

E. V. SWANGREN.

CAN TESTER.

APPLICATION FILED JUNE 17, 1907.

900,324.

Patented Oct. 6, 1908.

Fig. 1

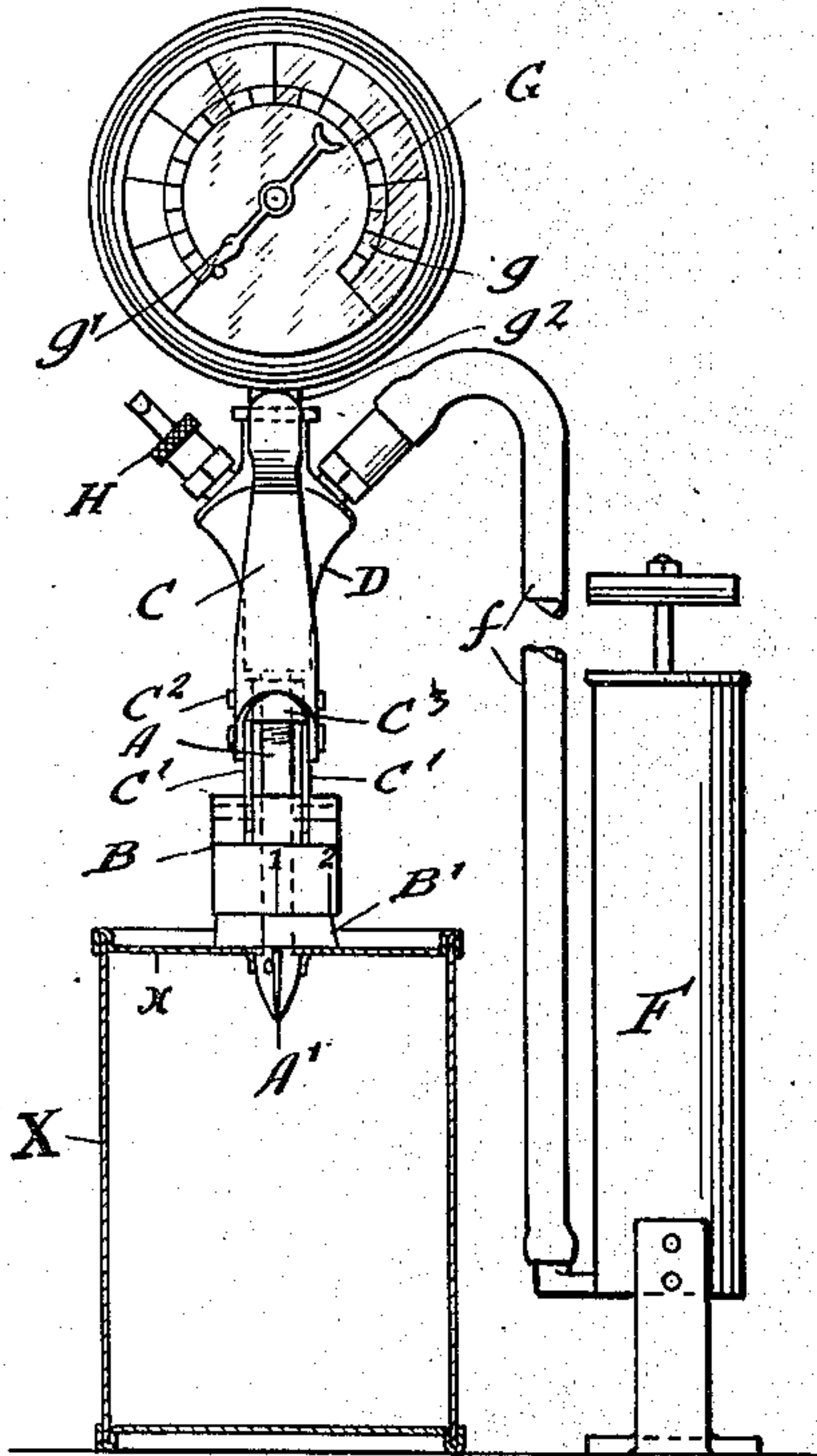


Fig. 2

