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N. B. WACHHORST & M. J. ROSS.

CAN TESTING MACHINE.

(Application filed Sept. 4, 1902.)

(No Model.)

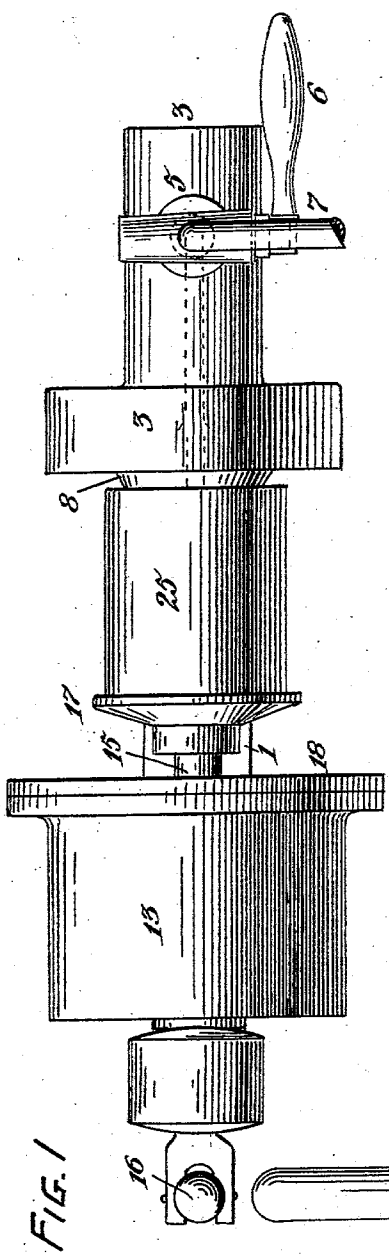


FIG. 1

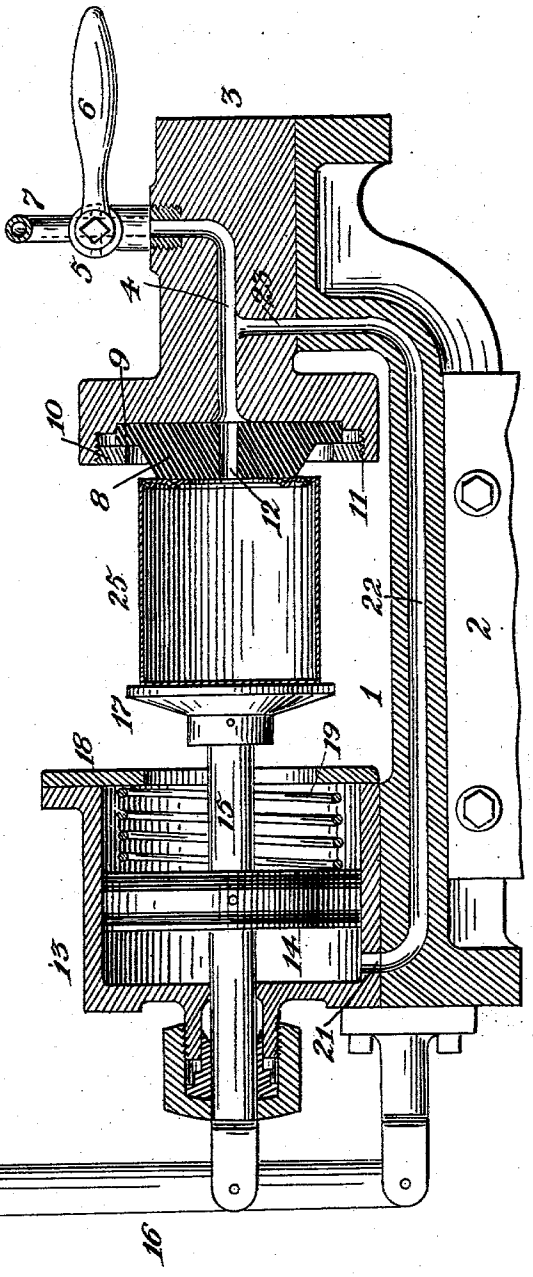


FIG. 2

WITNESSES:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NEWTON B. WACHHORST AND MAURICE J. ROSS, OF SAN FRANCISCO, CALIFORNIA.

CAN-TESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 715,824, dated December 9, 1902.

Application filed September 4, 1902. Serial No. 122,104. (No model.)

To all whom it may concern:

Be it known that we, NEWTON B. WACHHORST and MAURICE J. ROSS, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Can-Testing Machines, of which the following is a specification.

This invention relates to the testing of sheet-metal cans for leaks after the soldering of the head-seams and side seams, and it involves an entire departure from the principle of those machines in which the presence of a leak is made visually apparent to an attendant while the can filled with air under pressure is passing through a body of water. In such cases escaping air appears as bubbles in the water; but the attention of the attendant is required to take advantage of the indication given.

In our invention the presence of a leak is made manifest by the release of the can from the holder in which it is supported while being tested. Visual indication is done away with, and hence the water-tank is no longer used. The operation is entirely pneumatic, and so far as the actual testing is concerned the presence of an attendant is not necessary, since defective cans drop out of the machine automatically. If the principle be applied to an automatic machine having means for supplying cans and devices for controlling the air-pressure, no attendant at all is necessary at the testing, because the machine automatically discharges defective cans.

