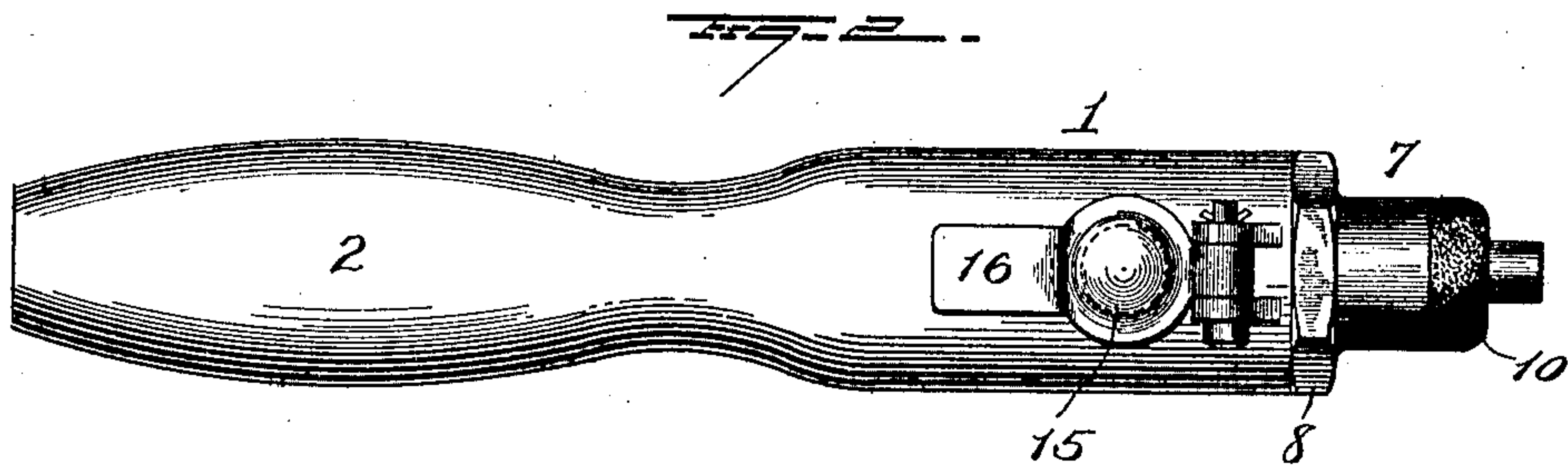
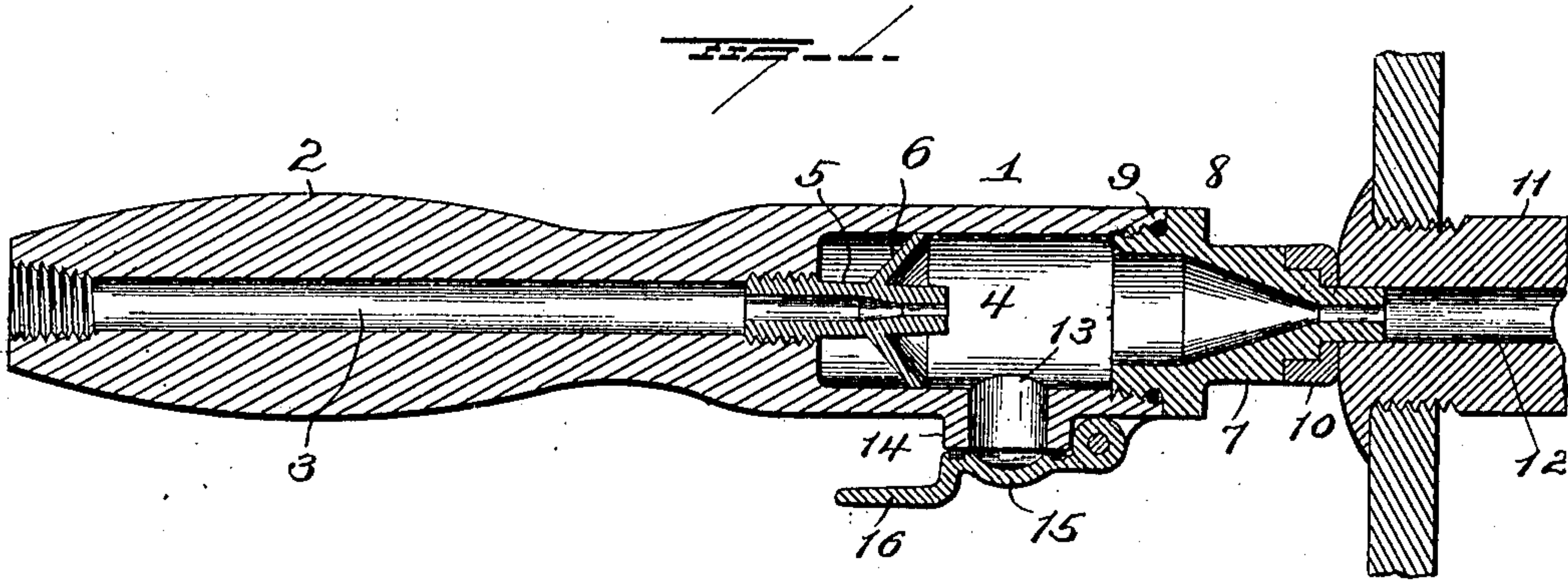


B. E. D. STAFFORD.  
STAY BOLT TESTING DEVICE.  
APPLICATION FILED FEB. 8, 1918.

1,298,416.

