No. 819,383. PATENTED MAY 1, 1906.

A. V. M. SPRAGUE.

PROCESS OF TREATING SURGICAL ARTICLES.

APPLICATION FILED NOV. 8, 1904.

2 SHEETS—SHEET 1.

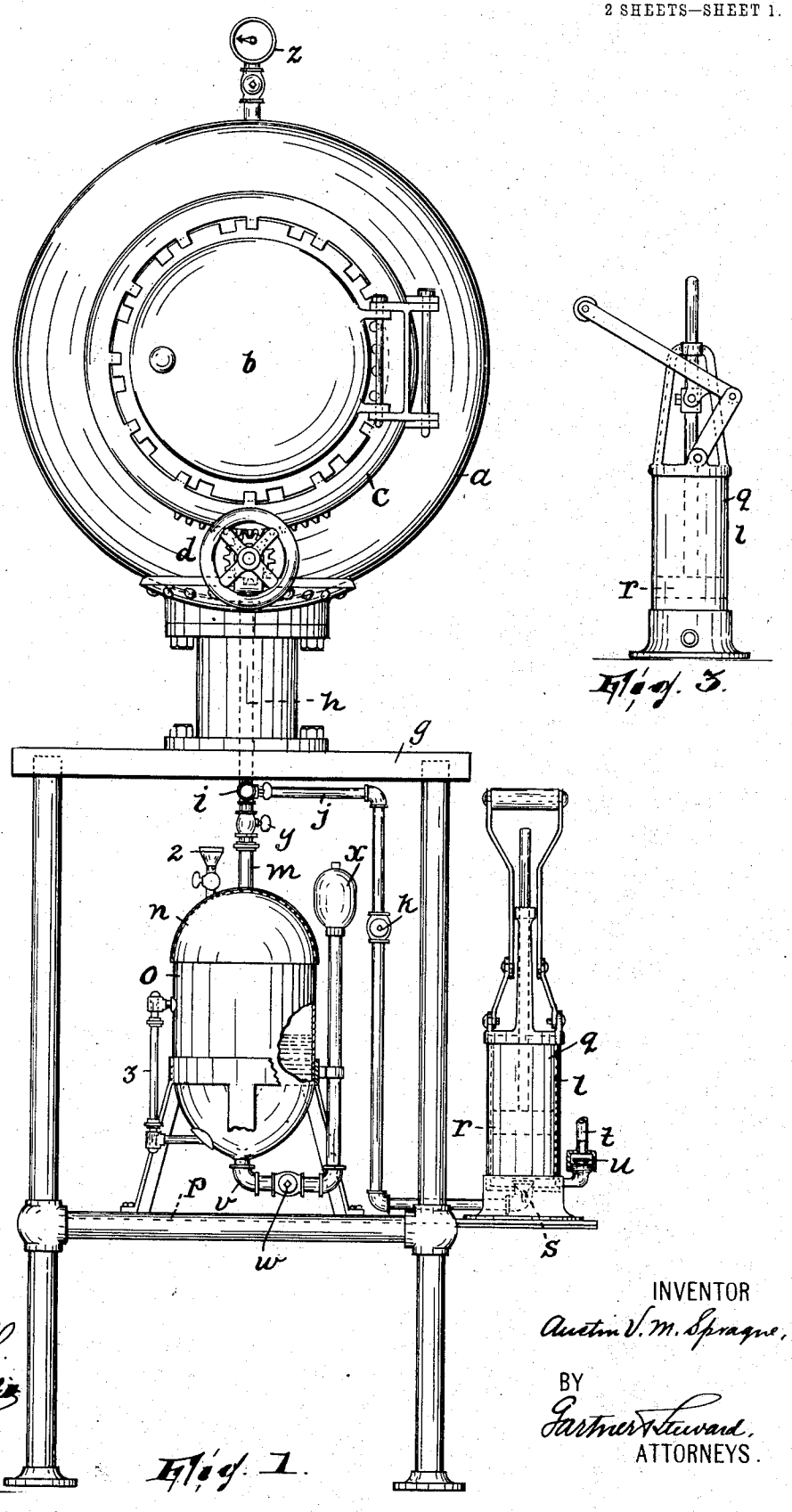


Fig. 1.

Fig. 3.

