(No Model.)

W. D. SWART.

REFRIGERATOR LATCH.

No. 371,904. Patented Oct. 18, 1887.

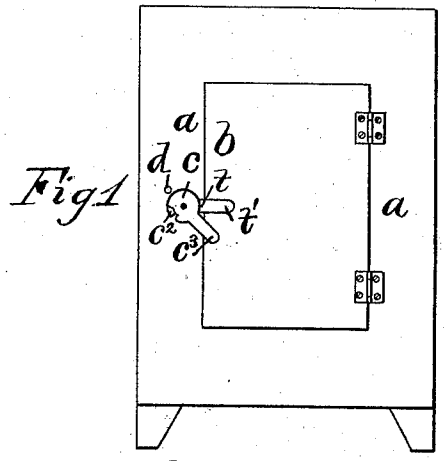

Fig. 1

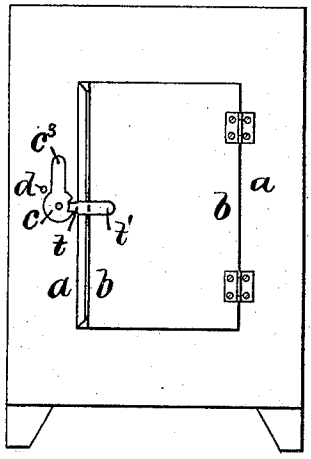

Fig. 2.

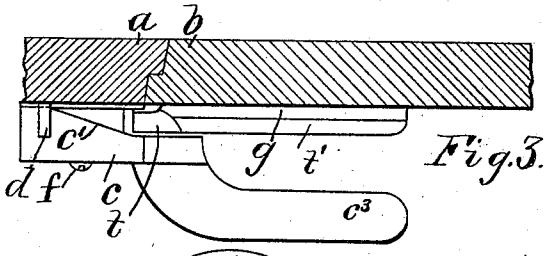

Fig. 3.

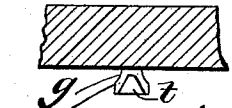

Fig. 4.

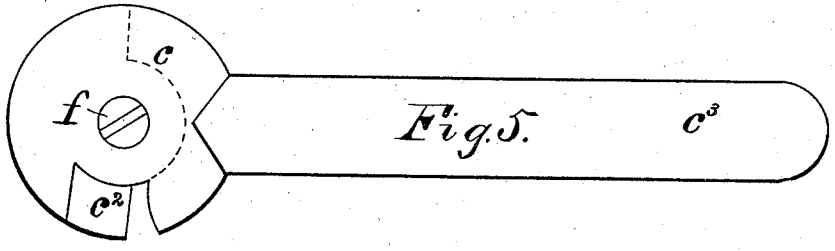

Fig. 5.

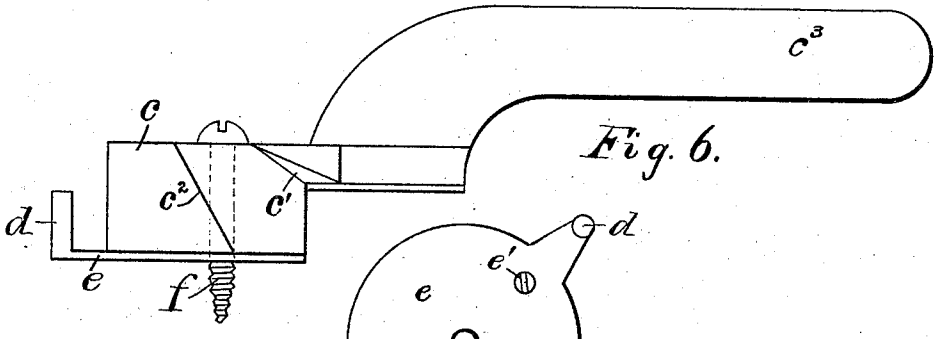

Fig. 6.

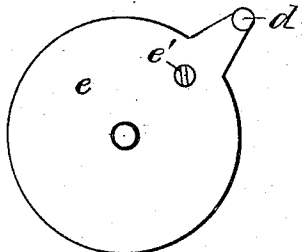

Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM D. SWART, OF NEWARK, NEW JERSEY.

REFRIGERATOR-LATCH.

SPECIFICATION forming part of Letters Patent No. 371,904, dated October 18, 1887.

Application filed September 10, 1887. Serial No. 249,289. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. SWART, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Refrigerator-Latches, fully described and represented in the following specification and the accompanying drawings forming a part of the same.

The object of this invention is to furnish a refrigerator-latch of such construction that it shall be adapted to press the door tightly within its frame to form a joint therewith sufficiently close to retain the cold air within the refrigerator, and also to form a means of starting the door open when jammed within its frame by such means.