Patented Mar. 25, 1919.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## STAY-BOLT-TESTING DEVICE.

1,298,416.

Specification of Letters Patent.

Patented Mar. 25, 1919.

Application filed February 8, 1918. Serial No. 216,027.

*To all whom it may concern:*

Be it known that I, BENJAMIN E. D. STAFFORD, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Stay-Bolt-Testing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in staybolt testing devices and more particularly to means for testing the integrity of staybolts in steam boilers,—the object of the invention being to provide a simple and efficient device which may be readily applied to the tell-tale bore of a stay bolt for ascertaining whether said bore contains water which may have entered the same by reason of a fracture of the bolt.

With this and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings; Figure 1 is a sectional view of a testing device embodying the invention, and Fig. 2 is a bottom plan view of the same.

1 represents a hollow head provided with a handle portion 2 having a duct 3 communicating with the chamber 4 of said hollow head and the wall of said duct may be threaded at the free end of the handle portion 2 for the accommodation of a suitable connection with an exhaust pump (not shown). The wall of the duct 3 may also be threaded at its inner end for the threaded end of a nozzle 5 projecting into the chamber 4 and this nozzle is provided rearwardly of its free end with a conical flange forming a deflector 6 within said chamber for a purpose hereinafter explained.

The forward end of the head 1 is threaded interiorly for the reception of the threaded rear threaded end of a nozzle 7. This nozzle may be conical in form and provided with an annular flange 8 to overlie the end of the head 1. The joint between the nozzle 7 and the head may be provided with suitable packing, as shown at 9, and a collar 10 of rubber or other yielding material may be applied to said nozzle near its free end

to effect an air-tight connection with a stay bolt 11, with the tell-tale bore 12 of which said nozzle is intended to communicate.

The hollow head 1 is made in its bottom with an opening 13, with which a depending nipple 14 communicates, and a valve or shutter 15 is hinged to said head for closing the passage through said nipple. This valve or shutter is manually operable and to facilitate its manipulation, it may be provided with a finger piece 16.

In using the device for testing the integrity of a staybolt, the nozzle 7 will be applied to the tell-tale bore of the bolt as shown in Fig. 1, and the action of the suction pump connected with the duct 3 and through the nozzles 5 and 7 and chamber 4, with the tell-tale bore of the bolt, will exhaust the air from said tell-tale bore. In the event that the bolt had been fractured so that water would be contained within the tell-tale bore, such water would be withdrawn with the air and would be deflected into the nipple 14. The operator may now permit the valve or shutter 15 to open and by application of his finger to the open lower end of said nipple he would discover the presence of such water. He would thus be notified that the bolt is fractured.

If, upon examination of the nipple 14, it is found not to contain water, this fact would indicate that the bolt is whole and unbroken.

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

1. A staybolt testing device, comprising a member having a chamber, a nozzle communicating therewith and adapted for application to the tell-tale bore of a stay bolt, means for connecting air exhausting means with said chamber and nozzle, said chambered member having an opening in its bottom in rear of said nozzle whereby water escaping with the air from the tell-tale bore may be detected and a closure for said opening.

2. A staybolt testing device, comprising a member having a chamber, a nozzle communicating with said chamber and adapted for application to the tell-tale bore of a stay bolt, means for connecting air-exhausting means with said chamber and nozzle, said member having means whereby water escaping with the air from the tell-tale bore



may be detected, and means in said chamber for deflecting water to said detecting means.

3. A staybolt testing device, comprising  
5 a member having a chamber and a handle  
having a duct, said member also having an  
outlet in its bottom, a nozzle communicating  
with said duct and projecting into said  
chamber, a deflector on said nozzle in rear  
10 of the outlet in the bottom of the cham-  
bered member, and a nozzle attached to the  
forward end of said chambered member and  
communicating therewith, said last-men-  
15 tioned nozzle projecting forwardly from the  
chambered member and adapted for applica-  
tion to the tell-tale bore of a stay bolt.

4. A staybolt testing device, comprising a  
head having a chamber, means for connect-  
ing air exhausting means with said cham-  
ber, a nozzle projecting from said member 20  
and communicating with the chamber there-  
in, a nipple depending from said member  
and communicating with the chamber there-  
in rearwardly of said nozzle, and a manually  
operable valve for said nipple. 25

In testimony whereof, I have signed this  
specification in the presence of two subscrib-  
ing witnesses.

BENJAMIN E. D. STAFFORD.

Witnesses:

ETHAN I. DODDS,

EDWIN SPENCER RYCE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."