(No Model.) 3 Sheets—Sheet 1.

J. G. HODGSON.

CAN TESTING MACHINE.

No. 522,259. Patented July 3, 1894.

Fig. 6.

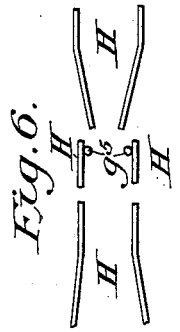
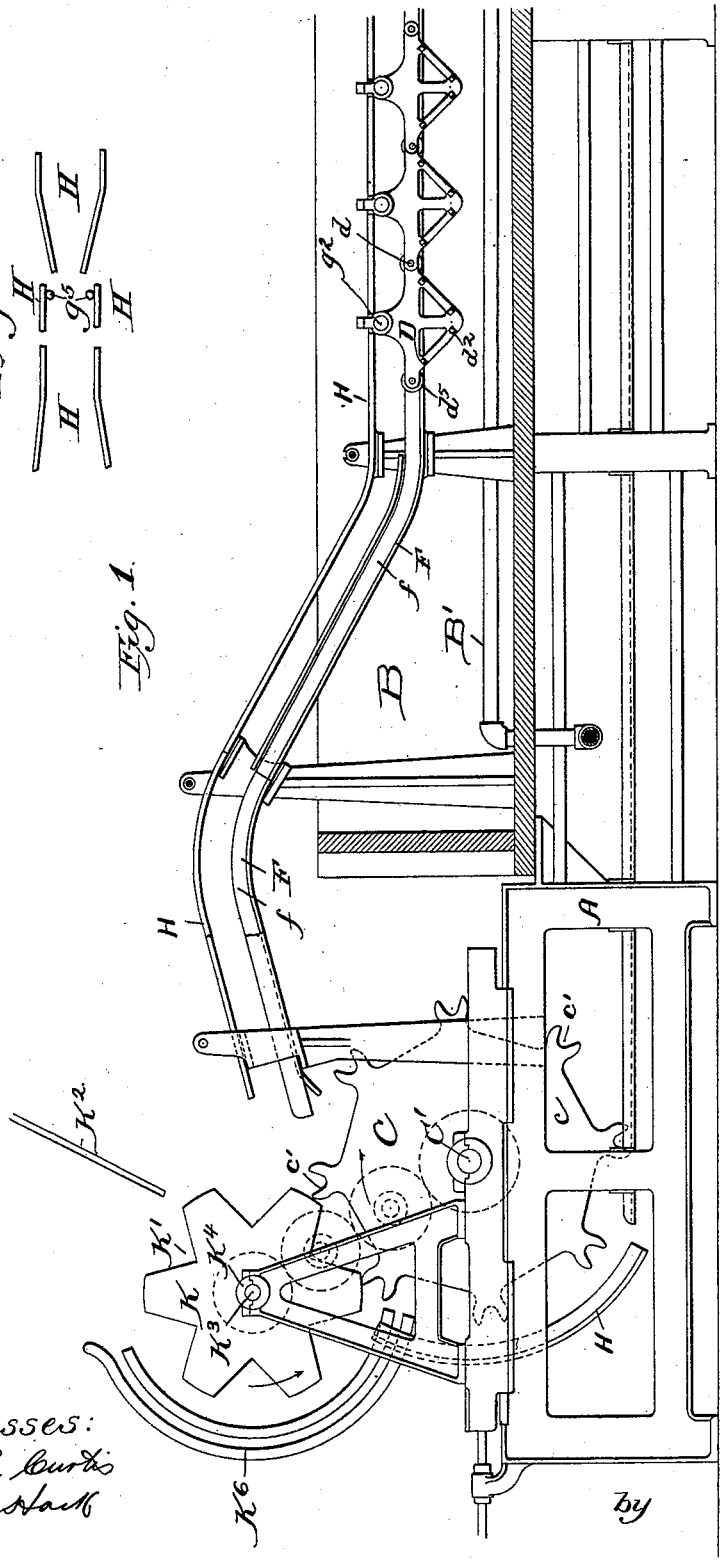


Fig. 1.



