June 3, 1930. H. B. SCOTT 1,761,541

RUBBING PAD

Filed Sept. 27, 1922

FIG. 1

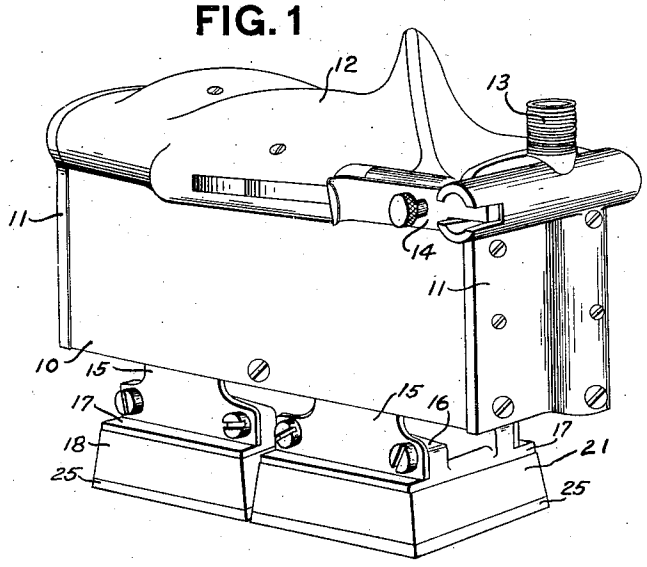


FIG. 2

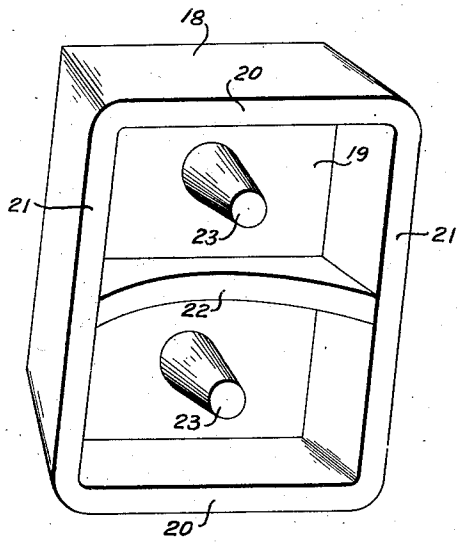
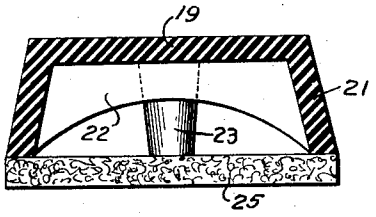


FIG. 3



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UNITED STATES PATENT OFFICE

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RUBBING PAD

Application filed September 27, 1922. Serial No. 590,863.

This invention relates to rubbing pads, and in particular to a flexible support therefor.

One of the principal objects of the present invention is to provide a rubbing pad, primarily adapted for use with a pneumatic rubbing machine, such as the one to which it is shown attached, which will absorb the vibration of the machine and reduce it to a minimum.

Another object of the invention is to produce a rubbing pad which can be used effectively on curved surfaces.

With these and incidental objects in view, the invention consists of certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims, and preferred forms or embodiments of which are hereinafter described with reference to the drawings which accompany and form part of this specification.

Of said drawings:

Fig. 1 is a perspective view of the type of rubbing machine with which the present invention may be used, with the rubbing pads attached thereto.

Fig. 2 is a detail perspective view of the rubbing pad with the bottom portion removed.

Fig. 3 is a sectional view through the rubbing pad.

In general terms, the present invention consists of a rubbing pad primarily for use with pneumatic rubbing machines, but which can be used separately if desired. It consists of two parts, a molded rubber foot and a pad of felt or other desired material attached thereto.

The machine to which the invention is shown attached, is of the type shown and described in applicant's Letters Patents of the United States, No. 1,699,029, dated January 15, 1929, and No. 1,747,396, dated January 18, 1930. Only a very brief description of the rubbing machine will be given herein as the specific construction thereof forms no part of the present invention, and reference can be made to said patents for a more extended description.

