No. 728,219. PATENTED MAY 19, 1903.

L. FELDMANN, JR. & C. A. HAAS.

DISPLAY RACK.

APPLICATION FILED FEB. 27, 1903.

2 SHEETS—SHEET 1.

NO MODEL.

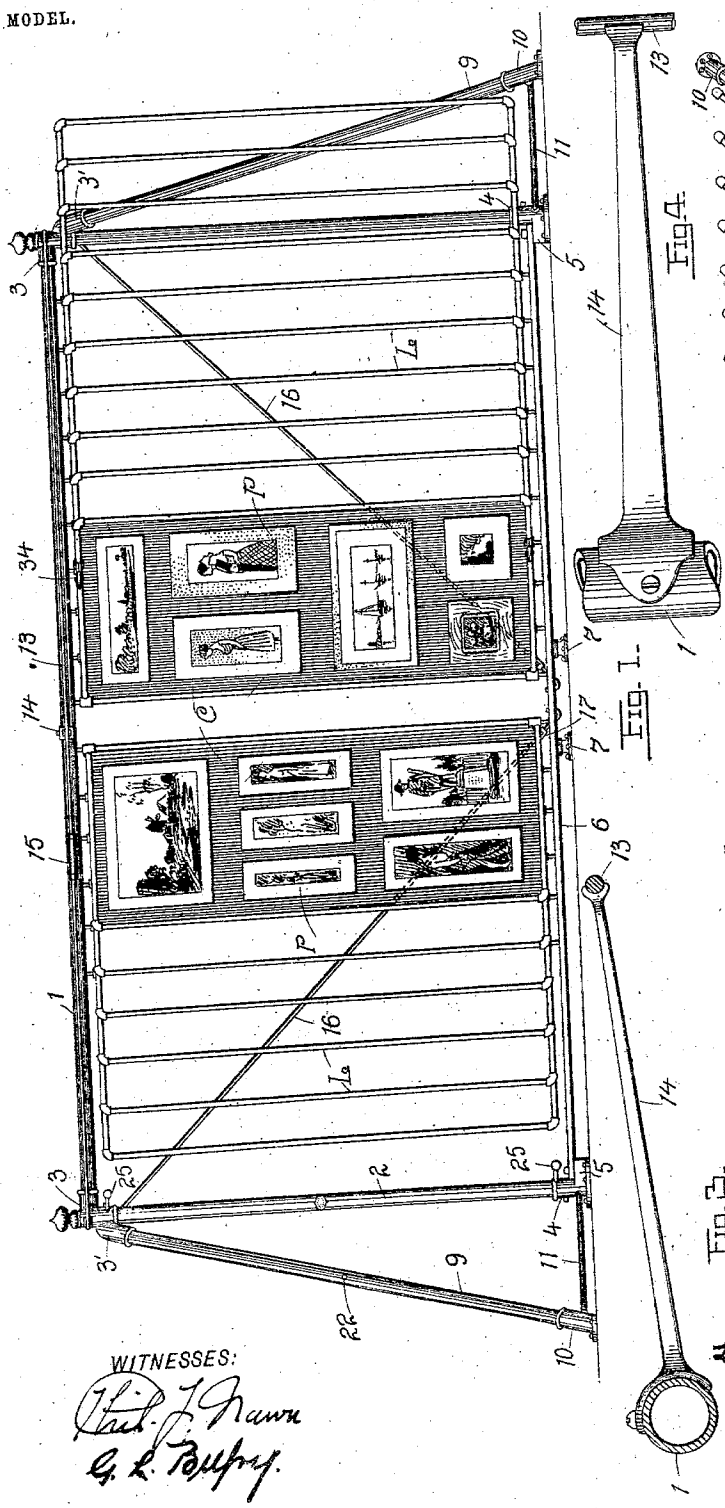


Fig. 1.

