

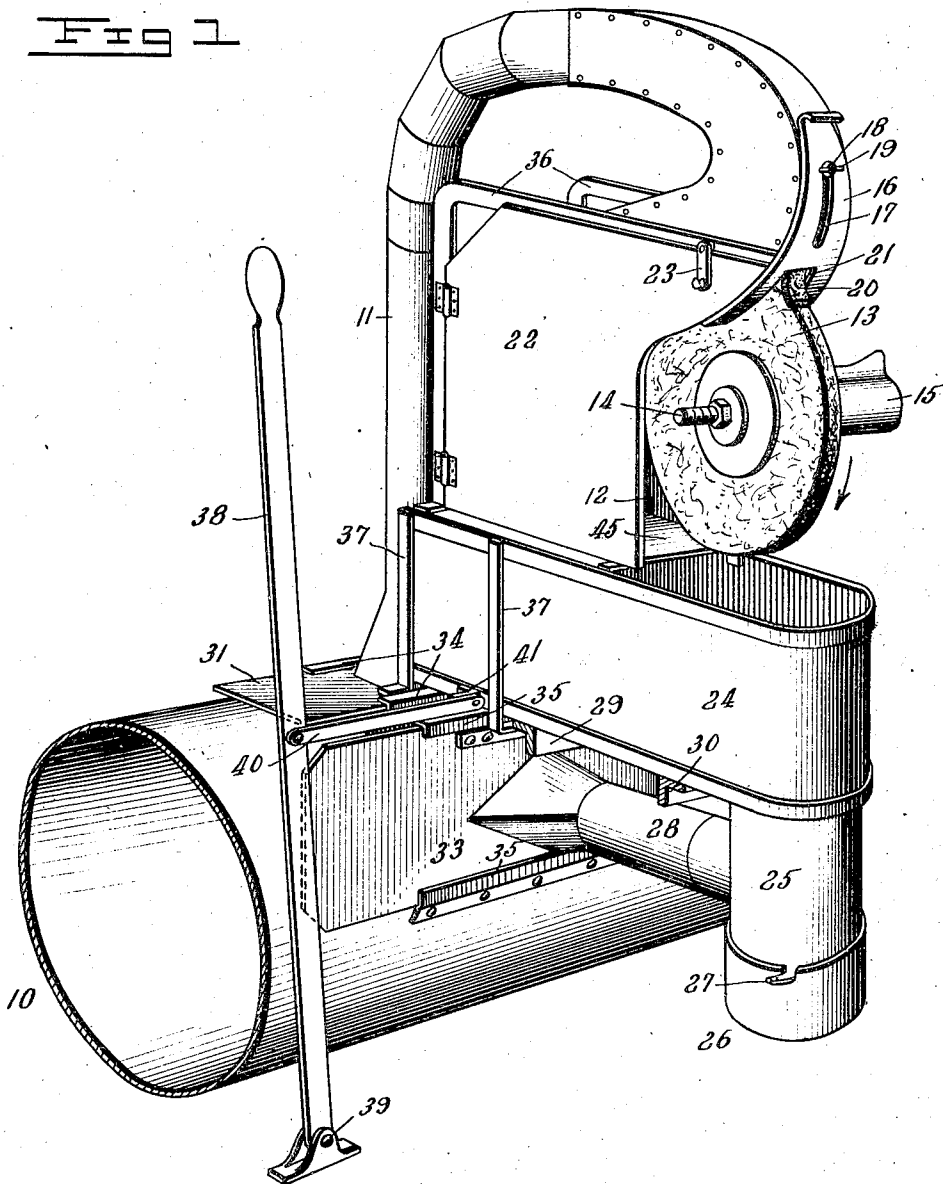
P. MUELLER.
 SUCTION HOOD FOR ABRADING TOOLS.
 APPLICATION FILED JUNE 3, 1912.

1,062,248.

Patented May 20, 1913.

