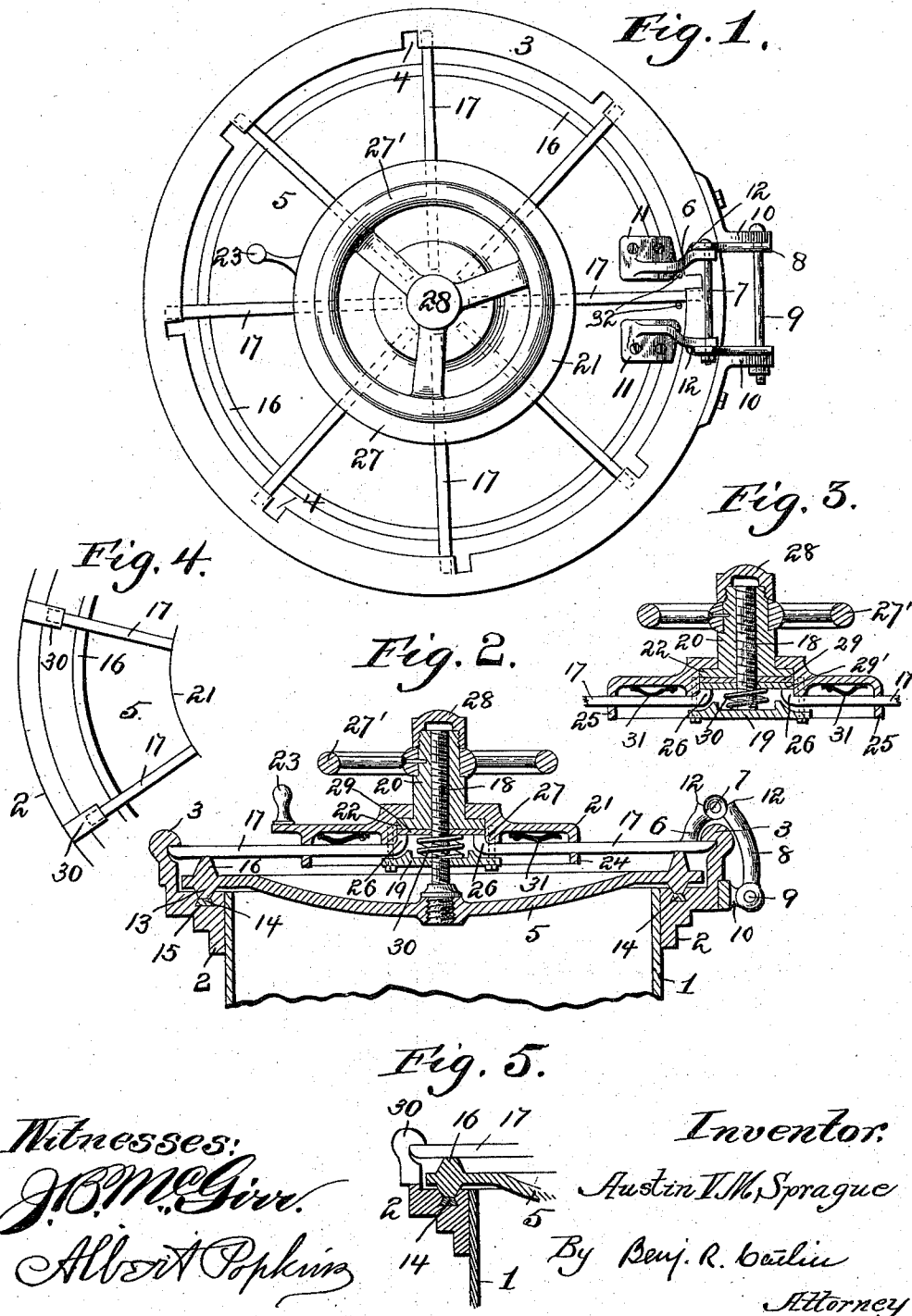


(No Model.)

A. V. M. SPRAGUE.  
DOOR FOR STERILIZING OVENS.

No. 571,542.

Patented Nov. 17, 1896.