The rubbing machine to which the invention is shown applied consists of side walls 10 (Fig. 1), end plates 11 fastened thereto and a top plate 12 comprising a hand grip which is shaped to fit the hand of the operator.

The air, or other fluid, under pressure is admitted to the device through an inlet port 13. The air is under the control of an inlet valve controlled by a manipulative element 14 by 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 serves to operate two pistons which are thereby reciprocated in a single cylinder (not shown). Directly connected to each of said pistons are two members 15 which are, of course, reciprocated with said pistons. At their lower ends, the members 15 are secured to upwardly extending flanges 16 of plates 17. Cemented to the bottoms of these plates are the feet 18. These feet are preferably formed of molded rubber or some similar material, and each comprises a body portion 19 and downwardly extending diverging side walls and end walls 20 and 21, respectively, referring to the direction in which the feet move. In the form shown the end walls are longer than the side walls. The side and end walls of the feet are thus set at an angle to the perpendicular for the purpose of giving greater rigidity to the feet when the direction of movement is reversed at the end of each piston stroke.

Extending between the end walls 21 and in alignment with the direction of reciprocation of each foot, is an arched rib 22 integral with the body portion and end walls of the foot. The feet are reciprocated in the direction of the length of the ribs 22 and the function of the ribs is to prevent collapse of the feet 18 when the direction of movement is reversed at the end of each piston stroke.

The body portion 19, side walls 20, and end walls 21 of each foot enclose a hollow space of substantial height which is divided by the transverse rib 22 into two cells or compartments.

On each side of the rib 22 and spaced apart

therefrom so as to be located approximately centrally of each cell, is a tapered projection 23 extending downwardly from the body portion 19 of the foot 18. These projections provide flexible supports near the center line of the pad for the work engaging material.

Cemented to the bottom edges of the walls 20 and 21 and to the bottom ends of the projections 23 is a flat pad 25 of felt or some other suitable material with which the actual rubbing is done. When this pad wears down it can be removed and a new pad cemented to the foot 18 without removing the foot from the machine.

In brief, in the form herein selected to illustrate the invention, each rubbing pad comprises a rectangularly shaped hollow supporting foot 18, open at its lower end, with the bracing rib 22 integrally attached to both the under face of the body portion 19 and the inner faces of the end walls 21, to impart rigidity to the resilient foot. The under surface of the bracing rib 22 is arcuate to enable the yielding foot to be applied and conform to curved work-surfaces without interference.

This bracing rib divides the hollow interior of the foot into two compartments, and the depending resilient projections 23 are located substantially centrally of their respective compartments to back up the felt rubbing pad 25 and prevent it from flexing into the hollow interior of the foot in operation.

The device is readily adapted for work upon curved surfaces, it merely being necessary for the operator to press the tool a little more firmly against the work to cause the walls of the foot to yield slightly, and conform to the shape of the curved surface, and in this work, the lateral yielding movement of the bracing projection 23 is somewhat more pronounced than when the tool is used on flat surfaces. Obviously the bracing rib 22 renders the foot less yieldable in the direction of its reciprocatory movement at right angles to its ends 21, than if the foot was reciprocated in a direction at right angles to its sides 20.

While the form of device herein shown and described is admirably adapted to fulfill 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 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 rubbing device comprising horizontally arranged flexible walls set at an angle to the vertical and extending in the direction of movement of the device, other flexible walls set transversely to the direction of movement of said device, and a bracing member between said last mentioned walls.

2. A rubbing device comprising a body portion flexible walls set at an angle to the vertical and extending transversely to the direction of movement of said device, and a rib between said walls, and located substantially centrally relative to the ends of the walls, whereby the flexible walls are braced against collapse during the operation of the device.

3. A rubbing device comprising flexible walls set at an angle to the vertical and extending in the direction of movement of the device, other flexible walls set at an angle to the vertical and extending transversely to the direction of movement of the device, and a plurality of flexible projections midway between said second mentioned flexible walls.