2 SHEETS—SHEET 1.

Fig 1



Witnesses

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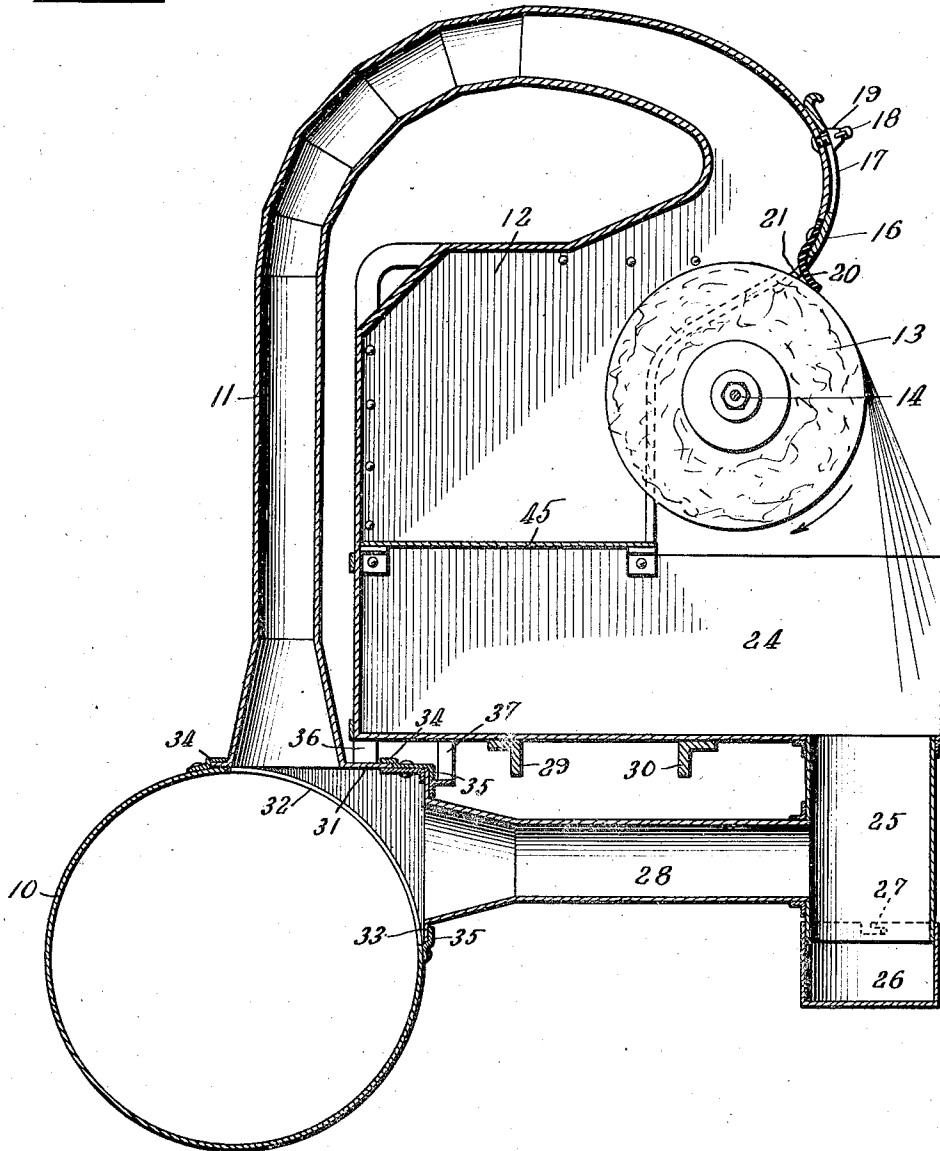
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2 SHEETS-SHEET 2.

Fig 2



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UNITED STATES PATENT OFFICE.

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SUCTION-HOOD FOR ABRADING-TOOLS.

1,062,248.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed June 3, 1912. Serial No. 701,266.

To all whom it may concern:

Be it known that I, PHILIP MUELLER, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Suction-Hoods for Abrading-Tools, of which the following is a specification.

This invention relates to a device for use on grinding, polishing and buffing machines for removing all dust, dirt and small particles produced when the machines are in operation; and comprises, broadly, an adjustable hood adapted to partly incase a grinding, polishing or buffing wheel, to which hood is attached a suction pipe connected to a trunk or main from which air is exhausted by any suitable means, such as a fan or pump. Below the wheel and hood is placed a trough or box to receive the heavier and some of the lighter particles from said wheel, and a second suction tube connecting said trough or box to the exhaust trunk. The hood, trough and their suction pipes are so mounted on the trunk that they may be moved longitudinally with respect to the trunk and the axis of the buffing or polishing wheel to permit the use of wheels of various sizes, proportions and shapes, demanded by the lack of uniformity in the articles operated on by the wheels.

