

3 Sheets—Sheet 1.

APPARATUS FOR HEATING AND CANNING FOOD.

Patented Sept. 6, 1887.

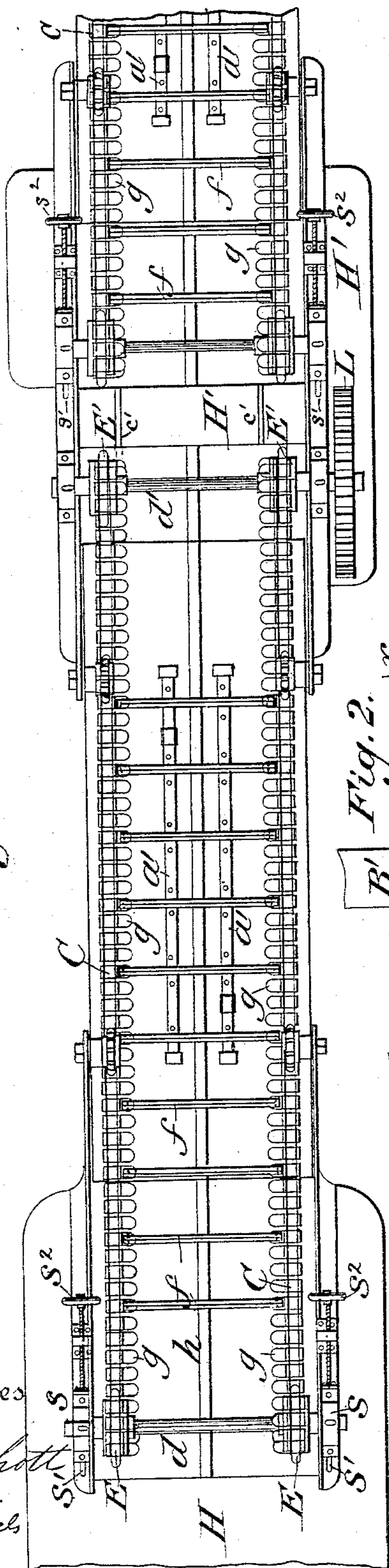
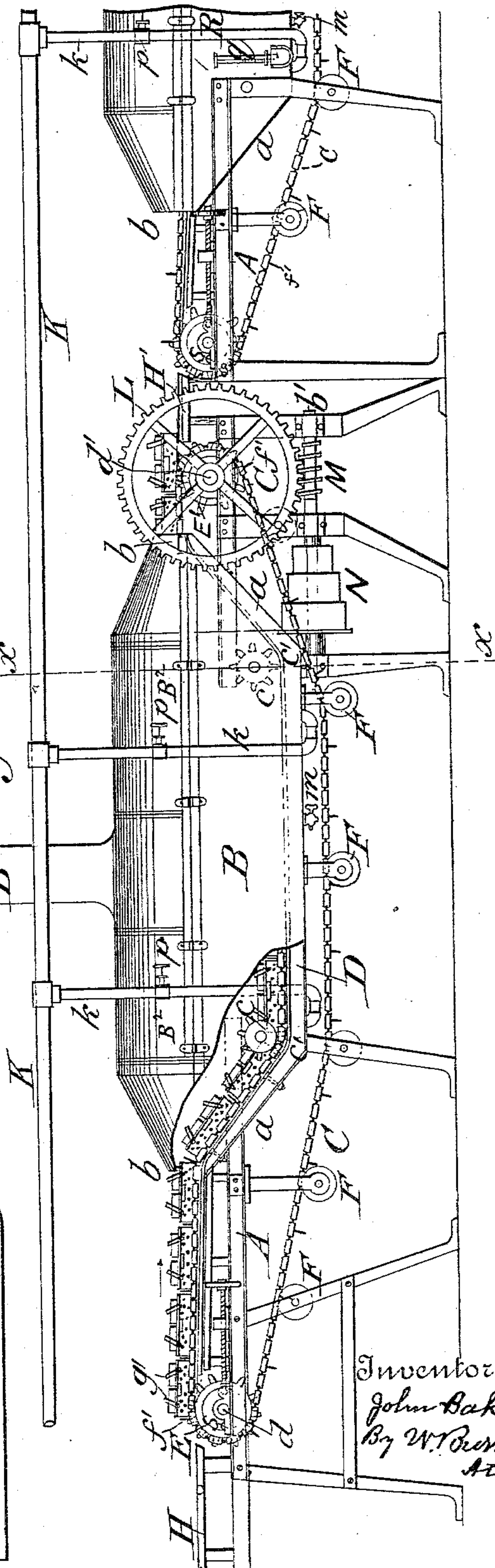


Fig. 2.



