March 22, 1938. N. E. HUDSON 2,111,782

DUST CONFINER AND COLLECTOR FOR GRINDING AND POLISHING MACHINES

Filed Jan. 21, 1936 2 Sheets-Sheet 2

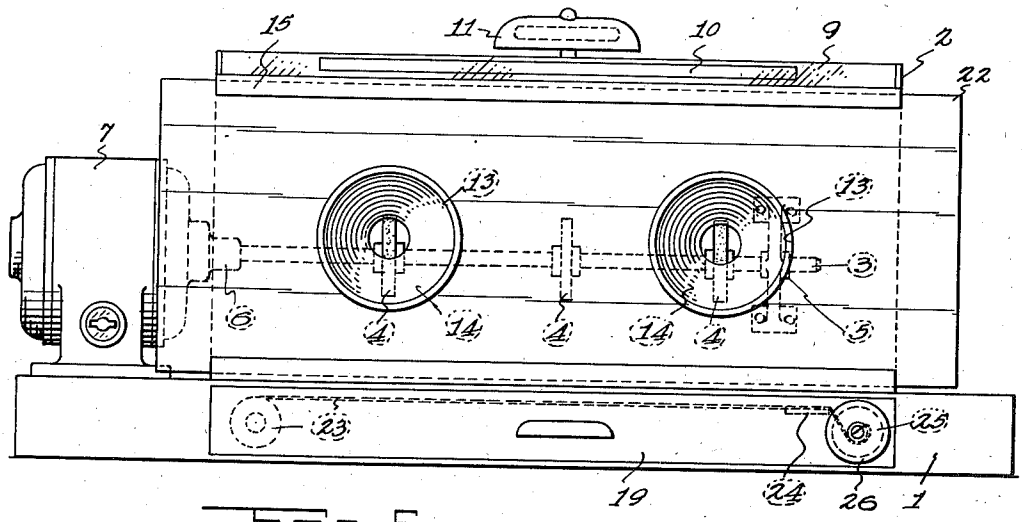


FIG. 5

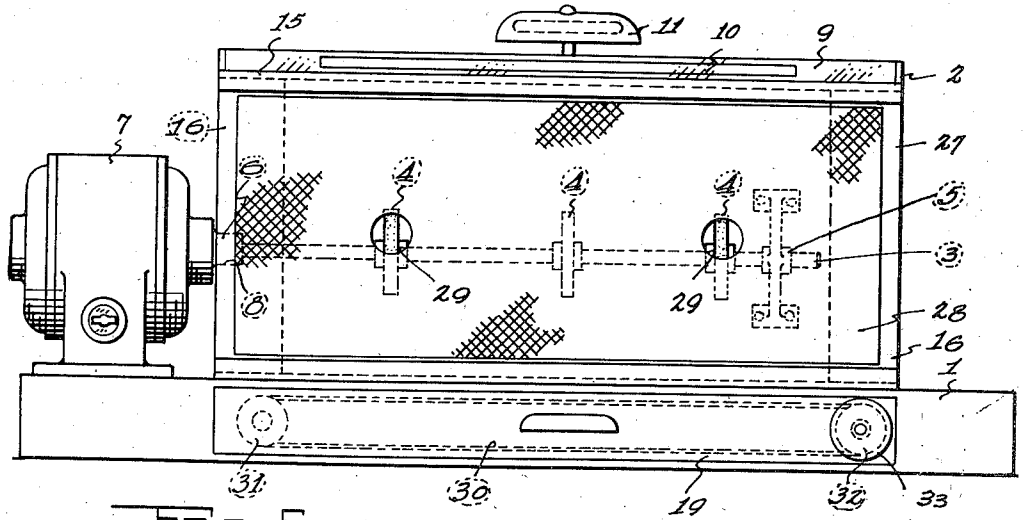


FIG. 6

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DUST CONFINER AND COLLECTOR FOR GRINDING AND POLISHING MACHINES

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FIG. 1.