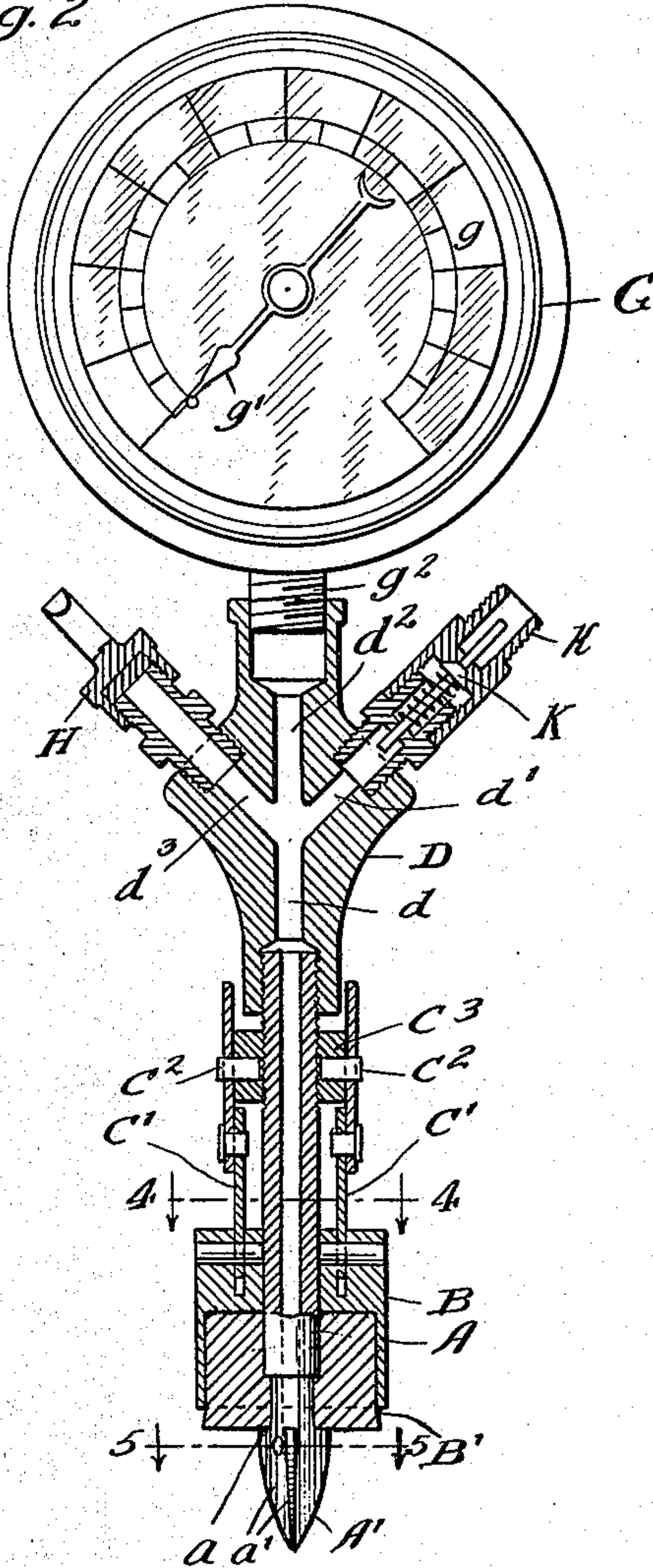


Fig. 3

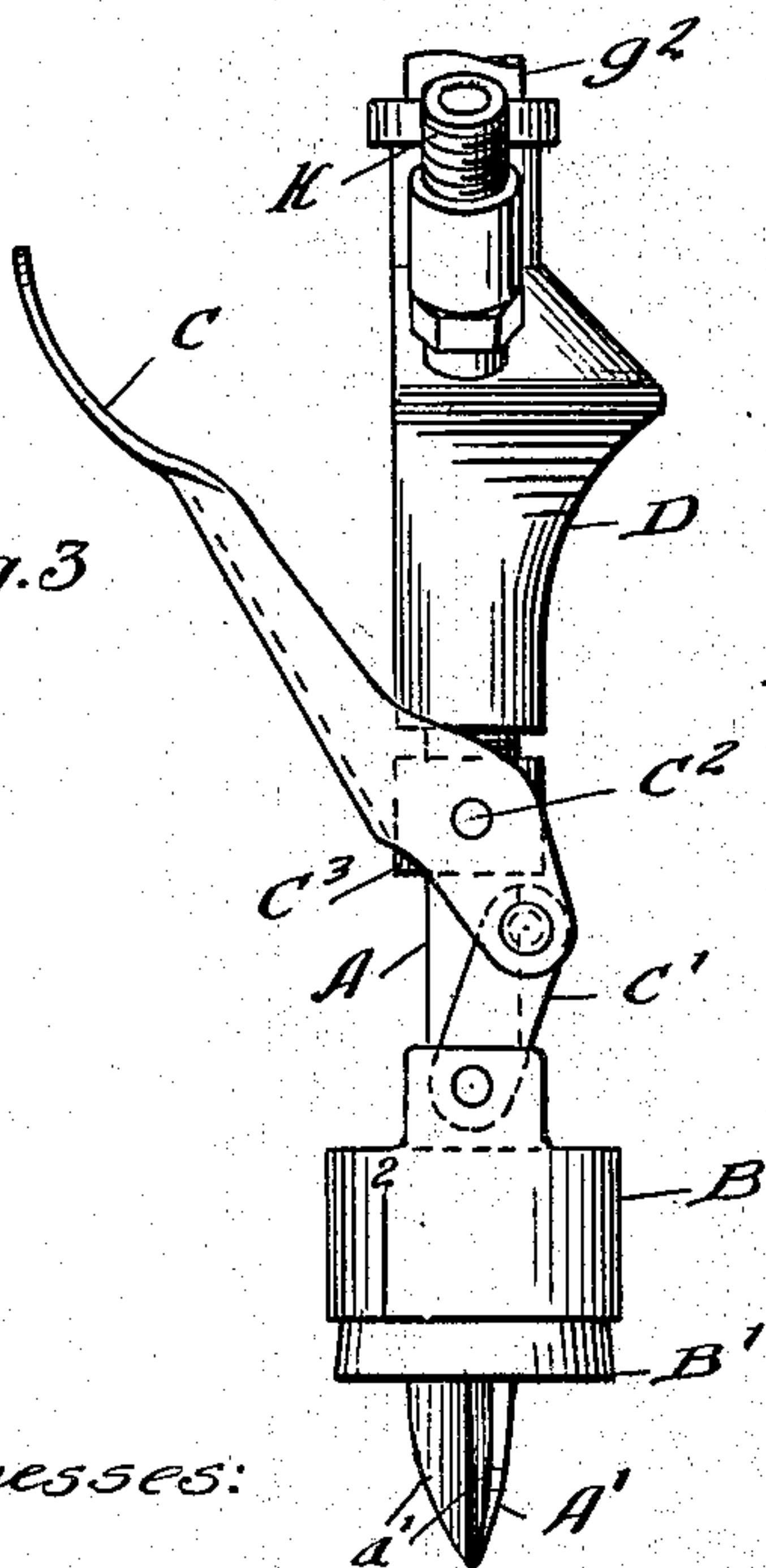


Fig. 4

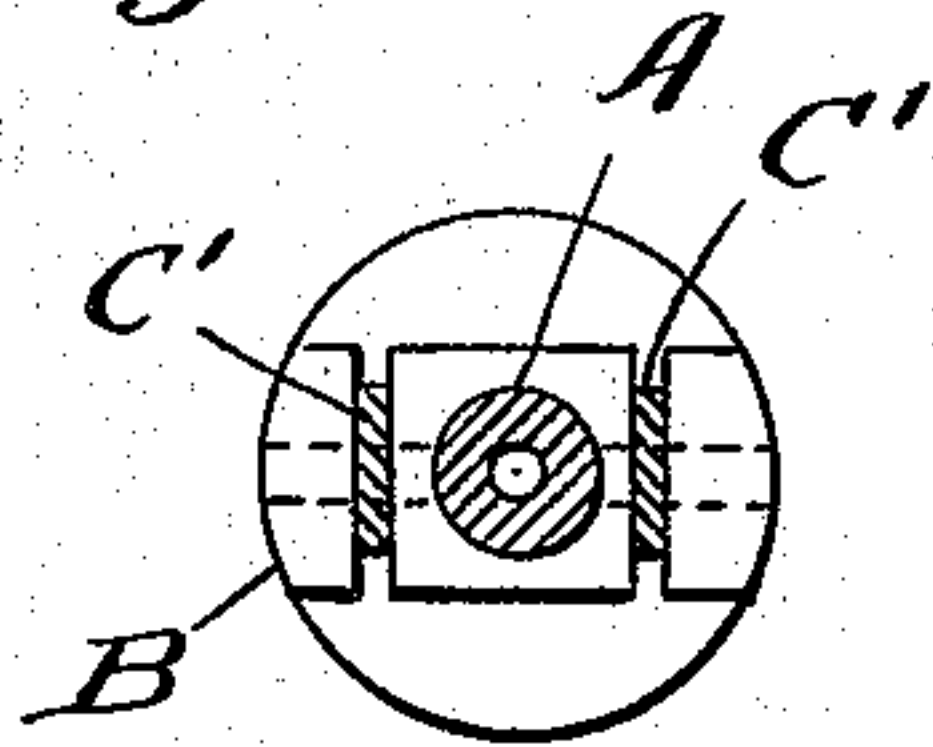


Fig. 5



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWIN V. SWANGREN, OF MAYWOOD, ILLINOIS, ASSIGNOR TO AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

CAN-TESTER.

