

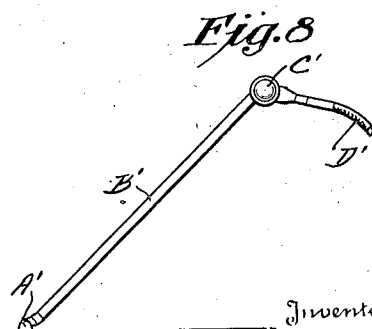
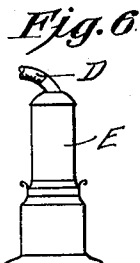
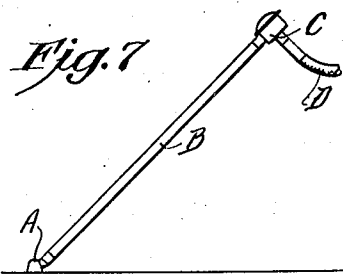
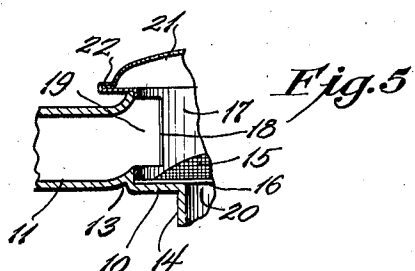
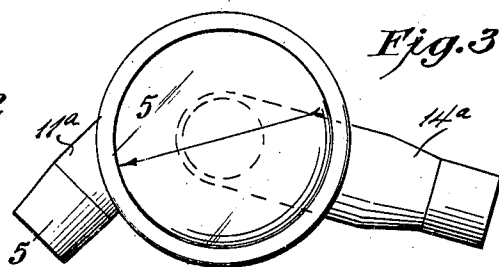
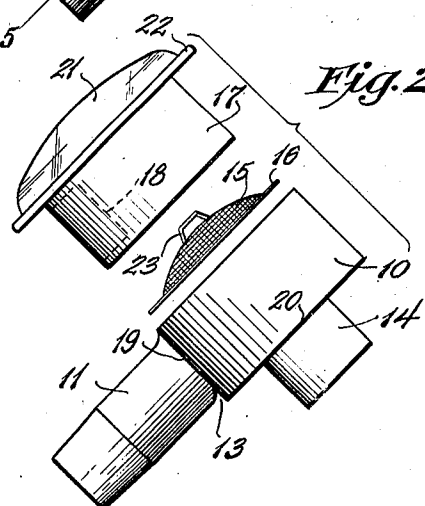
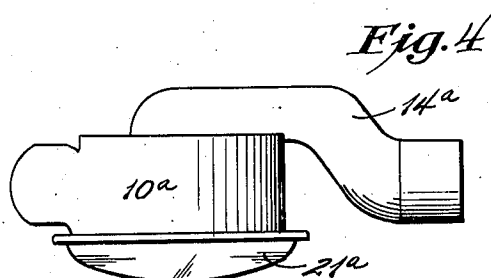
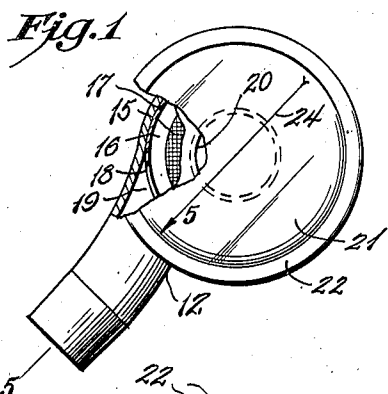
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D. B. REPLOGLE

2,335,885

DEMONSTRATING INDICATOR FOR AIR-METHOD CLEANERS

Filed May 26, 1941



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UNITED STATES PATENT OFFICE

2,335,885

DEMONSTRATING INDICATOR FOR AIR-METHOD CLEANERS

Daniel Benson Replogle, Berkeley, Calif., Bank of America National Trust & Savings Association, Carl S. Replogle, Harold E. Queen, and Laurie H. Bullock executors of said Daniel Benson Replogle, deceased; assignors to The Ohio Citizens Trust Company, Toledo, Ohio, a corporation of Ohio, as trustee

Application May 26, 1941, Serial No. 395,320

1 Claim. (Cl. 302—65)

This invention relates to demonstrating indicators for air-method cleaners and is a modification and improvement on the device shown in Figs. 4 and 5 of my application for patent Ser. No. 101,695 filed June 5, 1916, and on which Patent No. 1,345,550 was issued July 6, 1920.

The present application is also related to my application Ser. No. 381,200 filed Feb. 28, 1941, now Patent No. 2,269,483, dated January 13, 1942, and to my application Ser. No. 387,717 entitled Airplane cleaning apparatus, filed April 9, 1941.

In the present device, whirling is effected by directing the air stream both tangentially into the valve member and upwardly toward the transparent cover portion thereof, and only one source of air suction is cooperative with it. Furthermore, the present device is designed to be used on any air suction pipe of any type of cleaning system.

The particular objects of the present invention are:

To simplify the construction of such indicators; to adapt such indicators to the purpose of demonstrating the character of matter drawn through the system on which it is used; to demonstrate the relative values of nozzles or floor tools to be used in the system, and other objects as may appear.

The invention will be more readily understood by reference to the accompanying drawing in which:

Fig. 1 shows a front or top view of my indicator.

Fig. 2 shows an exploded view taken at right angles to that of Fig. 1, wherein the valve members and the screen in their relative order are shown.

Fig. 3 is an alternative form for the device shown in Fig. 1 where the cap-receiving member has integral with it a tubular outlet set at an angle with the inlet, suitable for using the device with one edge up rather than the face upwards.

