

Sept. 18, 1923.

1,468,432

R. E. WRIGHT ET AL

FLOOR SURFACING MACHINE

Filed March 10, 1922

3 Sheets-Sheet 1

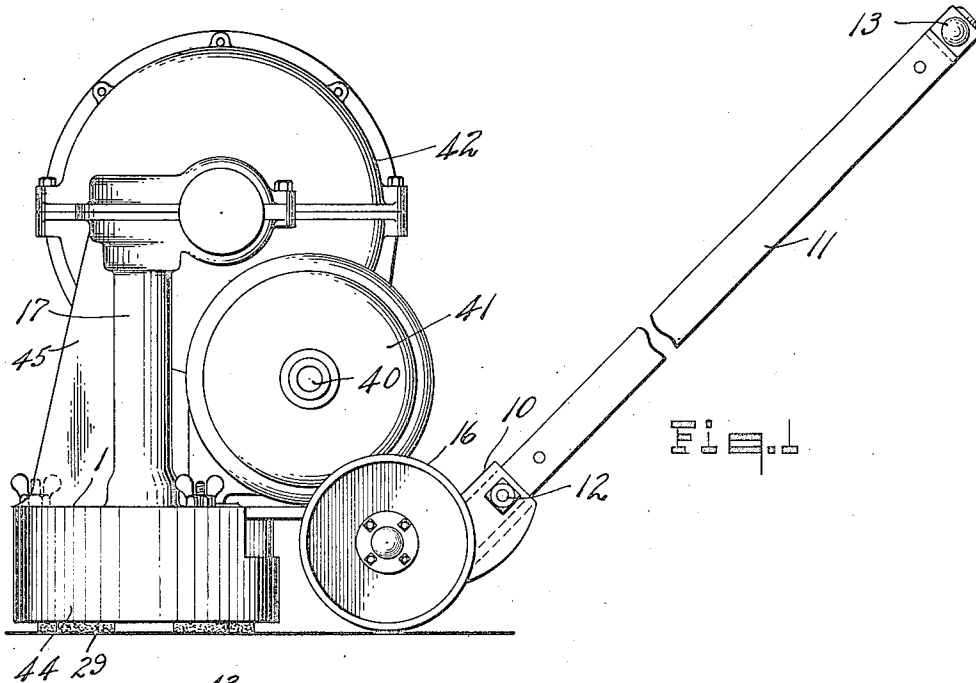
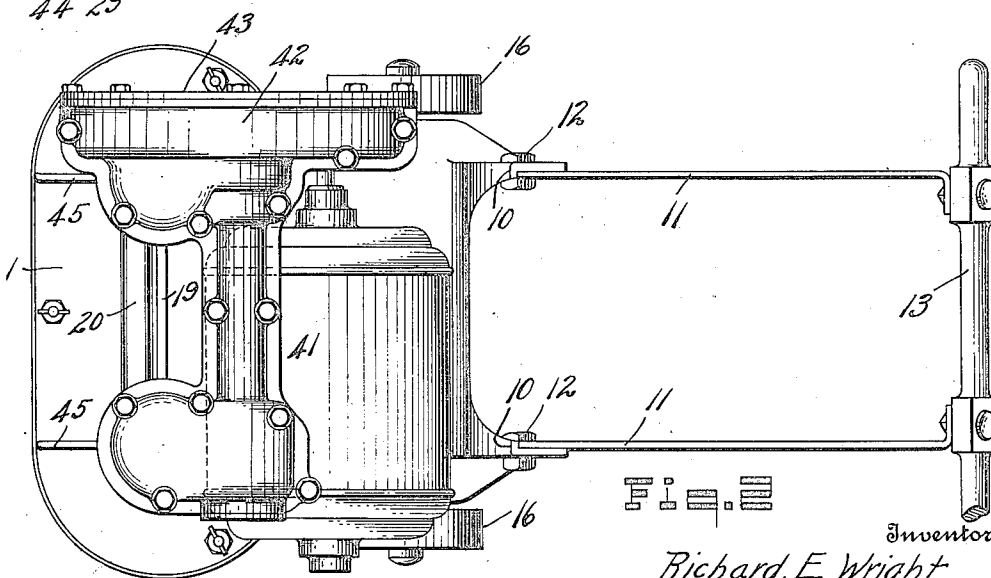