No. 900,324.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed June 17, 1907. Serial No. 379,359.

To all whom it may concern:

Be it known that I, EDWIN V. SWANGREN, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Can-Testers, of which the following is a specification.

My invention relates to can testers or devices for testing the strength of can seams and the hermetical tightness of cans.

The object of my invention is to provide a device of a simple, efficient and durable construction, by means of which after a can has been hermetically sealed, whether filled or unfilled, the hermetic tightness of the can can be readily ascertained, and also the strength or resisting power of its seams.

In canning factories, spoiled cans, ordinarily called "swell heads," may be either due to a leaky can or imperfection of its seams, or to improper or imperfect sterilization of the contents of the can; and it is a matter of great importance as well as convenience to have some means or device for easily and quickly testing or determining whether the "swell head" is due to a defective can or to defective sterilization or other cause; and in the practical manufacture and use of cans, it is also frequently very desirable to have some easy and convenient means for testing the strength of the seams of cans in order to determine whether the cans of a particular construction can be safely relied upon to stand the internal or bursting pressure to which the cans are necessarily subjected in the cooking or processing operations of the cannery.

My invention consists in the means I have devised and employ for meeting this want or accomplishing this object or result as herein shown and described, and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation partly in vertical section of a can tester embodying my invention. Fig. 2 is a central vertical section. Fig. 3 is a front elevation. Fig. 4 is a section on line 4—4 of Fig. 2 and Fig. 5 is a section on line 5—5 of Fig. 2.

In the drawing, A represents a hollow plunger having an arrow or puncturing head A¹ adapted to be readily inserted through the top or bottom head *a* of the sheet metal can X, and then given a partial turn so that

the shoulders *a* of the wings *a*¹ of the puncturing head A¹ will engage the can head adjacent to the puncture or opening formed therein by the insertion of the head.

B is a movable sealing head having a sealing pad B¹, preferably of rubber, surrounding the puncturing head A¹ of the hollow plunger A so as to hermetically seal the puncture or opening in the can formed therein by the insertion of the puncturing head A¹.

C is the operating lever connected by links C¹ with the sealing head B and connected by a pivot C² with a nut or fulcrum block C³ secured to the hollow plunger A preferably by screw threads.

D is a hollow coupling having a passage *d* communicating with the hollow plunger A, a passage *d*¹ communicating with an air pump F, a passage *d*² communicating with a pressure gage G, and a passage *d*³ communicating with an exhaust valve H. A check valve K is inserted between the air pump F or other source of compressed air and the coupling D. The air pump F is preferably connected by a flexible pipe *f* with the threaded shell *k* of the valve K.

The pressure gage G may be of any suitable construction commonly in use. It, however, is preferably one having a dial *g* and indicating hand *g*¹. The pressure gage has a threaded nipple *g*² connected to the coupling D.

In operation, the puncture head A¹ of the hollow plunger A is first inserted through the head or other part of the can, and then given a partial turn so that the shoulders *a* of the wings *a*¹ of the head will properly engage the can-head adjacent to the opening therein formed by the wings of the puncture head. The operating lever C is then moved and the sealing head B firmly clamped against the can head surrounding the puncture opening therein. The pump is then operated until the gage G indicates the desired internal pressure in the can. If the can is perfect and hermetically tight, the finger of the pressure gage will remain stationary. If, however, it is a defective or leaky can, air will escape therefrom through the leak and will be indicated by the reduction of pressure shown by the finger of the pressure gage, and the position of the leak can also be readily located from the escaping air. If the apparatus is being used for testing the strength of soldered or folded seams of

the can, the internal pressure in the can can be gradually increased by operation of the pump, until any desired pressure is reached or until the seams of the can are bursted.

- 5 After the can has been tested, in order to remove the device from the can, the release valve is opened, thus permitting the puncture head A^1 to be readily removed from the punctured head of the can through the opening therein in which it was inserted. If it
10 were attempted to remove the puncture-head from the can without first releasing the pressure, it would be difficult to turn the head in the can into registering position with the
15 opening, so that it could be withdrawn, and when so turned, it would be liable to be shot out with violence or destructive effect if the internal pressure were heavy.

