

S. TEVANDER.
CAN TESTER.

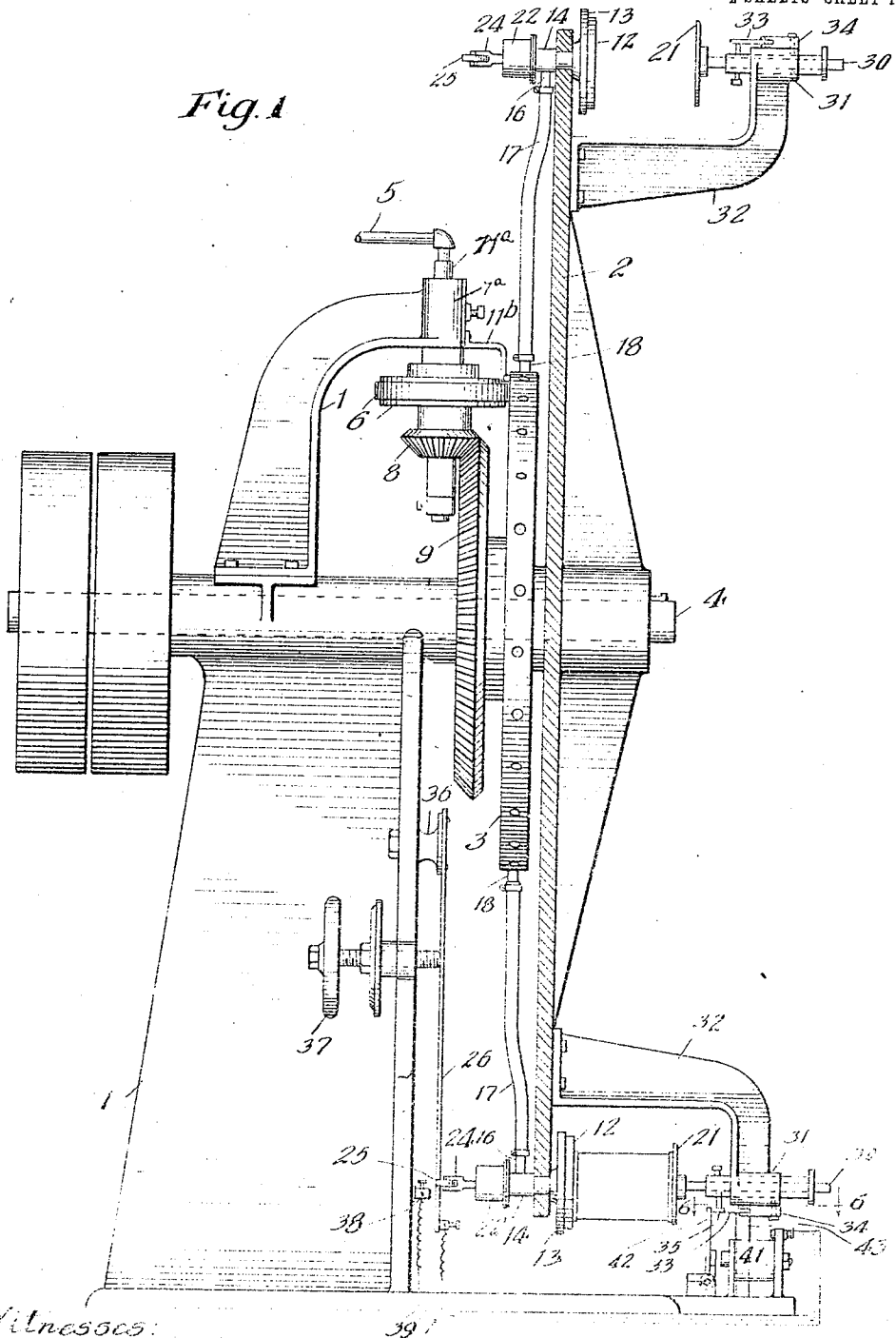
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1,087,074.

