Oct. 11, 1932. C. H. BEACH 1,882,270

FLOOR POLISHING MACHINE

Filed Feb. 8, 1928 3 Sheets-Sheet 1

FIG. 1.

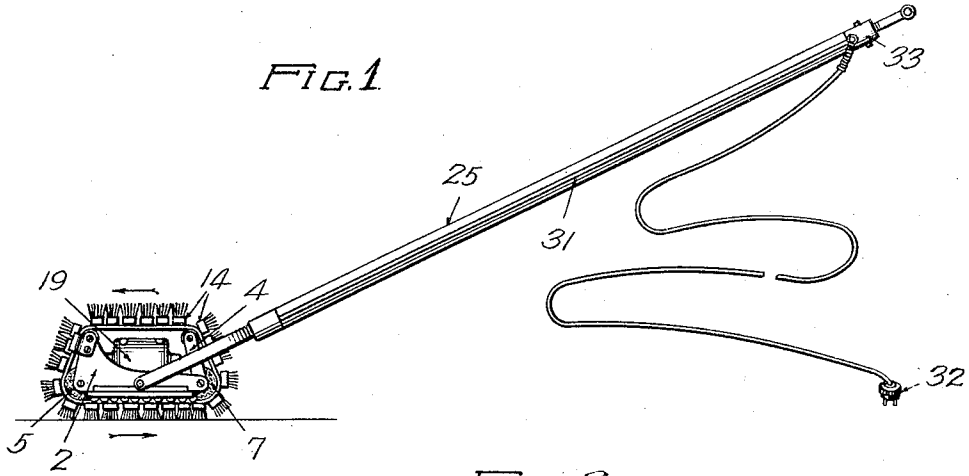
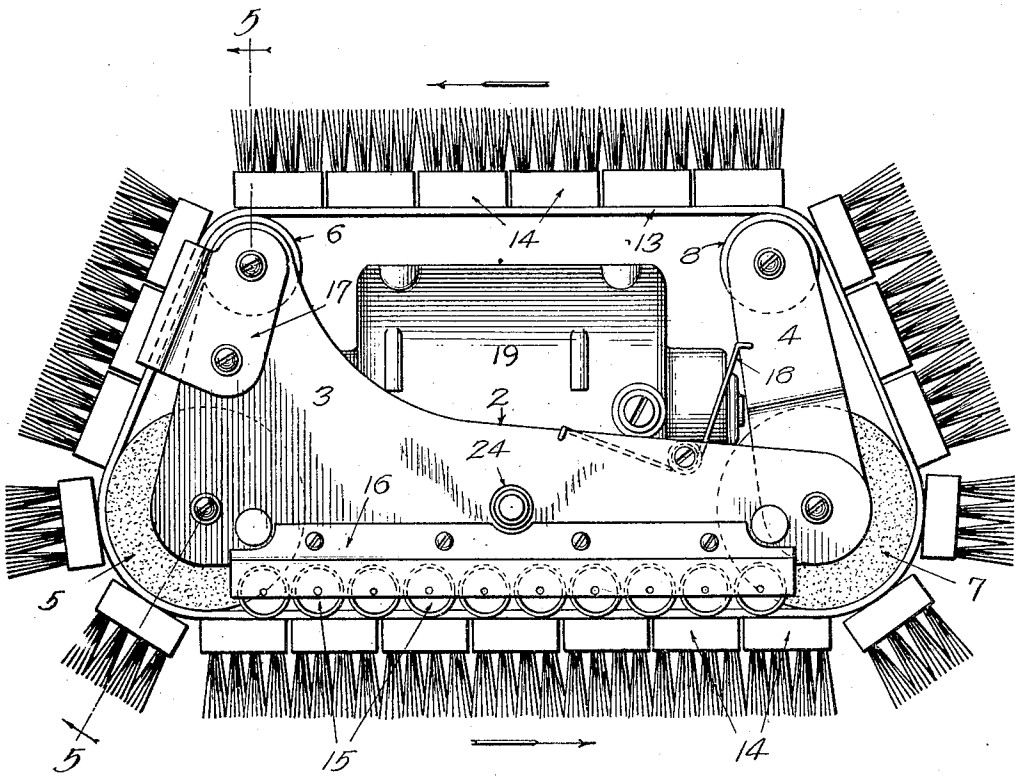


FIG. 2.



Inventor:
Chester H. Beach,
By Edwin B. H. Tower Jr
Atty.

