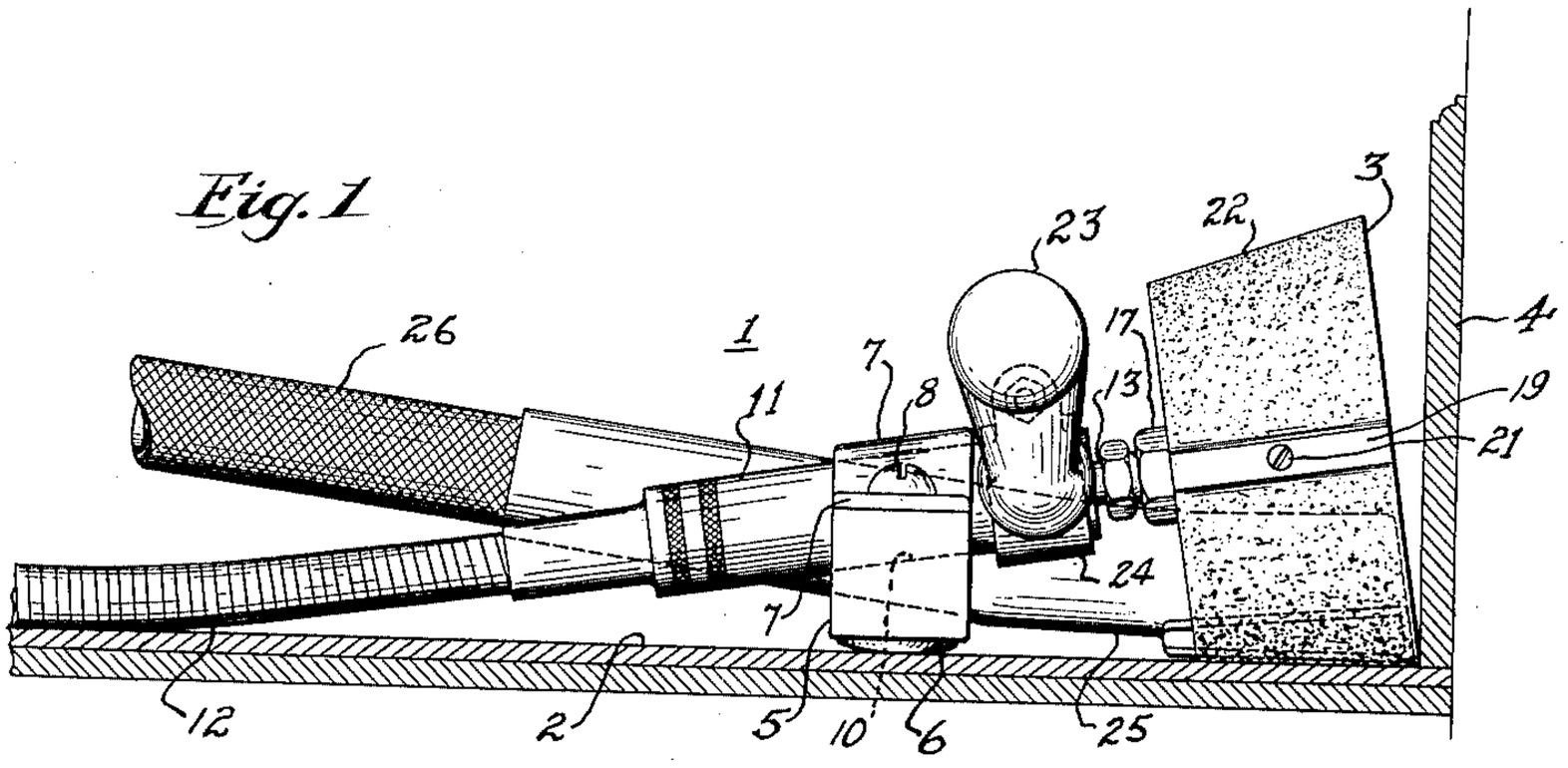
May 9, 1933. G. H. VAN EMBURG ET AL 1,907,904

