H. D. PIPER.

ARTICLE COLLECTING DEVICE FOR GRINDING MACHINES.

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1,248,157. Patented Nov. 27, 1917.

Fig. 2.

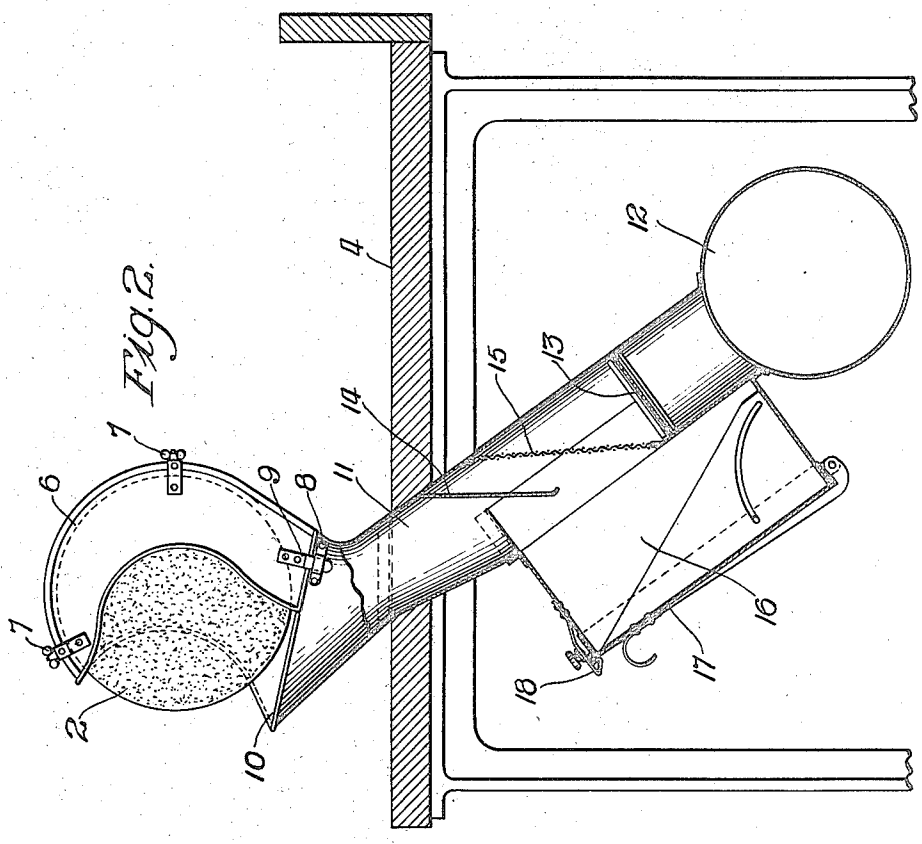
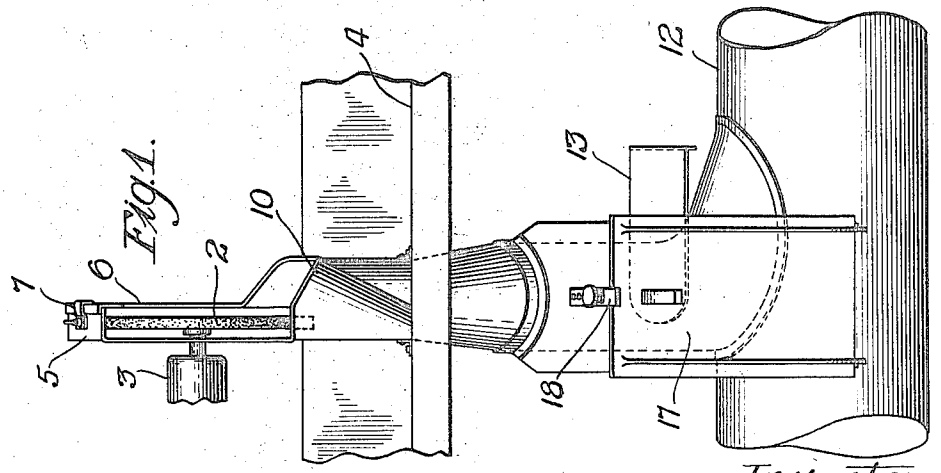


Fig. 1.



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UNITED STATES PATENT OFFICE.

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ARTICLE-COLLECTING DEVICE FOR GRINDING-MACHINES.

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To all whom it may concern:

Be it known that I, HARRY D. PIPER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Article-Collecting Devices for Grinding-Machines, of which the following is a full, clear, concise, and exact description.

This invention relates to a small article collecting device for exhaust systems, and more particularly to a fixture of this kind to be used with grinding or polishing machines.

The object of this invention is to provide an improved and efficient apparatus for grinding or polishing small articles in which the articles are applied to the grinding means and are then dropped and automatically guided to an article receiving or collecting means, the grinding grit or dust being guided to a suitable stack exhaust.

