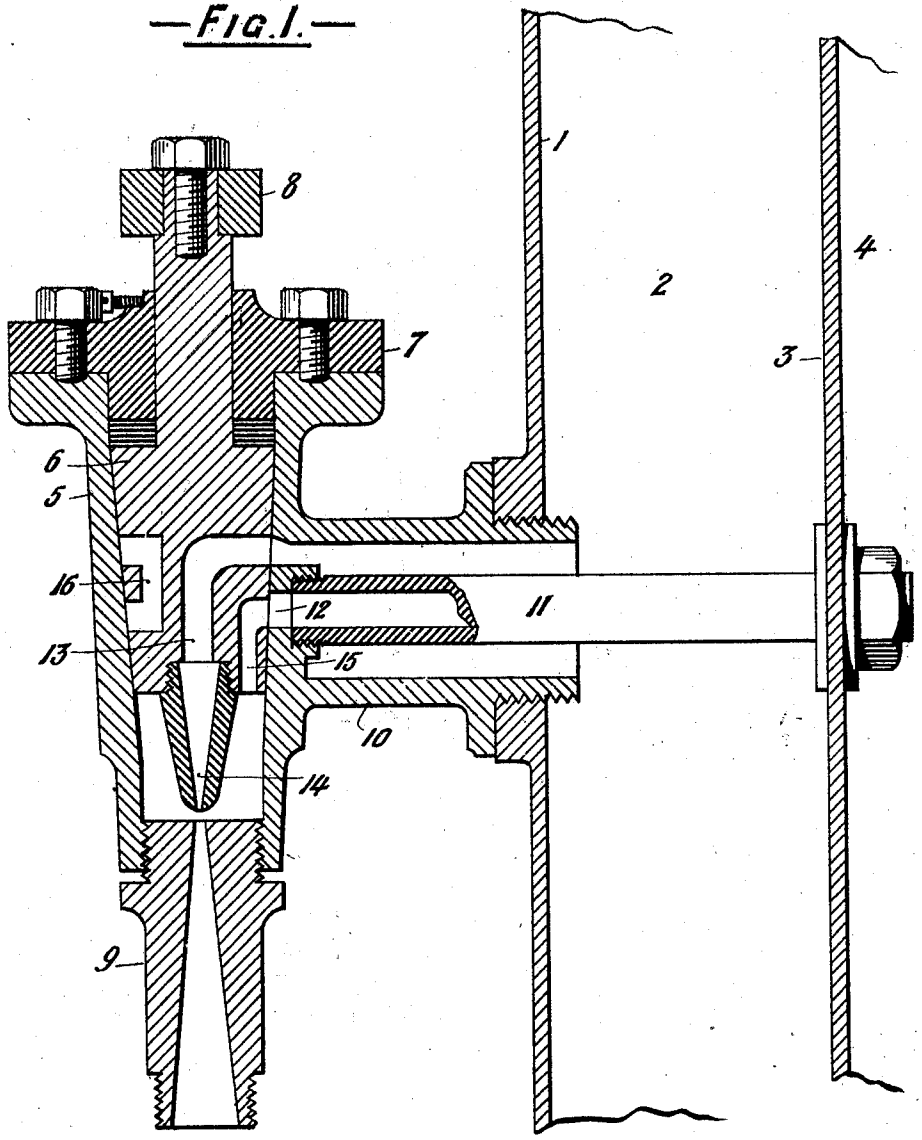
June 16, 1925. 1,541,987

G. S. MASCALL

VALVE FOR STERILIZING APPARATUS

Filed Jan. 5, 1925 2 Sheets-Sheet 1

—FIG. 1.—



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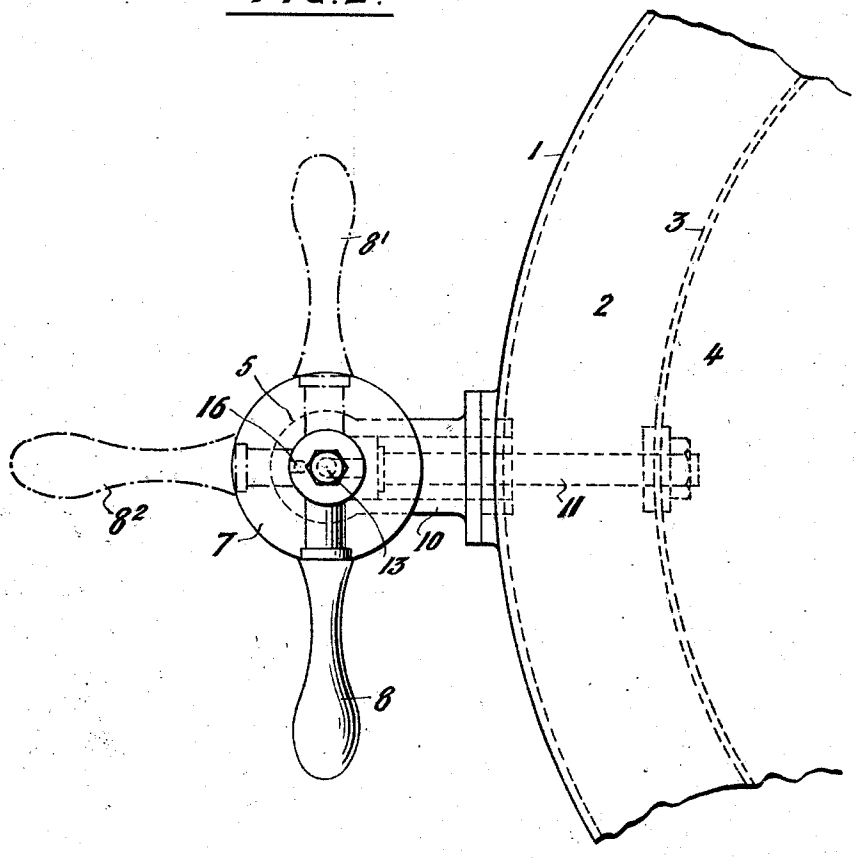
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VALVE FOR STERILIZING APPARATUS

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— FIG. 2. —



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By [illegible]

Patented June 16, 1925. 1,541,987

UNITED STATES PATENT OFFICE.

GEORGE SAMUEL MASCALL, OF LONDON, ENGLAND, ASSIGNOR TO JOHN BELL & CROYDEN LIMITED, OF LONDON, ENGLAND.

VALVE FOR STERILIZING APPARATUS.

Application filed January 5, 1925. Serial No. 729.

To all whom it may concern:

Be it known that I, GEORGE SAMUEL MASCALL, a subject of the King of Great Britain, residing at Wood Green, London, England, have invented certain new and useful Improvements in Valves for Sterilizing Apparatus, of which the following is a specification.

The sterilizing apparatus to which the present invention is to be applied, comprises an inner and an outer casing forming an inner chamber for containing the articles to be sterilized, surrounded by an outer chamber containing steam at pressure and thus forming a steam jacket.

In utilizing the apparatus it is required that when the articles to be sterilized have been placed in the inner chamber and the latter closed, the air shall be partially exhausted therefrom; then steam is admitted from the outer chamber to the inner chamber, and after a sufficient time has elapsed, the steam is exhausted from the inner chamber, and then the inner chamber cut off from communication with the outer chamber, and the inner chamber is then opened and the articles removed therefrom. When other articles have been placed in the inner chamber the same procedure takes place as has been above outlined.

