J. M. WARD.

PNEUMATIC DRIER.

APPLICATION FILED MAR. 27, 1914.

1,108,285.

Patented Aug. 25, 1914.

Fig. 1.

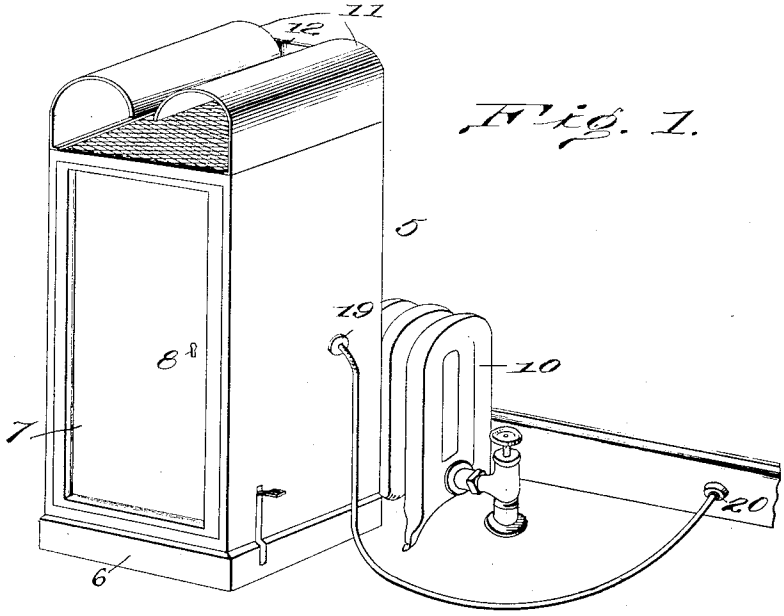
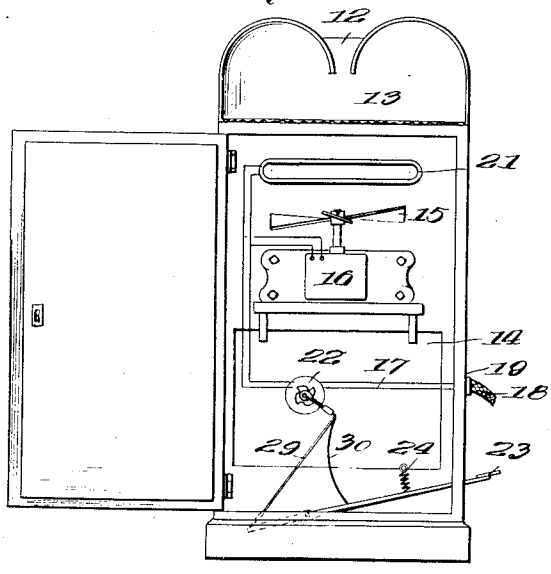


Fig. 2.



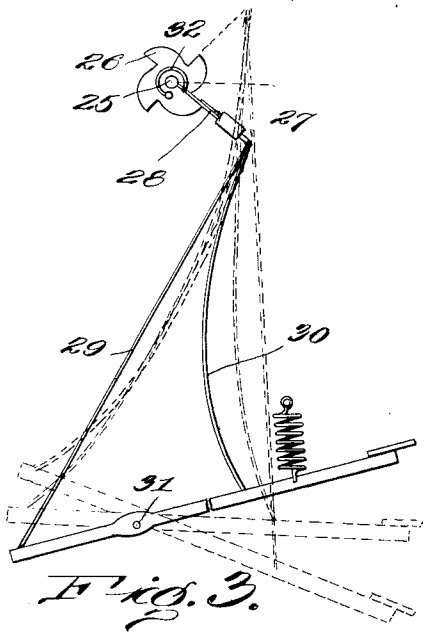


Fig. 3.

Witnesses

P. A. Blair

K. E. Klein

Inventor

J. M. Ward

By Howard Kelly

Attorneys

UNITED STATES PATENT OFFICE.

JOHN MOULTRIE WARD, OF WASHINGTON, DISTRICT OF COLUMBIA.

PNEUMATIC DRIER.

1,108,285. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed March 27, 1914. Serial No. 827,622.

To all whom it may concern:

Be it known that I, JOHN MOULTRIE WARD, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Pneumatic Driers, of which the following is a specification.

