

(No Model.)

2 Sheets—Sheet 1.

E. LITTLEFIELD.
SWITCH FOR ICE RUNWAY CHUTES.

No. 459,478.

Patented Sept. 15, 1891.

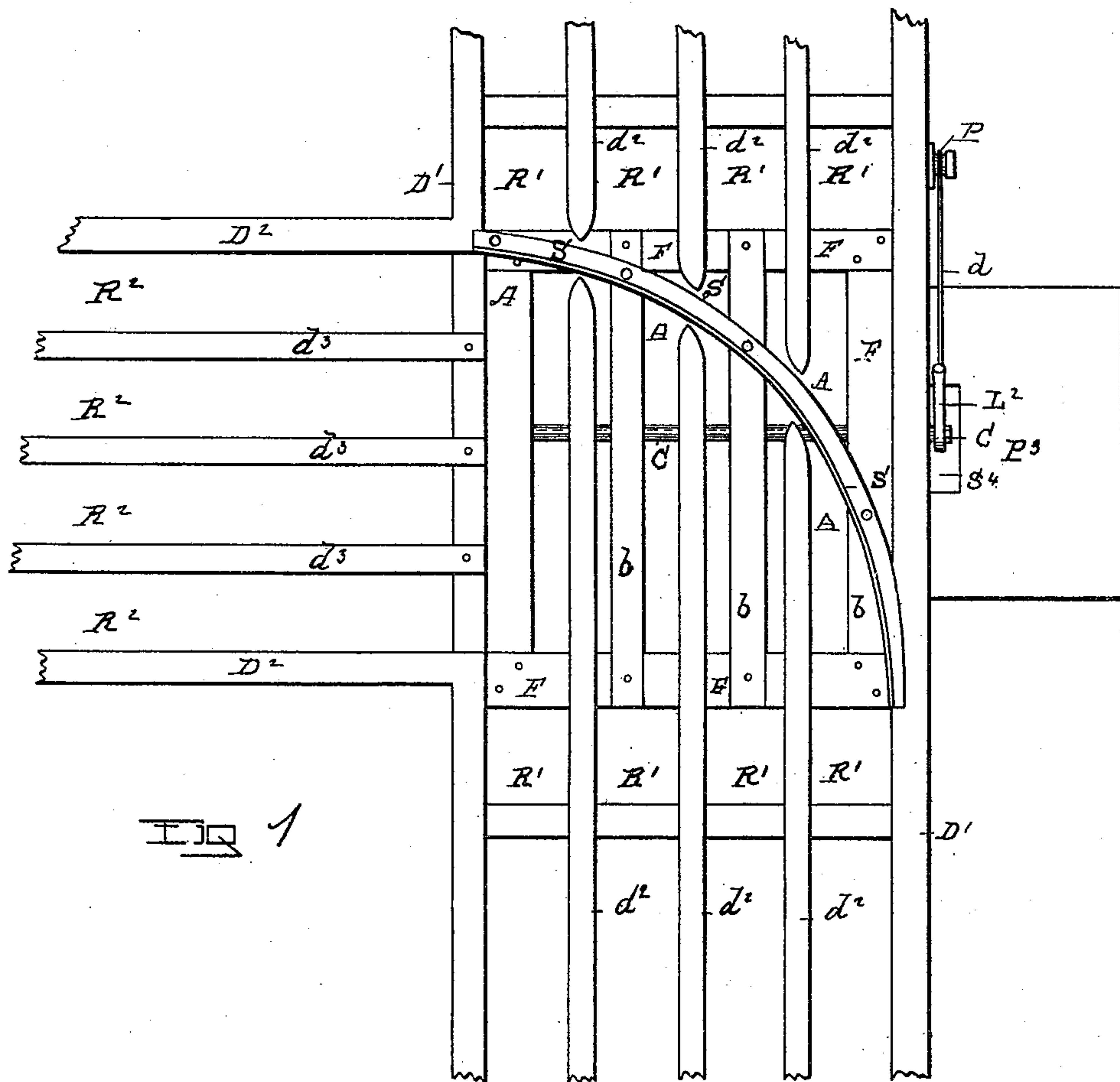