# UNITED STATES PATENT OFFICE.

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

## DOOR FOR STERILIZING-OVENS.

SPECIFICATION forming part of Letters Patent No. 571,542, dated November 17, 1896.

Application filed June 6, 1896. Serial No. 594,577. (No model.)

*To all whom it may concern:*

Be it known that I, AUSTIN V. M. SPRAGUE, a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Doors for Sterilizing-Ovens; 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 pertains to make and use the same.

The invention relates to doors for sterilizers or sterilizing-ovens and the like, and has for its object to provide simple and efficient means whereby they may be tightly closed by easy and speedy manipulation; and the invention consists in the construction hereinafter described, and particularly pointed out.

In the accompanying drawings, Figure 1 is an elevation of a sterilizer provided with the improved door. Fig. 2 is a section of the same, a part only of the sterilizer being shown. Fig. 3 is a section of a modification. Fig. 4 is a plan of a modified device. Fig. 5 is a vertical section of the same.

Numeral 1 denotes the wall of a sterilizing-oven, which is preferably a cylinder made of copper.

2 denotes a ring fixed on the end of the cylinder. This ring has an inturned flange 3, which is provided with slots 4 at regular intervals, or hooked lugs 30 may be provided to engage the locking-bars, as shown in Fig. 4.

A door is indicated by 5. This is provided with a hinge comprising arms 6, connected by a pintle 7 to links 8, which latter have a pivotal or hinge connection by means of a pintle 9 with a bracket or extension 10 of the ring 2. The arms 6 terminate next the door in foot-plates 11, which are screwed or bolted to the door.

12 indicates stops. When the door is opened, the arms 6 can swing about the pintle 7 until these stops engage each other, whereupon the whole can be swung back about the pintle 9.

The door 5 is further provided with a rim 13, adapted, when the door is tightly closed, to bear on a metal packing 14, seated in a groove 15, formed in the ring 2. On the opposite side of the door is a rim 16, serving as a fulcrum for each of a series of levers 17, consisting, preferably, of flat steel bars. The long arm of each of said levers is held and moved

by devices movable on a screw-stud or post 18. This is secured in the center of the door and has a screw-threaded connection with an annular plate 19 and with a thimble or flanged nut 20.

21 denotes a disk or lever-dividing plate resting upon the flange 22 of the nut 20 and provided with a handle 23. This plate 21 has a peripheral downturned flange 24, provided with slots 25 to receive the levers. The inner ends of the levers are upturned at 26 and are engaged, as shown, by a rim 27, formed in the under side of the lever-dividing plate 21. The bends 26 of the levers rest on the plate 19, and the levers are pressed down upon said plate and upon the fulcrum-rim 16 by springs 31.

27' denotes a hand-wheel jammed against an exterior shoulder on the nut 20 by a nut 28. The wheel 27' can be manipulated to move the nut 20 lengthwise the stud 18 with the effect to operate the levers by the medium of the flange of the nut and by an interposed steel washer 29, bearing on the upturned ends of the levers.

30 is a coiled spring held in a seat formed in the plate 19 and adapted to hold the washer closely against the upturned ends of the locking-bars, and when two washers are used, as indicated in Fig. 3, and the spring is stiff, it offers sufficient friction to throw the radial arms in and out of lock.

The outer ends of the levers can be put in alignment with the slots 4 in the flange 3 of the ring by properly manipulating the lever dividing or spacing plate by means of its handle 23, and after the levers have been passed through the slots they can by the same means be made to engage under said flange. 32 denotes stops to limit the rotary movement of the levers about the stud 18. When the outer ends or short arms of the levers have been made to engage the flange 3, as stated, the door is closed steam-tight by screwing down the flanged nut 20, and thus forcing the steel-washer 29 against the upturned ends of the power-arms of the levers, whereby they are moved toward the cylinder with the effect to force the rim 13 against the packing 14. Thus by the easy manipulation of the two handles in succession the levers can first be made to engage the ring, and next the door can be

closed with a powerful leverage applied equally and simultaneously all around its circumference. By reversing the operation the levers can be disengaged from the flanges 3, and thereupon the door can be swung open, the hinge permitting it to be moved in a direction approximately that of the longitudinal axis of the oven, that is, directly away from the oven until the stops 12 engage, whereupon it can be swung entirely out of the way on the hinge 9. In closing the door it is brought squarely to its seat, that is, it moves to its seat in the axial line of the sterilizer, so as to enter the levers in the slots 3 simultaneously and bring the rim 13 to its seat all around its circumference at the same instant.