The embodiment of the invention herein described and shown in the drawings completely illustrates the principle of the automatic testing operation and is a practical can-tester. It is, however, shown as hand-operated so far as the placing of the cans in position and the air control are concerned.

In the drawings, Figure 1 is a plan view. Fig. 2 is a longitudinal vertical section.

The base 1 is adapted to be attached to any suitable support, as 2. At one end of said base is secured the casting 3, having the air-passage 4. Any suitable air-controlling valve 5, operated in this case by a handle 6, communicates with the air-passage 4 and with the air-supply pipe 7. By means of the handle the air-pressure can be admitted, stopped, and relieved. The front of casting 3 is chambered, as shown, to receive the soft-rubber block 8, whose base-flange 9 is secured by a ring 10, screwed into an internal thread 11 of the chamber. The block has an air-passage 12 communicating with passage 4. At the other end of the bed is a cylinder 13, having a piston 14. The piston-rod 15 extends through a gland on the cylinder-head and can be operated by any suitable exterior means—in this case the lever 16. The rod also projects forward from the piston and carries the clamping-disk 17 outside the cylinder. Between the piston and the open face-plate 18 of the cylinder is a pressure-spring 19, which in operation tends to throw the piston back toward the closed end of the cylinder. An air-inlet 21 is formed in the cylinder behind the piston and communicates with an air-passage 22 in the base, which in turn registers with a branch 23 from air-passage 4.

The disk 17 and rubber block 8 form a clamp in which the can 25 is seated. The can is supposed to have the usual soldered joints which are to be tested and the usual filling-opening. The can is placed on the clamp with its open end against the rubber block. The clamp 17 is thrown forward, so as to hold the can in place. The air is admitted, and its current divides, so as to enter both the can and the cylinder. The piston is released from mechanical pressure, as the air-pressure behind the piston keeps the disk 17 up to its work and compresses the spring. If there is a leaky joint, the air-pressure is broken by the escape from the can, and hence the spring is allowed to expand, pushing back the piston, which carries disk 17 with it, and releasing the can, which falls from the clamp.

Should the can be perfect, the clamp is maintained until by moving the valve the air-pressure is intentionally relieved throughout, and the can is discharged by the release of the clamp in the same manner as previously described.

The principal advantage of this character of testing is that visual indications of leakage are no longer relied upon, but instead defective cans accomplish their own release.

This eliminates any percentage of defective cans passed as perfect through inattention of the attendant and also does away with the present practice of taking possibly good cans out of the tester along with a very bad one when the confusion in the water caused by the bad can makes the attendant uncertain whether the adjacent cans are defective or not.

We do not limit ourselves to the specific constructions and arrangements herein described, and shown in the drawings, as we desire to avail ourselves of such modifications and equivalents as fall properly within the spirit of our invention.

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

1. In a can-testing machine, a can-clamp, means for admitting air to the can while in the clamp, means for pneumatically maintaining the clamp, and means for releasing the clamp at a break in the air-pressure.

2. In a can-testing machine, a can-clamp, controllable means for admitting air to the can, means for admitting air behind a movable member of the clamp, and means for retracting said movable member upon a break in the air-pressure.

3. In a can-testing machine, a can-clamp one of whose members closes the opening in the can, controllable means for admitting air to the can through said clamp member, means for admitting air behind a movable member of the clamp, and means for retracting said movable member upon a break in the air-pressure.

4. In a can-testing machine, a can-clamp composed of a stationary member and a movable member, a pneumatic cylinder and piston maintaining the movable member in contact with the can so as to make the clamp effective, means for admitting air to the can, and a spring for retracting the movable member at a break in the air-pressure.

5. In a can-testing machine, a clamp composed of a movable disk and a stationary member having an air-passage and adapted to close the open end of the can; an air-supply connected to said passage whereby air is admitted to the can, and air-passage for admitting air behind the movable member and maintaining the clamp, and a spring opposing the maintenance of the clamp, and releasing the same at a break in the air-pressure.

6. In a can-testing machine, a clamp comprising a stationary member and a movable member, a rod for operating the movable member to clamp the can, an air-passage through the stationary member for admitting air to the can, a cylinder, through which said rod passes, having a piston, an air-inlet to the cylinder behind the piston whereby air-pressure maintains the clamp, and a spring for retracting the piston, the rod and the movable clamp member at a break in the air-pressure.

7. In a can-testing machine, a clamp comprising a fixed and a movable member, an air-passage through the fixed member to the can when in the clamp, a cylinder and a piston therein connected to the movable member, a spring tending to retract said piston, a branch from said air-passage communicating with a cylinder-inlet behind the piston, a valve for controlling the admission and relief of air-pressure to said air-passage, and mechanical means for operating the piston and movable member to clamp the can against the spring-pressure.

8. In a can-testing machine, a clamp, one member of which is stationary, and provided with an air-passage, and the other a movable disk, a cylinder, a piston therein having its piston-rod connected to said disk, a spring tending to retract said movable disk, a divided air-passage having a branch through the stationary clamp member, and a branch into said cylinder behind the piston, and a valve controlling the air-supply.

In testimony whereof we have affixed our signatures, in presence of two witnesses, this 8th day of August, 1902.

NEWTON B. WACHHORST.
MAURICE J. ROSS.

Witnesses:
L. W. SEELY,
F. M. BURT.