No. 709,639. Patented Sept. 23, 1902.

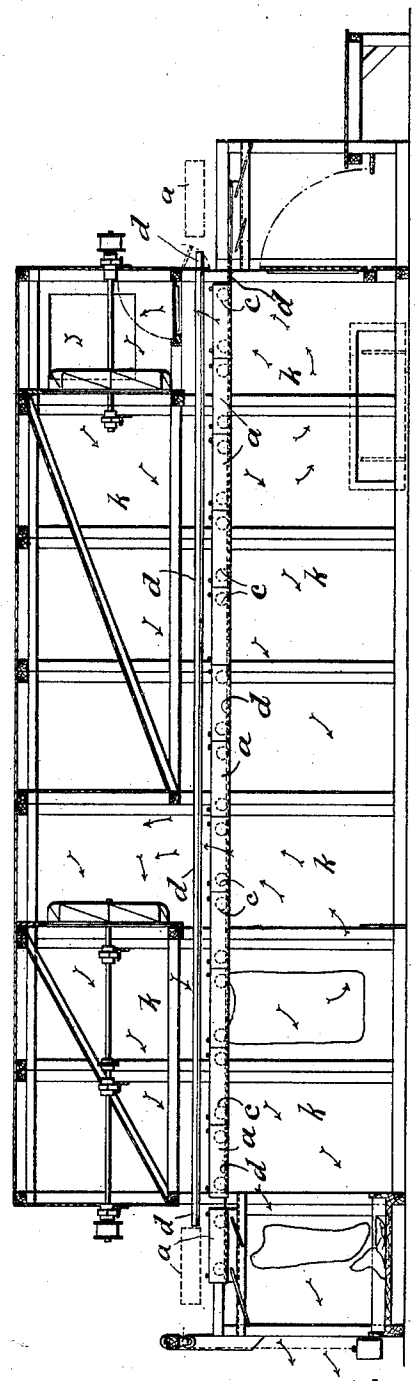
J. KEITH & W. W. WARDLE.

APPARATUS FOR CARRYING GOODS THROUGH DRYING CHAMBERS.

(Application filed Jan. 14, 1902.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1.



Witnesses
Harry E. Ellis Chandler
E. T. McKeown.

Inventors.
By J. Keith and W. W. Wardle
Chandlee & Chandlee.
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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FIG. 2.

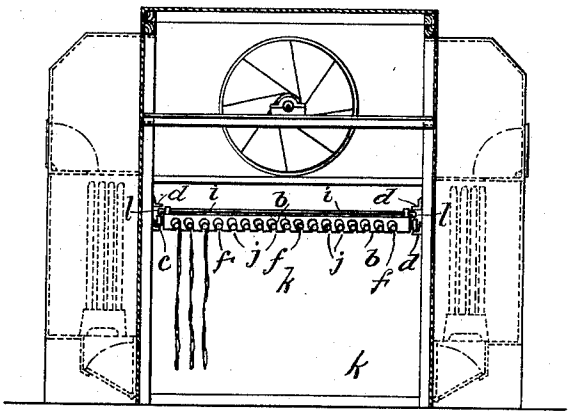


FIG. 3.

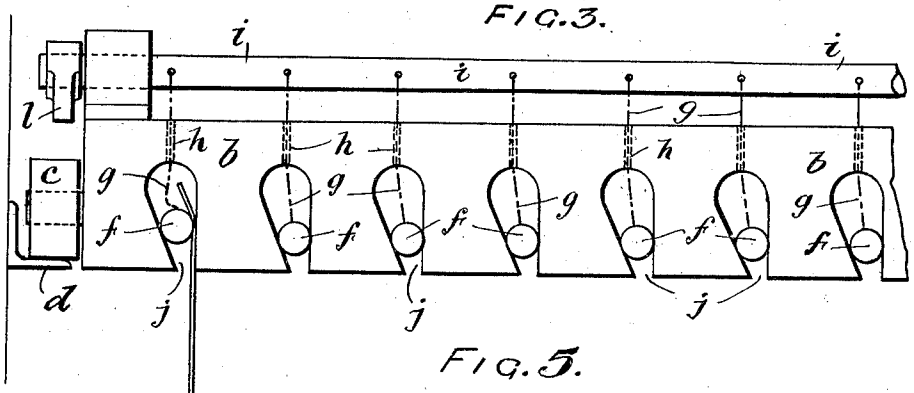
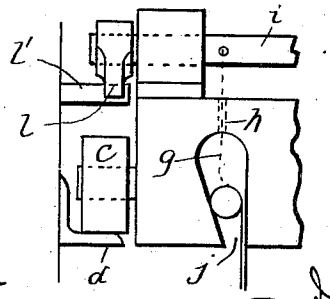


FIG. 5.



Witnesses

Harry E. Ellis Chandler

E. T. McKeown.

Inventors.

J. Keith and W. W. Wardle,

By Chandlee & Chandlee

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 3 Sheets—Sheet 3.

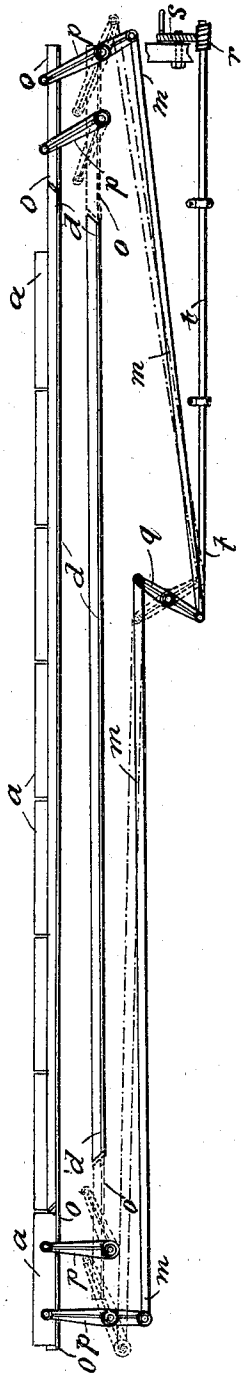


FIG 4.