In the process of grinding and polishing it is now the universal practice to equip the machines used with suitable hoods to which are connected suction ducts which serve to convey the grinding grit or dust to an exhaust stack and which thus control this dust and prevent its dissipation in the room. This air suction must be of sufficient intensity to gather in all the dust from the grinding operation, and when great enough for this purpose it will likewise carry into the stack any small articles which are accidentally dropped by the operator in the grinding operation. It is the further object of this invention to prevent the loss of such articles by automatically guiding these articles into a suitable receiving means.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a front elevation of the complete apparatus, and

Fig. 2 is a side elevation partly in section.

In the preferred form of the invention the grinding or polishing wheel 2 is attached to a rotatable shaft or spindle 3 which is driven by any suitable means such as a motor which may be placed on the table 4. The grinding wheel is inclosed in a hood consisting of the stationary member 5 and the detachable member 6 which is attached to the member 5 by means of the thumb screws 7 and the strap and tongue 8 ar[illegible] 9 respectively. Extending outwardly from the operating surface of the grinding wheel is a pocket or article receiving means 10 into which the articles are dropped by the operator after they have been ground on the wheel 2. The inclosing hood of the grinding wheel and the pocket 10 terminate in an exhaust duct 11, the other end of which is connected to the exhaust stack 12 in which is placed any suitable type of suction creating means, such as a fan. A slide valve 13 is fitted in the duct 11, by means of which the suction in the stack exhaust 12 may be applied or cut off from the duct 11. Fastened to the inner surface of the duct 11 and extending obliquely downward is the baffle or deflecting plate 14, and directly below this plate and having substantially the same inclination is a screen 15 which snugly fits the internal diameter of the duct 11. A section of the lower wall of the duct 11 is cut out and opens into the article receiving chamber 16. This chamber is equipped with a door 17 or any other suitable means which may be swung open to remove the articles which collect in the chamber, and said chamber will vary in size, depending upon the size of the articles which are being ground or polished. The door 17 is normally held in place by the spring pressed latch 18.

In the operation of the apparatus the articles to be ground or polished are applied to the side of the wheel 2 and ground or polished the desired amount, after which they are dropped by the operator. When the articles are dropped they fall into the pocket or article receiving means 10 and are then drawn by gravity and suction down the duct 11 until they hit the baffle plate 14. When the articles hit the baffle plate 14 they are guided, due to the inclination of the deflecting plate 14, into the article receiving chamber 16. The grit and dust generated in the polishing and grinding operation is drawn into the duct 11 by air suction and passes around the baffle plate 14 and through the screen 15 into the stack exhaust 12. If any of the articles which enter the duct 11 slip down the lower side of the duct and thus fail to strike against the baffle plate 14, they hit the screen 15 which serves as a secondary or auxiliary deflecting means, and they are thus thrown back by means of this screen into the article receiving chamber 16. When a large number of articles have been collected in the chamber 16, the door 17 is

opened and the articles are allowed to slide into any suitable type of conveying receptacle.

In the preferred embodiment of the invention herein described the articles are ground by applying them to the side of the grinding wheel, but it will be evident that the apparatus may be very readily designed for grinding articles on the periphery of the wheel.

The use of the apparatus herein disclosed for polishing or grinding is very efficient in that the operator is not required to manually return an article to a collecting tray after it has been ground, but merely drops the article and it is automatically collected in the receiving chamber 16. Consequently one movement of the operator in grinding is practically eliminated, the only movement necessary consisting in the application of the article to the polishing or grinding wheel.

The apparatus is also beneficial when it is not desired to automatically collect all the articles ground in the receiving chamber 16. Thus in the operation of grinding or polishing, an article frequently accidentally gets away from the operator, and this is ordinarily drawn into the dust exhaust system and expelled through the stack exhaust. In the apparatus herein disclosed these articles will strike the article deflecting plate 14 and will be collected in the receiving chamber 16 and will thus be saved.

It will be evident that the invention is not limited to the preferred embodiment herein illustrated and described, but is capable of many variations and applications without departing from its spirit and scope, as pointed out in the appended claims.

What is claimed is:

1. A device of the character described comprising in combination, a rotatable grinding means, an exhaust hood associated with said means, a laterally disposed article receiving means, an exhaust duct in which said hood and said receiving means terminate, an oblique downwardly extending article deflecting plate placed in said duct in the path of the article, an article receiving means connected to said duct and into which the articles are guided by said deflecting plate, a stack exhaust pipe, and a screen extending across said duct through which the grinding dust passes into the stack exhaust and which serves as a second deflector to guide the articles into said receiving means.

2. In a device of the character described, the combination with a grinding means, of an exhaust hood associated with said means, an exhaust duct communicating with said exhaust hood, an article deflecting means in said duct, a screen extending across said duct through which the dust will pass and which serves as a second article deflector, article receiving means associated with said duct into which said articles are guided by said deflecting means, and means for removing the articles collected in said receiving means.

In witness whereof, I hereunto subscribe my name this 29 day of Aug. A. D. 1916.

HARRY D. PIPER.