Fig. 2

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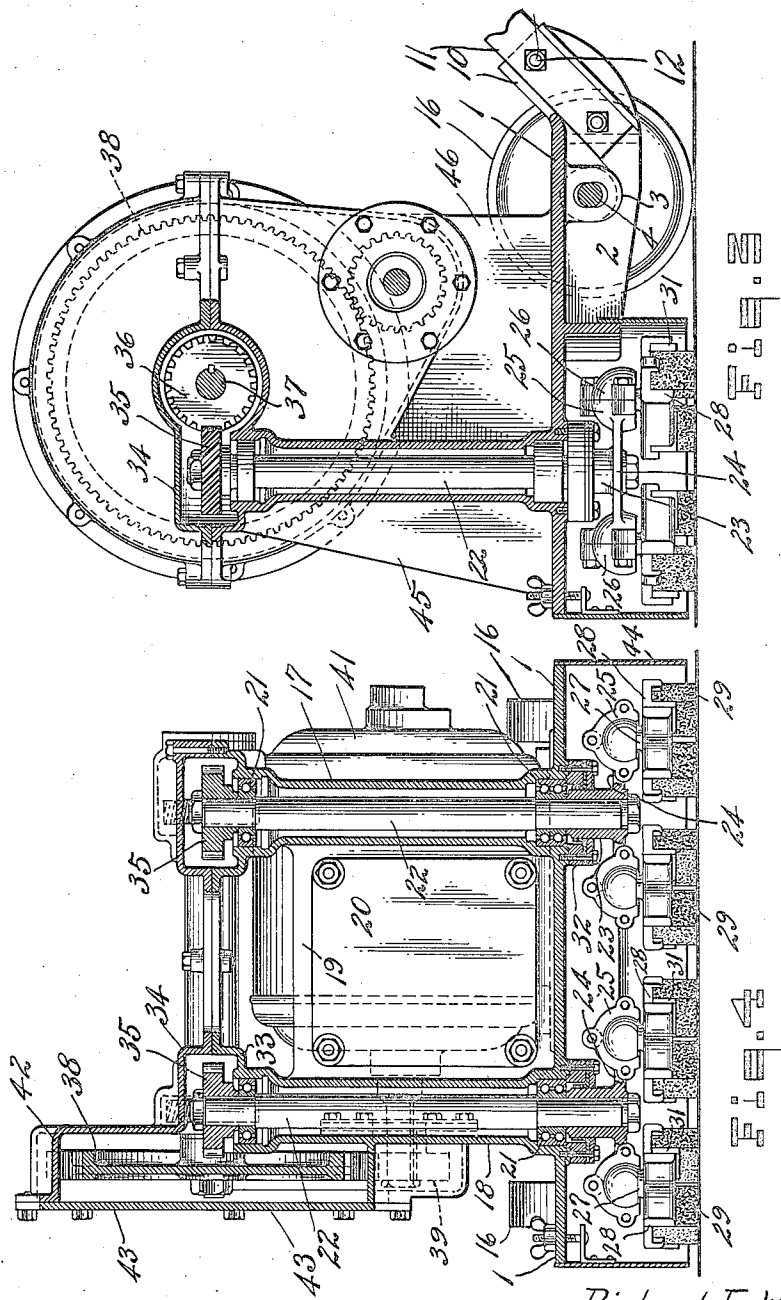
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3 Sheets-Sheet 3