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(No Model.)

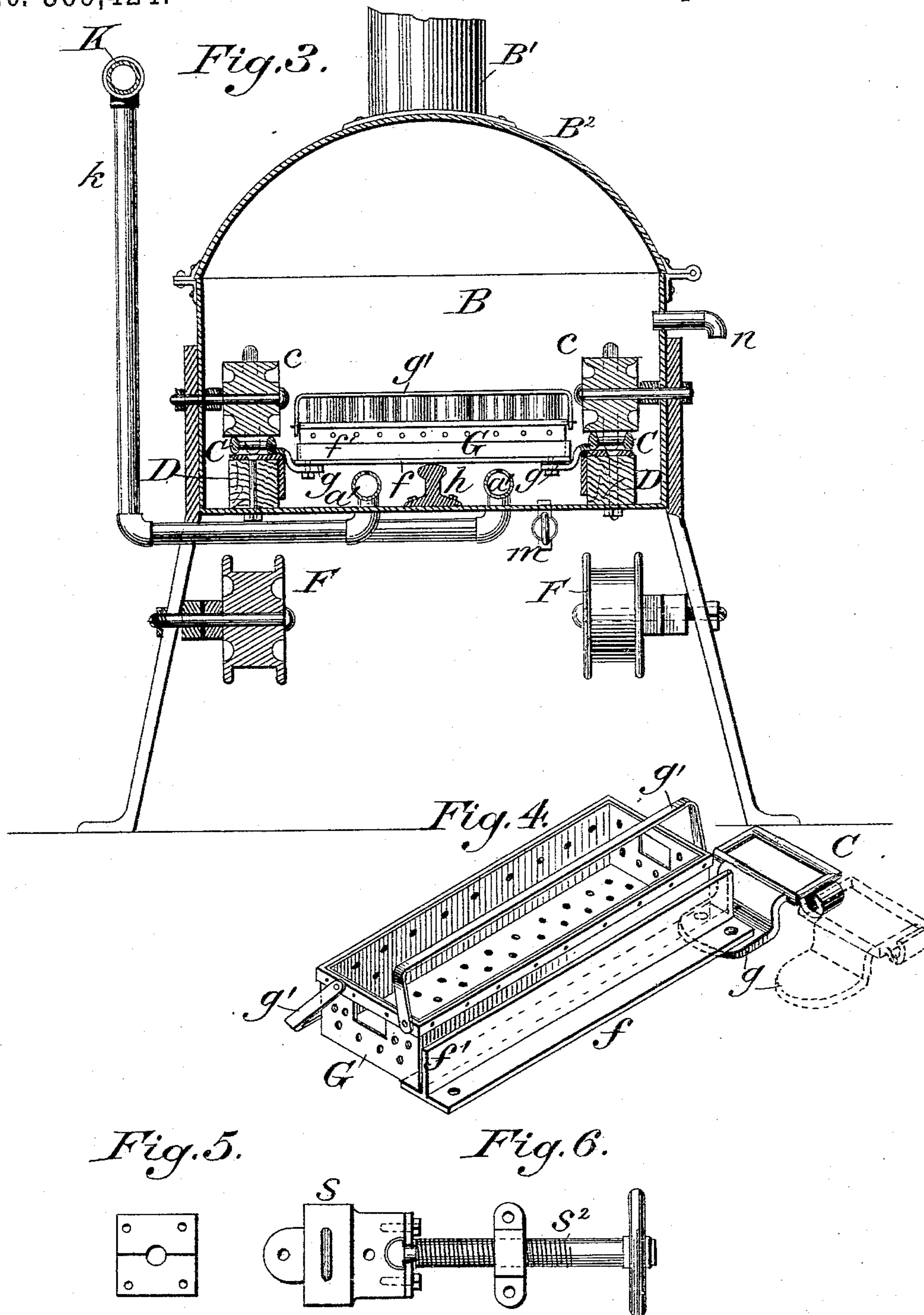
3 Sheets—Sheet 2.

J. BAKER.

APPARATUS FOR HEATING AND CANNING FOOD.

No. 369,424.

Patented Sept. 6, 1887.