My invention relates to driers and with regard to certain more specific features thereof to sanitary pneumatic driers.

One of the objects of the present invention is to provide a simple and practical device of the above character which will be inexpensive to install and operate.

Another object is to provide a drier which will be sanitary, efficient and reliable in use and operation.

A further object is to provide a device of the above mentioned character having few parts properly housed and protected and not likely to get out of order. Other parts will be in part obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the device hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, wherein is illustrated one of various possible embodiments of the present invention, Figure 1 is a perspective view of the complete device in operative position; Fig. 2 is a front elevation with the front of the casing open, disclosing the internal mechanism in a semi-diagrammatic manner; Fig. 3 is a detail view of the switch mechanism.

Similar reference characters denote corresponding parts in the several figures.

In order that the present invention may be more clearly understood it may be stated in brief that the present device is particularly adapted for use in wash rooms and lavatories, for the purpose of drying one's hands after washing. Heretofore in factories and the like, where a relatively large force is employed, the wash rooms were supplied with roller towels, which in many localities were subsequently prohibited in view of their obvious unsanitary condition. There were superseded to some extent by the use of absorbent paper towels, and while these were more sanitary they were open to the objection of initial expense as well as the expense of an attendant in keeping the wash rooms supplied with these towels and continuously removing the large baskets of soiled and torn paper towels. The present device is designed to overcome the above difficulties among others, by using a pneumatic device of the character hereinafter described in detail, which is adapted to direct a blast of heated air to the entire surface of the hands to be dried.

Referring now to the drawing in detail, and more particularly to Fig. 1, there is noted a relatively stationary rectangular casing 5, mounted upon a suitable base 6, and provided at one side with a door 7, permitting access to the interior thereof. A lock 8 is applied to the door to prevent tampering with the internal mechanism by an unauthorized person. This casing is preferably located adjacent to a radiator or steam pipe 10 in the wash room, and occupies a relatively stationary position with respect thereto. The top of the casing is provided with overhanging curved deflectors or guides 11 open at the front and closed by a plate 12 in back, although this plate is not absolutely essential. The top of the casing proper is provided with a wire screen or the like 13, and the back has an opening 14 adjacent the radiator. Within the casing is positioned pneumatic means of any desired type, adapted to draw in a current of air through the opening 14 adjacent the radiator and project the same upwardly through the screen 13, where it strikes the deflectors 11 and is directed to all parts of the hands which are preferably placed above the screen 13, and under the curved portions of the deflectors 11.

The means for forcing the current of air through the drier preferably comprises a fan 15 connected with and operated by a motor 16. The motor is connected by means of wires 17 within the casing, and a flexible cord 18 connecting a socket 19 in the side of the casing with a base plug 20 or electric light fixture located at any convenient point in the room. In this same circuit is positioned a heating element 21, preferably occupying a position intermediate the fan 15 in the screen 13.

A rotary snap switch 22 is located in the circuit in the lower part of the casing, and is adapted to be operated by a foot lever 28,

normally held in raised position by means of a spring 24, and having a flexible connection as shown more in detail in Fig. 3 with the snap switch. While other forms of quick actuated switches may be used, the device herein shown is believed to possess certain advantages in that it is positively actuated and sufficiently rapid to prevent arcing.

Referring to Fig. 3, the switch 22 is provided with a central stem 25, carrying a ratchet 26 adapted to be engaged by a spring or gravity actuated pawl 27, carried on a lever 28 mounted on the central shaft 25. The end of this lever 28 is connected by two flexible members 29 and 30, with the foot lever 23 at opposite sides of the pivot 31. The lever normally occupies a raised position, as herein shown, and when it is depressed by the foot of the operator it first occupies a neutral position shown by the dotted horizontal lines, in which position tension is relieved on the flexible cords 29 and 30, thereby permitting the lever 28 to swing upwardly into vertical position under the action of a coil spring 32 about the shaft 25. As the lever is further depressed to the inclined dotted position the cord 30 is tensioned, thereby swinging the lever 28 back to the position shown, and giving the snap switch a quarter turn, thus completing the circuit. As long as the circuit is completed the fan will operate and the heating element 21 will cause the air passing thereover to assume a relatively higher temperature. When the foot lever is released it returns first to the neutral horizontal position, permitting the lever 28 to move back a quarter turn and catch the next tooth of the ratchet, and on completing its return movement to raised position will tension the cord 29 and give the switch another quarter turn, thereby breaking the circuit.

