

May 13, 1924.

H. HUMPHREYS

1,493,779

PNEUMATIC SANDING PAD

Filed Feb. 23, 1921

2 Sheets-Sheet 1

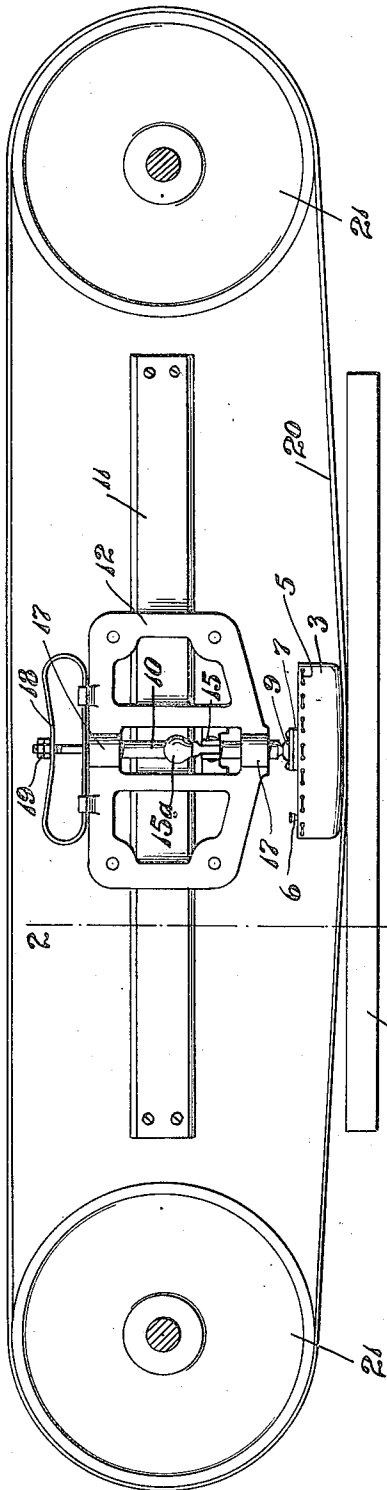


FIG. 1.

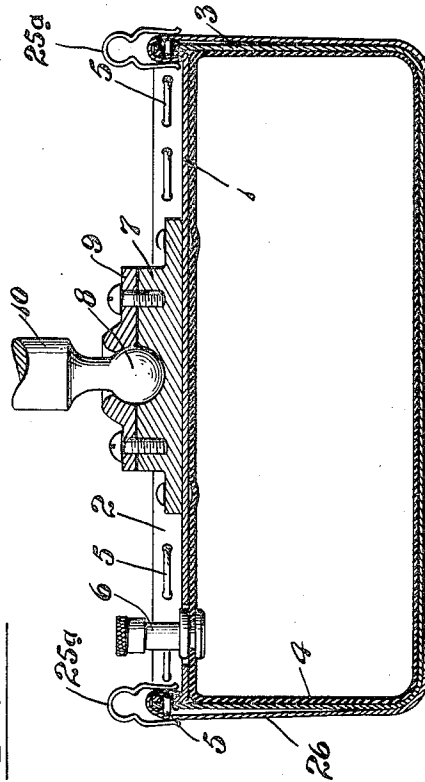


FIG. 3.

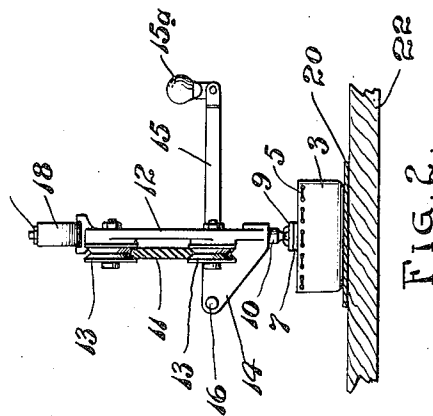


FIG. 2.

INVENTOR

HUGH HUMPHREYS.

BY *Frank E. Liverance, Jr.*
ATTORNEYS.