Oct. 11, 1932. C. H. BEACH 1,882,270

FLOOR POLISHING MACHINE

Filed Feb. 8, 1928 3 Sheets-Sheet 2

FIG. 3.

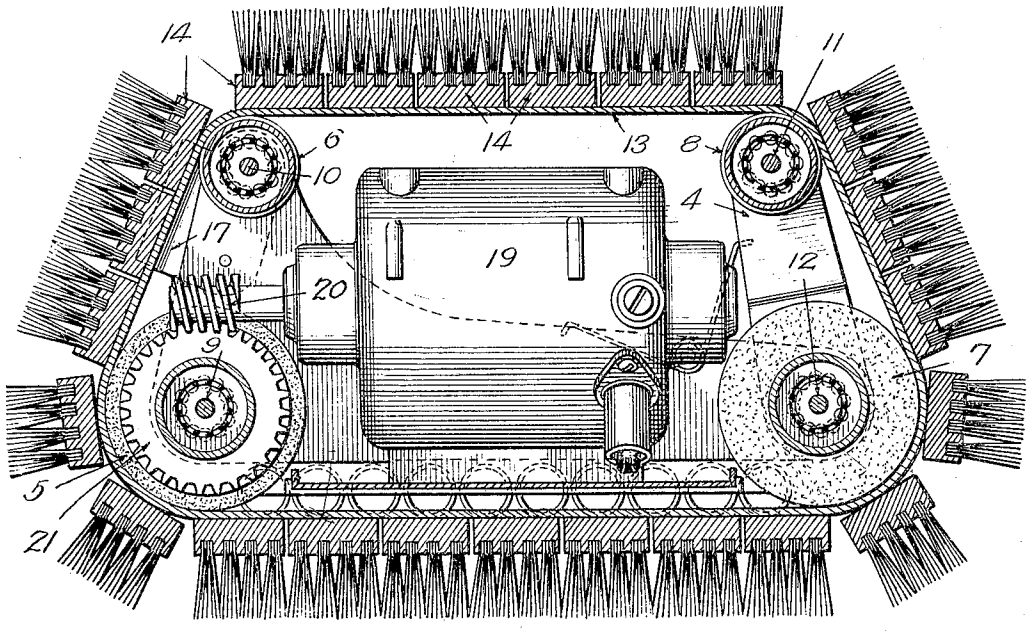
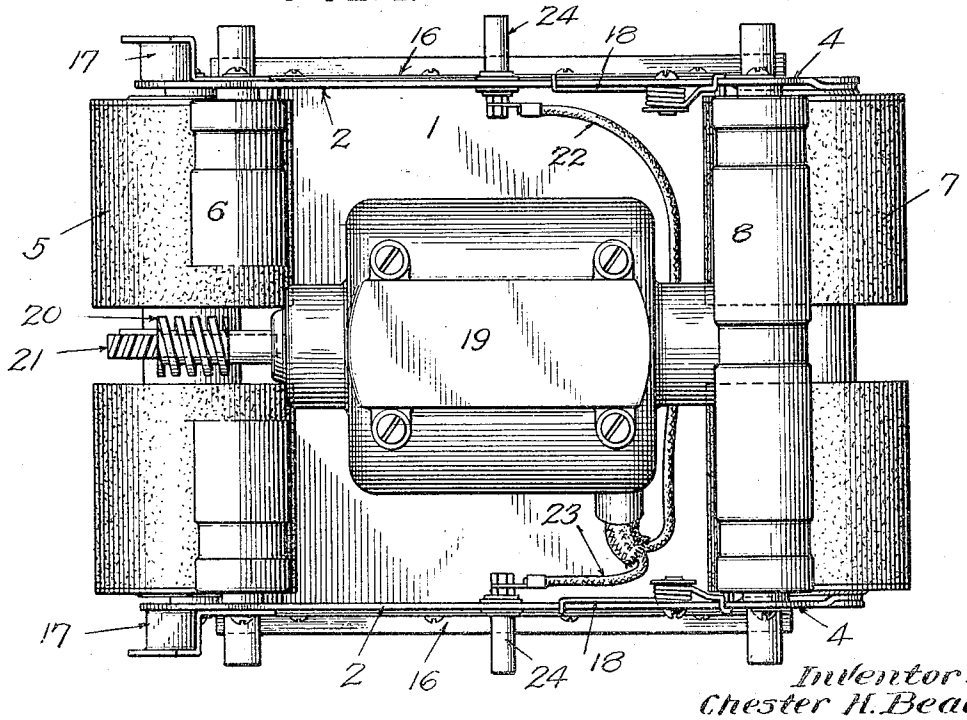


FIG. 4.



