

N. J. LITTLE & T. G. CUMMINGS.

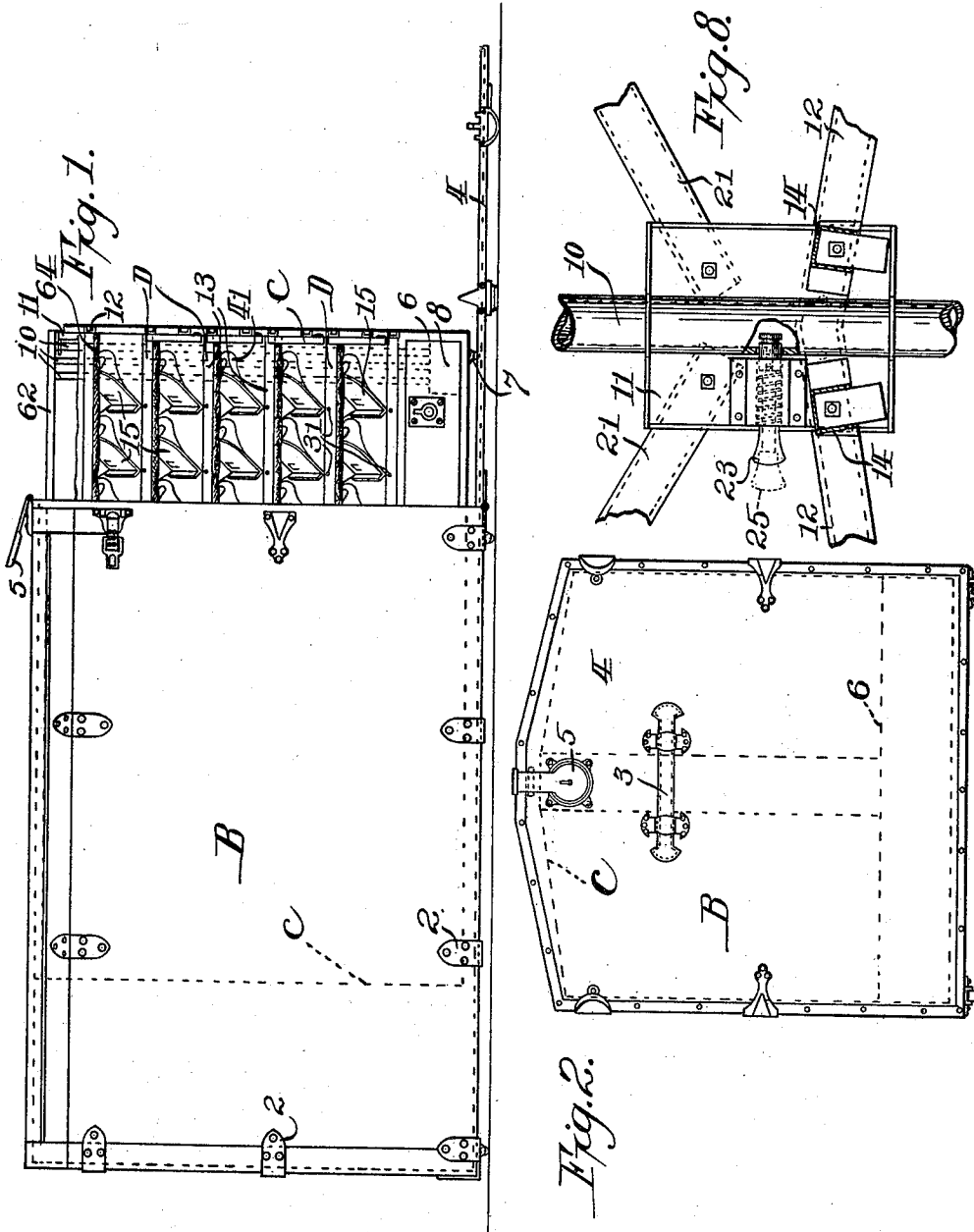
DISPLAY RACK.

APPLICATION FILED NOV. 3, 1910.

1,001,867.

Patented Aug. 29, 1911.