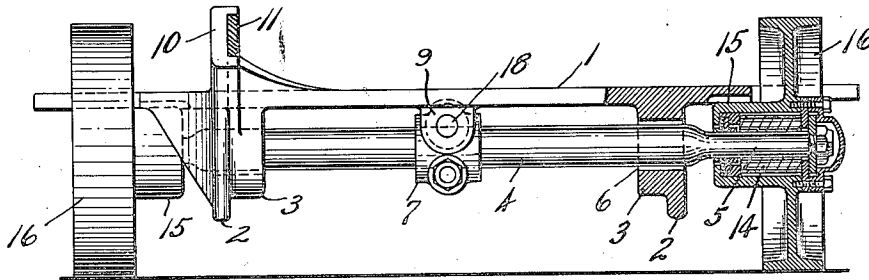


Fig. 5

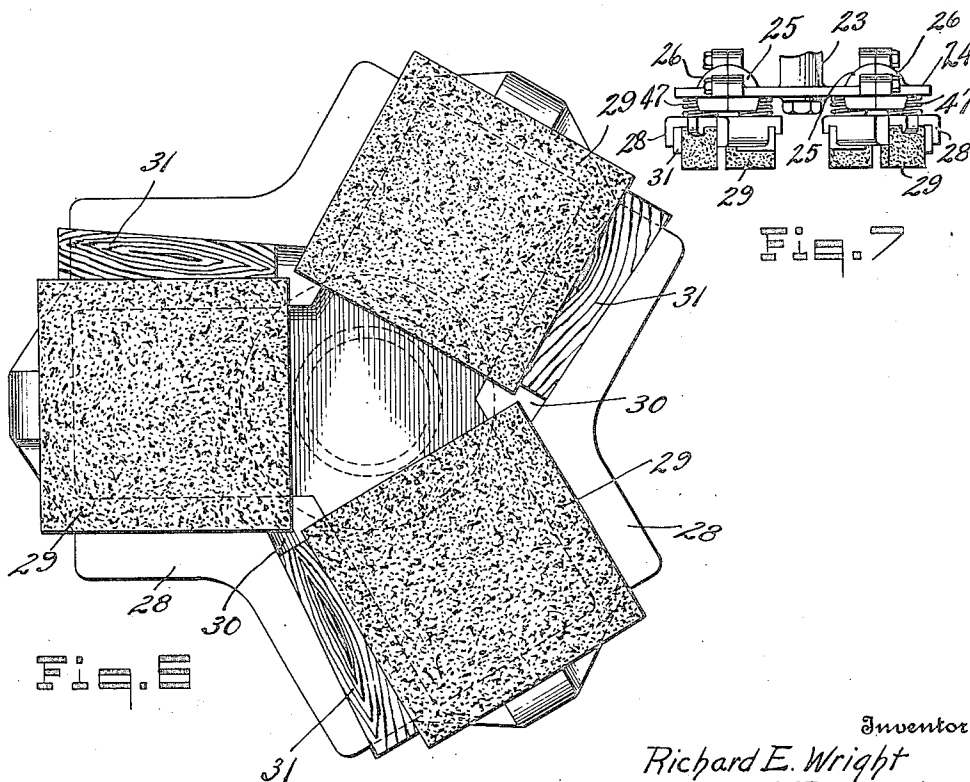


Fig. 7

Fig. 6

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UNITED STATES PATENT OFFICE.

RICHARD E. WRIGHT, OF TOLEDO, OHIO, AND OLIVER E. BARTHEL, OF DETROIT, MICHIGAN, ASSIGNORS TO ART MOSAIC AND TILE COMPANY, OF TOLEDO, OHIO, A CO-PARTNERSHIP COMPOSED OF RICHARD E. WRIGHT, MICHAEL FLORITTO, AND F. J. BORKENSTEIN.

FLOOR-SURFACING MACHINE.

Application filed March 10, 1922. Serial No. 542,588.

To all whom it may concern:

Be it known that we, RICHARD E. WRIGHT (a) and (b) OLIVER E. BARTHEL, citizens of the United States of America, residing at (a) Toledo, in the county of Lucas, State of Ohio, and (b) Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Floor-Surfacing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a floor-surfacing machine and our invention aims to provide a manually guided and moved machine embodying a multiplicity of floor surfacing elements which are arranged in groups and motor driven and the groups of surfacing elements are supported for universal movement so that such elements may be self adjusting relative to a surface, thus insuring a uniform wear of the surfacing elements and a uniform abrading or surfacing action relative to a floor.

