

No. 823,731.

PATENTED JUNE 19, 1906.

M. LEITCH.  
APPARATUS FOR DRYING CANS.

APPLICATION FILED MAR. 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1

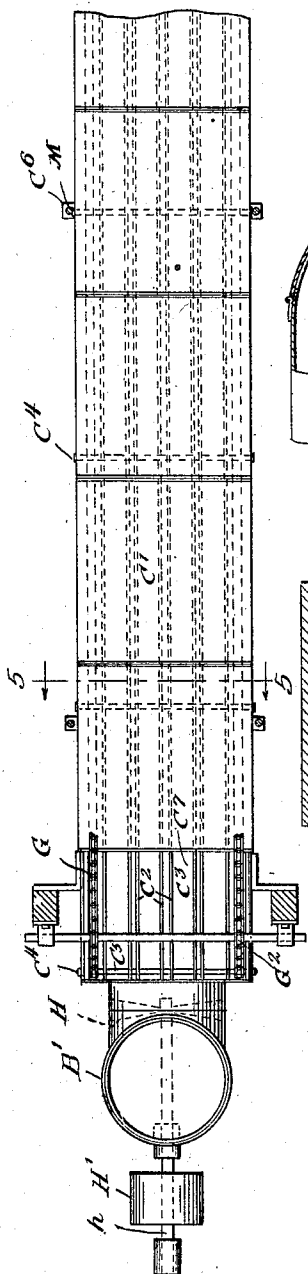
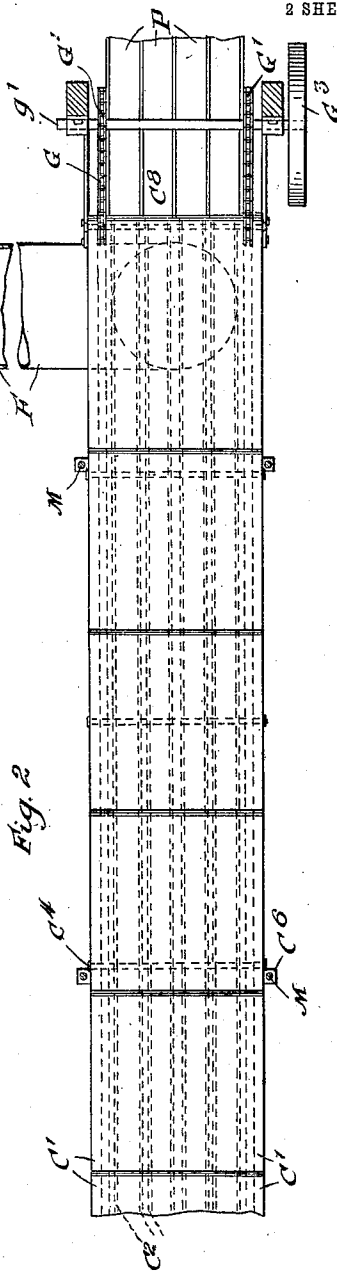


Fig. 2



Witnesses:

