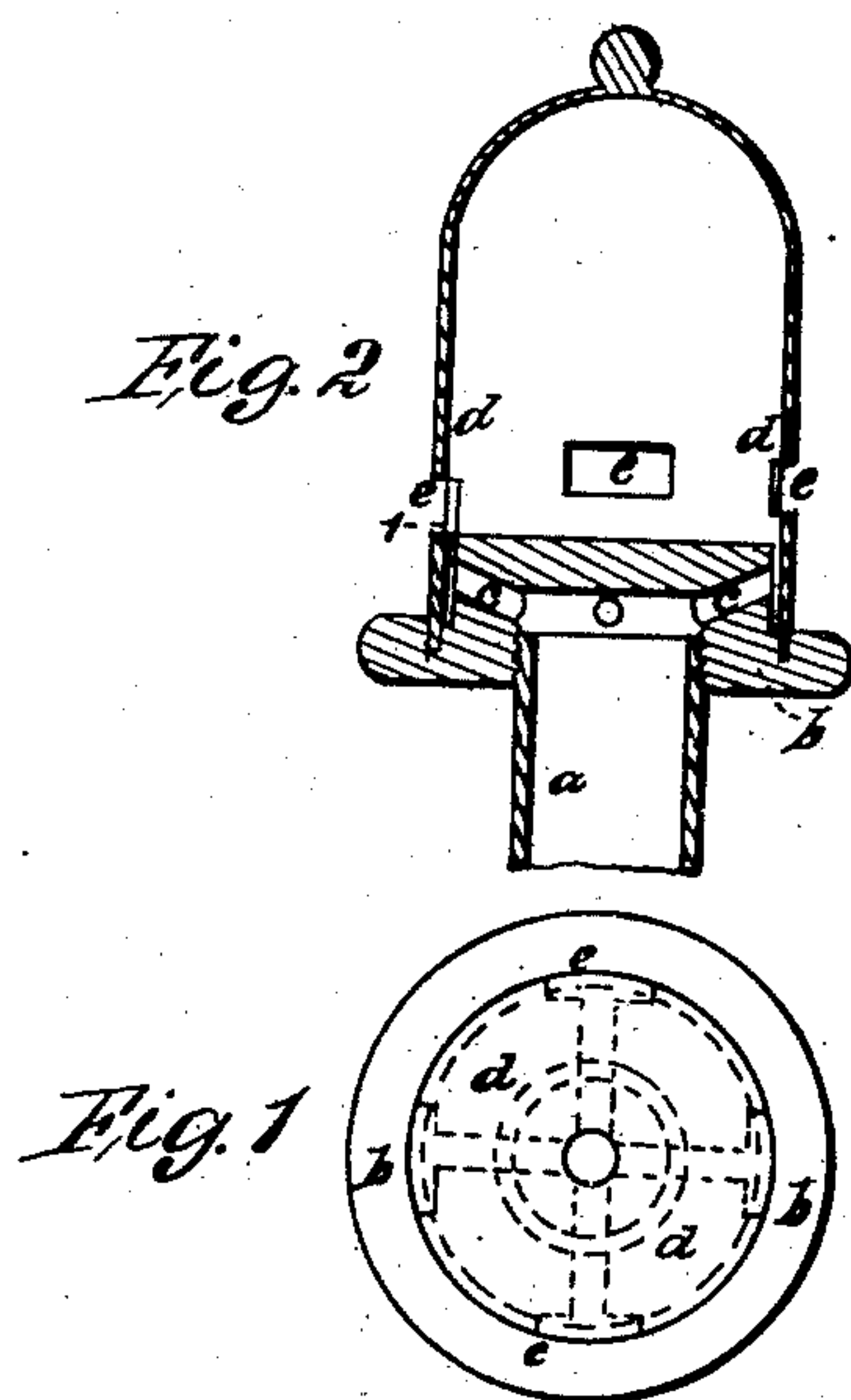


S. W. Warren,
Steam-Boiler Indicator.
N^o 17,656. Patented June 23, 1857.



Witnesses;
Samuel W. Shull
Thomas G. Harrel

Inventor;
S. W. Warren

UNITED STATES PATENT OFFICE.

SYLVESTER W. WARREN, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF, AND
DEXTER N. FORCE, OF NEW YORK, N. Y.

STEAM-WHISTLE.

Specification of Letters Patent No. 17,656, dated June 23, 1857.

To all whom it may concern:

Be it known that I, SYLVESTER W. WARREN, of the city of Brooklyn, (E. D.,) in the county of Kings, and State of New York, have invented, made, and applied to use a new and useful Improvement in Whistles for Steam-Engines, Locomotives, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a plan of the whistle, and Fig. 2 is a vertical section of the same.

Similar marks of reference denote corresponding parts.

In the operation of steam whistles on locomotives, steamboats and manufactories considerable difficulty arises from the ordinary whistle being only adapted to sound well at one pressure of the steam *i. e.* the distance between the steam orifice or mouth and the inverted cup has to be adjusted to the usual pressure of the steam; hence if the steam be of a greater or less pressure an indistinct sound is made; and the water of condensation also interferes materially with the efficiency of such whistles, rendering them useless when most needed, and this is particularly the case on steamboats.

The nature of my said invention consists in a simple attachment to the steam pipe in which no water of condensation can lodge, and the apparatus is adapted to instantaneous use under varying pressures by placing different whistling mouths at distances from the steam escape, adapted to given pressures so that one or more of the whistling mouths will be in operation.

In the drawing *a*, is a pipe from any engine boiler or other source of steam under pressure, and into which pipe steam is to be ad-

mitted whenever desired to produce a signal or whistle by any suitable valve or cock. *b*, is a cap screwed on the end of said pipe having two or more diagonal or radial holes *c*, passing from the escape mouths *1*, into the steam pipe. These mouths *1*, are formed between the cap *b*, and the hollow metallic whistle *d*, that fits over the cap *b*, as shown and is attached thereto by a set screw or other suitable device.

e. e, are the whistling mouths, placed at different distances from the top of the cap *b*. The first of these is immediately above said cap so as to let off any water of condensation, and act with a comparatively small pressure of steam, and the next mouth *e*. is sufficiently above said cap *b*, to act with a higher pressure, and before the first mouth *e*, ceases to act, and so on, any number of mouths (*e*) may be used at different heights according to the size of apparatus and the variations of pressure to which the whistle is ever exposed.

What I claim and desire to secure by Letters Patent, is—

1. The cap *d* and whistling mouth or mouths *e*, connected to the steam pipe substantially as specified.

2. I also claim placing two or more whistling mouths or edges in the whistle at different distances from the orifices for the escape of steam, so as to adapt one whistle to different pressures without changing the position of any of the parts, substantially as specified.

In witness whereof I have hereunto set my signature this thirtieth day of April, 1857.

S. W. WARREN.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.