Witnesses:
Lew. E. Curtis
Emma Hall

Inventor:
John G. Hodgson
Munday, Evarts, & Adcock
by
his Att'ys

(No Model.) 3 Sheets—Sheet 2.

J. G. HODGSON.

CAN TESTING MACHINE.

No. 522,259. Patented July 3, 1894.

Fig. 2.

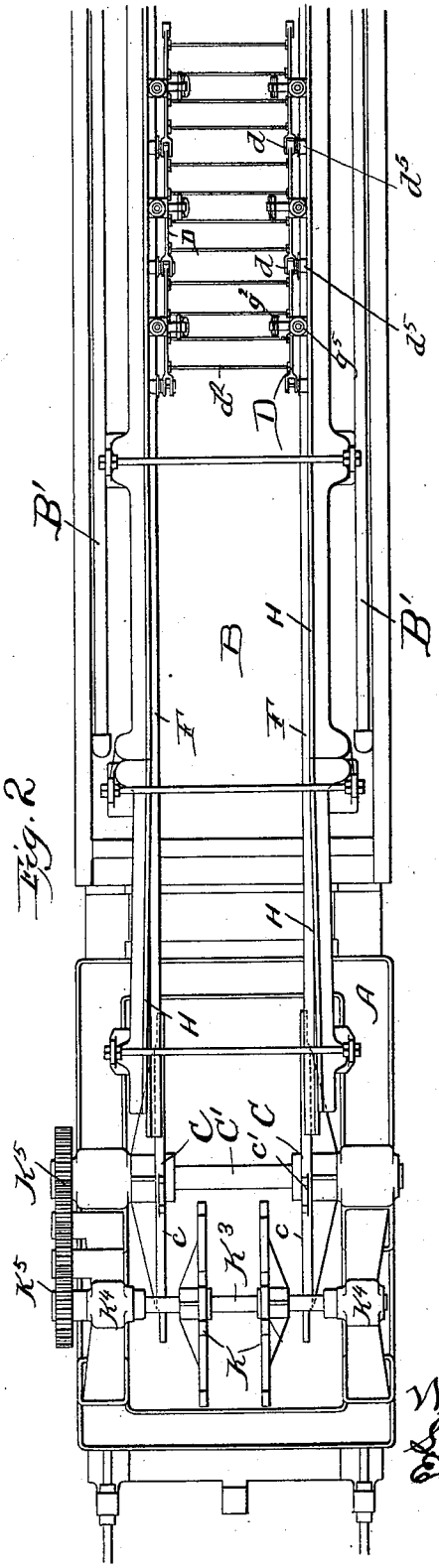
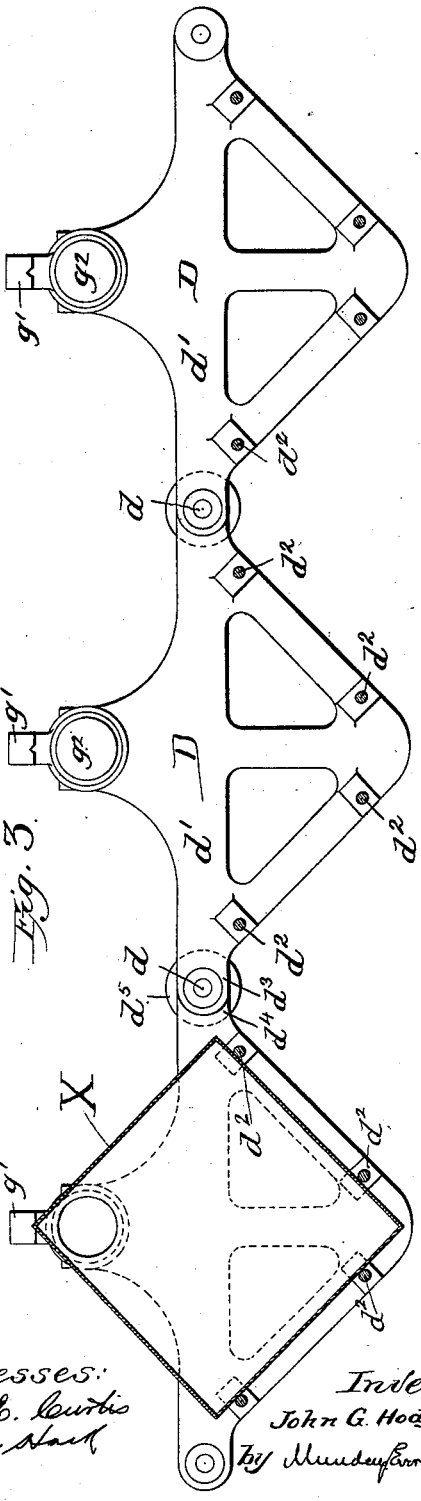


