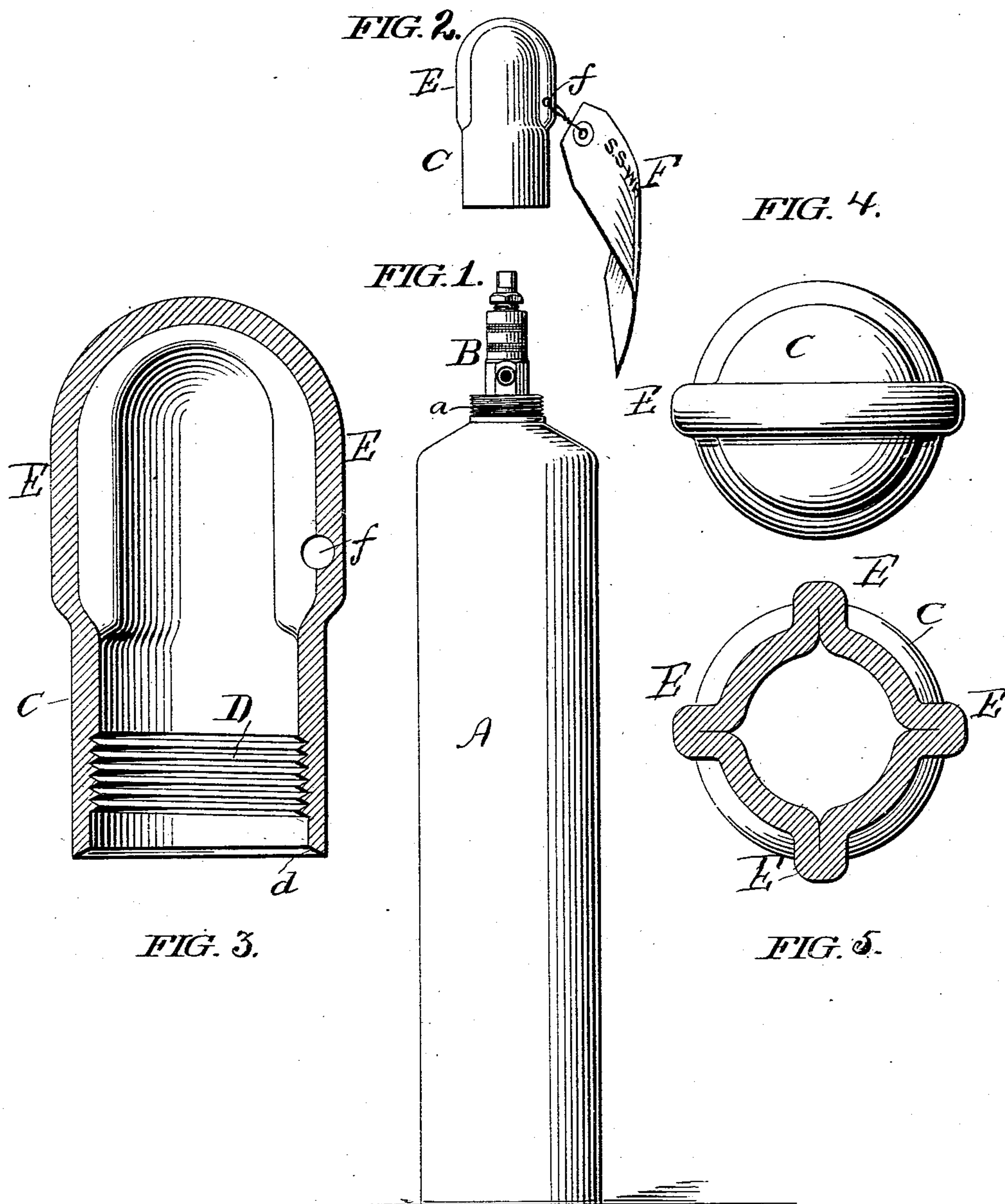


(No Model.)

A. W. BROWNE.  
METALLIC VESSEL FOR COMPRESSED GASES.

No. 555,300.

Patented Feb. 25, 1896.



WITNESSES:

Henry R. Barber  
Edw. J. Simpson, Jr.

