

(No Model.)

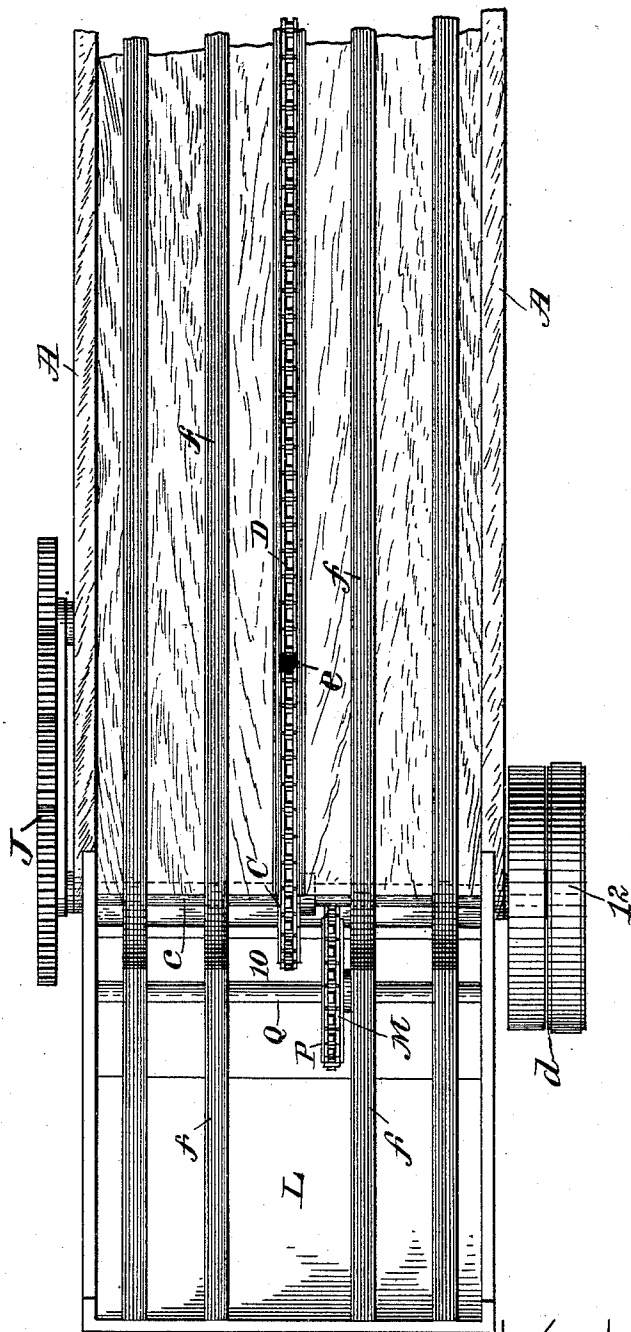
3 Sheets—Sheet 1.

W. T. HARPER.
PAN CONVEYING DEVICE.

No. 474,340.

Patented May 3, 1892.

Fig. 1.



WITNESSES.

R. H. Marsh.
Harry H. Aiken.

INVENTOR.