4 SHEETS—SHEET 1.



Witnesses:
W. H. Fisher
Paul S. Smith

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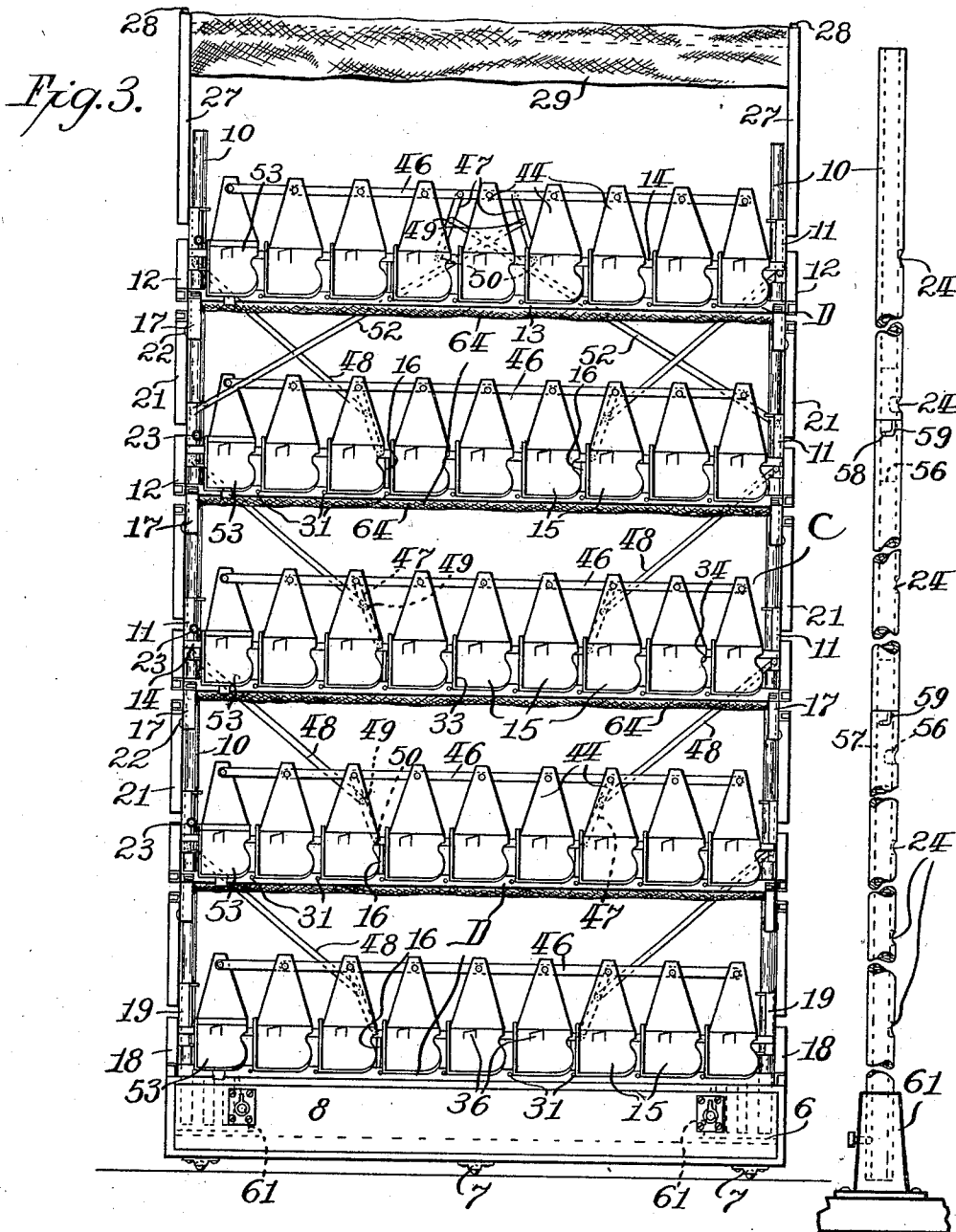
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4 SHEETS—SHEET 2.