FIG 1

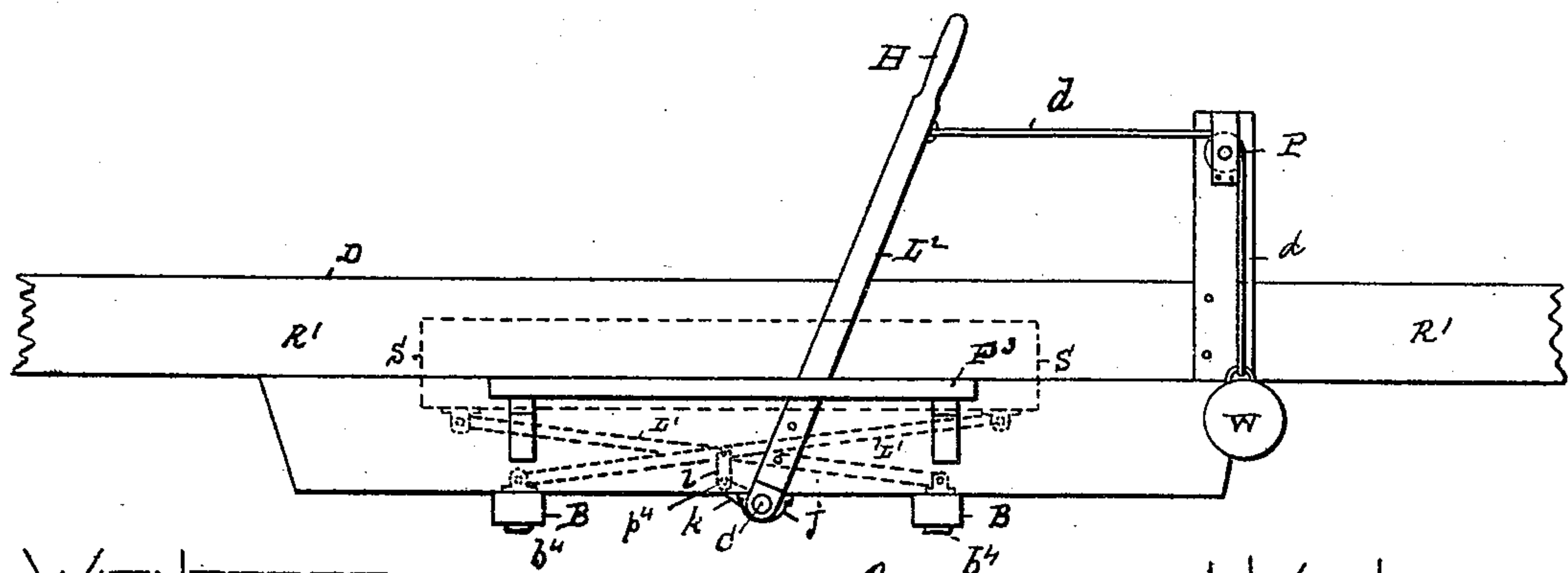


FIG 2

WITNESSES

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Charles S. Brintnell