Fig. 3.



Witnesses:
Lew. E. Curtis
Emma Nash

Inventor:
John G. Hodgson
by Munday, Evarts & Adcock
his Attorneys

(No Model.) 3 Sheets—Sheet 3.

J. G. HODGSON.

CAN TESTING MACHINE.

No. 522,259. Patented July 3, 1894.

Fig. 4.

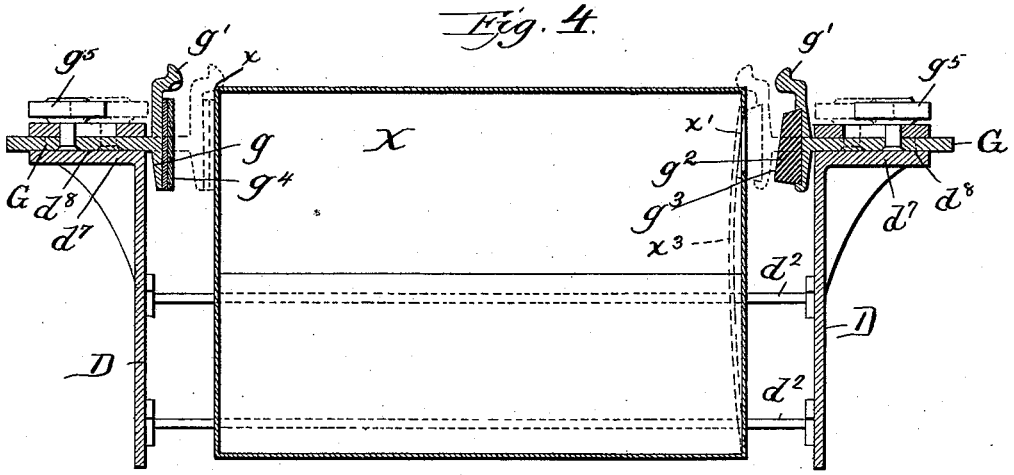
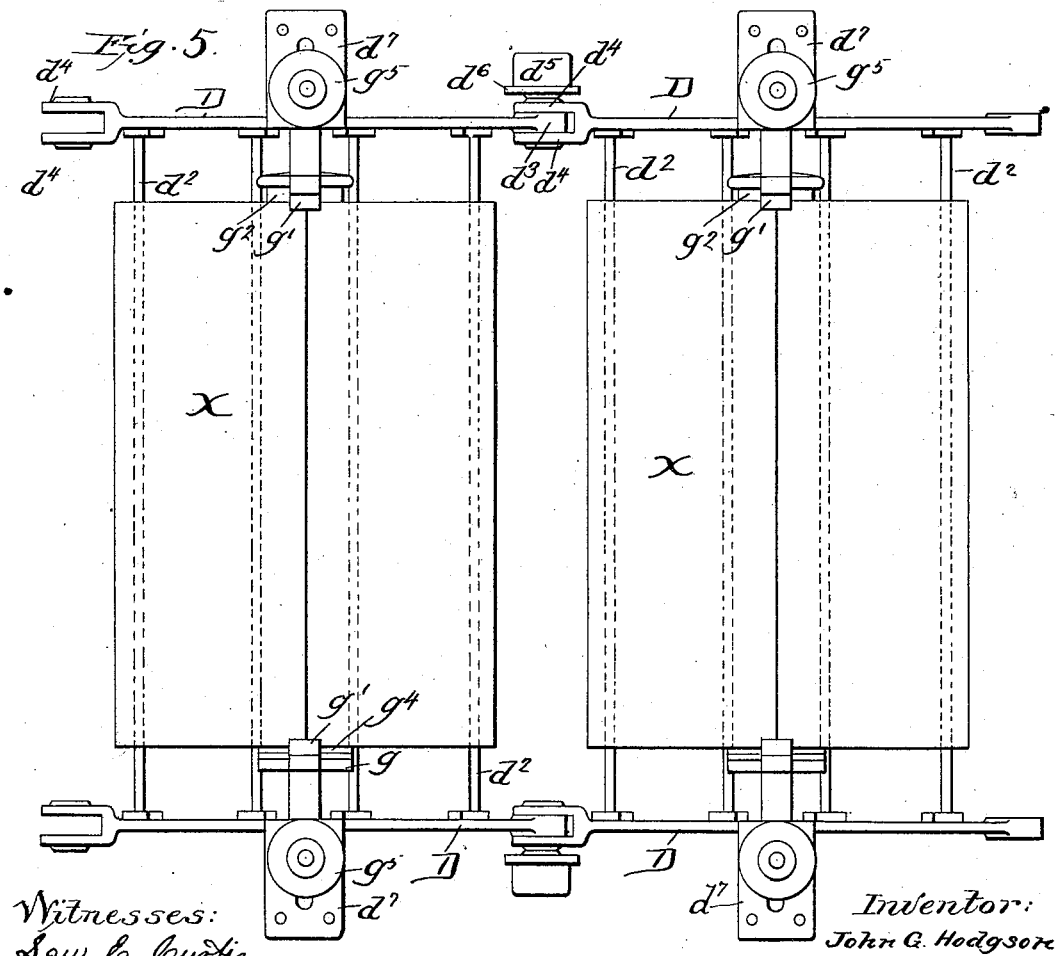