WITNESSES:

Wm. Bell.

Robert J. Bell

INVENTOR

Austin V. M. Sprague,

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Gartner & Stewart,

ATTORNEYS.

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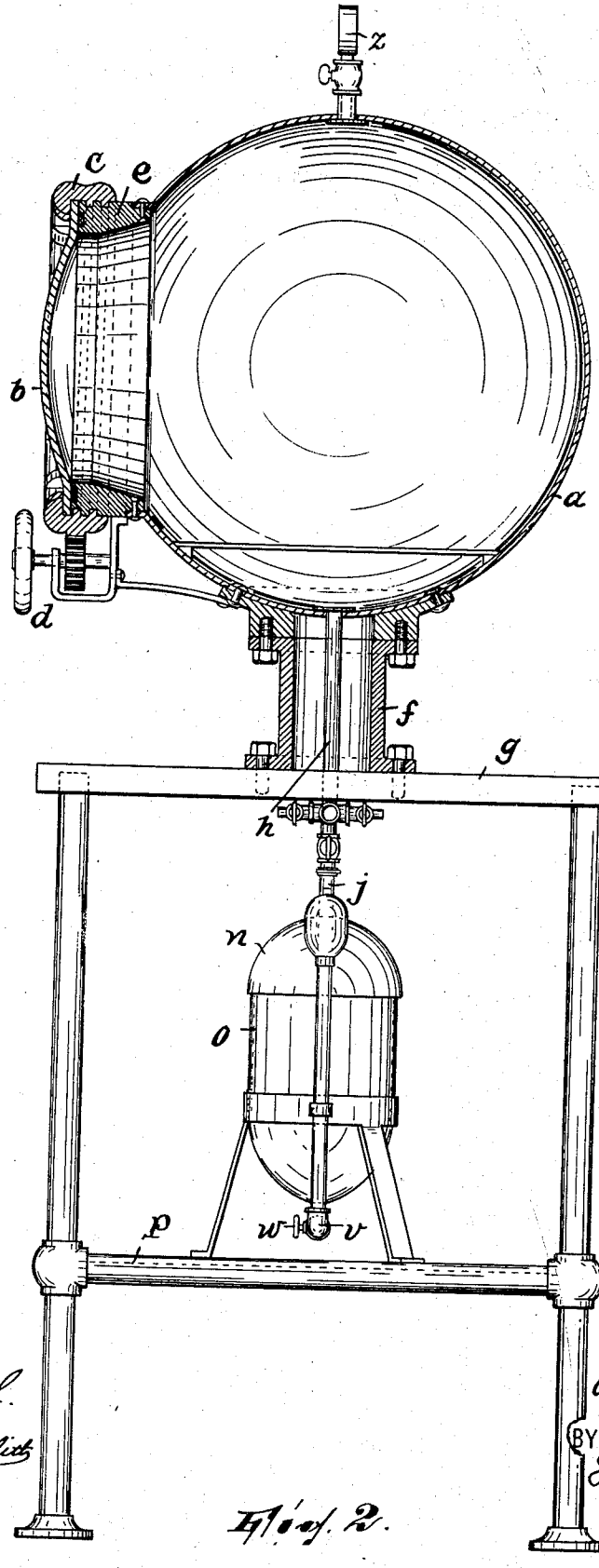


Fig. 2.

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UNITED STATES PATENT OFFICE.

AUSTIN V. M. SPRAGUE, OF NEW YORK, N. Y.

PROCESS OF TREATING SURGICAL ARTICLES.

No. 819,383. Specification of Letters Patent. Patented May 1, 1906.

Application filed November 8, 1904. Serial No. 231,838.

To all whom it may concern:

Be it known that I, AUSTIN V. M. SPRAGUE, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in the Processes of Treating Surgical Dressings, &c.; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

My invention is a novel method useful particularly in the art of asepticizing surgical dressings, &c.

My invention consists in placing the articles to be treated in an air-tight chamber, sealing up the chamber with the articles inclosed therein, then exhausting the chamber, and then permitting external pressure to force a gaseous fluid against an asepticizing or other medium capable of mixing therewith and impel said fluid laden or charged with said medium or increments thereof into said chamber and into the articles. I prefer to carry the exhaustion of the operating-chamber to the condition of as perfect a vacuum as may be, so as to give the greater impetus to the incoming charged fluid when the chamber is opened thereto and to reduce, as far as possible, the impediment to the complete penetration of the article by said fluid.