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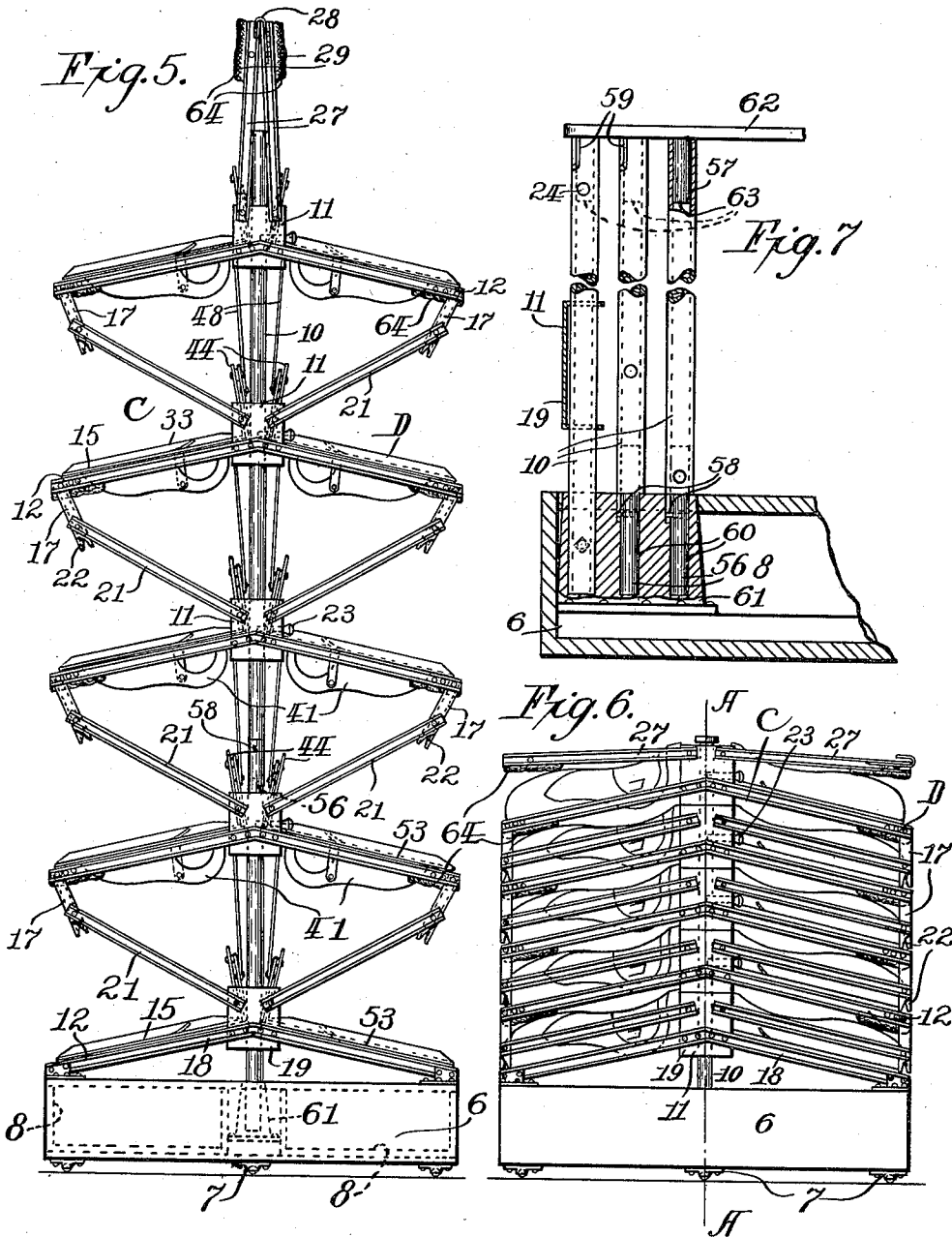
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4 SHEETS-SHEET 4.

Fig. 9.