The object of the invention, therefore, is to provide a simple, economical and easily operated device for use in connection with grinding and polishing machines whereby the dust and dirt produced by the grinding and polishing wheels of said machines may be collected and carried away by suction from the wheels and from the air surrounding them when the wheels are in operation, thus keeping the air in the neighborhood of the wheels free from infiltration by the fine matter removed from the articles being ground and polished, and the substances applied to the wheels for polishing purposes, which would enter the throat and lungs of those who operate the machines.

With this and other objects in view the invention consists in the novel construction, combination and arrangement of parts hereinafter described and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the attachment mounted on an exhaust trunk or

main and showing its relation to the polishing or buffing wheel. Fig. 2 is a vertical central sectional view in a direction transverse to the exhaust trunk.

In the drawings, in which like reference characters are used to designate the same parts in all the figures, 10 indicates an exhaust trunk or main which may form a part of a cleaning or ventilating system, or merely extend from a suitable exhaust apparatus to one or more polishing or grinding machines. Extending upwardly from said trunk is a suction pipe 11, here shown as curving laterally of the trunk at its upper end and terminating in an enlarged hood 12, into which projects more or less of a grinding, polishing, or buffing wheel 13 mounted on a rotatable arbor 14 supported in one or more bearings 15, the latter forming a part of the grinding or polishing machine. The hood 12 is closed on its lateral sides, bottom, top and rear, being open only on its front side from which front side the polishing or buffing wheel extends.

Adjustably mounted on the suction pipe 11 where it merges into the hood 12 and just above the polishing or buffing wheel is a plate 16 shown in the drawing as curved to fit the curve of the suction pipe and forked at its lower end to straddle said wheel, the legs of said forked end lying close to, but not in contact with, the wheel. For the purpose of adjusting the plate to or from the wheel to permit the removal of the latter from the arbor 14, or to fit to it wheels of various diameters, a longitudinal slot 17 is formed in the plate through which projects a screw 18 from the suction pipe 11 provided with a clamping nut 19, for locking the plate in position after it has been adjusted. Fastened to the lower end of the curved plate 16, just above the polishing or buffing wheel 13, is a flexible strip 20 which bears at its free end on the periphery of the wheel 13 and serves both as a scraper for said wheel and a valve to prevent dust and other deleterious particles from passing outwardly from the suction pipe and the hood into the air through the slot 21 formed in the pipe for the passage of the wheel.

When it is desired to remove or renew a grinding, polishing or buffing wheel, the adjustable plate 16 is raised for the purpose of elevating the forks above the periphery of said wheel and one side 22 of the hood,

which is hinged at its rear, is swung open, thus permitting the wheel to be taken from the arbor through the side of the hood. After the wheel has been replaced on its arbor, the hinged side or door 22 is closed and locked by any suitable means 23. The plate 16 is then adjusted to the wheel.

Below the hood 12 and rigidly secured thereto is a box or trough 24 of substantially the same width as the hood but longer, it extending in a forward direction beyond the periphery of the polishing or buffing wheel, as clearly shown in Fig. 2. Depending from the bottom of the trough 24 at its outermost end is a short well or tube 25 opening into the trough 24 at its upper end and into a removable cap 26 at its lower end, said cap being connected to the tube 25 by a bayonet joint 27. Above the cap 26 a suction pipe 28 extends in a substantially horizontal direction from the pipe 25 to the exhaust trunk 10. Such dust and particles as are not collected in the hood 12 fall into the box 24, a part of which, especially the heavier parts, remain in said box, or fall from the pipe 25 into the cap 26 while the lighter parts both in the hood and the box pass outwardly through the suction pipes 11 and 28 respectively into the exhaust trunk and thence are carried away. Such heavy particles as are deposited on the bottom of box 24 may be scraped into the pipe 25 and falling into the cap 26, be carried away when the latter is disconnected from the pipe 25.

Below the box or trough 24 and supporting the same and also the hood 12 are two bars 29 and 30, which lie parallel to each other and to the axis of the trunk, above the suction pipe 28. It will be noted from an inspection of the drawings that the trough or box 24 and the hood 12 lying on one side of the upright portion of the suction pipe 11 would, if not supported by other means than said suction pipe and the pipe 28, put a great strain on these pipes and their connection to the exhaust trunk, and to relieve this strain on the suction pipes the bars 29 and 30 have been provided.