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Inventor  
Meredith Leitch

By Munday, Evans & Adcock

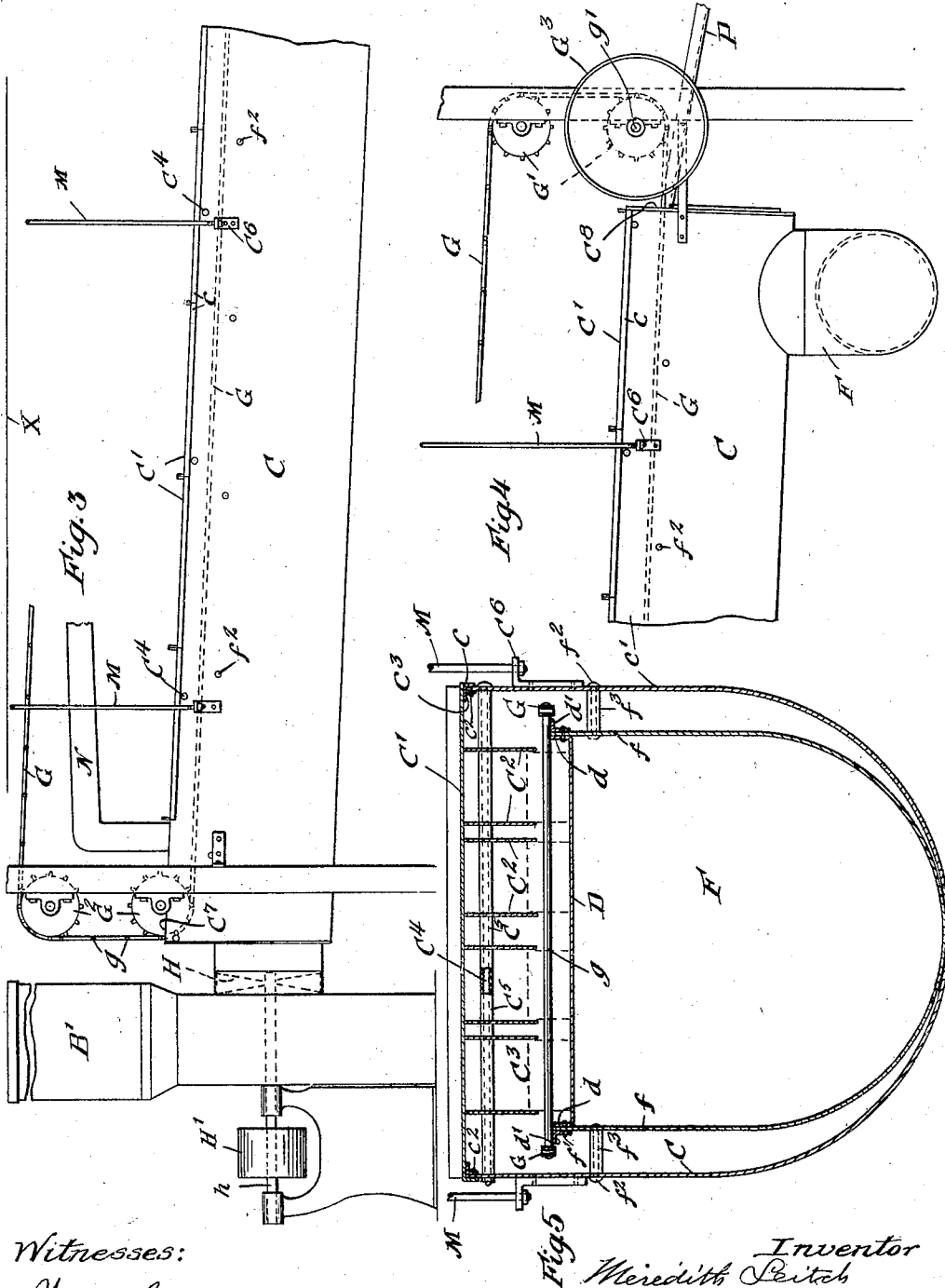
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# UNITED STATES PATENT OFFICE.

MEREDITH LEITCH, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## APPARATUS FOR DRYING CANS.

No. 823,731.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed March 6, 1905. Serial No. 248,782.

*To all whom it may concern:*

Be it known that I, MEREDITH LEITCH, a citizen of the United States, residing in the city of New York, borough of Manhattan, county of New York, in the State of New York, have invented a new and useful Improvement in Apparatus or Machines for Drying Cans, of which the following is a specification.

My invention relates to improvements in apparatus or machines for drying cans after they have been tested by passing through testing-machines having a water-bath for detection of leaky cans.

Heretofore can-drying machines or apparatus have usually comprised means for drying the cans by passing over them hot air, the air being heated by contact with steam-pipes and propelled over and around the cans by a blower, or else, as in other can-drying machines, the cans have been conveyed through a tunnel having a metal bottom plate extending the length thereof and which is heated by a furnace under the plate and having a flue extending under the plate the full length of the tunnel, so that the cans are heated by contact with the plate and by hot air in the tunnel. In the first-mentioned method or apparatus the drying of the cans is expensive in respect to fuel and the apparatus itself requires considerable attention and expense, and such devices are also objectionable, because they necessarily occupy a great deal of valuable floor-space in the factory. The second method or apparatus is also objectionable, because, the heat being applied directly to the iron bottom plate of the tunnel, the heat is difficult of regulation and the bottom plate is liable at times to be heated to such a high degree as to melt the solder on the seams of the cans, and thus loosen their joints and ruin the cans.

The object of my invention is to provide a can-drying apparatus or machine of a simple, efficient, and durable construction by means of which cans may be rapidly, cheaply, and perfectly dried without danger of overheating them or melting the solder in their seams, and which may be suspended overhead from the ceiling, and which will thus not require or take up but little, if any, of the floor-space of the factory, and by which, in short, all the objections, difficulties, or disadvantages incident to the use of can-driers

heretofore known may be entirely overcome and avoided.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown or described.