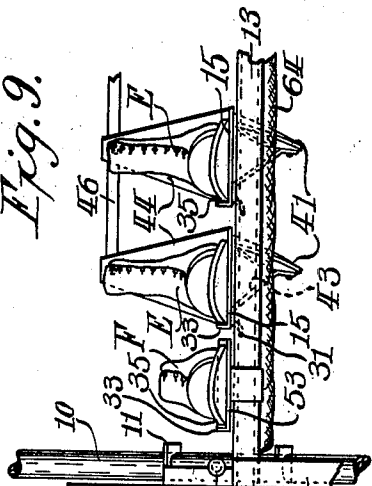


Fig. 10.

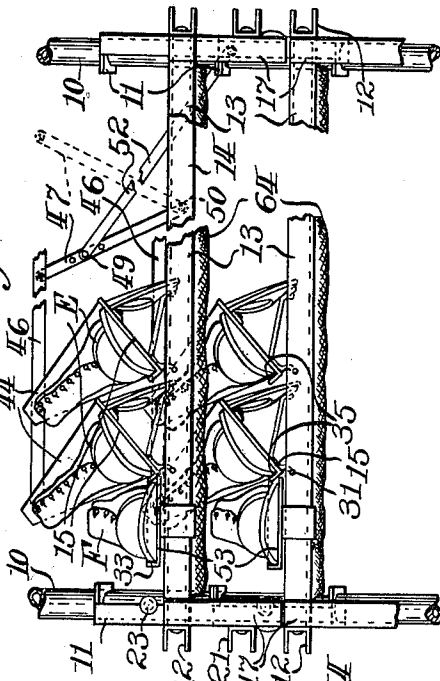


Fig. 11.

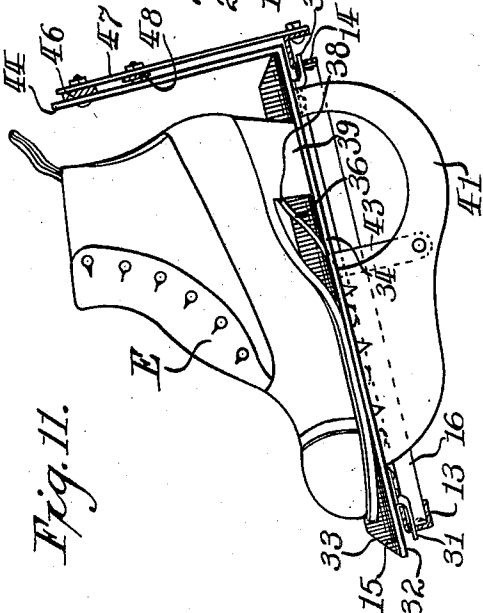
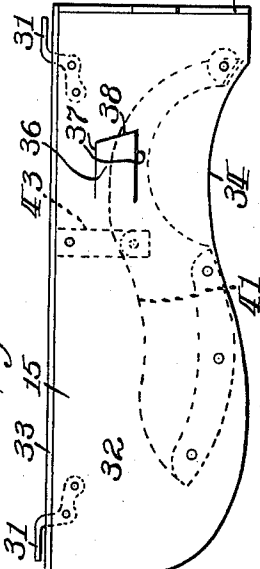


Fig. 12.



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UNITED STATES PATENT OFFICE.

NATHANIEL J. LITTLE AND THOMAS G. CUMMINGS, OF FARGO, NORTH DAKOTA.

DISPLAY-RACK.

1,001,867.

Specification of Letters Patent.

Patented Aug. 29, 1911.

Application filed November 3, 1910. Serial No. 590,467.

To all whom it may concern:

Be it known that we, NATHANIEL J. LITTLE and THOMAS G. CUMMINGS, citizens of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented a new and useful Improvement in Display-Racks, of which the following is a specification.

Our invention relates to improvements in display racks for shoes and similar articles which it may be desirable to arrange in a series for inspection, and has as one of its objects the display of a large number of samples in a position convenient for inspection and on an apparatus that can be collapsed or folded into the least possible space for shipment. Our device accomplishes these ends and furthermore carries the samples packed in the collapsed rack in a manner that insures safe transit of the samples and perfect adjustment for a quick and easy display of an entire line of goods.