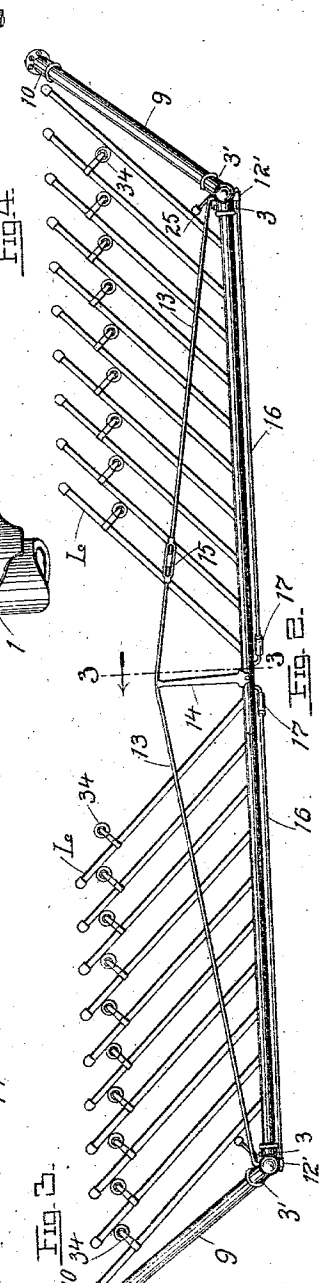


Fig. 2.



Fig. 3.

Fig. 4.

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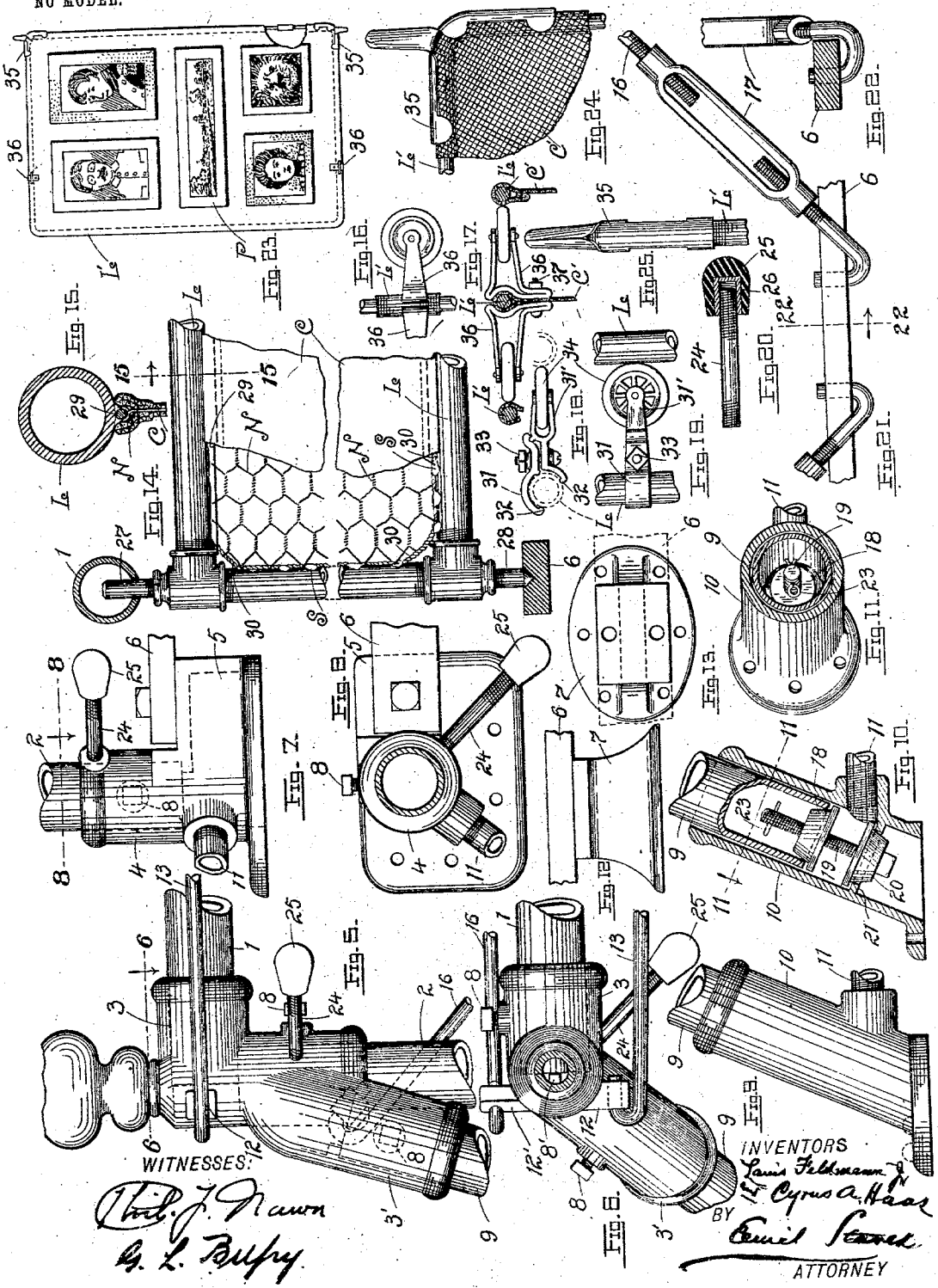
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No. 728,219. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

LOUIS FELDMANN, JR., AND CYRUS A. HAAS, OF ST. LOUIS, MISSOURI.

