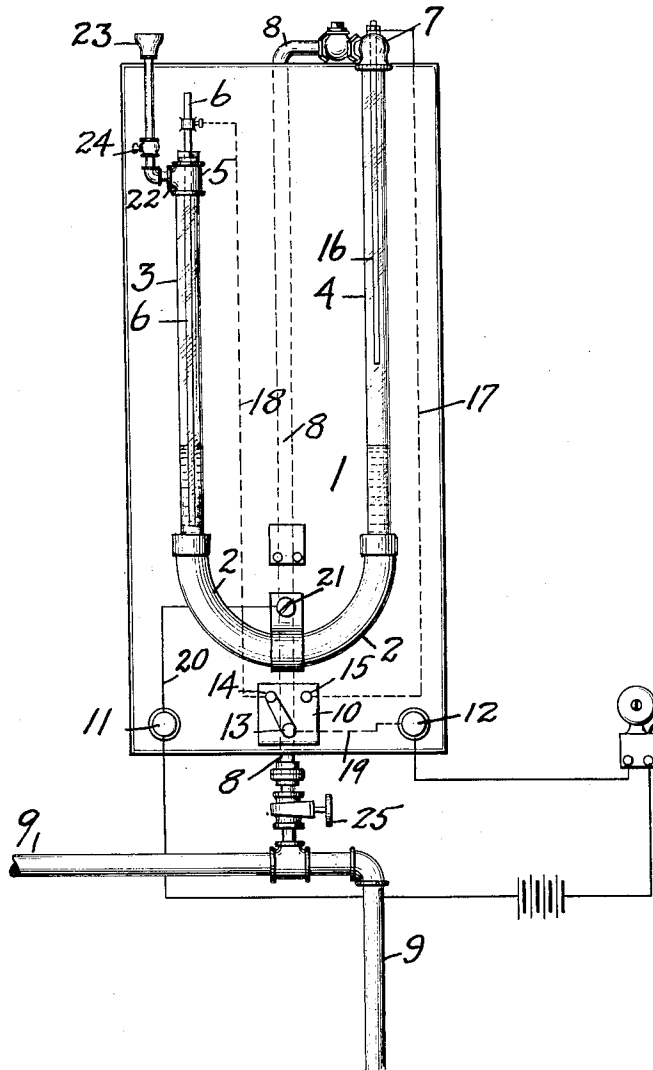


J. HOWLAND.
TELLTALE SWITCH.
APPLICATION FILED MAR. 10, 1914.

1,132,849.

Patented Mar. 23, 1915.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN HOWLAND, OF SAN ANTONIO, TEXAS.

TELLTALE SWITCH.

1,132,849.

Specification of Letters Patent.

Patented Mar. 23, 1915.

Application filed March 10, 1914. Serial No. 823,752.

To all whom it may concern:

Be it known that I, JOHN HOWLAND, a citizen of the United States of America, residing in San Antonio, county of Bexar, State of Texas, have invented certain new and useful Improvements in Telltale Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to automatic tell-tale switches; and has for its object the production of a simple switch which, when connected in an electric circuit, is adapted to keep the circuit open as long as a vacuum is maintained and as soon as the vacuum or suction is relieved to automatically close the circuit thereby giving notice of the failure to maintain the vacuum.

The invention is particularly adapted and designed to indicate the reduction in vacuum in systems which it is desired to keep a more or less uniform vacuum such as in fruit dryers, creosoting plants, surface and jet condensing for steam plants and the like. The dimensions and proportions of my device to be changed accordingly to suit the various requirements.

The invention consists in the novel construction, combination and arrangement of parts, which will be hereinafter described and claimed.

In the accompanying drawing, my invention is shown in a single elevation, in which I employ a panel board 1 on which is mounted a metallic tube 2 bent in a semi-circular shape and adapted at each end to receive and support glass tubes 3 and 4. At the upper end of glass tube 3 I provide metal fitting 5 adapted to receive and hold in an adjusted position an electrode 6. At the top of tube 4 I provide a metal elbow 7 and piping 8 with the necessary fittings 25. This piping is connected to a pump suction 9 or other pipe, where a continuous vacuum is desired to be maintained.

On the panel board 1 I have mounted a switch 10 and connection plugs 11 and 12. The switch 10 is provided with three connection screws 13, 14, 15. In the glass tube 4 an electrode 16 is mounted. This electrode is connected to switch 10 at screw 15 through wire circuit 17. The electrode 6 is connected to switch 10 at 14 through wire

circuit 18. Wire connections 19 and 20 are made respectively between 13 and 12 and 11 and 21. The connection 21 being a part of clamp which holds the semi-circular metal tube 2 to the panel board 1. A standard bell and battery circuit is connected to plugs 11 and 12.

It will be readily understood that the electrode 6 may be adjusted to any height desired and that the lengths of the tubes 3 and 4 may vary depending upon the service to which the switch is put. At the top of tube 3 the fitting 5 is provided with a T connection 22 and piping with a valve 24 terminating in a funnel 23. Through this connection any desired amount of mercury may be poured into the tube.

The operation of the tell-tale switch is as follows: The piping 8 is connected to any pump suction or vacuum 9. The electrode 6 is adjusted so as to be free of the mercury in tube 3 when the proper vacuum is recorded by the height of the mercury in tube 4. The arm switch 10 is thrown on contact 14. If for any reason the vacuum fails by the stopping of the pump or other causes, the mercury in two arms of the U tube equalizes and contacts with the wire or electrode 6 closing the circuit, ringing the bell, giving notice that attention is necessary.

I wish it distinctly understood that my tell-tale switch herein illustrated and described, is in the form which I desire to construct it, and that any changes or variations may be made as may be convenient or desirable without departing from the salient features of my invention and I therefore intend the following claims to cover such modifications as naturally fall within the lines of invention.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. A tell-tale switch consisting of a metal tube bent semi-circular, adapted to receive at each end and hold securely glass tubes, one of these glass tubes provided with an adjustable electrode, the other provided with means of connection to a vacuum pipe.

2. A tell-tale switch consisting of a metal tube bent semi-circular provided with means for securing glass tubes, all mounted on a

panel board; with mercury in the tube; one of these glass tubes provided with an adjustable electrode, the other tube provided with connections to a vacuum, a standard battery
5 circuit connected to the electrode and the semi-circular tube, whereby a reduction in vacuum closes the bell circuit.

This specification signed and witnessed this 17 day of Feb. A. D., 1914.

JOHN HOWLAND.

In the presence of—

J. C. HOPWOOD,
JOE DWYER, Jr.