

E. S. ANDREWS.
VACUUM JACKETED METAL VESSEL.
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1,368,877.

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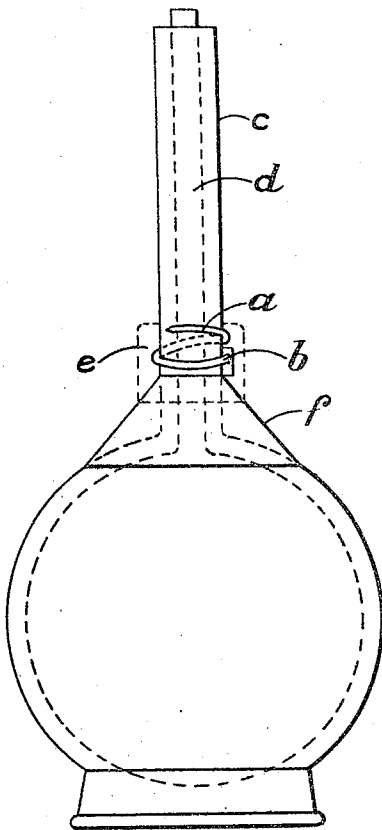


Fig. 1.

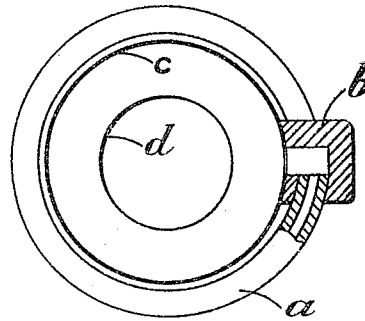


Fig. 2.

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UNITED STATES PATENT OFFICE.

EWART SIGMUND ANDREWS, OF BECKENHAM, ENGLAND.

VACUUM-JACKETED METAL VESSEL.

1,368,877.

Specification of Letters Patent. Patented Feb. 15, 1921.

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To all whom it may concern:

Be it known that I, EWART SIGMUND ANDREWS, a subject of the King of Great Britain, residing at "Moyders," 22 Manor Way, Beckenham, in the county of Kent, England, have invented certain new and useful Improvements in Vacuum-Jacketed Metal Vessels, of which the following is a specification.

10 This invention relates to vacuum-jacketed metal vessels which are employed for holding hot or cold liquids so as to reduce to a minimum the loss or gain of heat of the liquid, and are particularly applicable to
15 holding air, oxygen or other gases in a liquid state.

It is usual to provide such vessels in the side or bottom with a metal sealing-off tube, which is usually of lead, so that after the
20 space between the inner and outer walls of the vessel has been evacuated the tube may be closed to maintain the space in the evacuated condition; but in a vacuum-jacketed vessel with a metallic outer shell and glass
25 inner body it has been proposed to place a glass sealing-off tube in the neck so as to project radially.

According to this invention a metal sealing-off tube is placed in the neck of the vessel and is arranged to project in a direction
30 substantially tangential to the neck.

An advantage of this arrangement is that the tube, which usually has to be bent back after evacuation in order to cover it with a
35 projecting cap, can be bent around the neck of the vessel, acting as a mandrel, with a minimum danger of damaging the tube or its joint with the vessel.

In the accompanying drawing which
40 illustrates the preferred embodiment of my invention,

Figure 1 represents an elevation of a vacuum-jacketed metal vessel, and

45 Fig. 2 represents to enlarged scale a section through the neck of the vessel.

In accordance with the construction shown the sealing-off tube *a* is secured, by

soldering or otherwise, to a metal thimble *b* which is connected to the outer neck tube *c*, the latter being provided with a hole as
50 shown so that the sealing-off tube *a* connects to the space between the inner and outer necks *c*, *d*.

The thimble *b* is shown placed just above the strengthening cone *f* which is usually
55 provided in vessels of this kind, but it may if desired be placed inside this cone which would then be made detachable or provided with means of access to the tube *a*.

A detachable cup *e* may be provided for
60 protecting the tube *a* from being tampered with after sealing-off has been effected.

For evacuation of the space between the inner and outer vessels, the tube *a* is unwound from the neck and its open end is
65 connected to the vacuum pump; when the desired degree of exhaustion has been reached, the end of the tube *a* is sealed and the tube is then bent around the neck *c* as a mandrel.

By vacuum-jacketed metal vessels, I mean a vacuum-jacketed vessel in which the outer vessel is made of metal or both inner and outer vessels are made of metal.

Claims:

1. In a vacuum-jacketed vessel, a metal sealing-off tube adapted to be bent around the neck of the vessel as a mandrel after
75 sealing-off.

2. In a vacuum-jacketed metal vessel, a
80 metal sealing-off tube projecting in a direction substantially tangential to the neck of the vessel from a thimble secured to the neck and giving access to the vacuum space.

3. In a vacuum-jacketed metal vessel the
85 combination of a metal sealing-off tube which projects from the neck of the vessel in a direction substantially tangential to the neck and a cap adapted to be placed on the neck to protect the sealing-off tube from in-
90 jury.

In testimony whereof I affix my signature.

EWART SIGMUND ANDREWS.