In the accompanying drawings, forming a part of this specification, Figures 1 and 2, taken together, are a plan view of a can-drier or apparatus embodying my invention. Figs. 3 and 4, taken together, are a side elevation of the same; and Fig. 5 is an enlarged detail cross-section on line 5 5 of Fig. 1.

As will be seen from said drawings, the machine or apparatus embodying my invention comprises in coöperative combination a furnace A, in which coal or fuel may be burned or consumed at a very high temperature; a steam-boiler or other means B for extracting the greatest portion of the heat from the products of combustion and reducing the temperature of the products of combustion to a point below the melting-point of solder, so that there will be no liability to melt the solder on the cans coming in contact with the can-drying plate heated by such gases or products of combustion of low temperature; a can-drying conduit C, through which the cans are conveyed; a can heating and drying plate D; a flue F, extending through and within the can-drying conduit C from the boiler B to the smoke-stack B' and through which flue F the low-temperature gases or products of combustion from the boiler are conveyed to the smoke-stack B', of which flue the flat can-drying plate D forms the upper wall; a conveyer G for conveying or regulating the passage of the cans over the drying-plate D; a fan or blower H for forcing a draft of air through the can-drying conduit, and suspension-rods M, by means of which the can-drying conduit C and the flue F within the same are suspended from the ceiling, so that the apparatus may occupy substantially no floor-space in the factory.

The furnace A and boiler B may be of any suitable kind or construction, and I have consequently shown these parts simply in a diagrammatic or conventional manner.

The flue F leads from the boiler B to the smoke-stack B' and extends in substantially horizontally, but with a slight upward in-

clination, and within the can-drying conduit C for the entire length thereof. The upper wall or plate D of the flue F is flat, and thus serves as a can heating and drying plate, along which the cans are conveyed or rolled in the can-drying conduit C. The plate D is provided with upright flanges *d* at its edges, thus forming side guides for the can track or plate, over which the cans are conveyed or rolled, and is securely united to the U-shaped shell or plate *f* of the flue F by rivets *f'*, which extend also through an angle plate or bar *d'*, which thus forms and serves as a track for the can-conveyer G. The can-drying conduit C surrounds the flue F and is preferably of similar shape in cross-section, it having a flat top plate *C'* furnished with depending flanges *c*, and it is united to the upper edges of the conduit shell or plate *c'* by rivets *c<sup>2</sup>* and angle-plates *c<sup>3</sup>*. The conduit C is provided with a number of longitudinal separator or partition plates *C<sup>2</sup>*, dividing the conduit above the heater-plate D into a series of parallel passages or runways *C<sup>3</sup>* for the cans, so that a number of rows of cans may be simultaneously passed through the conduit over and in contact with the heater-plate. These partitions or separator-plates *C<sup>2</sup>* are preferably adjustably secured in place by cross-rods *C<sup>4</sup>* and spacer sleeves or thimbles *C<sup>5</sup>*, so that by using spacer sleeves or thimbles of different lengths the separator-plates *C<sup>2</sup>* may be placed closer together or farther apart, as may be required, for operating upon cans of different sizes. Stays or cross bolts or pins *f<sup>2</sup>*, having thimbles *f<sup>3</sup>*, extend between the shells *c'* of the conduit and *f* of the flue, thus supporting and bracing the one from the other. At their bottom portions the conduit-shell *c'* and flue-shell *f* may, if desired, contact with each other. The conduit C is furnished with angle plates or brackets *C<sup>6</sup>*, to which the suspension-rods M are connected and by which the conduit C is suspended overhead from the ceiling X, so that the conduit and the parts contained therein may occupy no floor-space in the factory.

The can-conveyer G is an endless flexible one, preferably consisting of a chain provided with cross-bars *g* to engage the cans, the same traveling on the track *f'* and passing around pulleys or sprocket-wheels *G<sup>1</sup>* *G<sup>2</sup>*, the shaft *g'* of one of the sprocket-wheels *G<sup>1</sup>* being furnished with a driving-pulley *G<sup>3</sup>*, through which motion is communicated to the conveyer through any suitable source of power. The conveyer G enters the drying-conduit C at an opening *C<sup>7</sup>* therein, at which the lower sprocket-wheel *G<sup>2</sup>* is mounted. The conveyer G issues from the conduit C at an opening *C<sup>8</sup>* therein in its lowermost end. At the upper end or portion of the horizontal or slightly-inclined flue F near where the same communicates with the smoke-stack B', I

provide a fan or blower H to aid in drawing or forcing the hot but low-temperature products of combustion through the flue F. The shaft *h* of this fan or blower is furnished with a driving-pulley H' for driving the same.