Fig. 5.



Witnesses:
Lew. C. Curtis
Emma Hart

Inventor:
John G. Hodgson
by Munday, Evarts & Adcock
his Attorneys

UNITED STATES PATENT OFFICE.

JOHN G. HODGSON, OF MAYWOOD, ILLINOIS, ASSIGNOR TO EDWIN NORTON, OF SAME PLACE, AND OLIVER W. NORTON, OF CHICAGO, ILLINOIS.

CAN-TESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 522,259, dated July 3, 1894.

Application filed October 4, 1892. Renewed March 14, 1894. Serial No. 503,560. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. HODGSON, 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-Testing Machines, of which the following is a specification.

This invention relates to improvements in machines for testing cans, and more particularly to the improvements upon the can testing machine heretofore patented in Letters Patent of the United States, No. 287,048, of October 23, 1883, granted to Edwin Norton and myself.

The object of the present invention is to simplify the construction of said former machine and render its operation more certain and exact, especially in respect to the closing or sealing the opening of the can at the time it is immersed in the hot water bath. And the further object is to adapt the machine for operation upon large cans, such as ordinary five gallon square petroleum cans.

The invention consists in the novel devices and novel combinations of parts and devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which the same letters of reference indicate the same or like parts throughout the several views, Figure 1 is a side elevation, partly in section, of a machine embodying my invention, the same however showing only one end or half of the machine. Fig. 2 is a plan view; Fig. 3 an enlarged detail side elevation of a portion of the can carrier chain. Fig. 4 is a detail vertical sectional view of one link of the carrier chain, and Fig. 5 an enlarged plan view showing two links of the carrier chain. Fig. 6 is a detail view illustrating the operation of the inclined or approaching tracks or cams H H for opening and closing the can clamping slides, as hereinafter described.

In the drawings A represents the frame of the machine, B the tank for holding the hot water in which the cans are immersed during the testing operation.

B' B' represents steam pipe for heating the water in the tank.