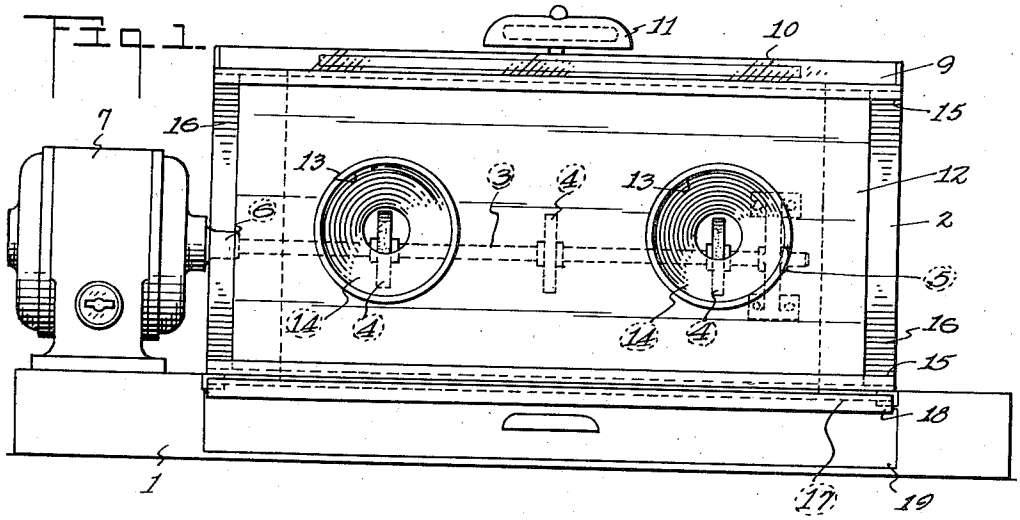


FIG. 2.

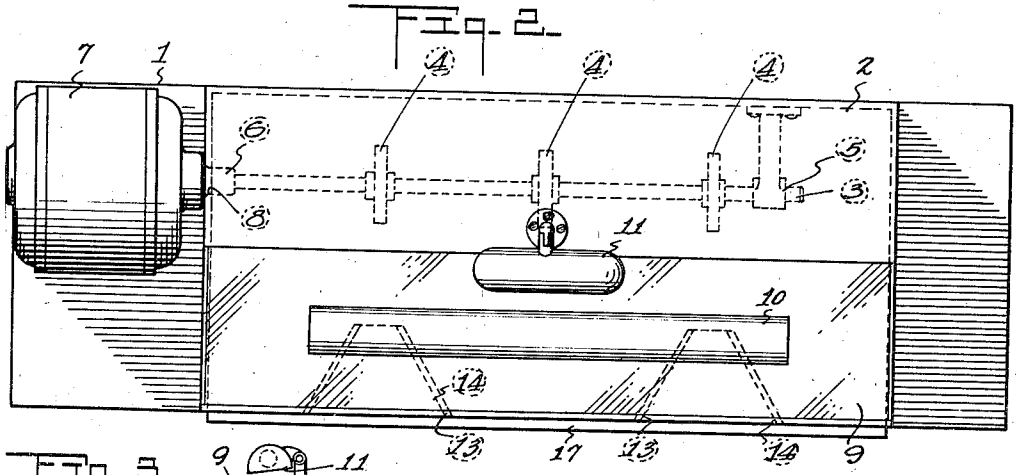
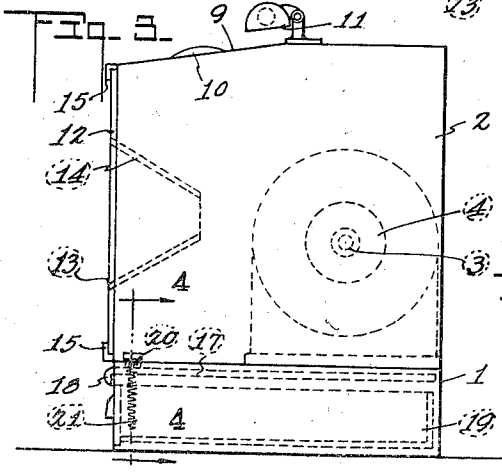


FIG. 3.



