

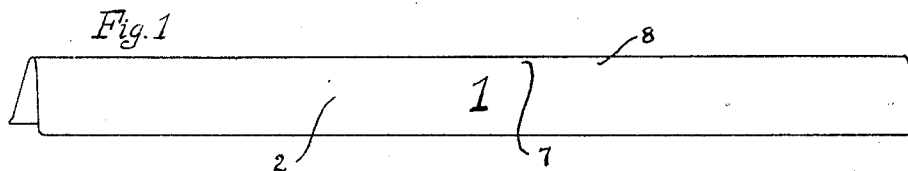
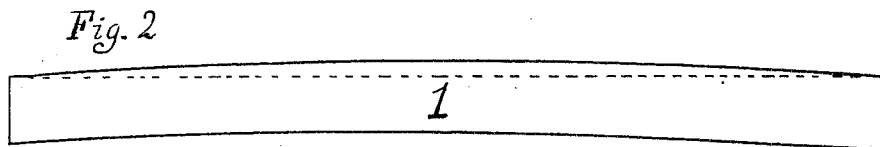
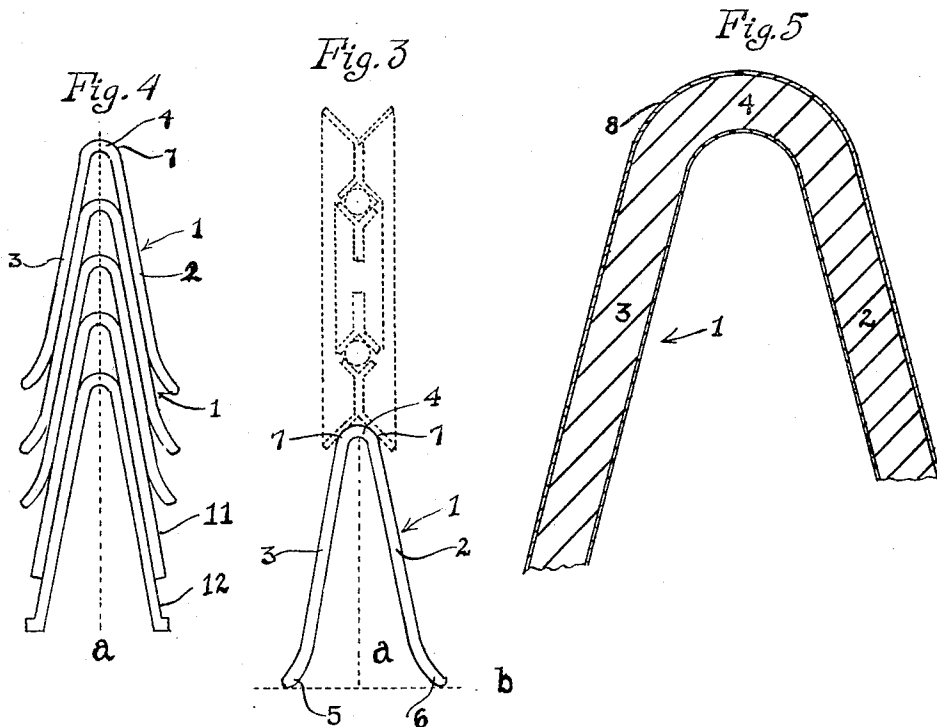
No. 856,592.

PATENTED JUNE 11, 1907.

H. LAUGHLIN, JR. & D. SCHUYLER.

TRACK RAIL.

APPLICATION FILED JUNE 18, 1904.



WITNESSES.
Arthur J. Platt.
Mabel M. Wreil.

INVENTORS.
Homer Laughlin Jr.
Daniel Schuyler
By Townsend Bro.
their attys

UNITED STATES PATENT OFFICE.

HOMER LAUGHLIN, JR., OF LOS ANGELES, CALIFORNIA, AND DANIEL SCHUYLER, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE PERFECT SLIDING DOOR COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

TRACK-RAIL.