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by W. C. Hagan
att'y

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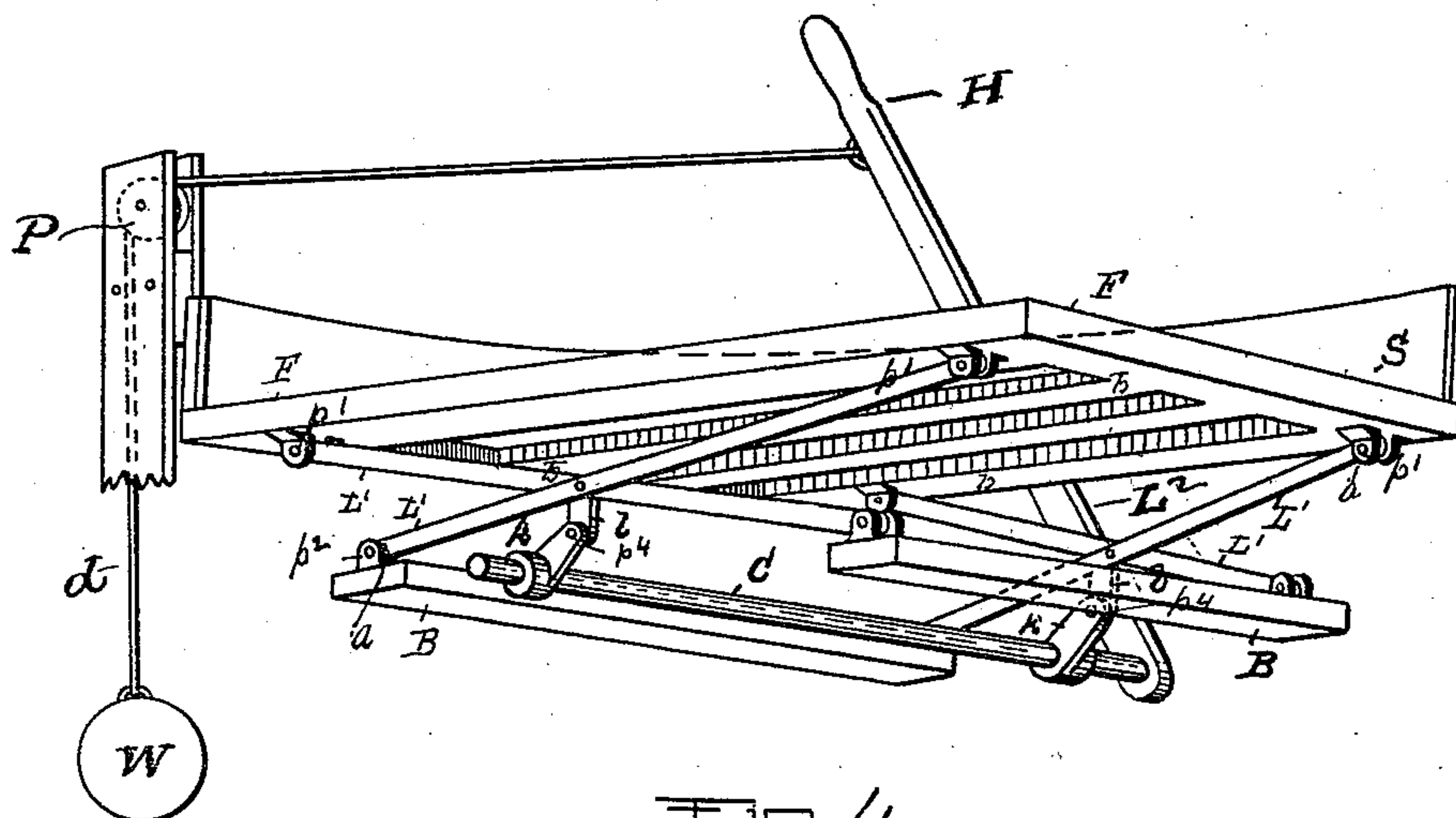