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H. HUMPHREYS

PNEUMATIC SANDING PAD

Filed Feb. 28, 1921

2 Sheets-Sheet 2

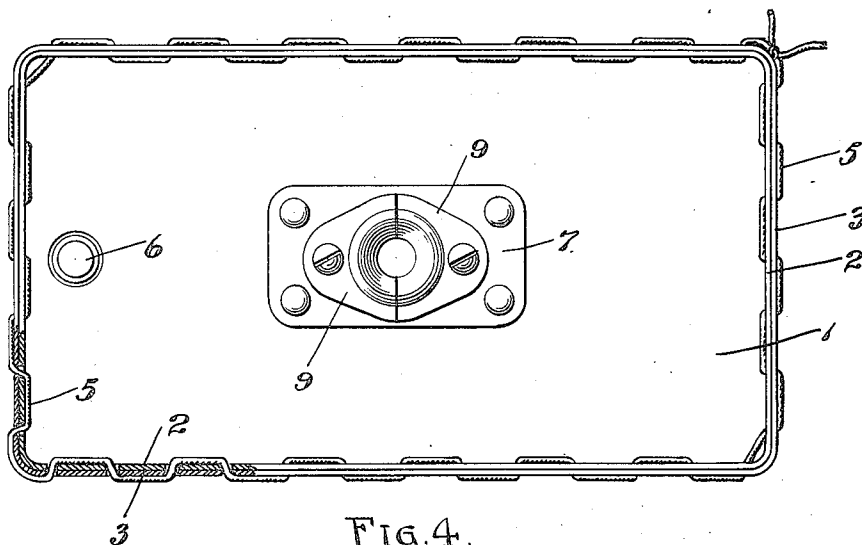


FIG. 4.

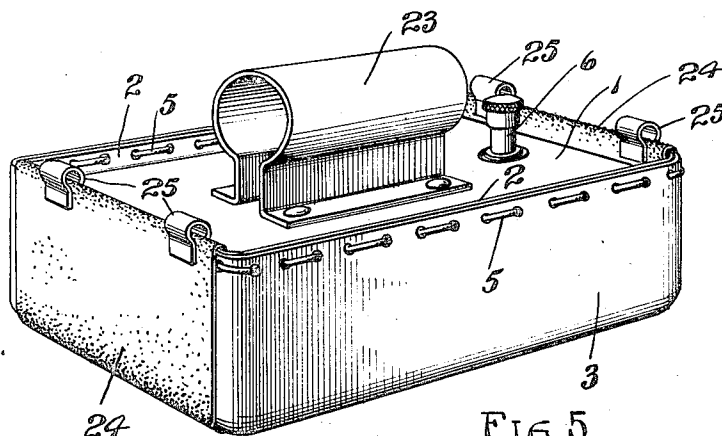


FIG. 5.

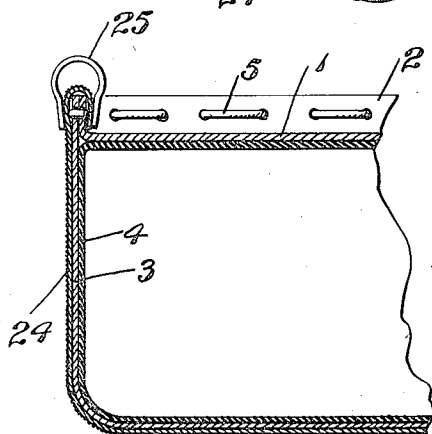


FIG. 6.

INVENTOR
HUGH HUMPHREYS.
BY *Frank E. Liverance, Jr.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HUGH HUMPHREYS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO OLIVER MACHINERY COMPANY, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

PNEUMATIC SANDING PAD.

Application filed February 28, 1921. Serial No. 448,741.

To all whom it may concern:

Be it known that I, HUGH HUMPHREYS, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Pneumatic Sanding Pads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sanding devices and particularly to a novel construction of sanding pad which may be used either manually or in connection with a belt sanding machine, so constructed that it is possible to completely finish work by sanding and thus smoothing the same irrespective of certain irregularities in the surfaces sanded, the pad acting to force the sanding material against all parts of the surface and into various depressions which may be present in the surface of the work acted upon. More specifically, my invention relates to a pneumatic sanding pad capable of yielding and conforming instantly to more or less slight irregularities in the surface worked whereby every portion of a piece of material surface operated against in connection with the pad is sanded and smoothed, leaving no rough portions, or parts partially smoothed.