FLOOR SANDER

Filed March 20, 1931

Fig. 1



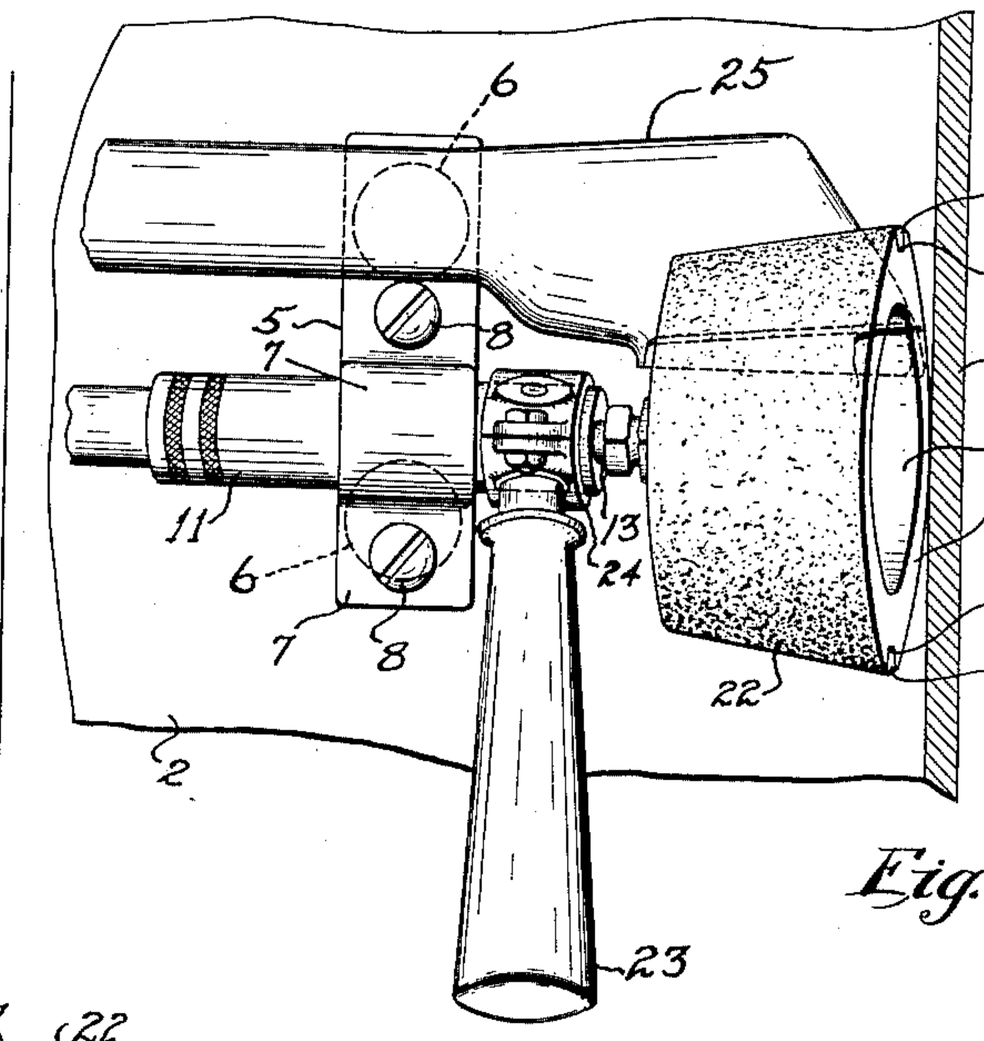


Fig. 2

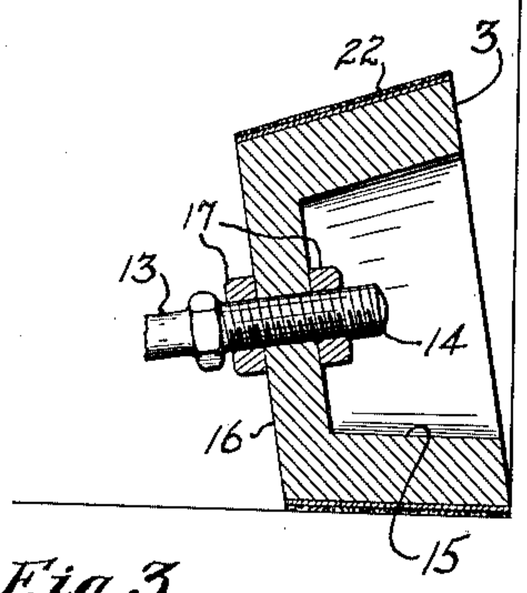


Fig. 3

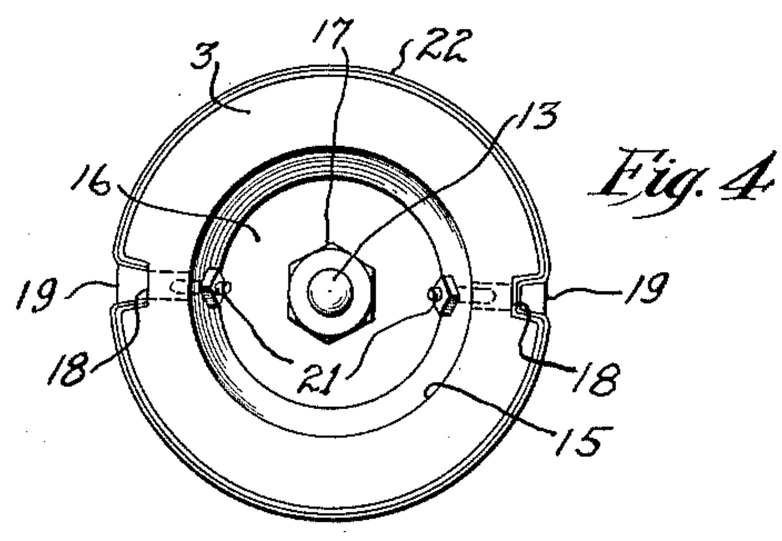


Fig. 4

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UNITED STATES PATENT OFFICE

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FLOOR SANDER

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This invention relates, generally, to machines used for sand-papering surfaces; and the invention has reference, more particularly, to a novel floor sander especially adapted for sand-papering floors and similar areas.

Floor sanders as heretofore generally constructed employ cylindrical sand-paper wheels or rollers, which, in practice cannot be used for sand-papering or sanding complete floor areas, and especially those areas adjacent objects such as the marginal wall portions of the floor areas or adjacent the base-boards, because the outer ends of these sanding wheels rub against and mar the finish of the base-boards or walls when attempts are made to finish the floor completely up to the base-boards.

The principal object of the present invention is to provide a novel floor sander having a sanding roller so shaped as to adapt the same to readily sand-paper all portions of floor areas, including those marginal portions adjacent the base-boards or walls, the said sanding roller having the form of a frustum of a cone.

Another object of the present invention lies in the provision of a novel floor sander which is so constructed and arranged as to provide a three point easy moving support upon the floor surface, whereby the same may readily be moved over the floor in use, the said sander being so designed that the sanding roller thereof may be easily applied to the floor with any desired pressure.

Still another object of the present invention is to provide a novel floor sander which is of simple, rugged construction, and which has simply designed wedge clamps for positively holding the sand-paper in proper position upon the sanding wheel or roller.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawing, in which:—

Fig. 1 is a vertical sectional view through a flood and base-board showing the novel floor sander of this invention mounted thereon in position for sanding the marginal edge portion of the floor.

Fig. 2 is a plan view of a portion of the structure shown in Fig. 1.