Witnesses.
Hampell Chandler
E. T. McKeown

Inventors.
J. Keith and W. W. Wardle
By Chandlee & Chandlee
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES KEITH AND WILLIAM WINSHIP WARDLE, OF LONDON, ENGLAND.

APPARATUS FOR CARRYING GOODS THROUGH DRYING-CHAMBERS.

SPECIFICATION forming part of Letters Patent No. 709,639, dated September 23, 1902.

Application filed January 14, 1902. Serial No. 29,768. (No model.)

To all whom it may concern:

Be it known that we, JAMES KEITH, residing at 27 Farringdon avenue, and WILLIAM WINSHIP WARDLE, residing at 32 Somerfield road, Finsbury Park, London, England, citizens of the United Kingdom of Great Britain and Ireland, have invented certain new and useful Apparatus for Carrying Goods Through Drying-Chambers, (for which application for patent has been made in Great Britain, No. 23,354, dated November 19, 1901,) of which the following is a specification.

This invention relates to apparatus for carrying paper sheets, fabrics, or other goods in suspension through drying-chambers wherein dry or heated air is circulated by fans, and it comprises wheeled frames or carriages of improved construction provided with clips or like devices of special design for holding the goods in suspension from the frames while they are traversed through the drying-chamber and for automatically releasing them at the delivery end when dried.

In the accompanying drawings, which illustrate the invention, Figure 1 is a longitudinal section, and Fig. 2 a transverse section, of a drying-chamber fitted with the improved apparatus for conveying the goods through said chamber. Fig. 3 is a detail of the clip for holding the goods, and Fig. 4 is a detail view of the device for raising and lowering the frames or carriages. Fig. 5 is a detail elevation of a portion of the mechanism.

The frames or carriages *a*, on which the goods are carried, are composed of longitudinal beams connected by cross-bars *b* and are fitted with wheels *c* to run on rails *d*, of which a line or lines may be located overhead for running the frames *a*, with their suspended load, through the drying-chamber *k* above the floor-level, while another line or lines of rails *d* may be provided at or near to the floor-level for returning the frames, suitable inclines or switches being fitted for transferring the frames *a* from one line to another.

The cross-bars *b* at the ends of each frame or carriage *a* have a series of notches *j* formed in their lower edges, each of the notches *j* being widened out above their lower open ends, and within each notch is fitted a roller *f* of larger diameter than the open end of the notch, such that it may not fall out. Each roller *f* by engaging with paper sheets or other goods pushed upward or otherwise placed between it and the face of the notched bar *b*, against which it bears, serves as a clip to hold the goods. To each roller or clip *f* is attached a wire, cord, or chain *g*, which extends upward through a vertical orifice *h* in the cross-bar *b* above and is passed around or secured to a rocking shaft *i* over and lying parallel with each cross-bar *b* of the frame or carriage *a*. By turning this rock-shaft *i* the cords *g* are coiled around it, and the whole of the rollers *f* are raised within the tapered notches *j*, and their grip upon the sheets or other goods being freed the goods fall out. On turning back the shafts *i* to uncoil the cords the rollers or clips *f* drop to their lowest point in the notches *j*.

In the operation of the apparatus the frames *a* are loaded by charging the clips *f*, either within or outside the drying-chamber *k*, and as each frame *a* is loaded it is pushed along the rails *d*, one frame bearing against the ends of another until the chamber *k* is filled. As the frames proceed and reach the farther end of the chamber *k* the rocking shafts *i* are turned to raise the roller-clips *f* by means of arms on the shafts *i* engaging with suitably-placed projections or by other means, and the goods carried by the clips *f* are thus automatically released or delivered. The frames *a* may then be switched or transferred along suitable inclines to another track of rails *e* and run back either empty or loaded afresh.

The frames are raised and lowered from one set of rails *d* to the other rails after goods have been released by means of arms *p*, pivoted in the chamber *k* at the delivery and feed ends, these arms *p* having connected to them movable rails *o* and being operated by means of a rope or chain or by rods *m* and levers *q*, connected to the arms *p* and actuated by rod *t*, having an axial movement imparted to it from a worm *r* and worm-wheel *s*.

Having now described the invention, what we claim, and desire to secure by Letters Patent, is—

1. Apparatus for conveying goods through drying-chambers, comprising in combination, a series of frames or carriages adapted to

travel on rails, transverse slotted bars connected to said frames, roller-clips in the slots in said bars for carrying the goods, rock-shafts carried on the slotted bars and connected to said clips so as to raise or lower them, and means for automatically raising the clips to free the goods at the delivery end of the chamber, substantially as described.

2. Means for conveying goods through drying-chambers, consisting of a movable bar or bars each formed with tapered slots on its under side, roller-clips fitted in said slots, a rocking shaft and cords adapted to raise and lower said clips to engage with the goods to be carried through the drying-chamber and to free them at the delivery end, substantially as described.

3. In apparatus for conveying goods through drying-chambers, means for transferring the frames or carriages carrying the goods from one rail or set of rails to another, said means comprising in combination, short movable rails, arms pivoted within the drying-chamber and pivotally jointed to the movable rails for raising and lowering these, and connecting-rods and a hand-lever for operating the pivoted arms, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

JAMES KEITH.

WILLIAM WINSHIP WARDLE.

Witnesses:

WALLACE FAIRWEATHER,

JNO. ARMSTRONG, Jr.