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 FLOOR SURFACING MACHINE.
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1,069,803.

Patented Aug. 12, 1913.

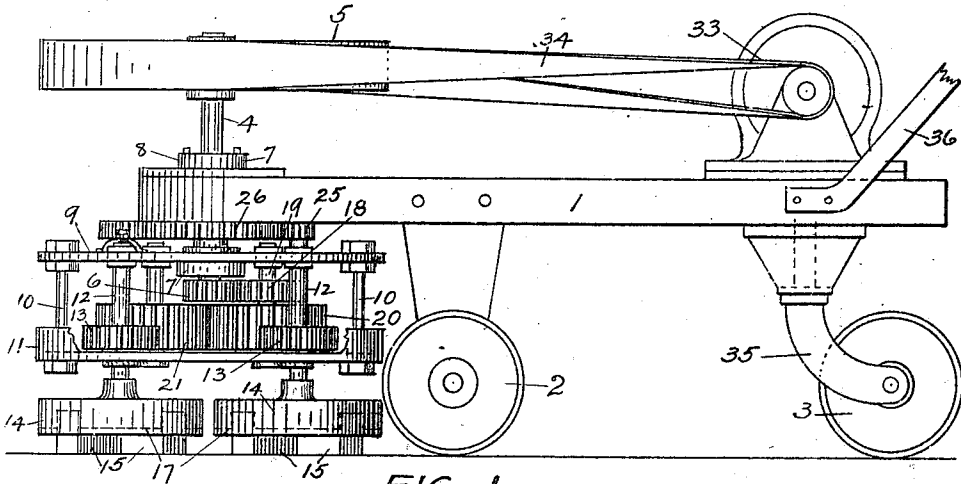


FIG. 1.

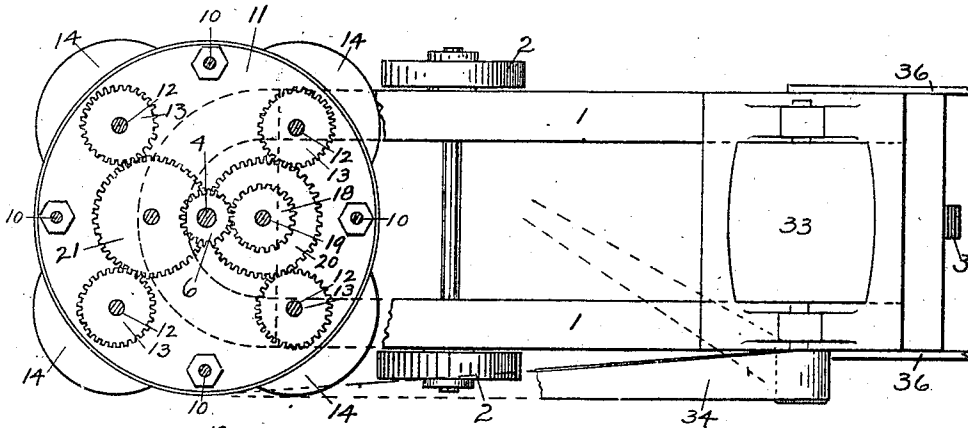


FIG. 2.

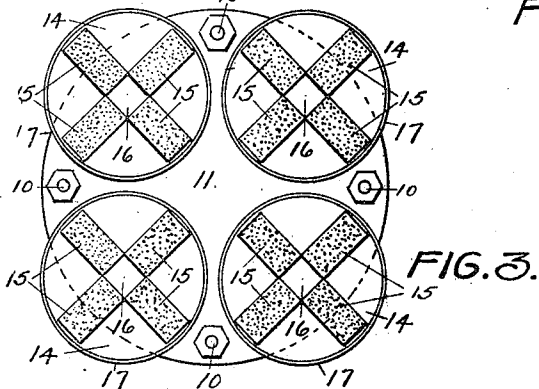


FIG. 3.

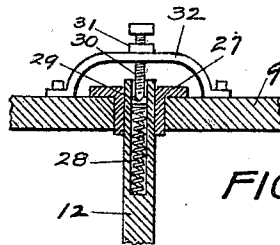


FIG. 4.

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FLOOR-SURFACING MACHINE.

1,069,803.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HENRY J. NELSON and OSCAR ZAPPE, citizens of the United States, and THOMPSON W. BLACK, a subject of His Majesty, King George of England, residing in the city of Green Bay, county of Brown, State of Wisconsin, have jointly and together invented a new and useful Machine for Grinding and Polishing Floors and
10 Called by Us a Floor-Surfacing Machine, of which the following is a description.

Our invention is a machine to be used for the purpose of grinding, rubbing, sandpapering or polishing the surface of floors of any material requiring such work, the object being to do the polishing expeditiously, and to supplant hand surfacing entirely except in the corners of the rooms. We attain these objects by means of the mechanism
20 illustrated in the accompanying drawings of which—

Figure 1 is a side view of the device, Fig. 2 a top view of the carriage and the lower disk, Fig. 3 a bottom view of the rubbing heads, and Fig. 4 a sectional view through the upper end of the shaft of the rubbing heads.

Similar figures refer to similar parts in the several views.