Such a procedure has heretofore been effected by utilizing a rotary plug valve to control communication between the inner and outer chambers of the apparatus, and a cock to control a passage from the casing of the said valve to the atmosphere. It was necessary with this apparatus to see that the control cock was open when the valve was to be placed in position to exhaust the sterilizing chamber, while when it was desired to admit steam from the steam chamber to the sterilizing chamber it was requisite to close the control cock before the rotary valve was placed in position to effect communication between the steam chamber and the sterilizing chamber.

Now the object of the present invention is to so construct the rotary plug valve so that the control cock can be dispensed with and the operation effected as first set out in the present specification, that is to say in one position of the said valve a partial vacuum will be formed in the inner chamber, in another position will admit steam from the outer chamber to the inner chamber, and in a third position will entirely close the valve.

The invention will be described with reference to the accompanying drawings, whereon Fig. 1 is a vertical section of the valve constructed according to this invention, a portion of the wall of the outer steam chamber and a portion of the wall of the inner or sterilizing chamber being illustrated. Fig. 2 is a part plan view, on a smaller scale than Fig. 1, showing the various positions of the operating handle of the valve.

Referring more particularly to Fig. 1, the valve is fixed to the outer wall 1 of the outer chamber 2 of a sterilizing apparatus, and at 3 is indicated the wall of the inner chamber 4.