Patented Feb. 10, 1914.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses:

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Inventor:
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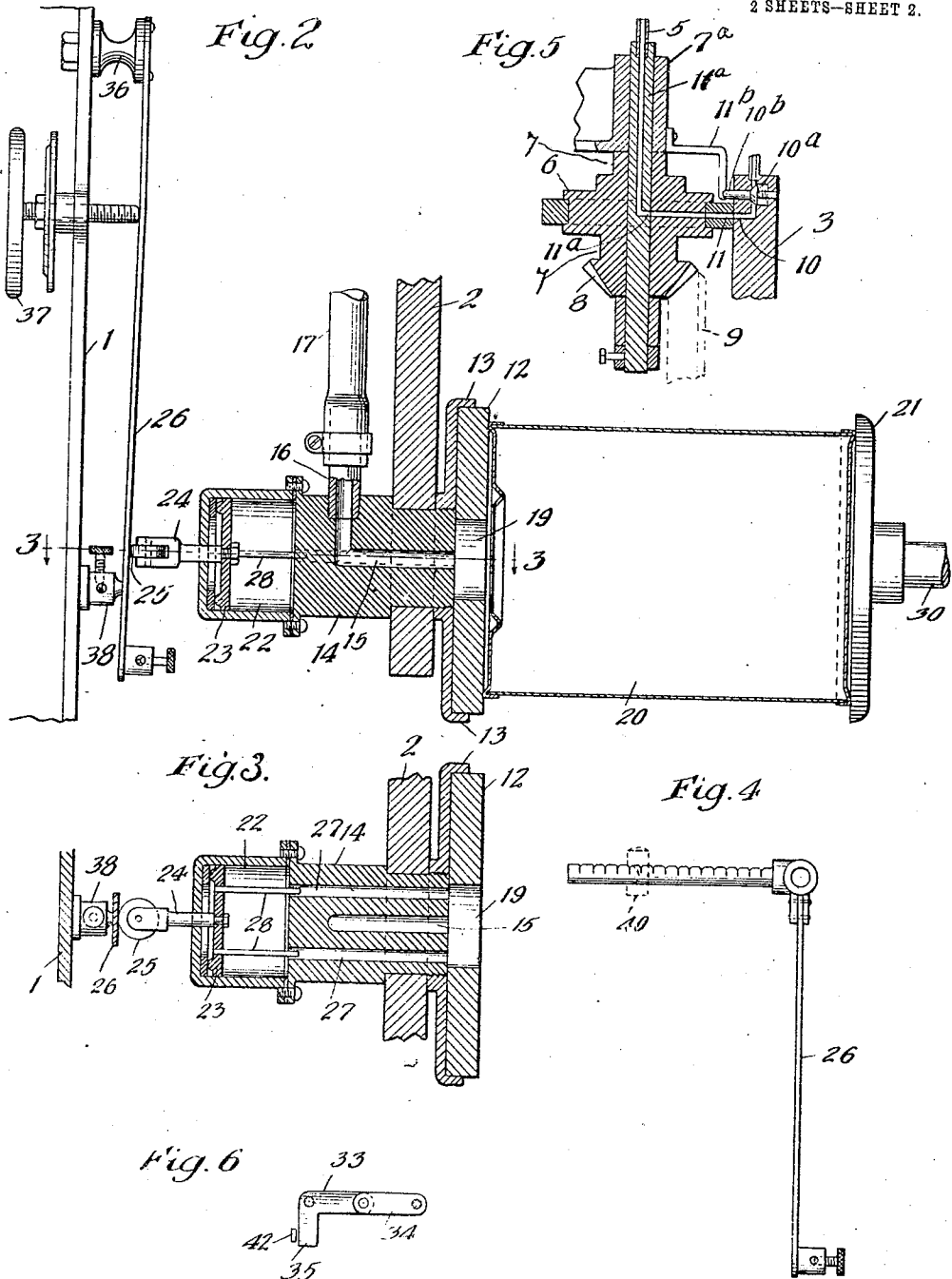
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Witnesses:

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UNITED STATES PATENT OFFICE.

SWAN TEVANDER, OF MAYWOOD, ILLINOIS.

CAN-TESTER.

1,087,074.

Specification of Letters Patent.

Patented Feb. 10, 1914.

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To all whom it may concern:

Be it known that I, SWAN TEVANDER, 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 improvements in can testers.

10 The object of my invention is to provide a pneumatic or compressed air can tester of a simple, efficient and durable construction, which will operate with great certainty, delicacy and accuracy in automatically testing and separating imperfect or 15 leaky cans from the hermetically tight or perfect ones.