1 is a carriage bed mounted on wheels 2 and 3. Mounted on the overhanging end of this carriage bed is a main driving shaft 4 carrying a driving pulley 5 at its top and a driving gear wheel 6 at its lower end. Shaft 4 passes through a sleeve 7. A flange 8 of this sleeve rests on top of the carriage bed and is attached thereto. Rotatably suspended on the sleeve 7 at its lower end is a round disk of metal 9 called the upper disk, and
40 attached to this disk by means of spacing bolts 10 is a lower disk of metal 11. This is shown here as a flat disk with its rim turned up in the shape of a pan, and is shown in Fig. 1 with a part of the rim cut away to
45 give a view of the inclosed gears.

12 are vertical shafts with driving gears 13 and carrying at their lower ends rubbing heads 14. To avoid confusion we prefer to designate the connected disks inclosing the
50 gears as a gear head, and the grinding or

rubbing disks as rubbing heads. Four of these rubbing heads are shown on this drawing but any plural number may be used, preferably arranged in pairs, and are fitted or covered with any desired abrasive material. Figs. 1 and 3 show the machine fitted with carborundum blocks 15, the arrangement of these blocks being shown from the under side in Fig. 3, leaving a hollow center 16 between the ends of the blocks. Slots or
60 pockets are cast in the metal of the rubbing head to receive the blocks which are held in place by a collar 17 around the head. In the space between disks 9 and 11 are the gears by which the motion is transmitted from
65 the driving shaft 4 to the rubbing heads. Main driving gear wheel 6 meshes into gear 18 which is keyed to shaft 19 which also passes through gear 20; gear 20 meshes into gear 21 and also gears 13 on the shafts of
70 two of the rubbing heads. Gear 21 drives the gears of the two remaining rubbing heads. By this arrangement of the gears the rubbing heads are paired, one pair revolving in the opposite direction from the other.
75 This arrangement is quite necessary as if the rubbing heads all revolved in the same direction the machine would creep in a circular direction. By rearranging the transmission gears any number of rubbing heads
80 may be used, the number only limited by the weight and bulk of the machine in operating.

The upper end of one of the rubbing head shafts is elongated and carries a small gear wheel 25 which meshes into a stationary gear
85 26 rigidly attached to the frame 1 or carriage. By this means the entire rubbing mechanism is caused to rotate with driving shaft 4 as a center, thus giving the rubbing heads two distinct motions which greatly in-
90 creases the cutting action.

The rubbing heads are free to move up and down in their bearings, the weight of shaft and head being nearly enough to give the grinding or polishing surfaces the neces-
95 sary grip or friction. These heads are further held down by a spring. Fig. 4 shows the upper end of a shaft of one of the rubbing heads where it passes through the upper bearing.

9 is the upper disk heretofore described. 27 is a bushing which forms a bearing for the shaft 12. The end of the shaft 12 is bored out for a distance and a coil spring 28 is placed in the bore.

29 is a cup resting on the upper end of the spring, 30 is a set screw with cone point, 31 is a jam nut and 32 a strap attached to disk 9. The set screw is tapped through strap 32. By this means the downward pressure of the spring is adjusted.

We claim the right to use various forms of rubbing heads, the one here shown being adapted to grinding down the surfaces of terrazzo, marble, concrete, composition, asphalt mastic, etc. For wooden floors a plain disk with a ring for holding a sheet of sand paper will be used. We also claim the right to use friction wheels in place of gears 25 and 26 without impairing our patent rights.

Power is supplied to driving pulley 5 by a motor 33 through belt 34 which is given a quarter turn. Any form of engine may be used for power, the engine or motor to be placed at the opposite end of the carriage bed from the rubbing mechanism, balancing the weight of same and giving the necessary distance for the belt.

The carriage upon which the rubbing mechanism and belt are mounted is here shown as a three wheeled arrangement, the two forward wheels 2 being placed as close to the rotating gear head as possible. The single rear wheel 3 is mounted in a swivel 35 with bearings attached to the under side of the carriage bed 1, 36 are operating handles by which the carriage is pushed about the floor by the operator who stands behind or to the right of the machine in Fig. 1. The machine is trundled about the floor by the operator who gives it a forward and back or swinging motion as desired. The springs of the rubbing heads take up the inequali-

ties of the floor or uneven levels of the carriage due to high places, chips, etc.

What we claim as novel and desire to secure by Letters Patent is:—

1. A floor surfacing machine comprising a carriage, a motor or engine mounted upon said carriage at one end, a series of rubbing heads arranged in pairs, a gear head mounted upon the opposite end of said carriage from said motor or engine, means for rotating the rubbing heads in pairs, means for rotating the gear head, as set forth.

2. In a floor surfacing machine a carriage, an engine, a gear head, a plurality of rubbing heads; means for rotating the rubbing heads in opposite directions in pairs; means for rotating the gear head; shafts of rubbing heads movable axially; springs for holding down said shafts, as set forth.

3. In a floor surfacing machine, the combination of a carriage, a motor connected with one end of said carriage, a gear head connected with the opposite end of said carriage, said gear head comprising two plates of metal, spacing bolts connecting said plates and a plurality of vertical shafts passing through said plates, a rubbing head connected with each of said shafts, a main driving shaft passing through the upper plate and connected with said motor, a gear on said driving shaft, transmission gears between said driving gear and the gears of said rubbing heads, the shafts of said rubbing heads being adapted to move axially, springs for holding down said shafts, and means for simultaneously rotating the gear head around its common center as set forth.

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