Our invention further aims to provide a machine that may be advantageously used for surfacing large floors, for instance dance floors and the machine is constructed so that the surfacing elements will be held in engagement with the floor by the weight of the greater part of the machine, although the machine is balanced so that the operator of the machine may easily tilt the machine and move the surfacing elements out of engagement with the floor. In this manner the machine may be readily moved from one location to another and the general configuration of the machine is such that it may be operated in proximity to a wall, platforms, or any structures on the floor.

Our invention further aims to furnish a floor surfacing machine with universally supported motor driven interexchangeable surfacing elements, so that carborundum, sand stone, sand paper and various kinds of abrading, smoothing or polishing materials may be employed for surfacing or polishing a floor or a like surface.

Our invention still further aims to accomplish the above results by a construction wherein the parts are constructed with a view of reducing the cost of manufacture and at the same time retain those features by which durability and easy access to

machine parts are secured. With such ends in view our invention resides in the novel construction to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein—

Figure 1 is a side elevation of the floor surfacing machine;

Fig. 2 is a plan of the same;

Fig. 3 is a longitudinal sectional view of the machine;

Fig. 4 is a cross sectional view of the same;

Fig. 5 is an enlarged cross sectional view showing an axle of the machine;

Fig. 6 is an enlarged bottom plan of a group of surfacing elements, and

Fig. 7 is a detail view, on a small scale, of surfacing elements which are spring pressed or provided with equalizing members.

In the drawings the reference numeral 1 denotes a platform and at the rear edge of said platform are longitudinal depending webs 2 having slotted enlargements 3 through which extends a transversely disposed axle 4 having reduced ends or spindles 5. The axle 4 is loose in slots 6 of the webs 2 and intermediate the ends of said axle is a sleeve 7 having trunnions 8 on which are pivotally mounted depending apertured ears 9 carried by the platform 1, said sleeve, trunnions 8 and ears 9 constituting trunnion means or a pivotal axle connection by which the platform 1 may laterally or sidewise tilt and to a certain extent be self adjusting, as will hereinafter appear.

At the rear ends of the webs 2 are upturned or angularly disposed channel sockets 10 for the lower ends of handle bars 11, said handle bars having the lower ends thereof mounted in the sockets by nut equipped bolts 12 or other fastening means, and the upper ends of said bars are connected by a transversely disposed handle 13. It is by this handle that the machine may be manually shifted or tilted.

On the reduced ends or spindles 5 of the axle 4 are anti-frictional roller bearings 14 housed in journal boxes or hubs 15 of wheels 16 and these wheels may have suitable tires, especially for a polished floor.

Contiguous to the forward edge of the platform 1 are tubular uprights 17 and 18

connected by a transverse web 19 provided with a weight 20. In the upper and lower ends of the tubular uprights 17 and 18 are anti-frictional ball bearings 21 for driven shafts 22, and the lower ends of said shafts are mounted in central or hub portions 23 of spiders 24 which are horizontally disposed below the platform 1 and each spider preferably includes three diverging arms on the outer ends of which are integral socket members 25 and detachable socket members 26, said socket members cooperating with ball members 27 in providing universal or self adjusting connections for spider holders 28 of abrasive material 29 adapted to engage and surface a floor. The spider holders 28 have diverging or radially disposed channel ways 30 in which the abrading material 29 is placed and held by wedge members 31 or the like. As pointed out in the beginning the abrading material 29 may be pieces or blocks of carborundum, sand stone or a polishing material which will permit of a surface being abraded, smoothed or polished. With the holders 28 universally supported from the spiders 24 said holders may seek their own level or a position that will permit of the abrasive material squarely or evenly engaging a floor surface or yielding to a certain extent, when an indurate or undulating surface is encountered. When the spiders are revolved the abrading material may adjust itself to the surface of the floor and evenly grind or abrade the floor as the machine is moved about.