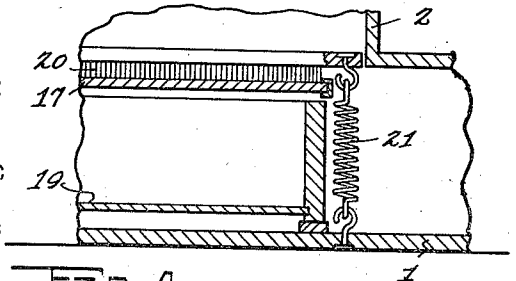


FIG. 4.

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UNITED STATES PATENT OFFICE

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DUST CONFINER AND COLLECTOR FOR GRINDING AND POLISHING MACHINES

Neal E. Hudson, San Jose, Calif.

Application January 21, 1936, Serial No. 60,076

3 Claims. (Cl. 51—270)

My invention relates to improvements in dust confiners and collectors for grinding and polishing machines, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a dust confiner and collector for a grinding and polishing machine which is especially designed for use by jewelers, watchmakers, dentists, dental shops, optometrists, etc., in which the grinding and polishing of articles is done within an enclosure, this enclosure retaining all of the material thrown off during the grinding and polishing operation. In the grinding and polishing of articles made of gold and saving of particles of dust thrown off during the grinding and polishing operation amounts to considerable in the course of a year. Furthermore, should an article containing a jewel be ground or polished and the jewel accidentally become dislodged from its setting, then the device will prevent such jewel from being lost. The device not only saves the dust from the article, but in addition prevents this dust from being breathed by the operator.

The device is so designed that the operator will have utmost freedom in the use of his hands in grinding or polishing the article. Hand openings in the device are provided for this purpose, and these openings are provided with yielding edges or cuffs that will cling to the operator's wrists, and thus prevent any dust particles from passing through the openings during the grinding or polishing operations. A transparent top is placed in the housing through which the operator can view the object being worked upon, and if desired a magnifying glass also can be employed.

I not only provide a housing for confining the particles of dust, but I also make use of a dust collector which may be entirely removed from the housing after the operation is completed, and in this way all of the dust is caught. Although the actual grinding and polishing members are mounted in the housing, it is obvious that the actuating means, such as a motor, may be disposed either in the housing or outside of the housing, as desired.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming a part of this application, in which

Figure 1 is a front elevation of the device;

Figure 2 is a top plan view;

Figure 3 is a side elevation;

Figure 4 is a section along the line 4—4 of Figure 3;

Figure 5 is a front elevation of a modified form of the invention; and

Figure 6 is a front elevation of another modified form of the invention.

In carrying out my invention I provide a base indicated generally at 1, and I mount a housing 2 on the base. A shaft 3 is rotatably mounted within the housing and carries grinding and polishing wheels 4. The shaft may be supported in any manner desired, and I have illustrated one end of the shaft as being rotatably carried by a bearing 5 and the other end is connected at 6 to a motor 7. The motor 7 may be disposed within the housing 2, if desired, although I have shown it mounted outside of the housing and the connection 6 extends through an opening 8 in the housing wall.

The housing 2 may be of any shape desired, and I have shown in Figure 3 the top wall of the housing being provided with an inclined transparent window 9. If desired, this window may carry a magnifying portion 10. Figures 1 to 3 inclusive show a light 11 mounted on the top of the housing 2, and so positioned as to throw its light rays through the window 10 and down upon the object which is being worked on.

In order to permit the operator to handle the object while the object is within the housing, I provide a front panel 12, and this panel has hand and arm openings 13. If desired, the openings 13 can have flexible sleeves 14 secured to the rims of the openings, and these sleeves will yieldingly engage with the wrists of the operator for preventing any dust from passing through the openings while permitting the operator to use his hands freely in grinding and polishing the object.