N N are the inclined runways by which the cans to be dried are delivered into the conduit of the drier in position to be engaged by the cross-bars of the can-conveyer, and P is the discharge chute or runway at the discharge end of the conduit for discharging the cans therefrom.

As in my invention the cans are dried by utilization of the waste heat from the furnace and boiler used for supplying heat or power for other purposes, I am enabled to do the work of drying the cans at a very small fuel cost, while at the same time, as the temperature of the gases or products of combustion issuing from the furnace is reduced by the boiler below the melting-point of solder before the same act upon the can-drying plate D of the long flue F, I entirely avoid all danger of melting the solder on the cans or injuring the cans in the drying operation, and as in my invention the cans are dried by direct contact with the hot plate D, as well as by the heated air in the drying-conduit C, the cans may be very quickly, rapidly, and cheaply dried, and the conduit does not require, for this reason, to be of very great length, and for this reason also my drying apparatus may be very cheaply constructed.

I claim—

1. In a can-drying apparatus, the combination with a furnace a smoke-stack and a boiler, of a can-drying conduit, a flue extending within and through said conduit from the boiler to the smoke-stack, and having a flat can heating and drying plate for its upper wall, an endless flexible can-conveyer, having its lower run entering said conduit at one end thereof and extending through said conduit over said can heating and drying plate for conveying the cans over the plate and through the conduit and having its upper run extending above said conduit, substantially as specified.

2. In a can-drying apparatus, the combination with a furnace a smoke-stack and a boiler, of a can-drying conduit, a flue extending within and through said conduit from the boiler to the smoke-stack, and having a flat can heating and drying plate for its upper wall, an endless flexible can-conveyer, having its lower run entering said conduit at one end thereof and extending through said conduit over said can heating and drying plate for conveying the cans over the plate and through the conduit and having its upper run extending above said conduit, and a fan or blower in said flue, substantially as specified.

3. In a can-drying apparatus, the combination with a furnace a smoke-stack and a boiler, of a can-drying conduit, a flue extend-

ing within and through said conduit from the boiler to the smoke-stack, and having a flat can heating and drying plate for its upper wall, a can-conveyer extending through said conduit over said can heating and drying plate for conveying the cans over the plate and through the conduit, said conduit being furnished with longitudinal separator or partition plates dividing the space in the conduit above said can heating and drying plate into a plurality of parallel can-runways, substantially as specified.

4. In a can-drying apparatus, the combination with a furnace a smoke-stack and a boiler, of a can-drying conduit, a flue extending within and through said conduit from the boiler to the smoke-stack, and having a flat can heating and drying plate for its upper wall, an endless flexible can-conveyer, having its lower run entering said conduit at one end thereof and extending through said conduit over said can heating and drying plate for conveying the cans over the plate and through the conduit and having its upper run extending above said conduit, and suspension-rods for suspending said conduit overhead from the ceiling, substantially as specified.

5. In a can-drying apparatus, the combination with a furnace a smoke-stack and a boiler, of a can-drying conduit, a flue extending within and through said conduit from the boiler to the smoke-stack, and having a flat can heating and drying plate for its upper wall, a can-conveyer extending through said conduit over said can heating and drying plate for conveying the cans over the plate and through the conduit, said conduit being furnished with longitudinal separator or partition plates dividing the space in the conduit above said can heating and drying plate into a plurality of parallel can-conveyers, and

can-runways for delivering the cans to be dried into said conduit and onto said drying-plate, substantially as specified.

6. In a can-drying apparatus, the combination with a can-drying conduit, of a flue extending within and through said conduit, having a flat upper plate or wall over which the cans may be conveyed or rolled, an endless flexible can-conveyer having its lower end entering said conduit at one end thereof and extending through said conduit over said flat upper plate of said flue for conveying the cans over said plate and through the conduit, said conveyer having its upper run extending above and outside the conduit and means for suspending said conduit overhead from the ceiling, substantially as specified.

7. In a can-drying apparatus, the combination with a can-drying conduit, of a flue extending within and through said conduit, having a flat upper plate or wall over which the cans may be conveyed or rolled, a can-conveyer extending through said conduit over said flat plate, and longitudinal separator-plates forming separate can-runways over said plate, substantially as specified.

8. In a can-drying apparatus, the combination with a can-drying conduit, of a flue extending within and through said conduit, having a flat upper plate or wall over which the cans may be conveyed or rolled, a can-conveyer extending through said conduit over said flat plate, and laterally-adjustable longitudinally-extending separator-plates above said flat can-drying plate to form a plurality of can-runways thereon, substantially as specified.

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Witnesses:

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