Fig. 3 is a sectional view through the sanding wheel or roller; and

Fig. 4 is an end view of the sanding wheel or roller.

Similar characters of reference are employed in all of the above described views to indicate corresponding parts.

Referring now to said drawing, the reference numeral 1 designates the novel floor sander of this invention as a whole. The floor sander 1 is illustrated as positioned upon a floor 2 for use in sanding or sand-papering this floor, the sanding wheel 3 of the device being illustrated as working adjacent the base-board 4. The floor sander 1 comprises a substantially rectangular base 5 which is slidable over the floor 2. Base 5 is illustrated as equipped with two spaced circular buttons or pads 6 which facilitate the easy movement of the base over the flooring 2. Base is provided with a cap portion 7 which is adapted to be secured to the main portion of the base, as by screws 8.

The main portion of base 5 is provided with an inclined cylindrical recess 10 for receiving a cylindrical bearing housing 11 attached to the end of a flexible shaft sheathing 12 having a flexible driving shaft therein driven as by an electric motor (not shown). The inclined recess 10 positions the bearing housing 11 in an inclined position as shown in Fig. 1, and the cap portion 7 is shaped to conform to the upper surface of the bearing housing 11 and secures this bearing housing firmly within the recess 10.

The flexible drive shaft within shaft sheathing 12 is secured to a rigid shaft 13 within bearing housing 11. Shaft 13 extends through a suitable bearing provided within bearing housing 11 and projects outwardly of this bearing housing, the said shaft being provided with a threaded outer end portion 14 for receiving and rotating sanding wheel 3. The sanding wheel 3 has the shape of a frustum of a cone and is formed with a cup-shaped recess 15 extending inwardly from

its outer end. The inner end wall 16 of sanding wheel 3 is provided with an axial circular aperture for receiving the end portion 14 of shaft 13.

Nuts 17 threaded upon the end portion 14 and engaging opposite sides of the end wall 16 serve to firmly secure the sanding wheel 3 to the driving shaft 13. The peripheral surface portion of the sanding wheel 3 is formed with two diametrically opposite, longitudinally extending grooves 18. The grooves 18 have converging or wedge shaped side walls and are adapted to receive wedge blocks 19 therein. The wedge blocks 19 are arranged to extend the full length of the grooves 18 and are adapted to be secured in wedging position within these grooves by screws 21, which extend through apertures in the wedge blocks 19 and through apertures provided in the peripheral wall portion of the sanding wheel 3. Nuts threaded on screws 21 are adapted to be engaged against the inner wall of recess 15, thereby securing the wedge blocks in desired position within the wedging grooves 18.

In applying sand-paper 22 to the peripheral surface portion of roller 3, the wedge blocks 19 are removed and the two end portions of the sand-paper 22 are bent into one of the grooves 18 so as to lie along the converging sides thereof, and the central portion of the sand-paper 22 is bent inwardly so as to conform to the contour of the other wedging groove 18, as especially shown in Fig. 4. The wedge blocks 19 are now inserted into these grooves and the nuts are then applied to and turned up on the shanks of screws 21 so as to draw the wedge blocks 19 tightly into the wedging grooves 18, thereby binding the sand-paper within these grooves so that the same is held firmly upon the peripheral surface portion of the wheel.

An operating handle 23 is secured as by means of a split clamp sleeve 24 to the exterior surface of cylindrical bearing housing 11 intermediate the base 5 and sanding wheel 3. The sander 1 is illustrated as equipped with a suction fitting 25 carried by base 5. A hose 26 is adapted to connect suction fitting 25 to a suitable suction pump, so that dust removed by sanding wheel 3 in operation, is carried away through this hose.

It will be noted that the two supporting pads 6 of base 5 together with the line contact of sanding wheel 3 on the floor provides a stable three point support for the sander, the handle 23 being connected to the apparatus intermediate these three points of support. This makes for a very stable mounting of the sander and one which enables the same to be easily moved over the floor surface. Any desired pressure may be applied to the sanding wheel 3 in use, by merely varying the hand pressure exerted upon the handle 23.