It is well known that articles of innumerable shapes, forms and sizes are operated on by grinding, polishing and buffing machines, and to properly operate on such articles it has been found necessary to provide wheels of various sizes and shapes to meet the emergencies which arise as articles of different kinds are presented to the wheels for grinding, polishing or buffing. It, therefore, becomes necessary to provide an adjustment so that the wheel 13 will be centralized within the hood 12. This may be done either by changing the position of the wheel on its arbor or the bearings of said arbor, or by shifting the hood itself, the latter being the more practical means for accom-

plishing the end desired. One form of such adjustment is shown in the drawings and will now be described.

The upright suction pipe 11 is mounted at its lower end on a substantially horizontal plate 31 having an opening therein which registers with an opening 32 in the exhaust trunk 10. The horizontal suction pipe 28 is also fastened at its inner end on a vertically disposed plate 33, said plate registering with the opening 32 in the trunk. These plates 31 and 33 are mounted to move longitudinally of the trunk in guideways 34, 35 respectively, fastened to the trunk. Also fixed to the plates 31 and 33 are the trough 24 and the hood 12, by means of braces 36, 37, respectively attached to said hood and the box or trough. 38 designates an operating lever pivoted at 39 to a fixed support and connected to the trough 24 by means of a link 40 pivotally mounted on a bracket 41 on the side of the trough. If now the lever be moved in a plane parallel with the axis of the exhaust trunk the plates 31 and 33 will slide in their guideways 34 and 35, carrying with them the suction pipes 11 and 28, the hood 12 and the box or trough 24, the latter sliding on the upper surfaces of the bars 29 and 30. It is to be understood that the opening 32 in the trough 10 is of such length that the suction pipes will be always in communication with the trunk, and furthermore, that the sliding movement of the aforesaid parts will be relatively short.

The bottom of the hood 12 is separated from the trough 24 by a diaphragm or plate 45 which serves a three-fold purpose. In the first place, if any object which is being ground, polished or buffed slips from the operator's hands, it naturally falls into the trough 24, its motion being more or less accelerated by the wheel 13. On striking the bottom of the trough, the object is liable to rebound into contact with the wheel were it not for the interposition of the diaphragm which not only keeps the article away from the wheel, but prevents it from being carried around by the wheel and hurled at the operator. In the second place, the diaphragm 45 lying close to and almost in tangential contact with the periphery of the grinding or polishing wheel, confines the suction through the pipe 11 to the hood 12 and around the rear and bottom of the wheel instead of through the trough which would be the case were the diaphragm omitted. The heavier particles of waste material fall by their weight, or through centrifugal force from the wheel into the trough 24, while the lighter particles are carried to the rear of the wheel into the hood where the lightest particles are taken up by the current of air and carried through the pipe 11 into the trunk 10. These lightest particles which are the smallest and which are almost invisible

in their minuteness, escape into the air when the hood is not used, and fill the air with their deleterious poisonous presence to be breathed by the operators. In the third place, the diaphragm rests on the trough 5 24 and in a measure assists in supporting the hood 12.

Having fully described my invention, what I claim as new is:

10 1. A device of the class described comprising an exhaust trunk having an opening in its side, two pairs of guideways exterior to said opening, a sliding plate mounted in each pair of guideways, said plates lying 15 perpendicular to each other and adapted to be moved longitudinally of said trunk, a hood partly encircling an abrading or polishing wheel, a receptacle below said hood and separated therefrom, said receptacle 20 projecting forward of the hood and beneath the abrading or polishing wheel, a suction pipe mounted on one of said sliding plates connected to the hood, and a second suction pipe on the other sliding plate connected to 25 the receptacle.

2. A device of the class described compris-

ing an exhaust trunk having an opening in its side, two pairs of guideways exterior to said opening, a sliding plate mounted in each pair of guideways, said plates lying 30 perpendicular to each other and adapted to be moved longitudinally of said trunk, a hood partly encircling an abrading or polishing wheel, a receptacle below said hood and separated therefrom, said receptacle 35 projecting forward of the hood and beneath the abrading or polishing wheel, a suction pipe mounted on one of said sliding plates connected to the hood, a second suction pipe 40 on the other sliding plate connected to the receptacle, and means for simultaneously moving the hood, the receptacle, the suction pipes and the sliding plates longitudinally of the exhaust trunk and axially of the 45 abrading or polishing wheel.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PHILIP MUELLER.

Witnesses:

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CATHERINE E. McKEOWN.