INVENTOR

A. W. Browne  
By Atty J. S. Peyton.



# UNITED STATES PATENT OFFICE.

ARTHUR WILLIAM BROWNE, OF PRINCE'S BAY, NEW YORK, ASSIGNOR TO  
THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADEL-  
PHIA, PENNSYLVANIA.

## METALLIC VESSEL FOR COMPRESSED GASES.

SPECIFICATION forming part of Letters Patent No. 555,300, dated February 25, 1896.

Application filed March 5, 1895. Serial No. 540,579. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR WILLIAM BROWNE, a citizen of the United States, residing at Prince's Bay, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Metallic Vessels for Compressed Gases; 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.

My invention relates to certain improvements, as hereinafter claimed, in metallic vessels adapted for use in the storing and shipping of highly-compressed gases, such as nitrous oxide and oxygen.

Vessels of the class to which my improvements apply are shown in United States Letters Patent No. 213,576, dated March 25, 1879, and No. 457,158, dated August 4, 1891. My objects are to provide protection for the valves of vessels of this class and render unnecessary the boxing or packing of them for shipment.

In the accompanying drawings, Figure 1 is a view in elevation of a suitable vessel provided with a valve, as usual. Fig. 2 is a similar view of the valve-protecting cap detached from the vessel. Fig. 3 is a view in longitudinal central section of the cap on an enlarged scale, and Fig. 4 a top or end view thereof. Fig. 5 is a view in transverse section, showing a modification of the cap.

The vessel A is preferably made in one piece of drawn steel and has an internally-threaded neck *a*, to which is attached the casing B of a suitable valve, such as commonly employed in vessels of this class. The neck *a* is externally threaded for the attachment of a valve-protecting cap C, and the upper end of the vessel tapers or inclines from its cylindrical or body portion to the neck.

A rigid or unyielding metallic valve-protecting cap is provided with an internal screw-thread D near its lower end to engage the screw-thread about the vessel's neck, and the lower end of the cap is inclined, as shown at *d*, Fig. 3, to correspond with the inclina-

tion of the top or upper end of the vessel. The closed upper end of the cap is curved or arched. Considerable force is required to properly screw the cap in place and tightly bind or jam its inclined end down upon the inclined top of the vessel, so as to prevent accidental loosening of the cap. To provide for the use of a wrench the cap is provided with wrench-engaging faces or surfaces, which are shown as formed by ribs E, produced by contracting the diameter of the cap above its threaded portion by a well-known process, the metal displaced in reducing the diameter of the upper portion of the cap being forced outward to form the ribs extending longitudinally of the cap and across its curved top. More than two ribs may be thus produced, if desired, four being represented in Fig. 5. Advantages of the ribs over other wrench-engaging surfaces are that they strengthen the cap, may readily be produced by swaging or reducing in well-known way, and provide for readily attaching a shipping-tag F, a hole *f* being made through one of the ribs for securing the tag.

From the above description it will be understood that the lower portion of the cap being unribbed or of regular circular formation internally adapts it to be provided with an uninterrupted screw-thread, while the upper portion of the cap most liable to injury by rough usage is strengthened by the wrench-engaging ribs. It will be seen that a vessel charged or stored with gas and having the valve-protecting cap forcibly screwed in place and addressed shipping-tag attached may be shipped without packing or boxing and subjected to very rough usage without injury to the valve mechanism, as the cap is made sufficiently strong and rigid to maintain its form and withstand the shocks and strains encountered in handling and transportation.

I claim as my invention—

1. The rigid or unyielding valve-protecting cap for metallic gas-holding vessels, having the closed curved top, the lower portion of regular circular formation internally and anteriorly threaded, and with the upper portion of less internal diameter than the threaded

lower portion, and externally ribbed longitudinally and across the top, to provide the wrench-engaging surfaces and impart increased strength and rigidity, substantially  
5 as set forth.

2. The combination with the metallic vessel having the externally-threaded neck and inclined upper end and provided with the valve-inclosing casing, of the rigid or unyielding  
10 valve-protecting cap constructed with the closed curved top, the interiorly-threaded lower portion, and the inclined end for bear-

ing against the inclined surface of the vessel, and externally ribbed across its top and downwardly therefrom for a portion only of  
its length, substantially as and for the purpose set forth. 15

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

ARTHUR WILLIAM BROWNE.

Witnesses:

SEYMOUR CASE,  
GEO. D. HECK.