DISPLAY-RACK.

SPECIFICATION forming part of Letters Patent No. 728,219, dated May 19, 1903.

Application filed February 27, 1903. Serial No. 145,304. (No model.)

To all whom it may concern:

Be it known that we, LOUIS FELDMANN, Jr., and CYRUS A. HAAS, citizens of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Display-Racks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in display-racks; and it consists in the novel construction of rack more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is an elevation of the rack with the burlap removed from the majority of the swinging leaves. Fig. 2 is a top plan of the rack. Fig. 3 is an enlarged sectional detail on line 3 3 of Fig. 2. Fig. 4 is a top plan of Fig. 3. Fig. 5 is an elevational detail showing the construction of the upper corner of the rack-frame. Fig. 6 is a horizontal section on line 6 6 of Fig. 5. Fig. 7 is a detail showing the lower corner of the frame. Fig. 8 is a horizontal section on line 8 8 of Fig. 7. Fig. 9 is a detail showing the base of the diagonal brace of the frame. Fig. 10 is a view similar to Fig. 9, but showing the parts in longitudinal section. Fig. 11 is a section on line 11 11 of Fig. 10. Fig. 12 is an elevation of one of the intermediate legs of the frame. Fig. 13 is a top plan of the intermediate leg. Fig. 14 is a combined elevational and sectional detail showing manner of mounting the swinging leaf. Fig. 15 is an enlarged cross-section on line 15 15 of Fig. 14. Fig. 16 is a plan of one of the roller-brackets. Fig. 17 is a side elevation of Fig. 16, showing, however, an additional leaf, said brackets being specifically adapted for small racks. Fig. 18 is a side elevation of a roller-bracket as applied more particularly to large racks. Fig. 19 is a top plan of Fig. 18. Fig. 20 is a sectional detail of the adjustable bumper. Fig. 21 is a detail showing bottom connection of the endwise tension-adjusting tie-rods. Fig. 22 is a cross-section on line 22 22 of Fig. 21. Fig. 23 is an elevational detail of a leaf for a small rack. Fig. 24 is an enlarged detail showing hinge-bracket for the small leaf, and Fig. 25 is an edge view of Fig. 24.

The present invention is an improvement on the construction of rack covered by United States Letters Patent issued to us under date of November 11, 1902, numbered 713,417, and while possessing the advantages of the patented rack the present device is characterized by superiority in details imparting to the new construction advantages, among which may be mentioned the following: The present rack is self-supportable, standing without any artificial support; is adjustable in every direction, requiring no blocking up or shimming, the adjustment being effected whether the rack is loaded or not; will not sway endwise or backward or forward; is provided with special adjusting devices for the leaves and for adjustment of the frame in two distinct planes; is light; does not sag; is provided with hooks on the tie-rods, thereby preventing turning of the same during adjustment; the center of equilibrium does not depend on the weight of the basal castings of the frame, as the position of such center can be readily adjusted; is provided with adjustable bumpers; the position of the rollers can be shifted at pleasure; can be brought closely against the wall; is provided with special devices for preventing unscrewing of the adjusting-rods; is composed of a minimum number of parts; the rollers may be confined to every second leaf for small frames, thereby materially simplifying the construction; the burlap is sewed around the frame, which allows it to be machine-sewed instead of hand-sewed; the burlap is cut and inserted on the bias and mounted to better distribute the strain to which the leaf is subjected; the bearings are forced on and held in position by clamped jaws, which are bent around the burlap, thus preventing any slip; the wire netting in the small frames may be dispensed with.

The present device presents further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, the supporting standard or frame of the display-rack comprises an upper horizontal pipe-bar 1, the terminal vertical pipe-bars 2 2 meeting in the upper corner-pieces 3, the lower ends of the vertical members entering the sockets 4 of the outer castings or shoes 5. Between the castings 5 5 is disposed the basal member or bar

6, whose medial portion rests on and is secured to the intermediate legs 7 7. The several bars are clamped in their sockets by binding screws 8, the end of the pipe 1 bearing against a lug 8', formed on the interior of the corner-piece 3.

