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E. E. HUMMERICH
FEET FOR SANDING MACHINES

Filed May 1, 1925

FIG. 1

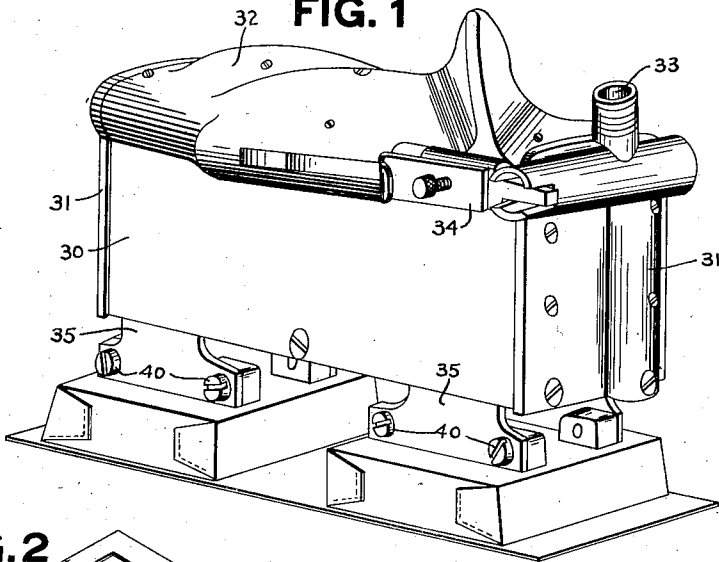


FIG. 2

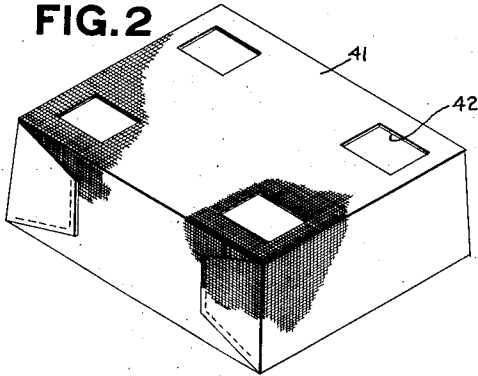


FIG. 3

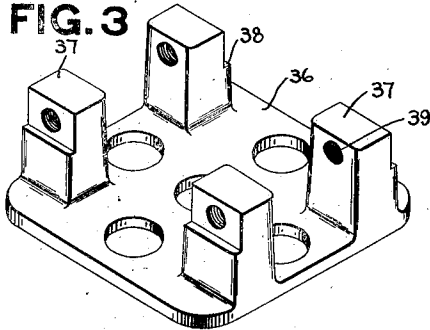


FIG. 4

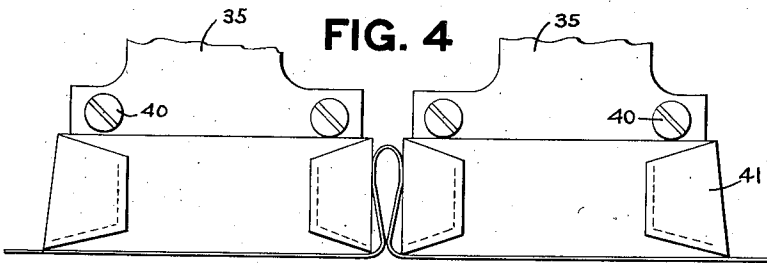
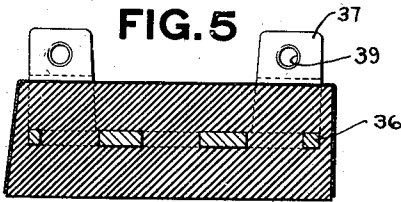


FIG. 5



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UNITED STATES PATENT OFFICE.

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FEET FOR SANDING MACHINES.

Application filed May 1, 1925. Serial No. 27,198.

This invention relates to feet for use with pneumatic sanding machines, and more particularly to the adaptation of specific material to such usage.

5 The principal object of this invention is to provide feet for pneumatic rubbing machines which feet are resilient and which are of a material having sufficient adhesive properties to cause sand paper to adhere with enough
10 tenacity to prevent relative movement between the feet and said paper.

It is also an object of this invention to construct said feet in such a manner that the sand paper can be easily detached therefrom
15 when it becomes worn.

Still another object is to provide means for preventing distortion in the shape of said feet when they are operating at high speed and under pressure.

20 With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims, and a preferred form or embodiment of which is hereinafter described with reference to the drawings which accom-
25 pany and form part of this specification.

Of said figures:

30 Fig. 1 is a perspective view of the pneumatic rubbing machine with which the feet of the present invention may be used.

Fig. 2 is a detail perspective view of the fabric envelope which prevents distortion of the feet under pressure.