C represents one of the pulleys or sprocket wheels on which the can carrier chain D travels. The carrier chain D is composed of a series of solid links pivoted together by pivots d d. Each link is composed of a pair of side bars d' d' rigidly fixed together by cross bars d^2 d^2 d^2 d^2, there being preferably four cross bars for securing the two side bars of each link together rigidly and firmly. The cross bars d^2 form a pocket or cradle, and the same are so arranged in respect to the can body to be received thereby that the pocket or cradle will fit the can body, as is clearly indicated in Fig. 3. The two side bars d' d' of each link, are each furnished with eyes or bearings d^3 d^4 to receive the hinge pivots d d. The pivot pins d are each provided with a flanged wheel or anti-friction roller d^5 to ride upon the track F by which the carrier chain is supported and guided through and under the water tank. The tracks or rails F are, preferably, provided with upright flanges f. The flange d^6 on the wheel or roller d^5 serves to keep the chain carrier in proper position between the tracks F F. The side bars d' d' for each link are each provided with a horizontal web or flange d^7, which is furnished with a guide or way d^8 for a laterally reciprocating slide G which carries the can clamping device g, one at each side of the chain. The clamping devices g g each have an overhanging lip or projection g' which fits over the corner x of the can X, and thus serves to hold the can in place in its pocket or cradle when the empty can is being immersed in and carried through the bath of hot water. Each of the slides G is also furnished with a pad to press against the end of the can, the pad g^2 at one end being preferably made of rubber or other like material, and adapted to close the opening x' which is in one head of the can. This pad g^2 is preferably furnished with a beveled inner face g^3, so that the same may better conform to and close the opening x' when pressure is exerted against the head of the can, as this pressure will tend to cause the head to spring inward at its center, as indicated by the dotted lines x^3 at Fig. 4. The other pad g^4 which presses against the opposite end of the can where there is no opening in the head, may, preferably, be made flat and of any suitable yielding material

that will avoid marring the can. Each of the slides G is furnished with a wheel or anti-friction roller g^5, that engages the cam track or way H, which serves to close, and hold closed the slides G G while the can is being conveyed into and through the water bath. Another section of this cam track or way engaging these rollers g^5 on the opposite side, serves to open the slides G G to permit the discharge of the cans from the carrier, and also to permit the cans to be delivered into the carrier.

The pulley C, one at each end of the tank around which the chain carrier travels, consists of two wheels c c between which the links of the chain fit or are suspended, each wheel c having notches c' on its periphery to receive the flanged wheels d^5 on the pivot pin d.

K is a can delivery wheel furnished with pockets K′ to receive the cans from a chute K^2 and deliver them one by one into the pockets or cradles of the endless link chain can carrier D. This can delivery wheel K has a shaft K^3 journaled upon suitable brackets K^4 on the frame, and it is arranged, preferably, above the pulley C and in such position that its pockets K′ will register with the pockets or cradles of the can carrier D as they are carried around on said pulley C. The can delivery wheel K, or its shaft K^3, is driven from the shaft C′ of the pulley C by means of the intermeshing gears K^5. K^6 is a curved guard fixed to the frame and extending around a portion of the circumference of the delivery wheel K for the purpose of holding the can in the pockets of such wheel as it revolves.

The two tracks H H which operate the slides G G for clamping the can are slightly inclined toward each other at the point where the slides are forced together to clamp the can, as is clearly shown in Figs. 2 and 6; and these tracks or ways H H incline outwardly or spread apart at the point where the slides G G are to be separated to permit the discharge of the can, as is clearly indicated in Fig. 6. As the two tracks or ways H H are thus inclined to and from each other at certain points they operate as cam tracks, or stationary cams.

I claim—

1. In a can testing machine, the combination with a tank for holding hot water, of an endless link-chain can-carrier composed of a series of solid links each comprising a pair of side bars rigidly connected together and furnished with pockets or cradles for receiving the cans, and devices for clamping the cans and closing the openings therein mounted upon and carried by said links, a track for said carrier chain, and a cam or track for operating said clamping devices, substantially as specified.

2. In a can testing machine, the combination of tank B, link-chain can-carrier D having links furnished with pockets or cradles to receive the cans, a track for said carrier chain and wheels or rollers on the links of said chain, substantially as specified.

