

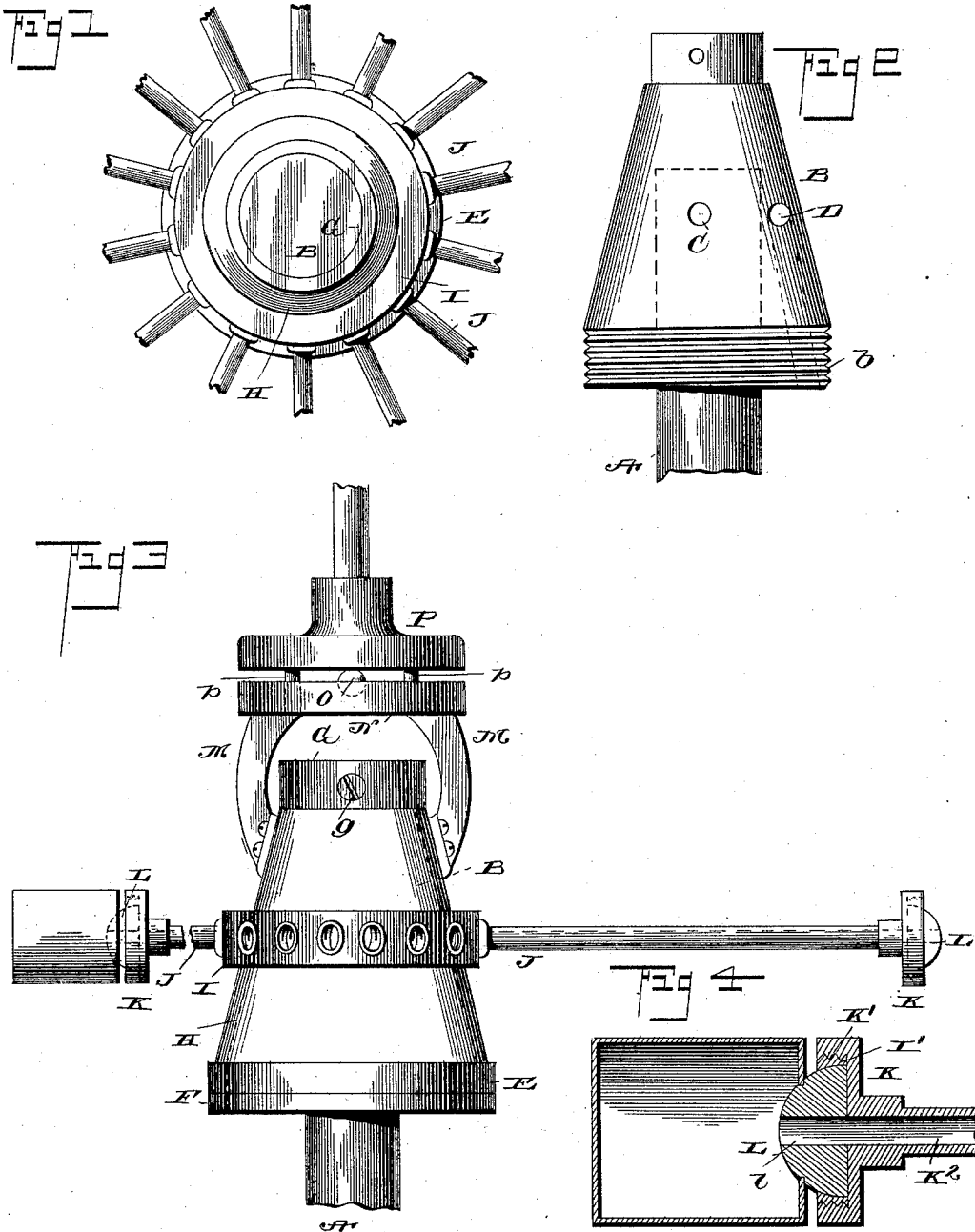
(No Model.)

2 Sheets—Sheet 1.

B. F. BUCKLEY.
CAN TESTER.

No. 469,396.

Patented Feb. 23, 1892.