William T. Harper
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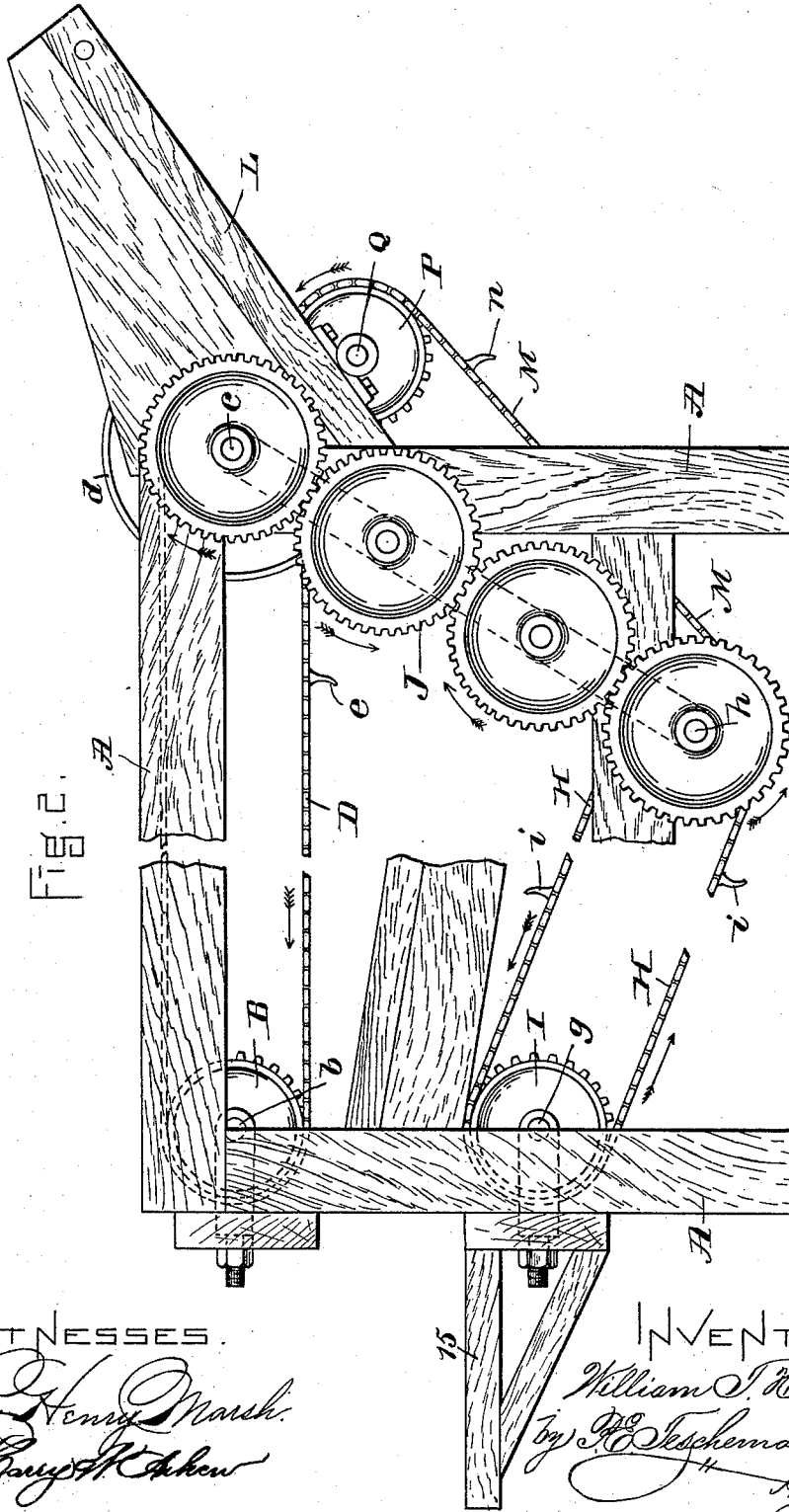
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No. 474,340.

Patented May 3, 1892.



WITNESSES:

Henry March.
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3 Sheets—Sheet 3.