It is a primary object and purpose of the invention to make a pad of the character noted, in a simple and economical manner and adapted to be attached to sanding machines of the belt sander type, or available for use by hand, all of which will appear fully as understanding of the invention is had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is an elevation showing my invention applied to a belt sanding machine.

Fig. 2 is a section on the plane of line 2—2, of Fig. 1 and looking in the direction of the pad and associated parts.

Fig. 3 is an enlarged longitudinal section through the pad.

Fig. 4 is a plan view thereof.

Fig. 5 is a perspective view of the pad modified for hand operation, and

Fig. 6 is a fragmentary enlarged section

of the pad shown in Fig. 5, at one end thereof.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction of the pad, a plate 1 of sheet metal with an upturned flange 2 entirely around it is provided to which a fabric casing is attached, between which and the plate a rubber inner tube or bag 4 is first placed. The outer casing 3 is connected to the flange 2 by a lacing 5 passing through openings in the flange and the upper portions of the casing. An air valve 6 is attached to the bag 4 and extends through an opening in plate 2, it being obvious that the bag may be inflated through said valve to any desired degree of pressure.

When used with a belt sanding machine, a block 7 is connected centrally of and to the upper side of the plate 1 having a socket for the reception of a ball-like head 8 which is retained in the socket by retaining members 9 fastened by screws or equivalent fastening means to the block 7. The head 8 is made at the lower end of a vertical rod 10 and with this connection it is apparent that the pad may have universal angular movement with respect to the axis of the rod.

The sanding machine with which this pad is adapted to be used includes a horizontal track or trolley bar 11 on which a carriage 12 is movably mounted so as to traverse the length thereof, trolley rollers or wheels 13 on the carriage engaging the track. A bracket 14 projects rearwardly from the carriage to which the rear end of a lever 15 is pivotally connected at 16, the lever extending a distance in front of the carriage and being equipped with an operating handle 15^a at its front end. The lever has operative connection to the rod 10 at a point between its ends so that on turning the lever about its pivot at 16, the rod and attached pad may be moved vertically. The rod 10 is slidably mounted in suitable guides 17 on the carriage and at its upper end passes through a leaf spring 18, receiving nuts 19 at its upper end for connection with the spring. The tendency of the spring is to elevate the rod and pad to an upper inoperative position.

In a belt sanding machine, an endless belt 20 passes at its lower run under the pad, being carried around pulleys or wheels 21 which may be driven in any suitable manner. The work to be sanded is located under the lower run of the belt, as indicated at 22, and the pad brought against the upper side of the belt by depressing the lever 15. The outer sides of the belt are abrasive and held against the upper side of the work, serve to smooth and finish the same. The bag 4 is readily yieldable and the outer casing of canvas or like fabric is likewise yieldable, while the belt conforms to irregularities on the surface of the work, being pressed into operating contact with all parts of the surface thereof due to the complete flexible and yielding nature of the pad which presses the abrasive belt against the work. This insures that the surface sanded shall be finished at every part without leaving any rough or partially finished areas.

In Figs. 5 and 6, the pad has a handle 23 attached to the plate 1 and projecting therefrom shaped for engagement by the hand. Sand paper 24, or the like is placed against the outside of casing 3 and bent at its ends over flange 2, being secured detachably by clips 25 or in any other suitable manner. Likewise, a protective canvas cover 26 may be placed over the pad when used on the machine and secured by clips 25^a, being replaced whenever necessary. The construction of hand operated pad is also capable

of reaching all portions of a surface to be finished and leaves no rough or partially finished areas, as is evident.

The appended claims define the invention and all constructions falling within their scope are to be considered as comprehended by my invention.

I claim:

1. A device of the class described, comprising a plate of metal having an upturned flange around it at its edges, said flange having a plurality of spaced apart openings therein, a flexible fabric casing having an open upper end into which the plate is inserted, said casing adjacent its upper edges also having a plurality of spaced apart openings therethrough, lacings passing through the openings in the flange and casing for connecting the same together, and an inflatable and expansible air tight bag located within the casing and under the plate, substantially as and for the purposes described.

2. A pad of the class described, comprising a relatively rigid plate, a fabric casing member open at its upper side, means for connecting the casing member at the plate to form a containing casing of which the plate is the upper side, a rubber bag within said casing, and means to inflate said bag, substantially as described.

In testimony whereof I affix my signature.

HUGH HUMPHREYS.