3. In a can testing machine, the combination of tank B, link-chain can-carrier D having links furnished with pockets or cradles to receive the cans, a track for said carrier chain and wheels or rollers on the links of said chain, said wheels or rollers having flanges, substantially as specified.

4. In a can testing machine, the combination with a tank, a can carrier having pockets or cradles to receive the cans, clamps or slides furnished with lips or projections adapted to fit over the end edges of the can to hold the cans in said pockets or cradles, substantially as specified.

5. In a can testing machine, the combination with a tank, a can carrier having pockets or cradles to receive the cans, clamps or slides furnished with lips or projections adapted to fit over the end edges of the can to hold the cans in said pockets or cradles, and elastic pads on said clamps or slides for closing the opening in the can head, substantially as specified.

6. In a can testing machine, the combination with a tank, a can carrier having pockets or cradles to receive the cans, clamps or slides furnished with lips or projections adapted to fit over the end edges of the can to hold the cans in said pockets or cradles, an elastic pad on said clamps or slides for closing the opening in the can head, said elastic pads having beveled faces, substantially as specified.

7. In a can testing machine, the combination with a tank B of can carrier furnished with pockets or cradles to receive the cans, clamp slides G furnished with wheels or rollers g^5, and a track adapted to engage said wheels or rollers for operating said slides, substantially as specified.

8. In a can testing machine, the combination with a tank B of a can carrier furnished with pockets or cradles to receive the cans, clamp slides G furnished with wheels or rollers g^5, and a track adapted to engage said wheels or rollers for operating said slides, said slides having elastic pads g^2, substantially as specified.

9. In a can testing machine, the combination with a tank B of a can carrier furnished with pockets or cradles to receive the cans, clamp slides G furnished with wheels or rollers d^5, and a track adapted to engage said wheels or rollers for operating said slides, said slides having elastic pads g^2 and lips or projections g', substantially as specified.

10. In a can testing machine, the combination with tank B of a link-chain can-carrier D, the links whereof consist each of a pair of side plates d' d' secured rigidly together by cross bars d^2 forming the pocket or cradle to receive the cans, substantially as specified.

11. In a can testing machine, the combination with the tank B of a link-chain can-car-

rier D, the links whereof consist each of a pair of side plates d' d' secured rigidly together by cross bars d^2 forming the pocket or cradle to receive the cans, said side bars or plates d' having lateral flanges or brackets d^7, and can clamping slides G mounted thereon, substantially as specified.

12. In a can testing machine, the combination with tank B of a link-chain can-carrier D, the links whereof consist each of a pair of side plates d' d' secured rigidly together by cross bars d^2 forming the pocket or cradle to receive the cans, said side bars d' d' of contiguous links being pivoted together by pins d, furnished with friction wheels or rollers d^5, and a track for said carrier substantially as specified.

13. In a can testing machine, the combination with tank B of a link-chain can-carrier D, the links whereof consist each of a pair of side plates d' d' secured rigidly together by cross bars d^2 forming the pocket or cradle to receive the cans, said side bars d' d' of contiguous links being pivoted together by pins d, furnished with friction wheels or rollers d^5, and pulley C for said carrier D composed of a pair of wheels c c, furnished with notches c' in their periphery to engage said wheels or rollers d^5 on the pivots d of said links, and a track for said carrier substantially as specified.

14. In a can testing machine, the combination with tank B, of a can carrier D furnished with pockets or cradles to receive the cans and a can delivery wheel K, having can pockets K′ arranged and adapted to deliver the cans into the pockets of said carrier, substantially as specified.

15. In a can testing machine, the combination with tank B, of a can carrier D furnished with pockets or cradles to receive the cans and a delivery wheel K, having can pockets K′ arranged and adapted to deliver the cans into the pockets of said carrier, and a guard K^6 cooperating with said can delivery wheel K, substantially as specified.

Dated at Chicago, September 30, 1892.

JOHN G. HODGSON.

Witnesses:
LEW. E. CURTIS,
EDMUND ADCOCK.