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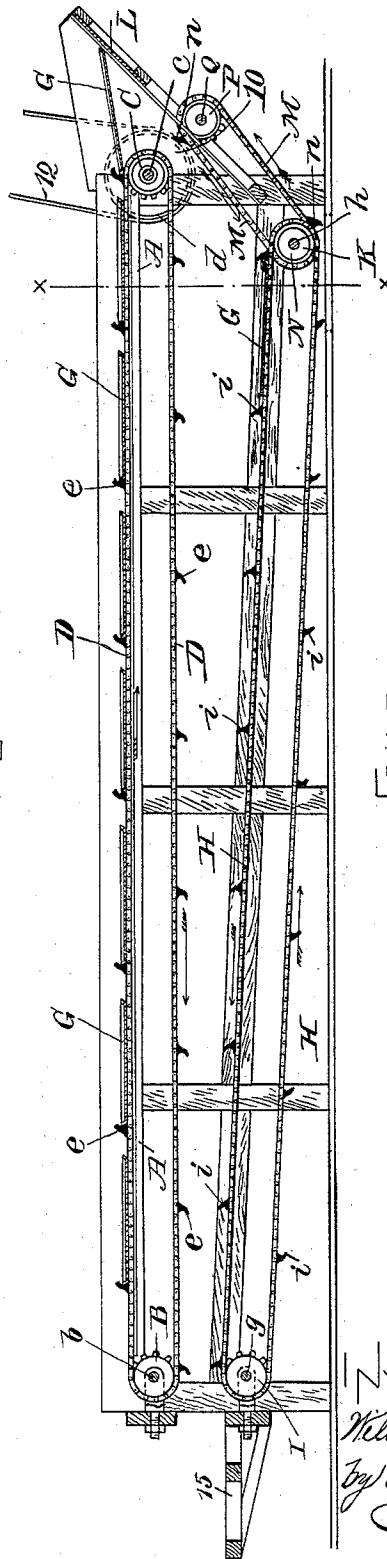
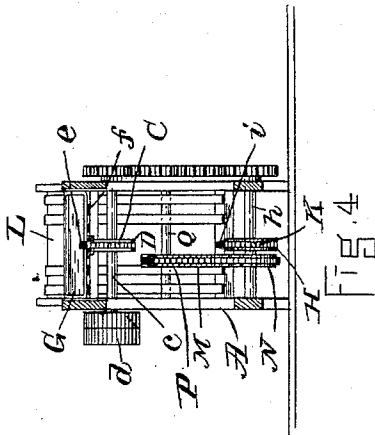


FIG. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM T. HARPER, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO
JAMES W. HAZEN, OF SAME PLACE.

PAN-CONVEYING DEVICE.

SPECIFICATION forming part of Letters Patent No. 474,340, dated May 3, 1892.

Application filed December 21, 1891. Serial No. 415,792. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. HARPER, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented an Automatic Pan-Conveying Device for Tables Used in Packing Crackers, Biscuits, Cakes, and Kindred Articles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of a portion of a table having my improved pan-conveying device applied thereto. Fig. 2 is a side elevation of the table. Fig. 3 is a longitudinal vertical section of the same with the pans in place upon the upper carrier-chain. Fig. 4 is a transverse vertical section on the line *x x* of Fig. 3.

My invention has for its object to provide a simple and reliable pan-conveying device for tables used in packing crackers, biscuits, cakes, &c., whereby any desired number of loose pans containing the articles to be packed are traversed along the table from one end to the other, and after being emptied by the packers are carried down beneath the table and returned to the starting-point, where they are delivered right side uppermost ready to be sent back to the ovens to be refilled.

To this end my invention consists in a pan-conveying apparatus embodying certain novel combinations of parts and details of construction, as hereinafter set forth, and specifically pointed out in the claims.

In the said drawings, A represents the frame or table of the conveyer, at the opposite ends of which are placed two sprocket-wheels B C, mounted on horizontal shafts *b c*, having their bearings in the frame A. Over these wheels B C is stretched an endless conveyer or carrying-chain D, the shaft *c* of the wheel C, by which the chain is driven, being provided outside the frame-work with a pulley *d*, to which the power is communicated by a belt 12, Fig. 3. The chain D is provided at suitable distances apart with outwardly-projecting carrying hooks or lugs *e*, adapted to engage with the flat pans G, which contain the crackers, cakes, or other articles to