I will explain my method in detail with reference to an asepticizing apparatus in connection with which it may be performed. In the accompanying drawings I show one form of such apparatus.

Figure 1 is a front view, partly broken away; Fig. 2, a view partly in side elevation and partly in vertical section, and Fig. 3 a side view of an exhaust-pump.

In the drawings, *a* is the operating-chamber or receiver. This is provided with a hinged door *b*, which is held with an air-tight fit against its seat by a ring *c*, provided with an operating means *d* and having a threaded engagement with the mouth portion *e* of said chamber, all as and for the purposes indi- in my United States Letters Patent No. 583,514. The chamber *a* has a pedestal *f*, which rests on a table *g*.

Leading from chamber *a* is a pipe *h*, which at *i* divides, one branch *j*, provided with a cut-off valve *k*, leading to an exhaust-pump *l* and the other branch *m* to the top of the dome *n* of a closed receptacle *o*, resting on a shelf *p* of table *g*. The pump is of well-known construction and comprises a cylinder *q*, a piston *r*, a check-valve *s*, preventing communication from said cylinder to pipe *j*, a discharge *t*, and a check-valve *u*, preventing atmospheric access to said cylinder.

Receptacle *o* forms part of a tubular conducting means between the atmosphere and the chamber or receiver *a*, other parts of which are pipe *h*, branch pipe *m*, a pipe *v*, which has a cut-off valve *w*, and a filter-nozzle *x*, containing some material, such as cotton. (See my United States Letters Patent No. 671,499.) Pipe *m* has a cut-off valve *y*.

z is a pressure-gage on the chamber *a*, 2 a filling-funnel for receptacle *o*, and 3 a liquid-level gage on receptacle *o*.

The substance placed in receptacle *o* is preferably a liquid which by nature is both volatilizable under agitation and a germicide. The ordinary formalin solution of commerce (forty per cent.) well serves the purpose.

The articles to be treated are first placed in chamber *a* and the door then closed and sealed up tight. The pump is now operated to exhaust-chamber *a*, valve *k* being open and valves *y* and *w* closed. The desired state of exhaustion being effected by the pump, valve *k* is closed and valves *y* and *w* opened. Air under atmospheric pressure now enters pipe *v* through its filter-nozzle and enters receptacle *o*, where it produces ebullition of the liquid therein contained and, passing through it, carries along with it the products of such ebullition. Thus more or less charged with increments of the product of the liquid in receptacle *o* the air enters the chamber *a*, where the articles therein contained *in vacuo* are asepticized. Thereupon the vacuum being now destroyed the chamber *a* may be opened and the articles removed. This treatment may be repeated one or more times, and it is preferable that the goods be left under the influence each time of the germicide for about twenty to thirty minutes.

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

1. The method of treating penetrable articles whereby to render them aseptic which consists in inclosing them in a fluid-tight chamber, producing a substantially perfect vacuum in said chamber, and then precipitately permitting an external gaseous fluid to

impel itself against, charge itself with and convey along with it into said chamber, an asepticizing medium mixable with said fluid, substantially as described.

2. The herein-described method of treating surgical articles consisting in inclosing the articles to be treated in a vacuum-chamber, then exhausting said chamber, and then causing atmospheric pressure to impel a gaseous fluid against, and convey along with it into said chamber, an asepticizing medium mixable with said fluid, substantially as described.

3. The herein-described method, of treating surgical articles consisting in inclosing the articles to be treated in a closed chamber and causing external pressure to impel a fluid against, and to thus induce ebullition in, a liquid, and to then cause said fluid to convey along with it into said chamber increments of the product of such ebullition, substantially as described.

4. The herein-described method of treating surgical articles consisting in inclosing the articles to be treated in a closed chamber and causing external pressure to impel a fluid against, and to thus induce ebullition in, a liquid, and to then cause said fluid to mix itself with, and convey along with it into said chamber, increments of the product of such ebullition, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of November, 1904.

AUSTIN V. M. SPRAGUE.

Witnesses:

WM. G. GRAMM,

GEORGE LAW.