Our device may be used in a variety of forms and suitable sizes but we have chosen to show it as applied to the display of sample shoes for the shoe trade. For this purpose a foldable steel frame is used which when open displays a large number of shoe samples, and when closed fits compactly into a suitable trunk or carrying case, the frame, in folding, automatically turning the shoes into a position adapted to economize space and permit transportation with safety.

In the drawings with which we have illustrated our device and which form part of our specification, Figure 1 is a side elevation of the trunk, showing the end door open and the rack partly removed therefrom, and empty of samples; Fig. 2 is an end elevation of the trunk showing the end door closed; Fig. 3 is a side elevation of the rack removed from the trunk and extended for display, but without samples; Fig. 4 illustrates one of the supporting rods in detail; Fig. 5 is an end elevation of the rack extended; Fig. 6 is an end elevation of the rack collapsed; Fig. 7 is a section on the line A—A, Fig. 6 showing the disposition of sections of the supporting rods packed for transit; Fig. 8 is an enlarged detail of a guide block showing means for attaching it to the supporting rod; Fig. 9 is a fragmentary view of the rack extended as shown in Fig. 5, the view

being parallel to the supporting frame and showing sample shoes in the shoe trays; Fig. 10 is a similar view of a portion of two supporting frames in the collapsed position shown in Fig. 6 and illustrating the positioning of the shoes as packed for transportation; Fig. 11 is an enlarged view of a shoe and shoe tray in the extended position of the rack, and Fig. 12 is a plan of a shoe tray.

In the above drawings B is a trunk or casing having suitable reinforcing straps 2, handles 3, and a door 4 forming the entire end of the trunk, hinged to the trunk body and having a lock 5 to fasten it in its closed position. Within the trunk is the display rack C made up of a base 6 provided with casters 7 and fitted to the trunk B so that it may be slid in and out when the rack is collapsed. The base is also provided with drawers 8 to hold odd shapes in samples or for any other use. The base may be of any suitable construction desired for supporting the rack. On the base 6, at the middle of either end, is mounted a supporting rod 10 on which slide the guide blocks 11 carrying the end pieces 12 of the display frames D. These end pieces are symmetrically disposed on the two sides of the rod 10 and slope downward, slightly, toward their outward ends for the better display of the samples E.

Between the end pieces 12 of each display frame D, at their depending ends and also at their points of attachment to the guide blocks 11 are fixed longitudinal frames 13 and 14 constituting rigid shelves in which are pivoted the transverse shoe trays 15, lying between them and which are spaced apart by stay pieces 16. In the collapsed position of the rack C the guide blocks 11 rest upon each other and the outer ends of the end pieces are separated by spacing legs 17 pivoted thereon and resting on the next lower end piece 12, the bottom end piece 18 resting on the base 6 and its guide block 19 being fixed on the supporting rod 10. The spacing legs 17 are pivoted at their lower ends to arms 21 which are pivoted on the guide blocks 11 of the next lower end pieces 12. These parts are so proportioned that the lowering of one guide block upon the next rotates the spacing legs 17 on their

end pieces into a vertical position to cooperate with the end pieces of the lower block.

In extending the rack for display the raising of the topmost pair of guide blocks 11 raises the end pieces 12 and causes the spacing legs 17 and arms 21 to assume the position shown in Fig. 5 where the further straightening of these parts is prevented by the lug 22 on the extension of each leg 17 coming into contact with the arm 21 connected thereto. Further raising of the top guide blocks 11 raises the second pair of blocks and so on, until the entire rack C is extended. On each of the guide blocks except the lowest pair, is a spring lock bolt 23 of ordinary construction which fits a corresponding hole 24 in the supporting rods in the extended and collapsed positions of the rack. The lock bolts 23 are adapted to be locked in a retracted position 25 shown in dotted lines in Fig. 8, so that the guides 11 may be slid upward extending the rack without catching the bolts in the wrong holes. These bolts and holes may be so constructed that the bolts can fall into only the proper holes after being released, in either their extended or collapsed positions. The upper pair of guide blocks 11 carries two pivoted frames 27 which lie on top of the rack C in its collapsed position and provide a cover for the goods inclosed therein, and in the extended position of the rack, are fastened together by slide catches 28 and may be used to display advertising matter 29.