Inventor:
Chester H. Beach,
By Edwin B. H. Tower Jr
Atty:

Oct. 11, 1932. C. H. BEACH 1,882,270

FLOOR POLISHING MACHINE

Filed Feb. 8, 1928 3 Sheets-Sheet 3

FIG. 5.

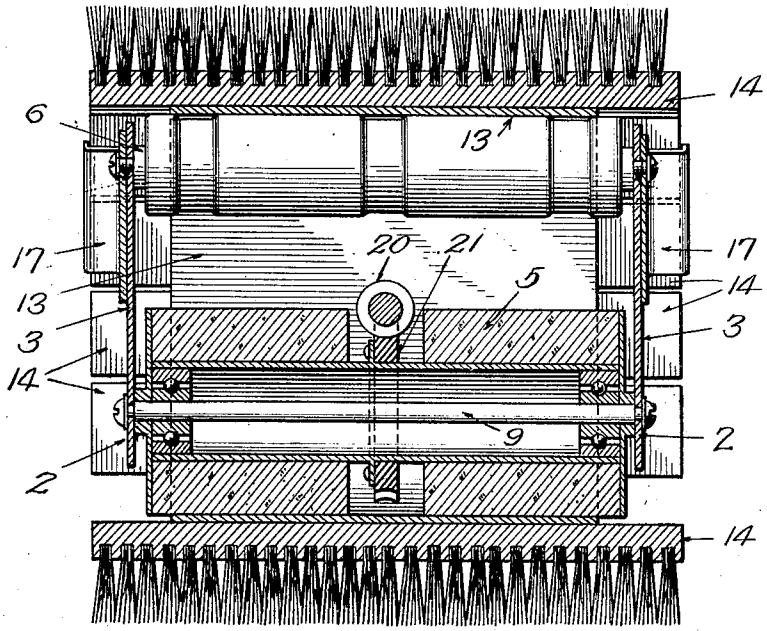


FIG. 7.

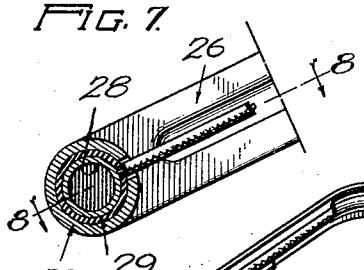


FIG. 6.

FIG. 8.

FIG. 9.

Inventor:
Chester H. Beach,
By Edwin B. H. Tower Jr
Atty:

Patented Oct. 11, 1932 1,882,270

UNITED STATES PATENT OFFICE

CHESTER H. BEACH, OF RACINE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO S. C. JOHNSON & SON, OF RACINE, WISCONSIN, A FIRM

FLOOR POLISHING MACHINE

Application filed February 8, 1928. Serial No. 252,803.

This invention relates to floor polishing machines.

The floor polishing machine to which the invention applies in particular is of the type in which an endless belt brush is driven by an electric motor.

The invention has as an object to provide a floor polishing machine in which the brush has a large area in continual engagement with the floor.

Another object is to provide a floor polishing machine which will expedite polishing a large area.

Another object is to provide a floor polishing machine which is simple and compact.

Another object is to provide a simple and efficient driving mechanism to drive the belt brush.

Another object is to provide a floor polishing machine which may be readily and economically manufactured.

According to the invention as it is ordinarily embodied in practice, the floor polishing machine is provided with a frame having a wheel or roller at each end thereof, an endless belt brush passing over the wheels or rollers and underneath the frame and supporting the frame from the floor, and an electric motor carried by the frame within the belt brush and between the rollers and having its shaft arranged lengthwise in the machine at right angles to the wheels or rollers and geared to one of the wheels or rollers to drive the belt brush.

The floor polishing machine illustrated in the accompanying drawings exemplifies the invention and the views therein are as follows:

Fig. 1 is a side view of the complete machine;

Fig. 2 is a side view with the handle omitted;

Fig. 3 is a central longitudinal section through the machine;

Fig. 4 is a top plan view of the machine with the belt brush and the handle removed;

Fig. 5 is a transverse section taken on the irregular line 5—5 of Fig. 2;

Fig. 6 is a perspective view of the handle;

Fig. 7 is a detail view of a socket which connects the handle to the frame of the machine;

Fig. 8 is a section on the line 8—8 of Fig. 7; and

Fig. 9 is a cross-section through the handle, taken on the line 9—9 of Fig. 6.