I claim:—

- 20 1. A can tester device comprising in combination a hollow plunger having a puncture-head furnished with shouldered wings adapted to be pushed through the head or other wall of the can, a movable sealing head surrounding the puncture-head, means for operating and locking the sealing-head to clamp the punctured wall of the can surrounding the puncture-head, an air pump and a pressure gage, and two connections
25 from said hollow plunger, one to said pressure gage and the other to said pump substantially as specified.

- 30 2. A can tester device comprising a hollow plunger having a puncture-head with shouldered wings, a sealing head, means for operating the sealing-head and a pressure gage communicating with the hollow plunger, and two connections from the interior of said puncture head, one to said pressure gage
35 and the other adapted for communication with a source of compressed air substantially as specified.

- 40 3. A can tester device comprising a hollow plunger having a puncture-head with shouldered wings, a sealing-head, means for operating the sealing-head and a pressure gage communicating with the hollow plunger, and a source of compressed air communicating with the hollow plunger, and two connections from said hollow plunger, one to said gage and the other to the source of compressed air substantially as specified.

- 45 4. A can tester device comprising a hollow plunger having a puncture-head with shouldered wings, a sealing-head, means for operating the sealing-head and a pressure gage communicating with the hollow plunger, a source of compressed air communicating with the hollow plunger, and a release valve, and
50 two connections from said hollow plunger, one to said gage and the other to the source of compressed air substantially as specified.

- 55 5. In a can tester, the combination with a hollow plunger having an arrow puncture-head with shouldered wings, a sealing-head

furnished with a sealing-pad surrounding the puncture-head, a lever and link for operating the sealing-head, the lever being pivotally connected to the hollow plunger, a coupling having a passage communicating with the hollow plunger, another passage adapted to communicate with a source of compressed air and another passage adapted to communicate with a pressure gage, substantially as specified.

6. In a can tester, the combination with a hollow plunger having an arrow puncture-head with shouldered wings, a sealing-head furnished with a sealing-pad surrounding the puncture head, a lever and link for operating the sealing-head, the lever being pivotally connected to the hollow plunger, a coupling having a passage communicating with the hollow plunger, another passage adapted to communicate with a source of compressed air, another passage adapted to communicate with a pressure gage, and another passage adapted to communicate with a release valve, substantially as specified.

7. In a can tester, the combination of hollow plunger A, having puncture-head A^1 with shouldered wings a^1 , sealing head B having sealing pad B^1 , operating lever C pivotally connected to said hollow plunger A, a connecting link C^1 between said operating lever C and sealing head B, coupling D having passages d d^1 d^2 and d^3 , and pressure gage G, substantially as specified.

8. In a can tester, the combination of hollow plunger A, having puncture head A^1 with shouldered wings a^1 , sealing head B having sealing pad B^1 , operating lever C pivotally connected to said hollow plunger A, a connecting link C^1 between said operating lever C and sealing head B, coupling D having passages d d^1 d^2 and d^3 , pressure gage G and air pump F, substantially as specified.

9. In a can tester, the combination of hollow plunger A, having puncture head A^1 with shouldered wings a^1 , sealing head B having sealing pad B^1 , operating lever C pivotally connected to said hollow plunger A, a connecting link C^1 between said operating lever C and sealing head B, coupling D having passages d d^1 d^2 d^3 , pressure gage G, air pump F and release valve H, substantially as specified.

10. In a can tester, the combination with a puncture-head, adapted to be inserted through and locked against the wall of a can, of a movable sealing-head surrounding the puncture-head, and a lever and link for operating the sealing head substantially as specified.

11. In a can tester, the combination with a puncture-head, adapted to be inserted through and locked against the wall of a can, of a movable sealing-head surrounding the puncture-head, and a lever and link for

operating the sealing-head to clamp the punctured wall of the can between itself on the outside and the puncture head on the inside, and two branch connections from the interior of said puncture head, one adapted for connecting with the pressure gage and the other for connecting with a source of compressed air substantially as specified.

12. In a can tester, the combination with a puncture-head, adapted to be inserted through and locked against the wall of a can, of a movable sealing head surrounding the puncture head, means for operating the sealing head to clamp the punctured wall of

the can between itself on the outside and the puncture head on the inside, and a pressure gage in connection with the interior of the can through the puncture head, and two branch connections from the interior of said puncture head, one adapted for connecting with the pressure gage and the other for connecting with a source of compressed air substantially as specified.

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Witnesses:

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