No. 856,592.

Specification of Letters Patent.

Patented June 11, 1907.

Application filed June 18, 1904. Serial No. 213,121.

To all whom it may concern:

Be it known that we, HOMER LAUGHLIN, Jr., a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, and DANIEL SCHUYLER, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Track-Rails, of which the following is a specification.

This invention relates to rails for supporting rollers, and more particularly pertains to rails for the trolleys or hangers of edgewise moving closers more particularly known as sliding doors and windows, but we do not wish to limit the invention to any particular use.

Some of the objects of this invention may be stated as follows:

One object is to provide a great improvement in rails for edgewise moving doors by producing a rail which will largely avoid setting up any vibration in the door or the parts appurtenant thereto and which will afford the best antifriction bearing for the trolley or hanger rollers.

We have discovered that the usual lacquered, japanned or otherwise varnished rail tends to produce a vibration and a friction which it is desirable to avoid and an object of our invention is to avoid the same.

Other objects of this invention may be further enumerated as follows: (2) To provide a stamped sheet-metal rail of superior rigidity. (3) To provide a planished sheet-metal rail which can be produced by a continuous operation. (4) To provide a sheet-metal rail which can be produced in a great length by a continuous operation. (5) To produce rails which more perfectly nest with each other thereby to greatly economize space for storage and transportation. (6) To provide a suspension rail of maximum strength and minimum weight and size or bulk. (7) To provide a sheet metal suspension rail for sliding doors, having a minimum width and requisite vertical and lateral rigidity. (8) To provide requisite means for

supporting a sliding door carriage or trolley having a minimum deflection of parts from the line of support.

Our newly invented rail is an open bottom sheet metal track-rail constructed with a crown and with two diverging side walls having free edges, and united by the crown of the rail and extending downward therefrom, each, throughout its width, diverging acutely from the other and from the vertical of the rail from the crown thereof to the free edge of said wall. Said free edge is preferably, but not invariably, reinforced. The reinforcement may be accomplished by the oblique bending of the sheet or by a bead, which will not materially add to the width of the face of the rail.

This newly invented rail is to be distinguished from any flanged A shaped track rails heretofore proposed for the reason that the flanges heretofore present in such rails dispose the metal at a disadvantage and it is an object of this invention that the metal shall be disposed in such a manner that maximum rigidity be secured with minimum weight and size or rail.

In this invention the walls of the rail diverge acutely, throughout, from the crown to their edges and therefore the depth of the rail is invariably greater than its width.

By the term "vertical of the rail" we mean that axial plane of the rail which bisects the angle between the walls of the rail. By so constructing the rail it becomes possible to satisfactorily support sliding doors and the like with suspension rails of much greater length and less weight and size than heretofore advisable, and the necessity of intermediate supports for the rail is in some instances partly, and in others wholly, done away with.

To increase the rigidity against lateral strain and yet avoid materially adding to the weight, the free edges of the walls are preferably reinforced. This may be done by beading the edge as suggested in one of the accompanying views, but is preferably accomplished by a lateral deflection of the

free edges of the walls and such deflection is preferably outward so as to slightly broaden the base of the rail.

In case our rail is constructed without the reinforced edges, somewhat heavier sheet metal will be required to afford a rail of a determined rigidity which can be secured with lighter sheet metal by reinforcing the free edges of the walls.

The accompanying drawings illustrate the invention.

Figure 1 is a perspective view of a rail embodying our invention. Fig. 2 is a side elevation thereof showing an exaggeration of the arched rail. Fig. 3 is an end elevation showing in dotted lines, a roller resting on the rail. Fig. 4 is an end view of a number of rails nested together. Fig. 5 is an enlarged fragmental section of a track rail embodying our invention. This view illustrates in enlarged section the top portion of each of the rails shown in the other views for the purpose of showing the coating of ductile metal present in all the rails but impossible to be shown clearly in the other views because of the smallness of such other views.