Although the use of a metal packing in the door-joint has been described, it can be dispensed with for the reason that the powerful means described for closing the door enables a steam-tight joint to be secured with ground or finished metal surfaces, and this is a characteristic effect of the improvement, though it is not inconsistent with the use of packing, if desired. The rapidity and ease with which the door can be forced to its seat by the manipulation of a hand-wheel is an additional advantage and independent of the fact that the door can be tightly closed without the use of packing.

I am aware that safe-doors have been operatively supported by hinged arms. My improvement has for its object to automatically present the door squarely, that is, in line with the axis of the sterilizer, to insure a quick, even, and smooth closing of the same, and to also in such device provide for opening the door, so that it and its hinge may be entirely out of the plane of the end of the sterilizer and therefore entirely out of the way. The door, when turned back on the pintle 9, cannot obstruct the introduction of goods or instruments, nor interfere with the operator. When the materials have been introduced, the door is first brought near its closing position by turning the links 8 about pintle 9 until stopped by flange 3, which brings the door near the usual position of a hinged door, and thereupon it can be closed by turning the arms 6 about the pintle 7. At no time does the hinge obstruct the door opening, and the construction is such that the door can be swung back to a situation parallel with and adjacent to the side wall of the sterilizer.

Having described my invention, what I claim is—

1. In a sterilizing-oven or the like, the combination of a door, a series of independent and radially-arranged levers adapted to shut said door, and a device to simultaneously operate the levers, said device bearing upon each of the levers, and a lever-spacing plate 21, substantially as described.

2. The combination of the cylinder of the

sterilizing-oven having the ring provided with a flange, the hinged door, said door having the bearing-rim 13 and the fulcrum-rim 16, the levers adapted to engage the flange of the ring, and resting on rim 16, the post or stud fixed in the door, the lever-spacing plate movable about said post and provided with a slotted peripheral flange to receive the levers, and means for applying power to the levers to force the door to its seat, substantially as described.

3. The combination of the cylinder of the sterilizing-oven having the ring provided with a flange, the hinged door, said door having the bearing-rim 13 and the fulcrum-rim 16, the levers adapted to engage the flange of the ring, and resting on rim 16 and having each an upturned end, the post or stud fixed in the door, the lever-spacing plate movable about said post and provided with a slotted peripheral flange to receive the levers, and a rim to engage the upturned ends of the levers, and means for applying power to the levers to force the door to its seat, substantially as described.

4. The combination of the cylinder of the sterilizing-oven having the ring provided with a flange, the hinged door, said door having the bearing-rim 13 and the fulcrum-rim 16, the levers adapted to engage the flange of the ring and resting on rim 16, the post or stud fixed in the door, the lever-spacing plate movable about said post and provided with a slotted peripheral flange to receive the levers, means for holding said levers in the slots, and means for applying power to the levers to force the door to its seat, substantially as described.

5. In a sterilizer, the combination of the door, the hinging device, said device comprising brackets 10 fixed to the exterior of the sterilizer, the pintle 9 journaled in said brackets, the links 8 situated at the side of the sterilizer, the pintle 7, and the bracket-arms 6 fixed to the door, said brackets 10 and 6 being joined by the pintle 7 situated in line with the outer wall of the sterilizer when the door is closed, substantially as described.

6. In a sterilizer-oven or the like, the combination of a door, a series of independent and radially-arranged levers adapted to shut said door, means for directly resisting the end thrust imparted to the levers, and a device to simultaneously operate the levers, said device consisting of a nut 20, and a post 18, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

AUSTIN V. M. SPRAGUE.

Witnesses:

FRANK D. BLACKSTONE,  
BENJ. R. CATLIN.