The shoe trays 15 are a series of supports lying transversely of the rack C and pivoted, in front and back, by pivots 31 attached thereto, in the longitudinal frames 13 and 14, the position of which tilts the trays 15 forward for the better display of the shoes D. Each tray 15 has a flat bottom 32 with an upturned edge 33 on one side and the other side 34 shaped roughly to the outline of a shoe placed thereon with the side 35 of the shoe against the upturned edge 33 of the tray 15. A lug 36 is formed in the bottom 32 of the tray, having sides 37 parallel to the upturned edge 33 of the tray, and an edge 38 extending toward the center line of the rack C cut at an oblique angle to the upturned edge 33 of the tray, and adapted to fit the front of the heel 39 of the shoe E as it rests on the tray 15 and prevent it from sliding forward. Below the curved side 34 of the tray 15 is a downwardly extending lip 41, which may be formed in one piece with the bottom 32 of the tray or attached thereto as shown, and is shaped to fit roughly the side 35 of a shoe laid against it. The lip is braced from the under side of the tray bottom 32 by a brace 43 attached thereto.

At the back or elevated end of the tray 15, is attached an upwardly extending arm 44 which forms a lever for rotating the tray 15

on its pivots 31 and also serves as a background for the shoe E displayed on the tray. The arms 44 on each series or tier of trays in a display frame, are pivoted to a single bar 46 which extends longitudinally of the rack C parallel with the frame 14 and above it. This bar 46 is free at its ends but is connected to the back frame 14 by a bar 47 pivoted to both the frame and tilting bar. A tilting lever 48 is attached to this bar at the point 49 between its extremities and pivoted to the guide block 11 of the frame above. These parts are so proportioned that the collapsing of the upper frame upon the next lower frame moves the lower or hinged end of the tilting lever 48 longitudinally and thus rotates the bar 47 on its lower pivot 50 carrying the bar 46 and its attached tray arms 44 through an arcuate movement and rotates the shoe trays 15 into the position shown in Figs 1 and 10. The change in position of the bar 47 during collapsing of the rack C is shown in dotted lines in Fig. 10. As all the shoe trays 15 are similar and the tilting levers 48 are so disposed as to cause rotation in the same direction, the shoes E carried by the successive frames have the same relative position and fit into the interstices between shoes in the frames immediately above and below. As there is no guide block 11 above the topmost frame for the attachment of a tilting lever 48, a lever 52 is carried to the block 11 below where the same action is secured in the collapsing of the rack C.

The rotation of the trays 15 carrying high topped shoes, requires the spacing of the trays away from the end piece 12 toward which the trays rotate. To utilize this space a nonrotating tray 53 is placed at this point on each of the frames and is used for low shoes or oxfords F which do not interfere with the collapsing of the rack. The trays 53 have a bottom 32 and heel lug 36 similar to the rotatable trays 15 but have no arm 44 nor depending lip 41, and are fixed to the longitudinal frames 13 and 14. For convenience in packing, the supporting rods 10 are made in three sections each, which fit together by means of a pin 56 and socket 57 and are locked in position by a stud 58 on the pin 56, engaging a groove 59 in the wall of the socket 57. Recesses 60 are provided in blocks 61 in the frame of the base 6 on its center line, for the reception of the ends of the upper sections of the rod 10, to pack them for transportation. A bar 62 carrying studs 63 is placed on the rack C in its collapsed position as shown in Fig. 7, with the studs 63 in the sockets 57 of the rod sections. By this means the rods are held firmly in position during shipment. The trays and frames may be made of any suitable material and covered with padding 64 if desired, to pack the shoes more firmly

for shipment. The parts 46, 47, 48 and 52 connected to the series of trays 15 on each lateral side of the rack, are identical in form, thus positioning the parts 47 and 48, 5 connected to each bar 46 in the same tier, at opposite ends of the rack, as shown in Fig. 3.