My invention consists in connection with a movable carrier furnished with a plurality 20 of sealing heads or pads and a plurality of movable chucks or clamps for clamping the cans against the sealing pads or heads, means for supplying and admitting compressed air through the sealing heads into 25 the cans, each of the sealing heads being furnished with a movable piston or device for actuating an electric switch, a switch, a movable device for separating the perfect from the leaky cans by controlling the point 30 or place of discharge of the cans from the carrier, and an electromagnet in a circuit opened and closed by said switch for operating the can separating or discharging device, according as the can is a leaky or a 35 perfect one.

My invention also consists in the novel construction of parts and devices and in the novel combination of parts and devices herein shown and described and more particularly specified in the claims.

40 In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation, partly in central, vertical section of a can testing machine embodying my invention. Fig. 2 is an enlarged detail section 45 through one of the sealing heads and showing the electric switch closed to cause the can separating or discharging device to be operated by the electromagnet. Fig. 3 is a detail section on the line 3—3 of Fig. 2 and Fig. 4 illustrates a modification in which a weighted switch is employed instead of a spring switch. Fig. 5 is a detail 50 section through the compressed air stems and Fig. 6 is a detail section on line 6—6 of Fig. 1.

In the drawing, 1 represents the frame of the machine, 2 a movable carrier, preferably a rotary one, 3 a compressed air drum or wheel secured to the shaft 4 of the carrier and revolving therewith, 5 a compressed 60 air supply pipe, 6 a rotary compressed air supply drum or wheel mounted on a revolving sleeve or shaft 7, having a gear 8 meshing with a gear 9 on the carrier shaft 4, the compressed air supply wheel or drum 6 65 peripherally engaging the side face of the wheel or drum 3, and said drums 3 and 6 being furnished with interengaging ports 10 and 11 and valves 10^a, 11^a, so that compressed 70 air is delivered into the drum 3 as the carrier revolves, the valves 10^a 11^a being open as the ports interengage or register together. This affords a very simple means for delivering the compressed air to 75 the drum 3. The valve 11^a preferably consists of a stationary stem or shaft surrounded by the drum or wheel 6, and the valve 10^a preferably has a stem 10^b adapted to engage in an arm 11^b carried by bracket 80 7^a carrying the wheel or drum 6.

The carrier 2 is furnished with a plurality of sealing heads or pads 12, each preferably of rubber or any suitable material, and fitted in a flanged disk 13 on a stem or 85 block 14, having a passage 15 connected, by a nipple 16, pipe 17 and nipple 18, with the compressed air drum 3, said passage 15 communicating through the opening 19 in the sealing pad 12 with the interior of the 90 can 20 which is clamped against the pad 12 by the opposing movable can chuck or clamp 21, also mounted on the carrier 2. Each of the sealing heads or pads 12 or its stem 14 is also furnished with a closed chamber 22 95 having a movable piston or device 23 to which is secured a pin 24 carrying an anti-friction roller 25, adapted to engage and operate the electric switch 26. The chamber 22 of the sealing head communicates 100 through one or more small holes or ports 27 with the interior of the can through the sealing head 12. The piston 23 is furnished with guide pins 28.

The movable can clamp or chuck 21 has a 105 stem 30 adapted to reciprocate in a suitable bearing 31 on a bracket or arm 32 on the carrier 2. The can clamp or chuck 21 may be reciprocated or opened and closed by any suitable means to clamp the cans against 110 the sealing head 12 and to unclamp and discharge the same. Preferably a toggle

lever and link 33, 34 is employed for this purpose, the lever 33 having an arm 35 adapted to engage a can discharging device as the carrier 2 revolves and thus break or open the toggle and permit the can to be discharged.

The electric switch 26 is preferably a flat spring secured to a stud 36 on the frame of the machine and it is provided with a tension adjusting or regulating screw 37 which may be adjusted so as to require any desired amount of pressure to be exerted inside the can in order to operate the switch or move it sufficiently to make contact with the opposing contact point 38 of the electric circuit 39. This electric switch, however, may if preferred be furnished with an adjustable weight 40, as shown in Fig. 4 to regulate the amount of pressure required to close the switch. An electromagnet 41 is included in the electric circuit 39 and operates the movable can separating or discharging device 42, the same preferably consisting of a movable arm or lever carrying the armature of the magnet and adapted to be moved thereby into position to cause the can clamp 21 to be released, according as the can is a perfect or a leaky one.