Witnesses

John D. Miller
Bernard Werle

Inventor

Benjamin F. Buckley

By *his* Attorney

Rufus H. Thayer

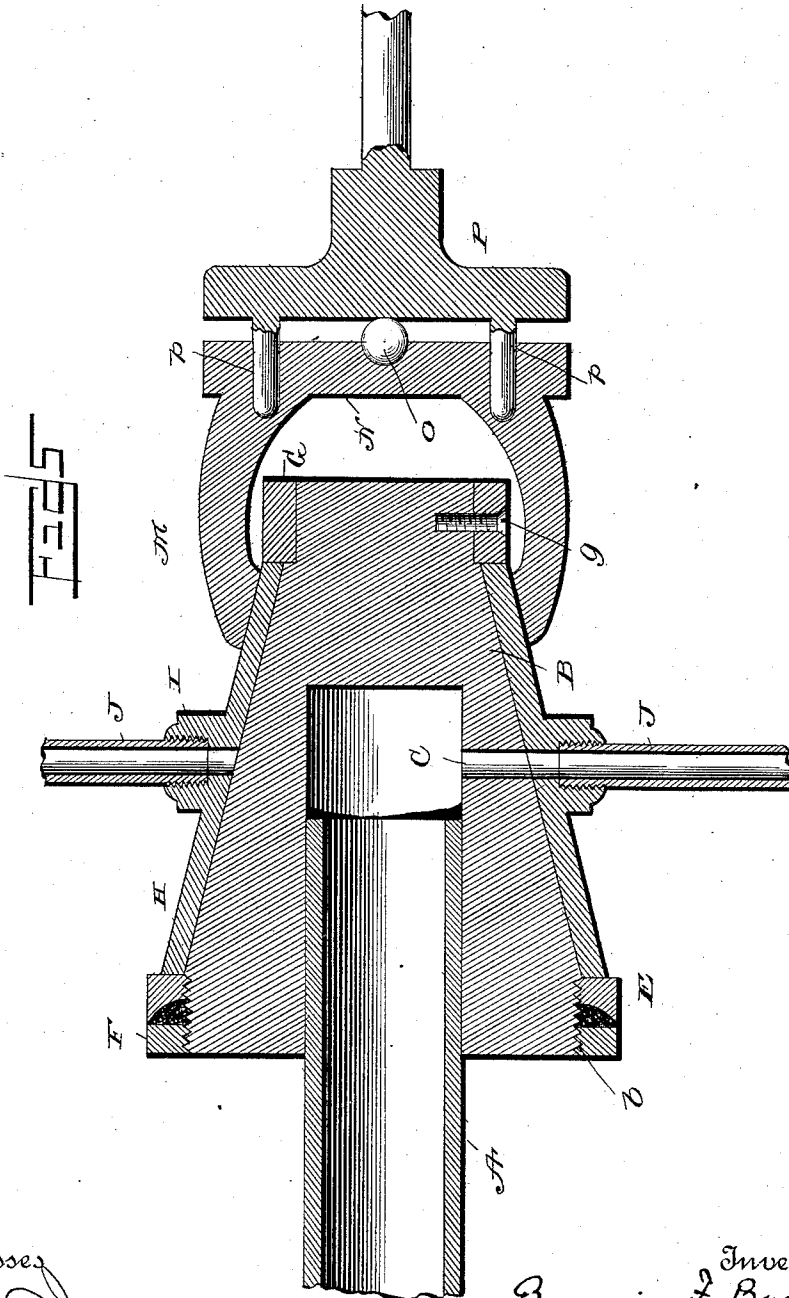
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CAN TESTER.

No. 469,396.

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Witnesses
John D. Currie
Edmund H. Herli

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By his Attorney
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UNITED STATES PATENT OFFICE.

BENJAMIN F. BUCKLEY, OF ELGIN, ILLINOIS.

CAN-TESTER.

SPECIFICATION forming part of Letters Patent No. 469,396, dated February 23, 1892.

Application filed November 14, 1891. Serial No. 411,879. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. BUCKLEY, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Can-Testers; 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.

My invention relates to certain new and useful improvements in apparatus for testing cans, and especially to that class of machines wherein the cans are mounted upon a revolving frame, the perfect or air-tight cans being held to their seats on the frame by the suction produced by creating a partial vacuum in the cans, the imperfect or leaky cans automatically dropping from the machine.

My invention consists in a plug which is connected with a vacuum-pipe, said plug being provided with an exhaust and inlet port and having mounted thereon a hub carrying a series of hollow radial arms provided at their outer extremities with seats adapted to engage the open ends of the cans to be tested, and provided with means for revolving said hub about the plug, all constructed and arranged in such manner that the leaky or imperfect cans when applied to the radial arms will drop therefrom, there being nothing to hold them thereon, while the perfect or air-tight cans will be held to their seats by suction until each can has in its revolution about the plug reached a predetermined point, when air is admitted thereto and the can discharged from the machine, as hereinafter fully described, and afterward definitely pointed out in the claims, due reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a top plan view of the hub and radial arms, the latter being broken away. Fig. 2 is a detail view of the hub; Fig. 3, a side elevation of the machine, a portion of the radial arms being broken away; Fig. 4, an enlarged detail view showing a can applied to one of the radial arms, and Fig. 5 a vertical central section of the machine.

Referring to the drawings, the letter A indicates a vacuum-pipe, which is connected with an air-pump or other suitable means for

exhausting the air therefrom. Mounted upon the opposite end of said vacuum-pipe is a plug B, preferably of the form of a frustum of a cone and provided with a part C, which communicates with the vacuum-pipe A and with a port D, which communicates with the atmosphere, as hereinafter described. The lower end of the plug is cylindrical and screw-threaded, as at *b*, to receive a packing-ring E and collar F, and its upper end is also cylindrical to receive a collar G, held thereon by a set-screw *g*.