The front panel may be secured rigidly to the housing or it may be disposed slidably in the channels 15 as shown in Figures 1 to 3 inclusive. The panel 12 slides over the front face of the parts 16 that are disposed at the ends of the housing and extend inwardly a short distance. It will be seen from this that the panel can be moved horizontally and the housing still will be closed by the panel so long as the ends of the panel contact with the partitions 16. This permits the operator to move his hands in order to cause any one of the desired wheels 4 to act upon the object. The panel 12 may be entirely

removed, and this will give access to the shaft 3 and permit repairs to be made on the shaft or other wheels to be substituted for those already mounted on the shaft.

The device not only confines the dust within the housing 2 but I provide novel means for trapping or collecting the dust. In Figure 3 I show a slide 17 forming the bottom wall of the housing 2. This slide has a curved front edge 18 that acts as a hand grip and permits the slide to be withdrawn. The slide is positioned directly above a drawer 19, and this drawer is slidably mounted on the base 1. In Figures 3 and 4 I show a brush 20 extending along the front portion of the slide 17, and this brush is yieldingly held in contact with the slide by springs 21. When the slide 17 is withdrawn the brush 20 will yieldingly engage with the top surface of the slide and sweep the particles of dust from this surface down into the drawer 19. The drawer may now be removed and the dust particles collected therefrom.

In the modified form of the invention shown in Figure 5 the housing 2 is provided with a front panel 22 that is longer than the length of the housing. This construction does away with the necessity of providing the partitions 16. The panel 22 is slidable in the guides 15 in the same manner as the panel 12, and carries the sleeves or cuffs 14. In Figure 5 I also show a different means for collecting the particles of dust. This means consists of a roll of paper 23 mounted in the drawer 19. This paper extends from the roll and is passed over a support 24 positioned near the other end of the drawer. A wind-up roll 25 receives the free end of the paper and an external knob 26 is connected to the roll 25 so that a turning of the knob in a counter-clockwise direction will wrap the paper around the roll 25. This paper has received the dust previously from the objects being worked upon, and this dust is wrapped in the roll 25. After all of the paper has been unwound from the roll 23, and wound upon the roll 25, the roll 25 can be removed from the drawer 19 and taken to a place where the gold can be recovered.

In Figure 6 I show another modified form of the invention in which the housing 2 carries a panel 27 provided with a resilient portion 28. This portion has openings 29 therein through which the hands and the arms of the operator may be inserted. Since the portion 28 is flexible it will permit the operator to move his hands freely when working upon the object. The rims of the openings 29 will yieldingly contact with the wrists or arms of the operator and prevent any dust from passing through these openings. The entire panel 27 is slidable in the channels 15, and can be moved to the extent provided by the partitions 16.

In this form of the device an endless conveyor 30 is disposed in the drawer 19, and this conveyor is carried by rollers 31 and 32. The roller 32 may be provided with an actuating knob 33, and the operator, in depositing the material in the drawer, merely rotates the knob 33 for causing the portion of the conveyor disposed near the top of the drawer to move to a position below the rollers 31 and 32. This will transfer the dust from the conveyor to the drawer.

I have shown various modifications of the device, and it is obvious that other changes may be made but the principal features are a housing, a panel carrying hand and arm openings therein, and a dust collecting device, such as a drawer for receiving the dust thrown off by the grinding and polishing operations.

I claim:

1. In combination, a housing with a window therein, a front panel slidably secured to the housing and being provided with openings therein through which the operator's hands may be inserted, and grinding and polishing members mounted within the housing.

2. In combination, a housing with a window therein, a front panel with hand openings therein, grinding and polishing members mounted within the housing, a drawer for receiving the dust particles, a false bottom normally covering the drawer, and sweeping means active on the upper surface of the false bottom for sweeping the dust into the drawer as the false bottom is moved.

3. In combination, a housing for grinding and polishing members and having a window in its wall, a panel constituting one side of the housing and having hand openings therein, said panel being slidable, said housing having partitions contacting with the ends of the panel for increasing the distance through which the panel can slide while still covering the housing front.

NEAL E. HUDSON.