FIG 4

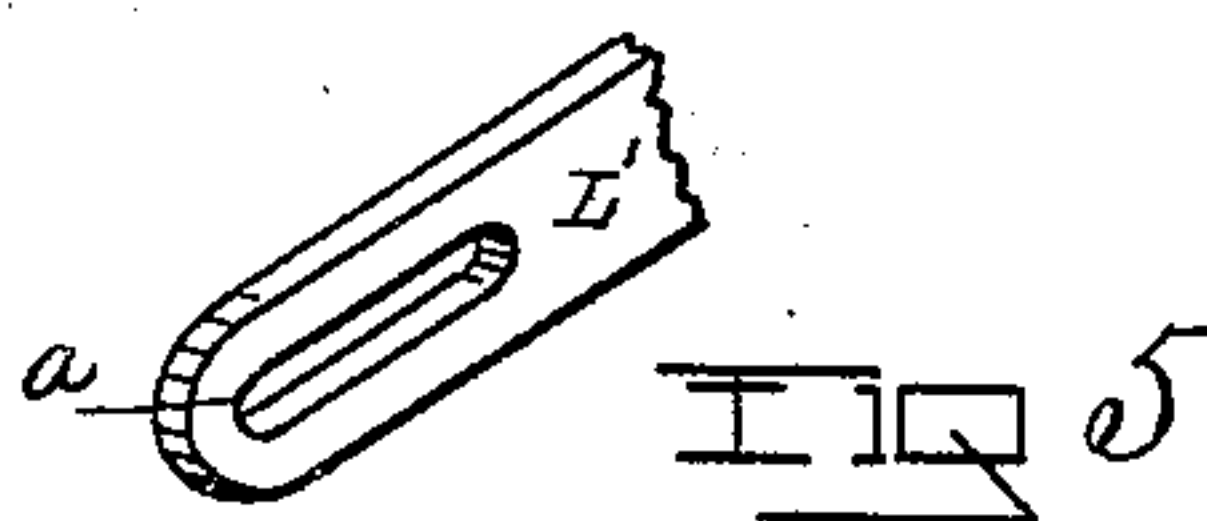


FIG 5

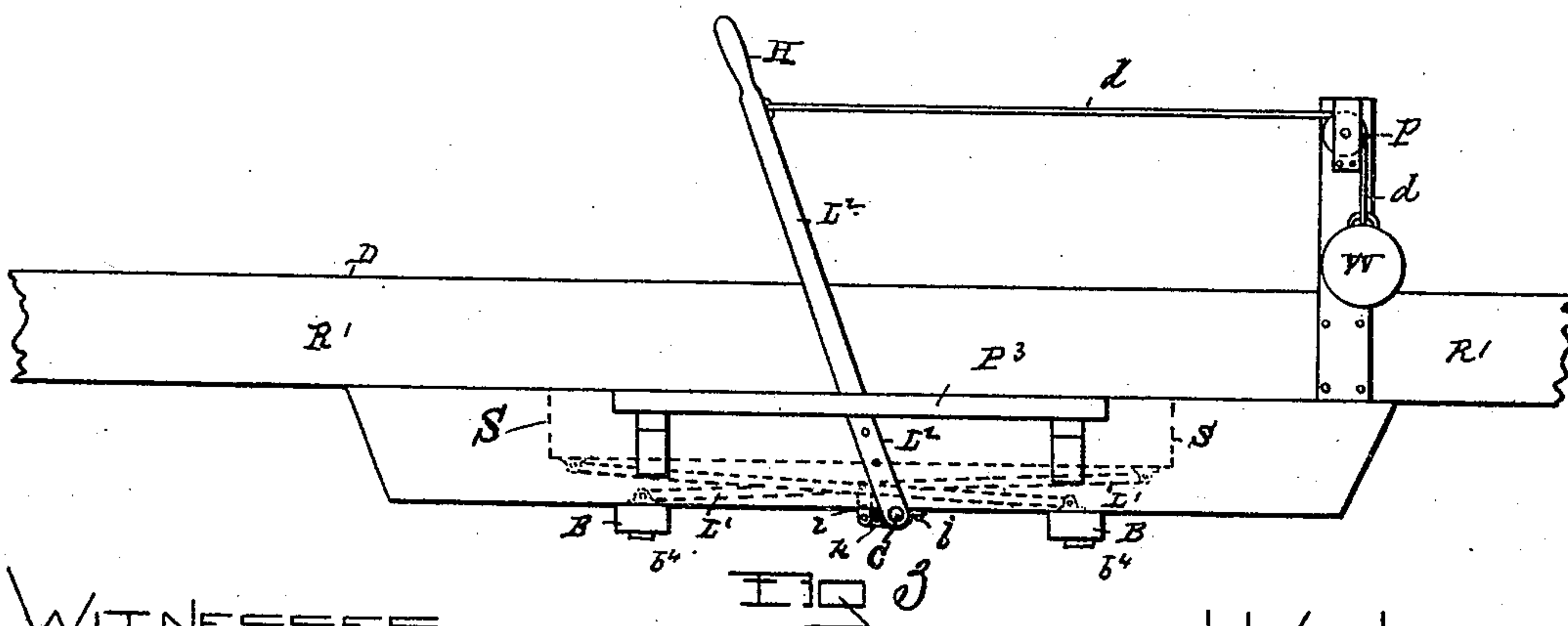


FIG 3

WITNESSES
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UNITED STATES PATENT OFFICE.

EDGAR LITTLEFIELD, OF WEST TROY, NEW YORK.

SWITCH FOR ICE-RUNWAY CHUTES.

SPECIFICATION forming part of Letters Patent No. 459,478, dated September 15, 1891.

Application filed April 16, 1890. Serial No. 348,168. (No model.)

To all whom it may concern:

Be it known that I, EDGAR LITTLEFIELD, of West Troy, county of Albany, and State of New York, have invented a new and useful Switch for Ice-Runway Chutes, of which the following is a specification.