The floor polishing machine is provided with a frame formed by a bottom plate 1 having a side plate 2 arranged upon each side thereof, a stationary arm 3 formed upon the front end of each side plate, and a movable arm 4 arranged at the rear end of each side plate and pivoted thereto.

The frame is provided at its front end with a lower driving wheel or roller 5 and an upper wheel or roller 6, and at its rear end with a lower wheel or roller 7 and an upper wheel or roller 8.

The lower roller 5 is arranged between the side plates 2 upon an axle 9, and the upper roller 6 is arranged between the stationary arms 3 upon an axle 10.

The roller 8 is arranged between the upper ends of the movable arms 4 upon an axle 11, and the roller 7 is arranged between the lower ends of the arms 4 upon an axle 12 upon which the arms 4 are pivoted.

The axles of the rollers are supported by the frame and are ordinarily retained in position by screws threaded into the ends of the axles.

The rollers carry an endless belt brush which passes over all of the rollers and underneath the frame.

The belt brush is formed by an endless belt 13 having narrow transverse brushes 14 arranged side by side and attached to the belt upon its outer face and extending beyond each edge thereof.

The machine is supported upon the floor solely by the belt brush, and its entire weight serves to press the brushes against the floor.

The belt brush has the brushes upon the lower run thereof kept in uniform engagement with the floor by rollers 15.

The rollers 15 upon each side of the machine have the axles thereof bearing in a removable carrier 16 which is attached to the side plate 2.

The belt brush is kept from shifting upon

the rollers by removable belt guides 17 attached to the stationary arms 3 and extending forwardly upon each side of the path of the brushes.

The belt brush has its tension maintained by two springs 18 each of which engages a movable arm 4 and urges the roller 8 rearwardly to keep the belt taut.

The belt brush is driven to travel in the direction of the arrow shown in Fig. 2 by an electric motor 19 which is carried by the bottom plate 1 and has its shaft parallel to the path of the belt brush or at right angles to the axis of the driving roller 5.

The motor drives the belt brush through a screw or worm 20 which is carried by the motor shaft and meshes with a screw gear or worm wheel 21 carried by the roller 5 intermediate the ends thereof.

The motor has current supplied thereto through two conductors 22 and 23 each of which has one of its ends connected to the motor and its other end connected to a trunnion 24 which is fixed in a side plate 2 and electrically insulated therefrom.

The machine is moved and guided by a handle 25 having a yoke 26 arranged at the front end thereof and pivoted upon the trunnions 24.

The yoke 26 has each arm thereof provided at its front end with a bearing socket 27 having a conducting bearing 28 arranged therein and electrically insulated therefrom by an insulating bushing 29.

The bearing 28 is fitted upon a trunnion 24 to pivot thereon and to provide a mechanical connection between the handle and the frame and an electrical connection between the motor and an external electric circuit.

The motor 19 may be connected into an electric circuit by two conductors 30 and 31 which are connected to the bearings 28 and arranged in suitable grooves formed in the handle 25 and in the fork 26.

The conductors 30 and 31 have a connector 32 attached to the free ends thereof for connection into an electric circuit, and the flow of current through the conductors is controlled by a switch 33 carried by the handle 25.

A floor polishing machine constructed according to the invention is compact due to the motor being arranged within the belt brush with its shaft at right angles to the driving roller.

The invention herein set forth is susceptible of various modifications without departing from the scope thereof as defined by the hereinafter claims.

The invention set forth in the foregoing specification is hereby claimed as follows:—

1. A floor polishing machine comprising a frame, a lower wheel arranged in said frame at each end thereof, an upper wheel arranged in said frame at each end thereof above a lower wheel, an endless belt brush passing over said wheels and underneath said frame and solely supporting the machine from the floor, a motor carried by said frame and having its shaft at right angles to said wheels and geared to a lower wheel intermediate the ends thereof to drive said belt brush, and a handle connected to said frame.

2. A floor polishing machine comprising a frame, a lower wheel arranged in said frame at each end thereof, an upper wheel arranged in said frame at each end thereof above a lower wheel, an endless belt brush passing over said wheels and underneath said frame and solely supporting the machine from the floor, a motor carried by said frame and having its shaft at right angles to one of said wheels, a worm gear carried by said wheel intermediate the ends thereof, a worm carried by said motor shaft and meshing with said worm gear to rotate said wheel and drive said belt brush, and a handle connected to said frame.