Owing to the inclination of the drive shaft 13 and the peculiar shape of the sanding wheel 3, the same is adapted to readily work adjacent the base-board 4 or other wall areas without scarring or disfiguring the same, the outer end portion of the sanding wheel being inclined away from the base-board. Thus, in using the novel floor sander of the present invention, entire floor areas may be readily sanded without necessitating hand operations.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:—

1. A floor sander comprising, a base adapted to slide over the surface being treated, a driving shaft rotatably carried by said base, and a sanding wheel having the shape of a frustum of a cone connected to said driving shaft to be driven thereby, the smaller end of said sanding wheel being nearest said base and the larger end of said wheel being furthest from said base, whereby said sanding wheel may operate on marginal portions of floors adjoining wall areas without injuring the latter.

2. A floor sander comprising, a base having a two point sliding support and adapted to slide over the surface being treated, a driving shaft rotatably carried by said base, and a sanding wheel having the shape of a frustum of a cone connected to said driving shaft to be driven thereby, the line of engagement of said sanding wheel with the surface being treated together with the two point support of said base providing a stable three point support for said floor sander, said sanding wheel being mounted with its largest end outermost so that such outer end will make an acute angle with the line of engagement of said sanding wheel with a surface being treated.

3. A floor sander comprising, a base adapted to slide over the surface being treated, an upwardly and outwardly inclined driving shaft rotatably carried by said base and projecting outwardly therefrom, a sanding wheel positioned adjacent said base and having the shape of a frustum of a cone, said sanding wheel having its larger end outermost to enable said wheel to operate adjacent walls without injuring the latter, said sanding wheel being connected to said driving shaft to be driven thereby for rotation about the inclined longitudinal axis of said shaft, said sanding wheel having a groove in the peripheral surface portion thereof, and a wedge block arranged to wedge sand-paper

within said groove to thereby hold such sandpaper firmly on the peripheral surface portion of said sanding wheel.

4. A floor sander comprising, a base having an inclined bearing support therein, a bearing member carried in an inclined position by said support, a rotatable driving shaft mounted within said bearing member and projecting outwardly therefrom, a sanding wheel attached to the projecting portion of said shaft, said sanding wheel having the shape of a frustum of a cone with an inclined outer end wall, said outer end wall being the larger end of said sanding wheel, whereby said sanding wheel may be operated adjacent wall areas without rubbing against such areas.

5. A floor sander comprising, a base having an inclined bearing support therein, a bearing member carried in an inclined position by said support, a rotatable driving shaft mounted within said bearing member and projecting outwardly therefrom, a sanding wheel attached to the projecting portion of said shaft, said sanding wheel having the shape of a frustum of a cone with an inclined outer end wall, said outer end wall being the larger end of said sanding wheel, whereby said sanding wheel may be operated adjacent wall areas without rubbing against such areas, and a pair of spaced anti-friction pads depending from the underside of said base, said pads together with said sanding wheel providing a stable three point support for said floor sander.

6. A floor sander comprising, a base having an inclined bearing support therein, a bearing member carried in an inclined position by said support, a rotatable driving shaft mounted within said bearing member and projecting outwardly therefrom, means for rotating said driving shaft, a sanding wheel attached to the projecting portion of said shaft, said sanding wheel having the shape of a frustum of a cone with an inclined outer end wall, said outer end wall being the larger end of said sanding wheel, whereby said sanding wheel may be operated adjacent wall areas without rubbing against such areas, a pair of spaced anti-friction pads depending from the underside of said base, said pads together with said sanding wheel providing a stable three point support for said floor sander, and an operating handle attached to said bearing member between said base and said sanding wheel.

In testimony, that we claim the invention set forth above we have hereunto set our hands this 19th day of March, 1931.

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