This invention comprises a rail 1, constructed of hard tough sheet metal, preferably steel and having two walls 2, 3, extending throughout at an acute angle with the vertical *a* of the rail and each terminating in a free edge. By this construction the rail is adapted to bear a comparatively great load when the strain is applied on the crown 4 of the rail and the same is supported by the edge portions 5, 6, thereof. Said edges are preferably each bent obtusely as shown, thus to give rigidity against lateral flexure.

The crown 4 is formed in an abrupt bend and the outer face 7, thereof is planished so that superior smoothness is provided for. The walls slope upward from the obtusely bent or flared edges to the abrupt bend at a sharp angle so that the rail is made rigid to withstand the vertical and lateral strains that may come upon the rail. The flaring form of the free edges gives great rigidity against lateral flexure. Each of the walls is shown in Fig. 3 of the drawing as being obtusely bent. This is the form at present preferred but it is to be understood that if one wall and not the other is so bent a good result is secured and we do not wish to limit our invention to the exact construction shown.

This form of rail may be readily constructed by dies, not shown, and when completed the bearing surfaces or the outer face will be planished and therefore tough and smooth affording a superior track for the roller.

It is desirable that the rail be slightly arched longitudinally so as to bear a deter-

mined strain without deflection at the middle below a horizontal line drawn from end to end of the rail. Such arching may be quite slight and in Fig. 2 the same is exaggerated for the purpose of illustration. It is to be understood that the different forms of rails shown in the several views are longitudinally arched, as suggested in Fig. 2, but may be straight.

By making the rail of an acutely bent sheet and providing a planished crown 4, a superior antifriction track is provided for grooved rollers or wheels, the walls of the grooves of which diverge at a more obtuse angle than the bearing faces of the crown so that each roller will contact at two points only at any one time.

We propose to dispense with the necessity of oiling the rail, and for this purpose we prefer to electroplate the planished faces 7 with a cover of copper or other soft ductile metal 8 to give a final finish to the bearing faces.

It is evident that oil may be applied to the finished surface if desired, but it is desirable to use only oils of good smooth body.

Desirably the walls of the rail are of equal width terminating in a plane which is at right angles to the vertical of the rail. In Fig. 3 the dotted line *b* indicates a support for the rail base formed by the edges of its walls.

The rail shown is adapted to be manufactured in any required length by means of dies for swaging the rail out by a continuous process.

In practical use the rail may be supported by brackets (not shown) inserted or wedged in between the walls.

In Fig. 4 three forms of rail are shown. The form shown at 11 is constructed without reinforced portions at the edges and the form shown at 12 is constructed with bead reinforcement.

What we claim and desire to secure by Letters Patent of the United States, is:

1. An open bottom sheet metal track-rail constructed with a crown and with side walls having lower free edges and extending downward from the crown, each wall, throughout its width from crown to free edge, diverging acutely from the other wall and from the vertical of the rail to its free edge.

2. A longitudinally arched, open bottom sheet metal track-rail constructed with a crown and with side walls having lower free edges and extending downward from the crown, each wall, throughout its width from crown to free edge, diverging acutely from the other wall and from the vertical of the rail to its free edge; the middle of said crown being higher than the ends thereof.

3. An open bottom sheet metal track-rail constructed with a crown and with side walls

having lower free edges and extending downward from the crown, each wall, throughout its width from crown to free edge, diverging acutely from the other wall and from the vertical of the rail to its other edge; said free edges being obtusely bent, substantially as and for the purpose set forth and described.

5 4. A sheet metal rail having a planished bearing surface coated with a soft ductile

10 metal.

In testimony whereof we have signed this specification in the presence of subscribing witnesses at Bridgeport, Connecticut, this 17th. day of June 1904.

HOMER LAUGHLIN, JR.
DANIEL SCHUYLER.

Witnesses:

JAMES R. TOWNSEND,
ELBERT O. HULL,
FREDERICK EGGE.