3. A floor polishing machine comprising a frame, a lower wheel arranged in said frame at each end thereof, an upper wheel arranged in said frame at each end thereof above a lower wheel, an endless belt brush passing over said wheels and underneath said frame and solely supporting the machine from the floor, belt guides carried by said frame and overlapping the edges of said belt brush to prevent excessive lateral displacement thereof, a motor carried by said frame and having its shaft at right angles to said wheels and geared to a lower wheel intermediate the ends thereof to drive said belt brush, and a handle connected to said frame.

4. A floor polishing machine comprising a frame, a lower wheel arranged in said frame at each end thereof, an upper wheel arranged in said frame at each end thereof above a lower wheel an endless belt passing over said wheels and underneath said frame, relatively narrow brushes carried by said belt and supporting the machine from the floor, rollers carried by said frame and engaging the brushes carried by the lower run of said belt to hold the brushes carried thereby in uniform engagement with the floor, a motor carried by said frame within said belt and having its shaft at right angles to said wheels and geared to a lower wheel intermediate the ends thereof to drive said belt, and a handle connected to said frame.

5. A floor polishing machine comprising a frame, a lower wheel arranged in said frame at each end thereof, an upper wheel arranged in said frame at each end thereof above a lower wheel, an endless belt passing over said wheels and underneath said frame, narrow brushes carried by said belt and solely sup-

porting the machine from the floor, rollers carried by said frame and engaging the brushes carried by the lower run of said belt to hold the brushes carried thereby in uniform engagement with the floor, a motor carried by said frame within said belt and having its shaft at right angles to one of said wheels, a worm gear carried by said wheel intermediate the ends thereof, a worm carried by said motor shaft and meshing with said worm gear to rotate said wheel and drive said belt, and a handle connected to said frame.

6. A floor polishing machine, comprising a frame, a lower roller arranged at each end of said frame, an upper roller arranged at each end of said frame above a lower roller, an endless belt brush carried by said rollers and solely supporting the machine from the floor, a motor carried by said frame within said belt brush and having its shaft arranged transverse to a lower roller and geared thereto to drive said belt brush, and a handle connected to said frame.

7. A floor polishing machine, comprising a frame, a lower roller arranged at each end of said frame, an upper roller arranged at each end of said frame above said lower roller, an endless belt brush carried by said rollers and solely supporting the machine from the floor, rollers arranged upon said frame to keep said belt brush in engagement with the floor between said lower rollers, a motor carried by said frame within said belt brush and having its shaft at right angles to a lower roller and geared thereto to drive said belt brush, and a handle connected to said frame.

8. A floor polishing machine, comprising a frame, a lower roller arranged at each end of said frame, an upper roller at one end of said frame above a lower roller, an arm pivoted to said frame upon each side thereof at the other end of said frame, another upper roller carried by said arms at the upper ends thereof, a spring urging the latter upper roller away from the other upper roller, an endless belt brush carried by said rollers and solely supporting the machine from the floor, a motor carried by said frame within said belt brush and having its shaft at right angles to a lower roller and geared thereto to drive said belt brush, and a handle connected to said frame.

9. A floor polishing machine, comprising a frame, a lower roller arranged at each end of said frame, an upper roller arranged above each lower roller, means carrying an upper roller to urge it away from the other upper roller, an endless belt brush carried by said rollers and solely supporting the machine from the floor, a motor carried by said frame within said belt brush and having its shaft at right angles to a lower roller and geared thereto to drive said belt brush, and a handle connected to said frame.

10. A floor polishing machine, comprising a frame, a roller carried by said frame at each end thereof, an endless belt brush passing over said rollers and underneath said frame and solely supporting the machine from the floor, a motor carried by said frame within said belt brush and between said rollers and having its shaft transverse to said rollers and lengthwise in said machine, gearing connecting said shaft to an aforesaid roller to drive said belt brush, and a handle connected to said frame to move and guide the machine upon the floor.

11. A floor polishing machine, comprising a frame, a belt carrier arranged at each end of said frame, an endless belt brush carried by said belt carriers and supporting said frame from the floor, a driving roller arranged in an aforesaid belt carrier, a motor carried by said frame within said belt brush and between said belt carriers and having its shaft transverse to said driving roller and geared thereto by a screw gear to drive said belt brush, and a handle connected to said frame to move and guide the machine upon the floor.

In witness whereof, I have hereunto subscribed my name.

CHESTER H. BEACH.