My invention relates to improvements upon that class of devices which are employed in the storage of ice and which are used in connection with the descending main intake run or chute by which the ice-cakes enter the building and are operated to divert the descending cakes of ice from the main chute to branch chutes or runs to facilitate storage. As ice is now collected and stored the cakes are taken from the water upon an endless chain-belt and carried up into the house or building and there delivered to a descending run on which the cakes slide to where they are taken and stored away in layers. As the entering supply coming from the descending main run is generally greater than can be cleared away and cared for by one gang of men, branch runs are provided which connect with the main run, by which the ice-cakes may be directed from the main run into the branch runs or chutes and delivered to different parts of the building, where they can be stored away as fast as delivered, and it is to the switches by which this transference from the main run to the branch runs is made that my invention relates.

Accompanying this specification to form a part of it there are two sheets of drawings containing five figures illustrating my invention, with the same designation of parts by letter reference used in all of them.

Of these illustrations, Figure 1 is a plan view of a part of an ice main run or chute, and a connecting branch run or chute with my improved switch applied thereto. Fig. 2 is a side elevation of the parts shown at Fig. 1, taken on that side at which power is applied to operate the switch and with the latter shown as raised. Fig. 3 is a side elevation of the parts shown at Fig. 1, with the switch-board down from out the slot and the main run or chute open. Fig. 4 is a perspective of the switch-board, the frame on which it is supported, and the mechanism by which it is operated, with the parts shown as detached from the main run or chute. Fig. 5 shows a

perspective of the slotted end of one of the cross-levers arranged on the under side of the frame, and in which respects one of the opposite ends of each of the cross-levers are made alike.

The several parts of the apparatus thus illustrated are designated by letter reference and the function of the parts is described as follows:

The letter R' designates a part of the main run or chute made with vertical sides D and bottom slide-slats d^2 , on which the ice-cakes slide by gravity.

The letter R² designates a branch run or chute arranged at the side of the main run or chute and leading therefrom. This branch run has vertical sides D² and bottom slide-slats d^3 , on which the ice-cakes slide by gravity.

The letter A designates a slot cut in the slide-slats of the main run or chute, said slot having an arc form which at one end tangents with one side of the main run and at the other end tangents with the lower side of the branch chute or run.

The letter S designates a switch-board which has in transverse measurement an arc form that corresponds with the curve of the slot A, so that it can be moved up or down edgewise in the latter. This switch-board is made with a rectangular supporting-frame F, having the intermediately-placed slats b, and the switch-board proper is upwardly projected from said frame edgewise, so as to occupy the position of a hypotenused curve relatively thereto, and which as thus positioned will, when the switch-board is raised within the slot, cause one end thereof to tangent with one side of the main chute or run and the other end of the switch-board to tangent with the lower side of the branch run. The function of this switch-board is when operated to rise within the slot A, made on the bottom of the main run R', that its inner side face will engage with the descending ice-cakes and direct them onto the branch chute or run R², and when this switch-board descends in the slot A, so as to be below the bottom of the main chute, that it will leave the latter open. This switch-board S is preferably operated to rise within the slot A by two cross-levers L', one of each of which is arranged upon an op-

posite side of the frame F, with the upper end of one of these levers slotted at a , where pivoted at p' to the under side of the frame F, as shown at Fig. 4, and the lower end of the other lever L' slotted at a , where pivoted at p^2 to one of the supporting-bars B, as shown at Fig. 4, with the slot a in the lower end of one of said levers illustrated at Fig. 5. The bars B at their ends are bolted at b^4 to each of the sides of the main chute or run, as shown at Fig. 2. Each pair of the levers L' where they cross each other centrally are each pivoted to one of the opposite sides of a leg l , that is downwardly projected therefrom at each side of the frame.

The letter C designates a rock-shaft that is provided with two crank-arms k k , that are connected to said shaft so as to turn therewith, and each one of these crank-arms is at its upper end pivoted at p^4 to the lower end of one of the legs l .

