor coverings, the plate having a diameter of 600 mm. is fitted on the underside with 80 steel strip blades (double-ply) and 40 Merino felt pads covering the working surface of the lamina blades.

In the embodiments shown Merino felt pads 3 are provided with a thickness of about 10 mm. and intended in the operable position of the apparatus for positioning against working surface 1 and more especially joints 2. The pads 3 are resiliently held at even pressure on single or multiple super-fine steel strip blades 4 (in the latter case the plates have large diameters). The pads 3 are firmly secured but readily exchangeable by being detachably screwed to the underside of the plate 5 in inclined position opposite the actual working edge. Securing screws are denoted by 6 and the drive is preferably effected by means of an electric motor, the housing 7 of which, as shown in FIG. 4, is provided with two handles 8 extending at right angles and radially thereto for pointing wall coverings. The machine as shown in FIG. 5 for pointing floor coverings, however, has a larger sized plate e.g. 600 mm.  $\Phi$  and a larger number of Merino felt pads e.g. 40 with 80 steel strip blades. A vertically pivotal guide rod 9 with a crossbar 10 is also provided for manipulating the fixed portion and a cable 11 which is laid in the guide rod 9 supplies current to the electric motor accommodated in the housing 7, which motor in turn drives the plate 5 via a reduction gear (not shown).

The speed of both the small plate 5, having a diameter of 220 or 300 mm., and the larger plate is relatively low i.e. between 55 and 110 revolutions per minute which is made possible by the already mentioned reduction gear which is arranged between the driving shaft of the electric motor and the plate shaft.

The new pointing machine according to the invention does not require the operator to kneel and hence is no longer injurious to health. In addition the work output is considerably increased compared with that obtainable by manipulating a long knifelike or slightly curved pointing trowel which does not facilitate the production of nonporous sealed joints having a smooth surface.

All the necessary operations such as pressing the cement sludge deeply into the joints without leaving cavities or pores, abrading the surfaces of the joints and slabs and subsequently washing the smooth surfaces of the joints and slabs by means of wet wood powder for cleaning, are performed by the new pointing machine by means of one and the same plate. The work output may easily be about 150 m<sup>2</sup> per hour.

It is of course also within the scope of the invention for the dimensions and speeds quoted to be lower or exceeded. This also applies to the number of Merino felt pads and steel strip blades.

I claim:

1. A machine for pointing ceramic tiles or the like, to perform operations such as filling joints, leveling surfaces of the joints, and washing the surfaces of the joints and tiles, comprising drive means and associated shaft for rotation of a plate at a speed of between 55 and 110 revolutions per minute, the underside of said plate being provided with resilient slanted readily exchangeable steel blades of equal size which are evenly located over approximately sector-shaped areas of said plate and which are completely covered on the side facing the material to be processed with pads of moisture-absorbent material wetted before use and having a thickness of from 5 to 15 mm.

2. A pointing machine according to claim 1, wherein said plates are provided with at least single lamina steel blades on the underside of said revolving plate whilst said pads are fitted singly; smaller plates suitable for pointing wall coverings having an outer diameter of 220 mm., are fitted with five felt pads and 10 steel strip blades arranged in pairs; those having a diameter of 350 mm. are fitted with 10 felt pads and 30 steel blades arranged in groups of three, whilst larger plates intended for pointing floor coverings with a diameter of 600 mm. are provided with 40 pads and 80 steel blades arranged in pairs.

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3. A pointing machine according to claim 1, wherein the inclination of the readily exchangeable blades is variable.

4. A pointing machine according to claim 1, wherein said blades and pads are so distributed in the approximately sector-shaped areas of the plate on which they are retained that a diminishing number of annular sector sections are provided from the outer circumference to the plate center which belong to the given ranges of radii to obtain an even wearing.

5. A pointing machine according to claim 1, wherein retain-

ing plates are suitably connected by means of a quick-release coupling to the driving shaft so as to be rapidly interchangeable.

6. A pointing machine according to claim 1 wherein the angle position of said blades and pads relative to the vertical is between 75° and substantially 90°.

7. A pointing machine according to claim 1 wherein said pads are formed of Merino felt.

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