Formed with the corner-pieces 3 are inclined sockets 3', which receive the upper ends of the diagonal braces or pipe-bars 9, whose lower ends are received by the inclined sockets 10, secured to the floor a suitable distance in front of the frame, a distance approximating the swinging radius of the leaves L. The socket 10 is connected to the shoe or casting 5 by a coupling-pipe 11.

Cast with each corner-piece 3 and disposed at right angles to the plane of the frame are lugs or arms 12 12', with the former of which, in front of the frame, engage the terminal hooks of the tension-rods 13, the latter passing over a strut member 14, secured to the middle of the pipe 1 and inclined more or less to the horizontal, the tension of the rods 13 being regulated by the turnbuckle 15. With the lugs 12' engage the upper terminal hooks of the tension-rods 16, whose lower ends are hooked to the basal member 6 of the frame between the legs 7 7, the tension of said rods 16 being adjusted by turnbuckles 17. It may be stated in passing that the purpose of the tension-rods 13 passing over the strut-bar 14, thus virtually forming an overhanging truss, prevent buckling of the frame in a plane at right angles thereto, and the rod 16 preventing swaying of the frame endwise.

Since the several leaves L when loaded shift the center of gravity of the load well in advance of the frame, the purpose of the diagonal disposition of the members 9 at once becomes apparent, since such disposition never allows the point of equilibrium to be materially disturbed, the result obtained being dependent more on the construction than on the weight of the castings, though, of course, the weight of the castings and the intermediate shoes contribute more or less to produce the desired results. The braces 9 perform the additional function in that they prevent the frame from tilting forward under the weight of the loaded leaves, this result being further assured by the adjustability of said braces. The lower end of each brace received by the socket 10 grips the peripheral surface of a conical nut 18, operating on the screw-threaded portion of a stem or bolt 19, projecting from a basal conical seat 20, supported on a ledge or flange 21 within the socket. The brace 9 is provided with a peripheral opening 22, Fig. 1, for the insertion of a lever or rod, (not shown,) by which it may be turned axially in one direction or another. By turning the member 9 in proper direction it will move the nut 18 along the bolt and force the frame to a truly-vertical position should the latter have any tendency to tilt forward under the load carried by the leaves. The nut 18 is limited in its outward movement by the terminal split pin 23, inserted through the bolt, Fig. 10. The bumpers 24 for the terminal leaves of the series are carried, respectively, by the upper and lower castings 3 5, each bumper being adjustable and having a cushioning-head 25, of rubber, said head being provided with an inner metallic socket 26, adjustable along the screw-threaded end of the bumper-pins 24, Fig. 20.

The construction of the leaves L, as specially applicable to large racks, is illustrated in detail in Figs. 14, 15, 18, and 19, to which we will now allude. The upper corner-piece disposed in the line of the axis of suspension of the leaf is provided with a spindle 27, entering the upper pipe member 1 through an opening formed in the bottom thereof, and the lower corner-piece is provided with a spindle 28, having a conical pivot entering a corresponding socket in the lower member 6, the leaf being capable of removal by simply raising the same the necessary distance to effect disengagement of the conical pivot from its socket. Secured by means of solder along the under side of the upper pipe member of the leaf is a rod or runner 29, the upper edge of the wire-netting N having previously been passed thereover. The ends and bottom of the netting are then passed over a selvage-wire 30, secured at intervals by solder S to the corresponding sides of the leaf. The outer burlap or cover C is then sewed over the netting, Fig. 15. The roller-brackets are composed of two sections 31 31', having teeth 32 for gripping the pipe of the leaf, the sections being firmly held together by a bolt and nut 33, the lower section 31' terminating in a forked end in which the roller 34 is mounted. It is apparent, of course, that such a bracket is adjustable along the leaf and may be located where most desirable. As obvious from Fig. 18, the bracket grips the pipe so as to miss the burlap on which the pictures P are supported.