In operation, if the can is perfect so that no compressed air escapes from the can clamped between the sealing head and the can clamp or chuck 21, the compressed air in the small chamber 22, acting against the piston 23, will exert sufficient pressure against the switch 26 to close the electric circuit and thus cause the electromagnet to move the can separating or discharging device 42 into position for engagement with the arm of the toggle lever and thus unclamp the can from the sealing head and permit the perfect can to be discharged from the carrier. If, however, the can is an imperfect or leaky one, the pressure against the piston 23 in the small chamber 22 will not be sufficient to cause it to move the switch 26, the tension of which is accurately adjusted to any desired amount of air pressure in the can to cause it to close the electric circuit; and as a consequence, the imperfect can will pass the can separating or discharging device 42 where the perfect cans are discharged and be carried farther around on the carrier until the arm of the toggle lever 35 engages the releasing or discharging device 43 for the leaky or imperfect cans.

I prefer, as illustrated in the drawing, to cause the movable or electromagnet actuated can discharging device 42 to discharge the perfect cans instead of the leaky ones, although my invention is not limited to this particular arrangement.

I claim:

1. In a can testing machine, the combination of a movable carrier having a plurality

of can sealing heads and a plurality of opposing can clamps, of means for admitting compressed air into the cans through the sealing heads, each of the sealing heads having means for actuating an electric switch by pressure of air in the can clamped thereagainst, an electric switch, an electromagnet in the circuit controlled by said switch for controlling a can discharging device to separate perfect and imperfect cans, and means for regulating the pressure required to operate said switch to close said circuit, substantially as specified.

2. The combination with a rotary carrier having a plurality of sealing heads and can clamps, each of said sealing heads having a chamber communicating therewith provided with a movable device for actuating an electric switch, an electric switch, an electric circuit and magnet controlled by said switch and a movable device controlled by said magnet for causing the release or discharge of cans from said clamps as the carrier rotates, a compressed air drum on said carrier communicating with the sealing heads and a compressed air supply drum peripherally engaging the side face of said first mentioned drum for delivering compressed air thereto as the carrier rotates, substantially as specified.

3. The combination with a rotary carrier having a plurality of sealing heads and can clamps, each of said sealing heads having a chamber communicating therewith provided with a movable device for actuating an electric switch, an electric switch, an electric circuit containing said switch and an electromagnet, and said magnet controlled by said switch, and a movable device controlled by said magnet for causing the release or discharge of cans from said clamps as the carrier rotates, a compressed air drum on said carrier and a compressed air supply drum peripherally engaging the side face of said first mentioned drum for delivering compressed air thereto as the carrier rotates, said drums having interengaging valves registering with each other as the drums rotate, substantially as specified.

4. In a can testing machine, the combination with a rotary carrier having a plurality of can sealing heads and opposing can clamps mounted thereon, a compressed air drum mounted on said carrier and communicating with said sealing heads and a rotary compressed air supply drum peripherally engaging said first mentioned drum and delivering air thereto, substantially as specified.

5. In a can testing machine, the combination with a rotary carrier having a plurality of can sealing heads and opposing can clamps mounted thereon, a compressed air drum mounted on said carrier and commu-

5 communicating with said sealing heads and a rotary compressed air supply drum peripherally engaging said first mentioned drum, said drums having interengaging valves adapted to be opened as the drums revolve together, substantially as specified.

10 6. A can testing machine including, in combination: a movable carrier having a plurality of can sealing heads and a plurality of opposing can clamps; means for admitting compressed air into the cans through the sealing heads; an electric switch stationary relatively to said carrier; a can discharging device located adjacent to said carrier; an electric circuit controlled by said switch, said circuit having included therein a magnet for operating a can discharging device; and means on each of said sealing heads for actuating the said electric switch, 20 said means being governed by the pressure

of the air in the can clamped against the sealing head, substantially as specified.

7. A can testing machine including, in combination: a movable carrier having a plurality of can sealing heads and a plurality of cooperating can clamps, each of said sealing heads being provided with means for actuating an electric switch, said means being governed by the pressure of air in a clamped can; means for admitting compressed air into the cans through the sealing heads; and an electric switch stationary with respect to said carrier and adapted to be operated successively by the said devices on the sealing heads, substantially as specified. 35

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Witnesses:

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