35 Fig. 3 is a detail perspective of the metal plate around which the feet are molded and which forms a convenient means of fastening said feet to the rubbing machine.

40 Fig. 4 is a detail side elevation of the feet in their position of movement in which they are closest together. This figure shows how the sand paper buckles up between the feet when they are in this position.

Fig. 5 is a section through one of the feet.

45 General description.

It has long been a problem in the sanding machine art to provide means which would hold the sand paper securely while the ma-
50 chine was in operation and at the same time permit the easy removal of the worn out sand paper. Applicant has devised a very simple

but very efficient means for solving the above mentioned problem. It consists of using a foot of substantial thickness made of a ge-
55 latinous material combined with glue, the exact formula for which will be hereinafter disclosed. This material is melted and mixed with the glue. It is then poured into suitable molds to form the feet which, when solidified,
60 are attached by means to be later described to the driving mechanism of a pneumatic rubbing machine. This machine is preferably of the type shown in the application of H. B. Scott, No. 564,774, filed May 31, 1922,
65 but any suitable driving device can be used. It is not intended to limit this invention to use with sand paper as it might be adapted for use in any rubbing, polishing or buffing operation.
70

Only a very brief description of the rubbing machine used in connection with this invention will be given herein, as the specific construction thereof forms no part of the in-
75 vention, and reference can be made to the co- pending application above mentioned for a more extended description.

The rubbing machine to which the invention is shown applied, includes side walls 30 (Fig. 1), end plates 31 fastened thereto, and
80 a top plate 32 which comprises a hand grip shaped to fit the hand of the operator.

The air or other fluid under pressure is admitted into the device through an inlet port 33 under the control of an inlet valve operated
85 by a manipulative element 34, by means of which the machine can be started or stopped. This manipulative element is adapted to be operated by the first finger of the operator.

When the air is admitted to the machine, it
90 serves to operate two pistons which are thereby reciprocated towards and from each other in a single cylinder, neither of which are shown herein. Directly connected to said pistons are two members 35 (Figs. 1 and 4)
95 which are, of course, reciprocated in opposite directions with said pistons.

As above noted the feet best adapted for use with this machine must be first resilient and then adhesive. The following formulæ
100 are for a material from which these feet may be made. The first formula given is for feet to be used in winter or cold climates; and the second formula is for feet to be used in sum-

mer or hot climates, it having been found that different proportions are necessary in different temperatures.

Formula No. 1.

	Supercabinet glue	35 pounds
	Gelatine-----	35 pounds
	Water-----	40 pounds
	Glycerine-----	90 pounds
10	Carbolic acid----	31 ounces (85% solution)

Formula No. 2.

	Supercabinet glue	22½ pounds
	Gelatine-----	22½ pounds
15	Water-----	37 pounds
	Glycerine-----	18 pounds
	Carbolic acid----	20 ounces (85% solution)

The materials given in the above formulæ
 20 are commingled and melted until they form a fluid, and this fluid is then poured into a suitable mold in which a metal reinforcing and bracing core or plate 36 (Figs. 3 and 5) has been previously inserted. The mold (not
 25 shown) has four holes formed in its bottom wall through which the four projections 37 of the core plate 36 extend. The distance which the projections 37 will extend through the openings in the mold is limited by shoulders
 30 formed about midway of said projections. It can thus be seen that the core plate 36 will be supported from the bottom of the mold a distance equal to that between the shoulders 38 and the plate. The core plate
 35 36 has several holes drilled therein to facilitate access of the material to the mold on both sides of the plate, and, when the fluid material is poured into the mold, the core plate will be imbedded in said material, as can be clearly
 40 seen from the sectional view shown in Fig. 5. Before the mold is filled, the metal plate is painted with asphaltum paint, or any other suitable substance, which causes the composition, when it has hardened, to adhere
 45 tightly to the metal. Each of the projections 37 of the core plate 36 has a hole 39 drilled therein. These holes are tapped and the feet are adapted to be secured to the reciprocating members 35 by means of screws 40 which enter
 50 the holes 39 and fasten the feet securely to the moving members of the rubbing machine.

It is to be understood that applicant does not limit his invention to the precise materials or quantities given in the above mentioned formulæ, as any suitable material having the requisite characteristics of resiliency and adhesiveness may be used.

Before the core plate 36 is inserted in the mold, a fabric envelope 41 (Figs. 2 and 4) is
 60 inserted therein. This envelope may be the size of the mold, or smaller, and has four openings 42 therein, through which the projections 37 of the plate 36 may extend. If the envelope is smaller than the mold, there will
 65 be a portion of the gelatinous material on the

outside of the envelope which serves to strengthen the said envelope. The envelope covers the top and all four sides of the foot, leaving only the bottom or working face thereof uncovered. The function of the envelope, which is preferably made of linen or
 70 some other suitable fabric, is to prevent any spreading of the material of which the foot is composed, due to the weight of the machine or the pressure put thereon by the operator. It is also useful to counter-act the distorting
 75 effects of the sudden changes of direction of the feet at the ends of the piston stroke and the disintegration of the material when the machine is running at high speed. Another
 80 purpose of the envelope is to prevent the cutting of the gelatinous material if the foot should come into contact with the work or other objects during its operation.