The invention consists in the combination of a cam provided with outwardly-inclined cam-surface and a tongue to engage with said cam, and in a special construction therefor to adapt it to work automatically.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a front view of a refrigerator, shown pressed tightly shut by means of the latch. Fig. 2 is a similar view of the refrigerator with the latch raised, and showing the door ajar. Fig. 3 is a view of the under side of the latch on a larger scale, showing a portion of the door and its frame in section. Fig. 4 is an end view of the tongue, showing a portion of the door-frame in front thereof in section. Figs. 5 and 6 are respectively a face view and a view of the upper side of the cam, showing, also, a washer provided with a pin to serve as a stop for the cam adjacent thereto; and Fig. 7 is a face view of such washer.

a is the door-frame. *b* is the door; *c*, the cam pivoted to the door-frame.

t is the tongue, the end of which engages the cam *c*, such tongue being attached to the door. The cam consists of a disk, *c*, of suitable thickness, provided with an outwardly-inclined cam-surface, *c'*, originating in its inner face adjacent to the door-frame and extending partly around the disk to its outer face. c^2 is a similar cam-surface, opposed to the latter, but of greater inclination than the same, and extending between the outer and inner faces of the disk *c*. Such second cam-surface intersects the outer face of the disk at a distance a little greater than the width of the end of the tongue *t* from the intersection of the outer face with the cam-surface *c'*, to allow the tongue to pass between them in opening the door.

c^3 is a handle projecting from the cam, by which said cam is operated.

d is a pin, which may be driven into the door-frame to serve as a stop for the cam when being turned to open the door, as shown in Figs. 1 and 2, or it may be secured to a washer, *e*, as shown in Figs. 6 and 7, which is inserted between the cam and the door-frame. Such washer would in such case be provided with means of preventing the same from turning, as a screw, *e'*, or by small projecting teeth upon its under side, which would be pressed into the door-frame and thus serve the same purpose. Such cam and its washer may be secured to the door-frame by means of a screw, *f*, or any other means that will secure the cam to turn in order to carry out its purpose.

The tongue *t* is secured to the door of the refrigerator in such a position that its end overhangs the free edge of the door, so as to engage with the cam secured to the door-frame when the door is closed. Its operative end is shown of triangular cross-section and formed of such a width as to enable it to pass through the outer face of the cam, between the cam-surfaces, and is preferably rounded on the top surface, which engages with the cam-surface *c'*, and its under surfaces are inclined at the same angle as the cam-surface c^2, which engages therewith. Such tongue is shown in Fig. 4 of sufficient length to form a handle, *t'*, at its inner end, for use in opening the door, the edges of the handle being beveled at *g*, adjacent to the door, to admit the ends of the fingers.

The operation of the device is as follows: The handle c^3 being brought to its upward position, the door is pushed in the direction of the frame, and when the under face of the tongue *t* reaches the cam-surface c^2, as in Fig. 2, the cam is forced to the right, the falling of the handle induced by its weight thus causing the continued rotation of the cam until the engagement of the cam-surface *c'* with the top of the tongue, which tends to press the same in-

ward; and to stop the rotation of the cam, the handle is now pressed downward by the operator, with any desired degree of force, to the position shown in Fig. 1, when the door will be jammed within its frame, making a joint therewith as tight as is required. When the door is to be opened, the handle is turned upwardly, thus freeing the tongue of the inward pressure of the cam-surface c' against the tongue t until contact is made between the cam-surface c^2 and the tongue, when, by continuing the rotation of the handle c^3, such cam-surface will force the tongue upward between the cam-surfaces, thus permitting the door to swing open by a slight pull upon the handle of the door by the operator.

It is obvious that the position of the cam and the tongue engaging therewith may be reversed by fastening the cam upon the door so as to overhang its edge and securing the tongue so that its end is just flush with the edge of the door-frame to allow the door to be opened, provided the order of the cam-surfaces is reversed with relation to each other, the cam-surface at c' becoming the one having the greater inclination, and the cam-surface at c^2 thus becoming the one whose function is to press the door inward, and the other being for starting the same after it has been shut.

From the above description it will be seen that the essential feature of my invention is a cam provided with a cam-surface inclined outwardly from its inner face upon the door-frame or the door and engaging with the tongue secured to the door or its frame for closing the door tightly, and that the second cam-surface for opening the door is not absolutely necessary to the construction, although preferable.

By securing the handle to the cam in the position shown in the drawings it will be seen that the same will act as a weight to secure the continuance of the rotation begun by the impact of the under side of the tongue, when the door is pushed shut, upon the cam-surface c^2, since the equilibrium of such handle, being directly over the pivot of the cam when the door is open, will be disturbed by even the slight movement of cam caused by such impact of the tongue with the cam-surface c^2.

It is evident that my invention is not only applicable to refrigerator-doors, but that it may be applied to any door which it is desirable to secure in its closed position by a latch. I do not therefore limit myself to its use in connection with refrigerators, although it is specially adapted for such application.

Having thus set forth my invention, what I claim herein is—

1. In a latch, the combination, with a cam consisting of a disk having an outwardly-inclined cam-surface extending partly around the periphery of the same between its inner and outer faces and provided with a handle, as described, of a tongue to engage therewith, substantially as and for the purpose set forth.

2. In a latch, the combination, with a cam consisting of a disk having two inclined cam-surfaces of different inclinations opposed to each other and extending partly around the periphery of the same between its inner and outer faces and provided with a handle, as described, of a tongue to engage therewith, substantially as and for the purpose set forth.

3. In a latch, the combination, with the door-frame and door, of a cam attached to the door-frame and consisting of a disk having two opposed cam-surfaces of different inclinations, each extending partly around the same between its inner and outer faces, the cam-surface of the least inclination commencing at a point in the outer face of the disk nearly opposite the head of the other, a handle attached to the cam, and a tongue attached to the door to engage therewith, substantially as and for the purpose set forth.

4. The combination, with the frame a and door b, of the cam c, attached to the frame and consisting of a disk having cam-surfaces c' and c^2, and a tongue, t, secured to the door and provided with beveled edges g, to form a handle, t', substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM D. SWART.

Witnesses:
HENRY J. MILLER,
F. C. FISCHER.