Fig. 4 is a side elevation of the indicator of Fig. 3, but shown in reversed position.

Fig. 5 illustrates a cross section taken on the line 5—5 of either Figs. 1 or 3 wherein a projection is shown as integral with the wall of the incoming tube so as to direct the current upward toward the window of the device. This projection is a substitute for the lip which was shown in my previous applications.

Fig. 6 illustrates a source of suction which may be stationary or semi-stationary.

Fig. 7 illustrates the application of the device shown in Fig. 1 to a suction cleaning system.

Fig. 8 shows a similar system in connection with the alternative form of device shown in Figs. 3 and 4.

Referring to the drawing and particularly to the diagrammatic assembly shown in Fig. 7, A designates a floor tool of any suitable construction such as that shown in my Patent No. 1,994,868 dated March 19, 1935. B denotes a narrow tube or hollow wand which may be formed of hard fiber or like material one end of which may be detachably connected to the floor tool A and the other to the inlet pipe indicator C. The outlet pipe of the indicator C is connected through a flexible pipe D or the like with a suitable source of suction such as the combined pump and filter indicated at E in Fig. 6.

The indicator C, as shown in Figs. 1 and 2, comprises a cylindrical casing 10 which may be formed of metal or plastic material such as Bakelite or the like. The intake pipe 11 of the casing 10 may be connected to the tube B by shrinking the tube on to the pipe as disclosed in my Patents No. 2,142,149 and No. 2,142,150 dated January 3, 1939.

According to the present invention the inlet pipe 11 enters the casing 10 tangentially as illustrated at 12 in Fig. 1 and is also up-curved as indicated at 13 in Figs. 2 and 5, to direct the dust onto the window of the indicator.

A suitable outlet pipe 14 leads from the bottom of the casing 10 and is connected either directly or through suitable attaching means with the flexible tube D. Preferably a screen 15 is provided which fits over the outlet opening 20 in the bottom of the casing 10 and serves to prevent passage of larger objects. The screen is provided with a suitable base 16 which fits snugly within the casing.

The indicator C is provided with a rotatable top or cover which includes a skirt portion 17 adapted to fit within the cylindrical body portion 10. The skirt 17 is provided with an opening 18 adapted to register with the inlet opening 19 in the casing 10 when the arrow 24 is directed toward the inlet pipe 11 as indicated in full lines in Fig. 1. The top or cover member is provided with a transparent window 21 which may be of any suitable material such as glass, Celluloid or one of the transparent plastics such as vinylite or the like. As shown, the window portion is provided with a peripheral flange 22 which insures accurate fitting of the cover and assists in removal thereof. The screen 15 may also be provided with a suitable handle or projection 23 to assist in removal.

In Figs. 3, 4 and 8 a construction is shown similar to that shown in Figs. 1, 2 and 7, except that in the modification the outlet pipe 14a is set at an angle to the inlet pipe 11a.

When using the device in the upside down form, or position as shown in Fig. 4, all grit and heavy matter will land and whirl around on the transparent lid of the device, whereas lint and light dirt may be sucked through the screen or sucked fast to it. Using this with one floor tool or another, the indicator will show which one of the two gets the most lint and which gets the most grit, also whether or not one of them is taxing the carpet too much by removing from it the nap which is necessary for its beauty and comfort. The screen in the present case referred to is liftable by the little wire loop 23 shown in Fig. 2 so that the screen is placed in the bottom of the well and the cap, not having so large a lip as heretofore shown on the lower periphery, will hold this screen in place when the device is being used. The suction always being inward, the cap will never have a tendency to lift up as was the case in prior devices when the bag was clogged.

The incoming stream, besides being tangential to cause an intensive whirl, has a slight projection in the molding or casting at the entrance of the cap which throws the current upward against the window of the device, or downward as the case may be depending on which way the device is turned.

Also, a very important feature of this present device is that when the cap is turned to the left, that is, counterclockwise, partly covering the hole 19 of the tangential entrance, a violent re-whirling in the opposite direction will take place. If the screen is not used, this has the effect of absolutely clearing the accumulated whirling dirt, so that it may be used for a demonstration without the use, of course, of the screen, the purpose of which is to detect the presence of lint, wool

or nap in the air stream, and also to retrieve buttons, jewelry, trinkets or the like picked up by the cleaner.

The improved indicator is very effective. It is found that by bringing the stream of dust laden air in tangentially and somewhat upwardly inclined, that the grit is thrown in a path around the circle under the transparent cap, and if the screen is used, all of the wool except the fine broken parts will be caught on this screen, while, if the article is held in the inverted position, the grit will whirl around in the cap and be entirely separated from accumulations on the screen.

The invention has been described in detail for the purpose of illustration but it will be understood that numerous modifications and variations may be resorted to without departing from the spirit of the invention.

I claim:

20 For use in a suction cleaning system including a plurality of tubular sections; a dust flow indicator adapted to be operably connected between adjacent sections of said system, said indicator comprising a cylindrical casing having a lateral 25 inlet for dust laden air inclined tangentially with reference to the curvature of the casing, an outlet leading from said casing, and a rotatable cap-shaped cover member including a skirt portion adapted to fit within the cylindrical 30 casing, and having an opening adapted to be brought into or out of complete or partial registry with said tangential opening by switch rotation of the cap, said cap member including a transparent cover portion connected to the skirt; 35 the tangential inlet to said casing being also inclined toward said cover portion so that dust laden air entering from said inlet will be directed toward said transparent cover portion and given a rotary movement when the opening in said 40 skirt is brought into registry with the casing inlet.

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