Operation.

With feet made in accordance with the present invention, it is necessary to dampen the feet to give them the proper adhesive
 90 qualities. This is done by placing the device on a damp felt pad and operating it for a short time. This will not only dampen the feet but the heat generated by the friction will also help to make the feet more adhesive. The machine is then placed on the back of a
 95 piece of sand paper which is cut to the right size. The paper will adhere to the feet with sufficient force to prevent slippage and the operation may be commenced.

The machine is always placed on the paper with the feet at their farthest position apart. Then during the operation when the feet
 100 move towards each other, the paper will buckle in the middle and move upward in a fold (Fig. 4).

When the paper becomes worn, the machine is turned bottom upward, whereupon the paper can be easily peeled from the bottom of the feet.

If, when the paper is removed, any paper
 110 sticks to the feet, the machine is placed on the said dampened felt pad and operated for a few seconds. This will thoroughly cleanse the feet and will leave them ready for the application of a fresh piece of paper.

While the form of device shown and described is admirably adapted to fulfil the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein
 120 disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:

1. A sanding machine having reciprocating
 125 members, feet formed of an adhesive gelatinous material of substantial thickness fastened to said members, and a fabric envelope adapted to cover all but the working faces of said feet.

2. In a machine of the class described, a movable member carried thereby, and a foot formed of an adhesive material of substantial thickness, and secured to said member for the purpose set forth.

3. In a machine of the class described, a movable member carried thereby, and a foot formed of a gelatinous and adhesive material of substantial thickness, and secured to said member for the purpose set forth.

4. In a machine of the class described, a working foot composed of an adhesive and gelatinous material of substantial thickness, and a reinforcing means embedded in said material.

5. In a machine of the class described, an elastic working foot composed of an adhesive gelatinous material of substantial thickness, and a reinforcing means extending in parallelism with the surfaces of the foot.

6. In a machine of the class described, a working foot of resilient adhesive material of substantial thickness, and reinforcing and restraining means extending along the sides of the sides of said foot.

7. In a machine of the class described, a working foot of elastic, adhesive material, of substantial thickness, and a one piece reinforcing means extending around and on the top of the foot.

8. In a machine of the class described, a working foot comprising an attaching element, a coat of paint on said element, and a block of elastic, inherently adhesive material of substantial thickness molded about said painted element.

9. In a machine of the class described, a working foot comprising an attaching element, a coat of paint on said element, and a block of adhesive material of substantial thickness molded about said painted element.

10. In a machine of the class described, a working foot comprising an attaching element, and a block of inherently adhesive, gelatinous material of substantial thickness molded about said element.

11. In a machine of the class described, a working foot comprising an attaching element, and a block of elastic, gelatinous and adhesive material of substantial thickness molded about said element.

12. In a machine of the class described, a working foot comprising an attaching ele-

ment, and a block of elastic, inherently adhesive material of substantial thickness molded about said element.

13. In a machine of the class described, the combination with a reciprocating member; of a foot formed of an elastic, gelatinous material of substantial thickness inherently adhesive to present a sticky surface to which rubbing material adheres, and connected to the reciprocating member.

14. In a machine of the class described, the combination with a reciprocating member; of a foot connected thereto, and formed of a gelatinous material of substantial thickness, inherently adhesive to present a sticky surface to which rubbing material adheres; and a bottomless fabric envelope applied to the foot to reinforce and restrain the gelatinous material of the foot against disintegration.

15. A foot for abrading, buffing and polishing machines or the like, formed of an inherently adhesive, gelatinous material of substantial thickness, to present a sticky surface to rubbing material, and adapted to retain its consistency under heat created by friction at high speeds.

16. A foot for abrading, buffing and polishing machines or the like, formed of a block of elastic, inherently adhesive material of substantial thickness.

17. A foot for abrading, buffing and polishing machines or the like, formed of a block of inherently adhesive material of substantial thickness, and a bottomless fabric envelope for the foot to reinforce and restrain the material of the foot against disintegration.

18. A foot attachable to abrading, buffing, and polishing machines or the like, including an attaching element having a body portion with attaching projections; and a block of inherently adhesive material of substantial thickness molded about the element.

19. A foot attachable to abrading, buffing, and polishing machines or the like, including an attaching element having a body portion with attaching projections; and a block of inherently adhesive material of substantial thickness molded about the element the projections protruding from the molded block to permit attachment.

In testimony whereof I affix my signature.

ELTON E. HUMMERICH.