Attest:

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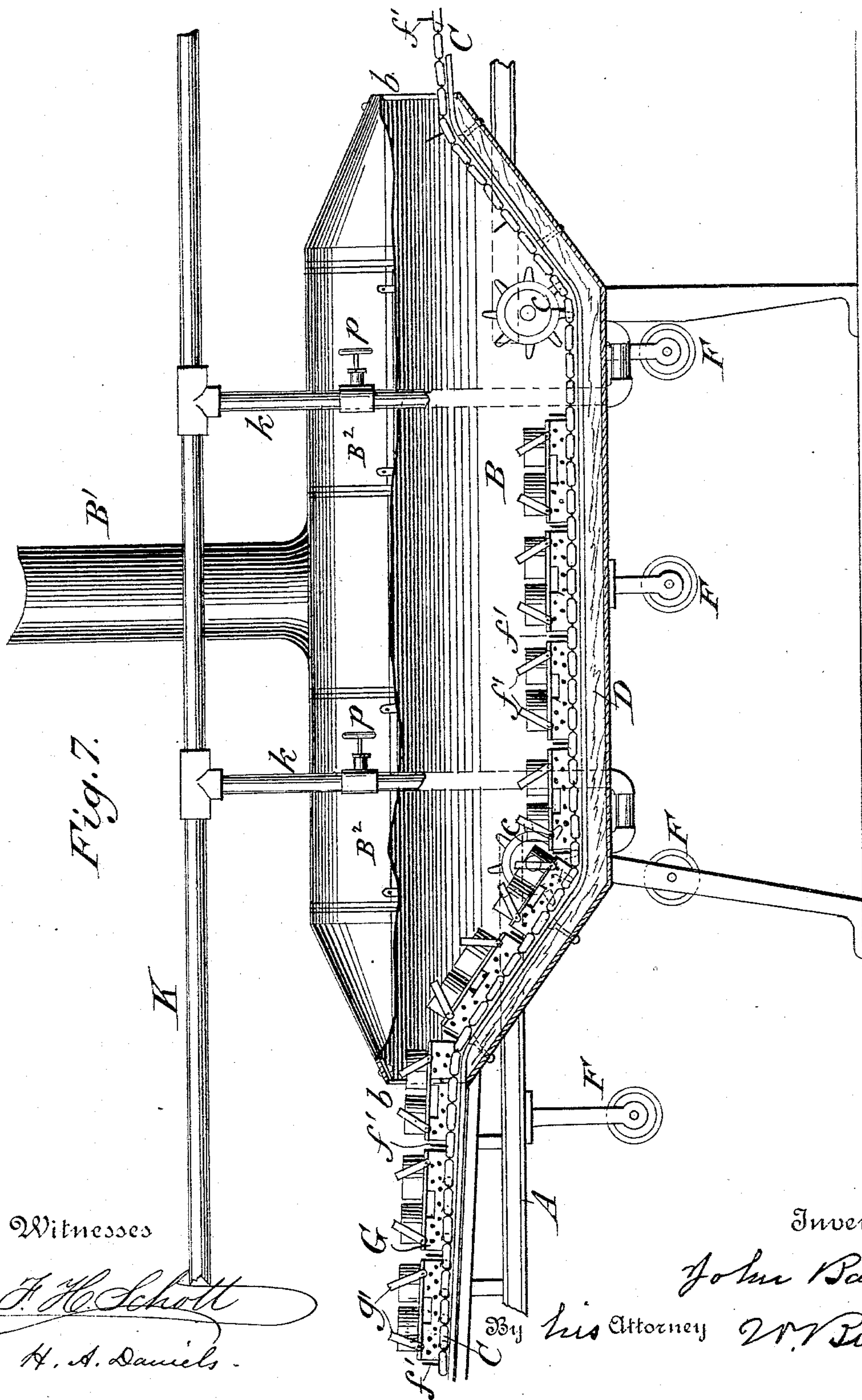
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Witnesses

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JOHN BAKER, OF MUSCATINE, IOWA.

APPARATUS FOR HEATING AND CANNING FOOD.

SPECIFICATION forming part of Letters Patent No. 369,424, dated September 6, 1887.

Application filed January 13, 1887. Serial No. 224,268. (No model.)

To all whom it may concern:

Be it known that I, JOHN BAKER, a citizen of the United States of America, residing at Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Apparatus for Heating and Canning Food, of which the following is a specification, reference being had therein to the accompanying drawings.

Heretofore in the treatment of canned fruit, vegetables, and other articles of food the cans, after being filled, have been placed in boiling water, or subjected to steam in various styles of vessels, such method requiring much care, skill, and attention for regulating the temperature, heating cans for the proper time, &c., and the object of my invention is to provide an apparatus by which the filled cans are exhausted of air, subjected to heat uniformly for the proper time and at the proper temperature, and put in condition suitable for the market in much less time and with less labor than required by the means and methods heretofore employed.