H indicates a cone-shaped hub, adapted to snugly fit over the plug B and held thereon by means of the collars F and G and packing-ring E, and about midway between its top and bottom is provided with an annular flange I, preferably formed integral with said hub. At uniform distances apart the flange I is provided with horizontal screw-threaded perforations which extend entirely through said flange and hub and within which are fitted hollow arms or tubes J, the said perforations registering with the ports C and D, as hereinafter described. To the outer extremities of the arms J are fitted cup-shaped heads K, carrying bosses L, formed of rubber or other elastic material, the said bosses and heads being centrally perforated, as at K^2 *l*, and communicating with the hollow arms J. Each cup-shaped head is interiorly screw-threaded, as at *K'*, and adapted to be engaged by a screw-threaded washer *l'*, said washer fitting over the boss L and holding it in place on the head K. To the upper end of the hub H are secured two or more arms M, carrying at their upper ends a disk or plate N, in the center of which is seated a steel ball O.

P indicates a disk affixed to one end of the driving-shaft, the center of said disk resting upon the steel ball O, which affords a center bearing, and thus serves to hold the hub H tightly to its seat on the packing-ring E, and any wear of said packing-ring may be compensated by adjusting or screwing up the collar F. From the under side of the disk P depend studs or pins *p*, which engage corresponding sockets formed in the disk N, and by means of which motion is communicated from the driving-shaft to the hub.

The operation of my machine is as follows: Motion is communicated to the driving-shaft,

causing the radial arms to revolve, as before described. The operator takes his stand before the machine and applies the cams to the heads K, the elastic bosses L entering the open ends of the cans and effecting an airtight junction therewith. As a can is applied to the outer end of one of the radial arms the inner end of said radial arm registers with the port C in the plug B, which communicates with the vacuum-pipe A. If the can is airtight, a partial vacuum will be formed in the can and the same will be held in place on the boss until in its revolution the radial arm comes opposite the port D, which admits atmospheric air to the interior of the can and destroys the vacuum, when the can will immediately drop from the boss into any suitable receptacle placed for its reception. However, should the can leak at any point a vacuum will not be formed therein and the can will be dropped to the floor, from whence it may be returned to the can-maker for repair.

Having described my invention, what I claim is—

1. In a can-testing machine, the combination, with a plug provided with a port communicating with a vacuum-pipe and a second port communicating with the atmosphere, of a hub revolving about said plug and carrying a series of hollow radial arms adapted to engage the open ends of the cans to be tested, the inner ends of said arms alternately engaging the said ports, substantially as described.

2. In a can-testing machine, the combination, with a plug provided with two ports communicating, respectively, with a vacuum-pipe and the atmosphere, of a hub revolving about said plug and carrying hollow radial arms adapted to engage said ports and provided at their extremities with elastic semi-spherical-shaped bosses adapted to fit the open ends of the cans to be tested and perforated to communicate with the said hollow radial arms, substantially as described.

3. In a can-testing machine, the combination, with the plug provided with two ports communicating, respectively, with a vacuum-pipe and the atmosphere, of a hub revolving about said plug and carrying hollow radial arms adapted to alternately engage said ports and having secured to their extremities cup-shaped heads interiorly screw-threaded, and semi-spherical-shaped elastic bosses seated in

said heads and retained therein by screw-threaded washers engaging the screw-threaded heads, both the heads and bosses being perforated and communicating with the hollow arms, substantially as described.

4. In a can-testing machine, the combination, with the cone-shaped plug provided with two ports communicating, respectively, with a vacuum-pipe and the atmosphere, of a cone-shaped hub revolving about said plug and provided with an annular perforated flange, and hollow radial arms fitting in said perforated annular flange and adapted to alternately engage said ports and carrying at their extremities perforated heads communicating with said hollow arms and adapted to engage the open ends of the cans to be tested, substantially as shown and described.

5. In a can-testing machine, the combination, with a cone-shaped plug provided with two ports communicating, respectively, with a vacuum-pipe and the atmosphere, of a cone-shaped hub revolving about said plug and carrying hollow radial arms adapted to alternately engage said ports and provided at their extremities with heads adapted to engage the open ends of the cans to be tested, a disk mounted on said hub and having centrally-seated therein a ball, and a driving-shaft having mounted on its extremity a disk bearing on said ball and connected with the disk mounted on said hub, substantially as shown and described.

6. In a can-testing machine, the combination of the cone-shaped plug B, provided with two ports C and D and formed cylindrical at its upper and lower ends, the hub H, revolving about said plug and carrying a series of hollow radial arms adapted to alternately engage said ports, the collar G, fitted over the upper cylindrical end of the plug, the collar F, adjustably secured on the lower cylindrical end of the plug, the packing-ring E, interposed between the collar F and the hub H, and driving mechanism connected with said hub and acting to keep the same seated upon the plug, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN F. BUCKLEY.

Witnesses:

ROBT. G. EARLEY,
WILLIAM LOVELL.