In the case of small or counter frames or racks the wire-netting may be dispensed with, in which case the burlap C' is passed over the leaf-frame, when it may be machine-stitched, as clearly obvious from Fig. 24. In such cases the strain of the weight is better resisted by the burlap by cutting and mounting the latter on the bias, Fig. 24. For small frames the corner-pieces 35, by which the spindles are carried, may be made of sheet metal and clenched over the corners of the frame, Figs. 23, 24. To further simplify the construction of these small frames, the roller-brackets may be disposed on every second leaf, the leaf under those circumstances being provided with two brackets 36, extending in opposite directions, each bracket carrying a roller which bears against the side of the next adjacent leaf L', Fig. 17. In such cases the bases of the brackets embrace the rod forming the frame of the leaf and also bear against the opposite faces of the burlap, a bolt and nut

37 binding the two brackets firmly together, Figs. 16, 17.

It is of course apparent that we may depart in a measure from the details herein without in any wise affecting the nature or spirit of our invention.

Having described our invention, what we claim is—

1. In a display-rack, a suitable frame, an overhanging truss forming part of the same, tension-rods disposed in the plane of the frame, and a series of leaves hinged to the frame under the truss, substantially as set forth.

2. In a display-rack, a suitable frame, an overhanging truss forming a part of the same, tension-rods disposed in the plane of the frame, diagonal brace members disposed forwardly of the frame, and a series of leaves hinged to the frame on the side of the diagonal members and under the truss, substantially as set forth.

3. In a display-rack, a suitable frame, an overhanging truss forming a part of the same, tension-rods disposed in the plane of the frame, adjustable diagonally-disposed brace members extending in front of the plane of the frame, and a series of leaves hinged beneath the truss, substantially as set forth.

4. A display-rack comprising a horizontal upper member, and terminal vertical members, corner-pieces for receiving the meeting ends of said members, basal shoes having sockets for receiving the lower ends of the vertical members, a lower bar connecting the shoes, intermediate legs or supports for the lower bar, diagonal brace members extending from the corner-pieces in front of the plane of the frame, sockets for receiving said diagonal members, connecting members joining said sockets to the shoes aforesaid, tension-rods disposed from the medial portion of the lower bar to the respective corner-pieces, an overhanging truss projecting forward from the frame and composed of tension-rods secured to the corner-pieces, and of a strut connecting the middle of the tension-rods to the upper member of the frame, and a series of leaves hinged to the frame beneath the truss, substantially as set forth.

5. In a display-rack, a suitable frame, hollow rotatable diagonally-disposed brace members extending in front of the frame, sockets for the reception of the bases of said members, a screw-threaded stem or bolt having a seat in said socket, and a conical nut operating on said bolt, and having its peripheral surface gripped by the walls of the hollow brace member, substantially as set forth.

6. In a display-rack, a suitable frame, rotatable diagonally-disposed brace members extending in front of the frame, sockets for the reception of the bases of said members, a screw-threaded bolt or stem mounted in said socket, a conical nut operating on said stem and having its peripheral surface gripped by the base of the brace member, and means for limiting the travel of the nut along the stem, substantially as set forth.

7. In a display-rack, a suitable frame, leaves pivotally disposed along the same, brackets projecting from the leaves and adjustable along said leaves to or from the hinge-line, and rollers carried at the free ends of said brackets, substantially as set forth.

8. In a display-rack, a suitable leaf comprising a frame, a sheet of burlap forming the body thereof, brackets adapted to be disposed along the frame and grip said member at points exterior to the line of connection thereof with the burlap, substantially as set forth.

9. In a display-rack, a suitable leaf comprising a frame, a sheet of burlap forming the body thereof, brackets composed of two sections adapted to be clamped to one another and to the frame, teeth formed on the respective sections for gripping the frame, and rollers mounted on one of the bracket-sections, substantially as set forth.

10. In a display-rack, a suitable frame, means for preventing swaying of the frame endwise and buckling in a plane at right angles to the frame, and diagonal brace members for preventing tilting of the frame forward, substantially as set forth.

11. In a display-rack, a suitable frame, leaves hinged along the same, and adjustable bumpers carried by the frame to arrest the impact of the terminal leaves of the series, substantially as set forth.

12. In a display-rack, a suitable frame, a leaf hinged thereon, a hollow pipe-bar forming the upper member of the frame, a lower bar at the bottom of the frame, a spindle disposed along the hinge-axis of the leaf and entering the pipe-bar, and a lower spindle having a conical tip entering a corresponding recess in the lower member of the frame, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

LOUIS FELDMANN, JR.
CYRUS A. HAAS.

Witnesses:
EMIL STAREK,
G. L. BELFRY.