The central or hub portions 23 of the spiders 24 extend into stuffing boxes 32 carried by the lower face of the platform 1 and these stuffing boxes prevent waste of any lubricant used in connection with the anti-frictional bearings 21.

The upper ends of the tubular uprights 17 and 18 terminate in housings 33 having a common detachable cover 34 and on the shafts 22, within the housings 33, are horizontally disposed worm or gear wheels 35 meshing with gear wheels 36 on a transversely disposed drive shaft 37, said drive shaft being journaled in suitable bearings in the housings 33.

On one end of the drive shaft 37 is a large gear wheel 38 meshing with a small gear wheel 39 on the armature shaft 40 of an electric motor 41 mounted on the platform 1, and the gear wheels 38 and 39 are within a housing 42 having a detachable side plate or cover 43, said housing forming part of the tubular upright 18 and the housing 33 and cover 34 above said upright. The electric motor 41 is of a conventional form adapted to be operated from an ordinary electric lighting circuit and an ordinary switch may be utilized for controlling the operation of the motor.

Detachably connected to the edges of the

platform 1 is an apron 44 extending in proximity to the floor or surface to be operated upon by the machine, and the structures above the platform 1 may be braced and reinforced by webs or ribs 45 and 46.

As shown in Fig. 7 the universal joints or connections of the spiders 24 may be surrounded by coiled expansion springs 47 which will yieldably hold the spiders in a plane parallel to the platform 1 and to a certain extent cause even wear on the abrading material 29 of the machine.

We attach considerable importance to the arrangement of the abrasive elements as a large area may be uniformly surfaced in a comparatively short time by the machine and with the weight 20 detachably connected to its support, said weight may be changed to provide a desired pressure of the abrasive elements on a floor. The weight, however, does not interfere with the platform 1 being tilted to move the abrasive elements out of engagement with the floor when shifting the machine from one location to another.

It is thought that the operation and utility of our machine will be apparent without further description, and while in the drawings there are illustrated the preferred embodiments of our invention, it is to be understood that the structural elements are susceptible to such changes as fall within the scope of the appended claims.

What we claim is:—

1. In a surfacing machine, horizontal three arm spiders, universal ball and socket joints at the outer ends of the arms of said spiders, holders carried by said joints and provided with channel ways, a plurality of surfacing elements in the channel ways of each holder, wedge members retaining said surfacing elements in the ways of said holders, and means adapted to rotate said spiders.

2. A floor surfacing machine comprising a platform, an axle supporting said platform for sidewise tilting, wheels on said axle, handle bars connected to said platform, vertical shafts disposed in a plane parallel to the forward edge of said platform, a horizontally disposed motor on said platform, a shaft disposed in the horizontal plane of the upper ends of said shafts driven at one end by said motor and adapted to drive said shafts, spiders rigid on the lower ends of said shafts and horizontally disposed self adjusting groups of surfacing elements at the outer ends of said spiders and self adjusting relative to and by contact with a floor.

3. A floor surfacing machine as in claim 2, wherein tubular uprights inclose said shafts, a web connects said tubular uprights, and a weight is supported between said uprights.

4. A surfacing machine comprising a plat-

form, an axle, wheels on the ends of said axle, a trunnion intermediate the ends of said axle for said platform to permit of lateral tilting thereof, means carried by said platform through which said axle extends to limit lateral tilting of said platform, a motor on said platform, a transverse shaft having one end driven by said motor, vertical shafts extending through said platform and having the upper ends thereof driven from said transverse shaft, floor surfacing

elements on the lower ends of said shafts co-operating with said axle wheels in supporting said platform, and handle bars at the rear end of said platform.

In testimony whereof we affix our signatures in presence of two witnesses.

RICHARD E. WRIGHT.
OLIVER E. BARTHEL.

Witnesses:

CHARLES W. STAUFFIGER,
KARL H. BUTLER.