The operation of the present device is believed to be clear from the above disclosure, but a brief statement thereof is as follows: Assuming the device to be installed in operative position, as shown in Fig. 1, an employee after washing his hands depresses the foot lever 23, and places his hands under the curved deflectors 11. On depressing the lever the motor 16 is started and the fan draws a current of warm air from the radiator in through the opening 14 and forces the same over the heating element 21, from whence it is directed directly onto the under side of the wet hands of the operator, and such air as passes will be deflected by the curved deflectors downwardly onto the upper surface, thereby effectively drying the entire surface of the wet hands and wrists.

By having the entire top of the casing open a greater volume of heated air is permitted to be discharged at a slower velocity than would take place if smaller openings were used and ducts associated with the deflectors to direct the air positively to the upper surface of the hands. A large quantity of air at a slow velocity has been found to be more efficient than an equal amount at high velocity, and by preliminarily heating the air, as by means of the radiator, a still greater efficiency is obtained.

It is of course to be understood that other forms of starting and stopping mechanisms may be used, but the present form is believed to be more advantageous and convenient of operation, for a device operated by the arms would probably be in the way and more clumsy to operate. A hand operated switch would not only be impracticable from a point of view of safety, but also unsanitary. It is therefore seen that the present device comprises a relatively simple and practical pneumatic drier, which is cheap to manufacture, install and operate, and one that is believed to accomplish among others all of the objects and advantages above set forth.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made, without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a drier of the character described, in combination, a relatively stationary casing having an opening adjacent to which the hands are adapted to be placed, a heating element, means adapted to force an air current thereover, and means for directing the air current back upon itself.

2. In a drier of the character described, in combination, a relatively stationary casing having an opening adjacent to which the hands are adapted to be placed, a heating element, means adapted to force an air current thereover, and means for directing portions of the air current in opposite directions.

3. In a drier of the character described, in combination, a relatively stationary casing having an opening adjacent to which the hands are adapted to be placed, a heating element, means adapted to force an air current thereover, and curved deflectors positioned adjacent to the opening for directing the air currents to all portions of the surface of the hands.

4. In a drier of the character described, in combination, a casing having an opening adjacent which the hands are adapted to be placed, a heating element within said casing, pneumatic means for directing air currents over said heating element, and means for

simultaneously placing the heating element and pneumatic means in operative condition.

5. In a drier of the character described, in combination, a casing having an opening adjacent which the hands are adapted to be placed, an electric heating element, an electrically operated fan for directing a current of air over said heating element, and a quick operating switch adapted to be actuated by the foot of the operator for simultaneously completing the circuit for operating the heating element and fan.

6. In a drier of the character described, in combination, a relatively stationary casing having an open top, a screen above said top, a heating element beneath said screen, a fan for forcing a current of air over said heating element, and foot operated means for simultaneously starting and stopping the heating element and fan.

7. In a drier of the character described, in combination, a casing having an opening at one side, means for preliminarily heating the air adjacent said opening, said casing having an open top, a heating means within said casing, and means for forcing a current of air over both of said heating means and out through the open top of the casing.

8. In a drier of the character described, in combination, a casing having an opening adjacent which the hands are adapted to be placed, a heating element adjacent said opening and an electrically operated fan adapted to force a current of air over said heating means, a rotary snap switch adapted to open and close the circuit through said fan, a foot lever, and connections between said foot lever and switch for effectively operating the latter.

9. In a drier of the character described, in combination, a casing having an opening at one side, means for preliminarily heating the air adjacent said opening, said casing having an open top, a heating means within said casing, and means for forcing a current of air over both of said heating means and out through the open top of the casing.

10. In a drier of the character described, in combination, a casing having an opening adjacent which the hands are adapted to be placed, a heating element adjacent said opening, an electrically operated fan adapted to force a current of air over said heating means, a rotary snap switch adapted to open and close the circuit through said fan, a foot lever, and connections between said foot lever and switch for effectively operating the latter, said means comprising two flexible connections intermediate the switch on opposite sides of the fulcrum of said foot lever.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MOULTRIE WARD.

Witnesses:

P. A. BLAIR.

EMILY F. CAMP.