4. A rubbing device comprising flexible walls extending transversely of the direction of movement of said device, and a flexible rib formed in an arch extending between said walls.

5. A rubbing device adapted for a substantially reciprocatory movement, comprising a hollow yieldable foot; and a bracing rib within the hollow of the foot to impart rigidity to the foot in the direction of its reciprocatory travel to prevent collapse thereof when the device is in use.

6. A rubbing device comprising a body portion, flexible walls depending therefrom and, with the body portion, surrounding a hollow space; a bracing rib extending between at least two of the walls to prevent collapse thereof when the device is in use; and rubbing material extending across the hollow space and attached to the lower edges of the walls.

7. A rubbing device comprising a body portion, flexible walls depending therefrom and, with the body portion, surrounding a hollow space; and a flexible bracing rib extending across the hollow space and connecting two opposite walls substantially at their central points, whereby the two opposite walls are braced against collapse.

8. A rubbing device comprising a body portion, transverse and lateral walls of flexible material integral with said body portion, and an arched rib integral with said body portion and said transverse walls, and extending across the center of the body portion from wall to wall, whereby the transverse walls are braced.

9. A rubbing device comprising a rectangular resilient member having transverse and lateral walls, an integral rib extending across said member, a plurality of downwardly extending integral projections, and a flat rubbing pad attached to the bottom edges of said walls and said projections.

10. A rubbing device including a resilient supporting member having walls and adapted to be reciprocated back and forth in a given direction, a rib formed integral with and extending across the supporting member from

wall to wall intermediate the ends of the supporting member and in line with the direction of reciprocation thereof to brace the walls against collapse, a plurality of projections formed integrally with the supporting member and depending within the space surrounded by the walls, and a flexible rubbing pad attached to the bottom edges of the walls and braced intermediate its edges by the depending projections.

11. A rubbing pad including a foot adapted for reciprocatory movement and wholly formed of resilient material, the foot comprising a body portion, side and end walls depending from the body portion; a bracing rib extending between and connected to two opposite walls in line with the direction of reciprocation, whereby the opposite walls are braced, and flexible rubbing material secured to and covering the bottom of the foot.

12. A rubbing pad including a foot adapted for reciprocatory movement and wholly formed of resilient material, the foot comprising a body portion, side and end walls depending from the body portion; an arcuate bracing rib extending between and connected to two opposite walls in line with the direction of reciprocation, whereby the opposite walls are braced, and flexible rubbing material secured to and covering the bottom of the foot.

13. A rubbing pad including a foot adapted for reciprocatory movement and wholly formed of resilient material, the foot comprising a body portion, side and end walls depending from the body portion the lower edges of the side and end walls lying in the same horizontal plane; a bracing rib extending between and connected to two opposite walls in line with the direction of reciprocation, whereby the opposite walls are braced, and flexible rubbing material secured to and covering the bottom of the foot.

14. A rubbing pad including a foot adapted for reciprocatory movement and wholly formed of resilient material, the foot comprising a body portion, side and end walls depending from the body portion and forming an enclosed space of substantial height; a bracing rib extending between and connected to two opposite walls in line with the direction of reciprocation, whereby the two opposite walls are braced, and flexible rubbing material secured to and covering the bottom of the foot.

15. The combination with a reciprocatory base; of a foot, having a body portion secured to the base, resilient end walls of substantial heighth depending from the body portion; and an arcuate bracing rib extending between the end walls, whereby the walls are braced; and a pad extending between the bottom edges of the end walls.

16. A rubbing device including a resilient supporting member having walls and adapted to be reciprocated back and forth in a given direction; a rib formed integral with and extending across the supporting member substantially centrally thereof from wall to wall in line with the direction of reciprocation of the member; said rib acting as a brace for said walls and forming a plurality of pockets within the walls; a plurality of projections formed integrally with the supporting member and depending, one within each of the pockets and near the centers thereof; and a flexible rubbing pad attached to the bottom edges of the walls to cover both pockets, said pad being braced at positions opposite the centers of the pockets by the ends of the projections in those pockets.

In testimony whereof I affix my signature.

HOWARD B. SCOTT.