The letter L^2 designates a lever that at its lower end is rigidly connected with said rock-shaft C, having at its upper end the handle H. As thus constructed, when the outer end of the lever L^2 is moved to describe an arc of a circle and into the position shown at Fig. 3 the rock-shaft C, being rigidly connected to the lower end of said lever, is actuated to turn, and this operates its crank-arms k to move downwardly the legs l on their pivotal connection with the cranks and cross-levers L' , so as to draw down the switch from out of the slot S, with the parts appearing as shown at Fig. 3. When the lever L' is moved into the position shown at Fig. 2 by the opposite movement of these same factors, the switch is raised up within the slot S.

The letter P^3 designates a platform at the side of the run, and S^4 a slot made in the platform P^3 for the passage of the lever L^2 , and the letter j a bearing for the rock-shaft to journal in, of which there is one at each end of said shaft, with only one shown, as at Fig. 2.

The letter d designates a cord connecting with the handle end of the lever L^2 , and which cord is arranged to pass over a pulley P to connect at its lower end with a counterpoise or weight W. The function of this cord, weight, and pulley thus arranged is that of a counterpoise to overcome the weight of the frame and switch-board and to keep the switch-board raised in position in or down from out of the slot A as operated by the lever L^2 . The main run R' from where entering the building inclines inwardly and downwardly to where the branch chute or run R^2 connects therewith, and the latter therefrom inclines downwardly, so that as the ice-cakes slide down in the main run to where they reach the branch run they may be directed into the latter by raising the switch-board S, or allowed to continue on in the main run to the point of delivery, as desired. As thus made a main run or chute receiving ice-cakes faster than they can be stored by one set of hands from the point of delivery may be op-

erated to alternatingly deliver the cakes at different points and the breaking contact of the cakes with each other at the delivery end of the chute avoided.

As the main chute or run provided with a branch chute or run connecting therewith and the main run or chute being made with a curved passage or slot and provided with a curved switch-board adapted to rise and fall within said slot or passage, as I illustrate and describe them, would perform the same function whether the switch-board was operated by the means which I illustrate and describe or some other means that would move the switch-board in the same way; hence I do not limit my arrangement and construction of the main chute, branch chute, and switch-board to their combination with the means which I illustrate as applied to operate the switch-board. While I have shown the lever L^2 connected with a cord, pulley, and counterpoise, it may be used without them.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with an ice chute or run constructed with a curved slot in its bottom and having a branch chute or run connecting with the side thereof, substantially as described, of a curved switch-board adapted to rise or descend in said curved slot, substantially in the manner as and for the purposes set forth.

2. The combination, with the ice chute or run R' , made with the curved slot A in its bottom and having a branch run or chute connecting with the side thereof, of the curved switch-board S and a frame F, upon which said switch-board is mounted so as to project edgewise and upwardly therefrom and located in and adapted to rise out of and to descend into said slot, substantially in the manner as and for the purposes set forth.

3. The combination, with the ice chute or run R' , made with the slot A in its bottom and having the branch run or chute R^2 connecting with the side thereof, of the frame F, made with the curved switch-board S upwardly projected therefrom, the levers $L' L'$, arranged at each side of said frame and pivotally connected at their upper ends therewith and at their lower ends pivoted to a support, and with each pair of said levers where crossing each other pivoted to the leg l at each side of the frame, the rock-shaft C, made with the crank-arms $k k$, each of which latter is at its upper end pivoted to one of said legs l , and the lever L^2 , mounted on said shaft, substantially in the manner as and for the purposes set forth.

4. The combination, with the ice chute or run R' , made with the slot A in its bottom and having the branch run or chute R^2 connecting with the side thereof, of the frame F, made with the curved switch-board S upwardly projected therefrom, the levers $L' L'$, arranged at each side of said frame, pivot-

ally connected at their upper ends thereto
and at their lower ends pivoted to a support,
and with each pair of said levers where cross-
ing each other pivoted to the leg l at each
5 side of the frame, the rock-shaft C, made
with the crank-arms k k , with each of the
latter at its upper end pivoted to one of said
legs l , and the lever L^2 , attached to said rock-
shaft, with the cord d attached to said lever
10 L^2 and having a pulley P and weight W, sub-

stantially in the manner as and for the pur-
poses set forth.

Signed at Troy, New York, this 11th day of
December, 1889, and in the presence of the
two witnesses whose names are hereto written. 15

EDGAR LITTLEFIELD.

Witnesses:

CHARLES S. BRINTNALL,
W. E. HOGAN.