In the accompanying drawings, Figure 1 is a plan view of my improved apparatus, the upper parts being removed. Fig. 2 is a side elevation, partly in section. Fig. 3 is a vertical transverse section taken on line *x x* of Fig. 2. Fig. 4 represents in perspective a portion of the endless chain carrier with a can-tray. Figs. 5 and 6 are detached views of devices for adjusting the movable journal-boxes. Fig. 7 is a partial longitudinal vertical section and side elevation of tank and carrier.

A designates supporting-frames, usually of angle-iron, on which is placed a tank, B, termed "an exhauster," the casing of which is sheet metal, the top being provided with a pipe, B', for the escape of steam. The body of the tank is formed with an inclined plane, *a*, at each end, and at the upper extremity of each incline there is an opening or mouth, *b*, in the tank for the passage of an endless chain band, which forms a carrier, C, for the cans.

D indicates the rails of a track, placed along and on the bottom of the tank, to which they are bolted, and extending out through the openings *b* a suitable distance. The track forms a way and support for the chain-carrier C to move upon during operation. The rails D are usually made of hard wood, with their

top and inner surfaces faced with angle-iron. To guide the chain-carrier in its movement on the rails D the chain-wheels *c* are placed at the angles *c'* of the rails, so that the wheels engage with the chains of the carrier passing under them. The wheels *c* are placed on short shafts fixed to frame A and extending into the tank, as shown.

On a shaft, *d*, having bearings carried by frame A, are placed the chain-wheels E, the same being keyed to the shaft, which is provided with adjustable bearing-boxes, as hereinafter stated. Two similar wheels, E', are placed on and keyed to a shaft, *d'*, supported at the discharge end of the tank, and the two chains of the endless carrier pass over the wheels E and E', the carrier moving in the direction indicated by arrows in the drawings. As will be seen, the chain-carrier passing over the wheels on the shaft *d* extends a suitable distance beyond the entrance-mouth of the tank to allow the loading of the carrier with trays of cans.

A number of pulleys or flanged wheels, F, are placed at intervals below the tank, having supports attached to the frame or the tank, these wheels being intended to support the endless carrier in its return movement after the cans have been removed from it.

The carrier C is formed of two chains connected by cross-bars *f*, as shown in the drawings, each chain moving on one of the rails D. Each link of a chain is provided with a lug, *g*, on its inner side, the lug being in the form of an angle-iron extending downward and inward, as shown.

To every fourth link of each chain is fastened one end of a cross-bar, *f*, the bar being bolted at each end to a lug, *g*. These bars *f* are each provided with a flange, *f'*, along the center, giving the bar in cross-section the form of an inverted T. Seats are thus formed by the flanged bars and the lugs *g* for the trays G, in which are placed the cans, each tray occupying the space between two flanges, *f'*.

The trays G are of perforated sheet metal, with strips of iron riveted to the tops, and are of proper form and size to set in the carrier and rest on cross-bars *f* and lugs *g*. They are usually constructed each to hold twelve cans, placed in two rows, and are provided with handles *g'*, two handles being pivoted to a tray

in such manner that when the tray is filled and the handles are turned up each handle extends over a row of cans, which are by this means retained in place in the tray and prevented from rising while passing through the water in the tank.

The carrier is supported at the center by a rail, *h*, secured to the bottom of the tank and extending longitudinally along its center line. *H* indicates capping-benches, placed in positions on the frames on both sides and at both ends of the tank, the benches being of sufficient length to accommodate a sufficient number of cappers to keep the carrier during operation filled with trays of cans, each capper placing his tray of cans on the carrier.

K indicates a steam-supply pipe, from which two branch pipes, *k*, extend downward and turn upward through the bottom of the tank *B* and connect with the perforated pipes *a'*, which extend along the bottom of the tank for the distribution of steam therein. The pipes *k* are provided with valves *p* for the purpose of regulating the temperature. The thermometers *q* serve to indicate the temperature within the tank. A drain-cock, *m*, and waste-pipe *n* are also provided for the tank.

The shaft *d'*, being a driving-shaft, is somewhat extended, and has a gear-wheel, *L*, which is keyed thereto, and engages with a worm, *M*, on a counter-shaft, *b'*, properly supported and having bearings in the frame-work. On the counter-shaft *b'*, and keyed thereto, is a cone-pulley, *N*, having several sizes of pulleys, to either of which motion may be imparted according to the speed required for the carrier.

For the purpose of tightening the carrier lengthwise, as may be required, the shaft *d*, having chain-wheels *E* keyed thereto, is journaled in movable boxes *s* on frame *A*, each of the boxes being secured by means of bolts passed through a slot, *s'*, in the frame and secured by nuts. These nuts may be loosened and the boxes *s* may then be adjusted in position in either direction by means of horizontal screws *s''*, which have a swivel-connection with the boxes, and the nuts may then be tightened again.