be packed and are intended to be placed in close succession upon the chain D as fast as they are received from the ovens, said pans resting on longitudinal bars or stringers *f*, forming the top of the frame or table A and being traversed thereon by the chain D along the said table from one end to the other at such speed as to afford sufficient time for all of the crackers or other articles to be removed by the packers from each successive pan before it arrives at the opposite end of the table A from which it started. Each of the hooks or lugs *e* is formed integral with one of the links of the chain D, and these hooks are placed at a distance apart slightly greater than the length of a pan, so that the latter, when placed upon the chain, will readily drop into place between any two successive hooks. Beneath the chain D and also extending from one end of the machine to the other is placed a similar endless conveyer-chain H, which is stretched over sprocket-wheels I K, mounted on shafts *g h*, and is provided with upwardly-projecting carrying hooks or lugs *i*, similar to those *e* of the chain D. Motion is communicated to the chain H by the wheel K, the shaft *h* of which is connected by a train of gearing J with the shaft *c*, as seen in Fig. 2, in such manner as to cause the chain H to travel in a direction contrary to that of the chain D, as is necessary to enable it to return the pans G to the point from which they started. At the end of the frame A opposite to that from which the pans G are started is an inclined track or guideway L, which extends outward and upward from the level of the lower carrier-chain H to a point above the level of the upper carrier-chain D, leaving a space or throat 10, through which the pans resting on said track descend onto the lower carrier-chain H, each pan, as it is carried forward by the chain D, striking the upper portion of the guideway L and being tilted up thereby, as seen in Fig. 3, causing its opposite end as it is carried around the sprocket-wheel C by the chain D to be pointed downward, so that when released by said chain it will pass down the inclined guideway right side uppermost onto the carrier-chain H, by which it is returned to the opposite end of the frame A

and deposited upon a shelf 15, from which it is removed by the attendant, who sends it back to the ovens to be refilled.

In order to avoid the noise and clatter which 5 would occur if the sheet-metal pans G were permitted, when released by the chain D, to slide freely and unchecked down the inclined guideway L, I provide an auxiliary endless conveyer-chain M, which is stretched 10 over sprocket-wheels N P, the latter mounted upon a shaft Q, having its bearings near the center of the guideway L, said chain, which is provided with carrying hooks or lugs *n* similar to those of the other chains, being 15 driven by the wheel N, which is secured to the shaft *h* of the wheel K, as seen in Fig. 4. This chain M, which is nearly parallel with the inclined guideway L, is so arranged that one of its hooks *n* will be always in position 20 to catch the lower end of a pan G as soon as it is released by the upper conveyer-chain D, the pan being thus carried down the inclined guideway L by the movement of the chain M at a uniform speed without noise or rattling 25 and delivered onto the return carrier chain H with its right side uppermost, which is an important feature, as the trouble and inconvenience of turning each pan over on its return is avoided, considerable saving in time and 30 labor being thereby effected.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a pan-conveying device, the combination, with a frame or table, of two endless

carrier-chains arranged one beneath the other 35 and adapted to travel in opposite directions, said chains having carrier hooks or lugs adapted to engage the ends of the pans, and an inclined guide located at one end of the frame or table and adapted to receive the pans from 40 the upper carrier-chain and conduct them right side uppermost to the lower carrier-chain, whereby they are returned to the starting-point without being turned over, substantially as described. 45

2. In a pan-conveying device, the combination, with the frame or table, of two endless carrier-chains arranged one beneath the other and adapted to travel in opposite directions, said chains having carrier hooks or lugs adapted 50 to engage the ends of the pans, and an inclined guide located at one end of the frame or table and adapted to receive the pans from the upper carrier-chain and conduct them right side uppermost to the lower or return 55 carrier-chain, said inclined guide being provided with an auxiliary endless carrier-chain having hooks or projections adapted to engage the pans after being released by the upper carrier-chain and deliver the same to the 60 lower or return carrier-chain, substantially as set forth.

Witness my hand this 8th day of December, A. D. 1891.

WILLIAM T. HARPER.

In presence of—

P. E. TESCHEMACHER,
I. L. GUIBORD.