The valve comprises a valve casing 5 fitted with a revoluble plug 6, the stem of which passes through suitable packing and through a casing cover 7, and exterior of the cover is fitted with a handle 8 more clearly shown at Fig. 2. The casing 5 extends for a distance below the end of the plug 6 and is there fitted with an open continuation tube 9. The casing is constructed with a tubular shank 10 screwthreaded into the wall 1 of the outer chamber 2.

An extension tube 11 passes through the tubular shank 10 and is screwthreaded into a boss formed on the casing 5 through which is a bore 12, and the extension tube 11 passes through the outer steam chamber 2 and extends to the inner sterilizing chamber 4, being suitably fixed in the wall 3.

The plug 6 is formed with a central bore 13 which at the base of the plug terminates in a conical nozzle 14 opening opposite the bore of the continuation tube 9, and the upper end of the central bore 13 extends at right angles to the periphery of the plug and in one position of the plug coincides with a bore in the valve casing 5 opening into the tubular shank 10 of the casing 5, and consequently, in one position of the plug is in communication with the outer steam chamber 2.

The plug 6 is also formed with a second bore 15 opening on the base of the plug laterally of the first central bore 13, and the said second bore 15 extends at its other end to the periphery of the plug, so that the upper end of the second bore 15 can be brought opposite the bore 12 of the casing

communicating with the extension tube 11, simultaneously with the upper end of the first bore coming opposite the communication with the tubular shank 10 of the casing, and it is in this position that the plug is shown in the drawings.

Diametrically opposite to the bores 13 and 15, is a U-shaped passage 16 formed in the plug, the arms of the passage opening onto the periphery of the plug, and in one position of the plug these arms of the U-shaped passage 16 coincide, one with the bore 12 of the casing 5 leading to the extension tube 11 and to the inner chamber 4, while at the same time the upper arm of the passage 16 coincides with the bore into the tubular shank 10 of the valve casing.

In the position shown at Fig. 1, with the handle 8 in the position shown in full lines at Fig. 2, steam passes from the outer chamber 2 by the first central bore 13 and conical nozzle 14 to the continuation tube 9 and causes, through the extension tube 11 and the second bore 15 of the plug, a partial exhaustion of the air from the inner chamber 4.

When the inner chamber 4 has been sufficiently exhausted, the handle 8 is then turned through 180 degrees from the full line position shown at Fig. 2 to the dotted position shown at 8^1, when the U-shaped passage 16 will be brought with its arms respectively coinciding with the bore leading to the tubular shank 10 and to the outer chamber 2, and also coinciding with the bore 12 leading to the extension tube 11 and to the inner chamber 4, and consequently steam will freely pass from the outer chamber 2 to the inner chamber 4.

When the articles in the inner chamber 4 have been sterilized, the valve can then again be placed in the position at Fig. 1 and the steam exhausted from the inner chamber 4. Then by turning the handle 8 to the position shown in the dotted lines at 8^2, Fig. 2, all the passages through the plug will be closed and the inner chamber 4 can be opened and the sterilized articles removed therefrom and others placed therein.

What I claim as my invention and desire to secure by Letters Patent is:—

In sterilizing apparatus comprising an inner and an outer casing forming an inner sterilizing chamber and an outer pressure steam chamber; the combination therewith of a valve casing, a revoluble valve plug located within said valve casing, a cover to close one end of said valve casing, a stem on said plug extending through said cover, an operating handle on said stem, the opposite end of said valve casing extending beyond said valve plug, a continuation tube open to the atmosphere fixed to said extending end of said valve casing, said valve casing having a lateral tubular shank fixed to said outer casing of the apparatus communicating at one end with said pressure steam chamber and at the opposite end with the periphery of said valve plug, an extension tube passing through said tubular shank to communicate at one end with said sterilizing chamber and at the opposite end with the interior face of said valve casing, said valve plug having a central conical nozzle fixed at its end opposite to said continuation tube of said casing and said valve plug having a bore communicating with said nozzle and extending to the circular face of said valve plug to communicate with said tubular shank and with said steam chamber in one position of said valve plug, and said valve plug having a second bore communicating, in the same position of said valve plug, with said extension tube and said sterilizing chamber to exhaust air or steam from the latter, and said plug having a U-shaped passage adjacent that side opposite to the openings of said bores, the arms of said U-shaped passage opening onto the periphery of said valve plug to effect communication in another position of said valve plug between said pressure steam chamber through said tubular shank and simultaneously with said sterilizing chamber through said extension tube, to admit steam from said steam chamber to said sterilizing chamber.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEORGE SAMUEL MASCALL.

Witnesses:

THOMAS WILLIAM ROGERS,

LESLIE FRANK ROGERS.