For the purpose of access to the interior of the tank, the casing is provided with the lids or hinged sections *B''*.

Another tank, *R*, is placed on supporting-frames a short distance to the rear of tank *B* and in line with the same. The tank *R* is the cooking-tank, and is of similar construction to tank *B*, except that it is somewhat longer, and has an escape-pipe, a carrier, and the other appliances of the exhausting-tank.

In handling and treating the cans the workmen in equal numbers are located at each side of the capping-bench *H*, over the central portion of the entire length of which runs the endless carrier, which is kept in continuous motion in the direction indicated by the arrow, and as fast as the trays are filled with hermetically-sealed cans they are placed upon the

moving carrier and the handles are turned up over the cans, as shown, to hold them in place.

The loaded trays passing out of the exhaustor are automatically transferred to slide-bars *c' c'* on the transfer-bench *H'*, between the exhaustor and the cooker, the first tray thus delivered on the slide-bars being moved forward by the subsequent one, and so on, forming a line of exhausted cans; and the workmen located at each side of this transfer-bench remove these exhausted cans from the slide-bars, place them on the transfer-bench, close the vents, and place the cans on the moving carrier of the cooker. The rate of speed with which the carriers move not being too rapid, and the benches being of sufficient size to afford room for the requisite number of workmen, the moving carriers in the tanks are kept constantly filled, so that no time or heat may be lost.

The heating may be effected by means of coiled pipes within the tank or through perforated pipes, as shown.

The loaded trays, after passing through the cooker, may be transferred by hand or automatically to a receiving-bench, and, there being emptied, are returned to the capping-bench. Thus it is readily seen that with tanks of the required length provided with suitable heating means and devices and carriers caused to travel at the requisite rate of speed the contents of the cans may be subjected with certainty to the precise degree of heat required without the usual liability of over or under heating the canned food.

It is well known that different articles of canned food require to be subjected to different degrees of heat. This may be accomplished with my apparatus by varying the lengths and number of the tanks or by varying the rate of speed of the carriers. In operating my apparatus the vents of the cans are usually opened before they are passed through the exhaustor, which I regard as the preferable method; but the cans may be passed through the exhaustor with the vents closed, and the vents may then be opened and the cans vented and sealed before being passed through the cooker.

In some cases the exhaustor may be dispensed with, and the exhausting and cooking both be accomplished by passing the filled cans through the cooker only.

Having described my invention, I claim—

1. In an apparatus for heating canned food, in combination with a tank, a can-carrier extended through the tank and formed of two chains connected by cross-bars at intervals, the links of which chains are each provided with a lug, *g*, extending downward and inward to form supports for trays of cans, substantially as and for the purpose described.

2. The endless carrier formed of two chains the links of which are provided with lugs *g*, extending downward and inward, as shown, and the cross-bars *f*, provided with flanges *f'*,

said cross-bars being connected at intervals with lugs *g*, in combination with can-trays constructed to rest on bars *f* and lugs *g*, substantially as and for the purpose set forth.

5 3. In combination with a tank and can-carrier passing through the tank, can-trays constructed to rest in the carrier and provided with pivoted retaining-handles which may be set to extend over the cans and secure them
10 in place, substantially as set forth, for the purpose specified.

4. In an apparatus for heating canned food, an endless chain carrier formed of chains having links provided with the angular lugs *g* and
15 flanged cross-bars *f*, placed at intervals and having their ends fastened to lugs of said chains, in combination with a tank and the can-trays, and mechanism, substantially as described, to cause the loaded carrier to travel
20 automatically through a tank, substantially as described.

5. In an apparatus for heating canned food, a covered tank formed with inclined planes at its extremities and provided with a track con-

sisting of two side rails and a central rail fixed 25 along the bottom and inclined planes and extending through the open ends of the tank, chain-wheels *c*, placed at the angles of the side rails on fixed bearings extending from the sides of the tank, in combination with an endless 30 can-carrier extending through the tank and having two chains connected by cross-bars, said chains being held to the side rails by the wheels *c*, substantially as set forth and described. 35

6. In combination with a tank having an endless can-carrier extending through it, a transfer-bench, *H'*, provided with slide-bars *c'*, placed at the discharge end of the tank in position to automatically receive trays of cans 40 from the carrier passing out of the tank, substantially as set forth.

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

JOHN BAKER.

Witnesses:

I. A. KERR,
P. B. SPEER.