In operating the display rack, it is removed from the trunk and extended with 10 cover frames 27 caught up. Sample shoes E and F, are then placed on the trays 15 in an erect position with their heels 39 pressed forward against the lugs 36, care being taken to place low-shoes F on the 15 fixed or nonrotatable trays 53. When it is desired to place the rack C in the trunk B, the catch 28 is first freed from the cover frames 27, the bolts 23 in the top pair of guide blocks 11 are withdrawn from holes 20 24 in the supporting rods 10 and locked in the position 25, and the top frame lowered onto the next lower guide block 11, by which operation the shoes E in the upper two frames are rotated into the position for 25 packing. The bolts 23 in the next lower pair of guides 11 are then withdrawn and fastened in the same manner and the two frames of shoes lowered onto the third frame in which the shoes are rotated as in the 30 upper frames by the lowering movement. This is continued until the rack is entirely collapsed when the bolts 23 are released and enter holes 24 in the lower part of the rods 10 to secure the rack C in its collapsed position. The upper sections of the supporting 35 rods 10 are separated and placed in the sockets 60 provided for them on the base 6, the drawers 8 are then filled and the entire rack C is pushed into the open end of the trunk B, after which the trunk is closed and 40 locked ready for shipment.

To open up the samples, unlock the door 4 of the trunk B and open it, pull out the rack C, connect the upper sections of the 45 supporting rods 10, release and lock back the bolts 23 in the position 25 in all the guide blocks 11 and raise all the guide blocks as far as possible. Release the bolts 23 in the top pair of guide blocks from the position 50 25 and adjust them to the proper holes 24 in the supporting rods 10, then do the same with the bolts 23 in the lower blocks 11, finally raise the cover frames 27 and fasten them up with the catches 28.

In accordance with the patent statutes we have described the principles of operation of our invention together with the apparatus which we now consider to represent the best embodiment thereof but we desire to 60 have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following 65 claims.

Having described our invention, what we claim as new and desire to protect by Letters Patent is:—

1. A display rack, comprising, in combination, a collapsible supporting frame, a 70 plurality of superimposed rigidly supported display shelves on said frame, each of said shelves being independently free to move in a vertical direction, and means for extending said frame for display and for col- 75 lapsing the same, for purposes of shipment.

2. A display rack, comprising, in combination, a collapsible supporting frame, a plurality of rigid display shelves mounted on said frame and slidable thereon, means 80 for sliding said shelves into separated or closely assembled positions, trays movably mounted on said shelves, and means for collapsing said trays into close proximity, whereby said trays may be exposed for dis- 85 play and collapsed for purposes of storage.

3. Display apparatus, comprising, in combination, a sectionally extensible guide frame, a plurality of tiltable superimposed 90 displays mounted on said frame, means freely connecting successive displays and adapted to raise them, and lever means connecting successive displays whereby the raising of a display tilts the succeeding display. 95

4. Display apparatus comprising, a supporting rack adapted to expand and collapse, a plurality of displays movably 100 mounted upon said rack, said displays being disposed serially in the direction of expansion of said rack and adapted to be tilted and righted thereon, means connecting all of said displays with said rack to tilt suc- 105 cessive displays during the collapsing of said rack and to right the individual displays of said series successively during the expansion of said rack.

5. Display apparatus, comprising, a supporting frame, a sectionally extensible guide bar, a plurality of displays hinged upon said 110 frame, and means connected with said displays and frame, whereby as said frame is moved in one direction on said guide, said displays are tilted and when reversed, are righted.

6. Display apparatus comprising, a sup- 115 porting frame, a sectionally extending guide bar on which said frame slides, a plurality of displays hinged on said frame, each of said displays consisting of a tray for holding a shoe, having an upturned edge engaging 120 the side of the shoe during rotation, and a clip adapted to engage the inner edge of the heel, and means connected with said displays and frame, whereby as said frame is moved 125 in one direction on said bar said displays are tilted and when reversed are righted.

7. Display apparatus, comprising, an ex- 130 pansible rack having superimposed rigid shelves, a base having guides on which said rack is adapted to slide, means connected to

said shelves for raising them on said guides, displays tiltingly mounted upon said shelves and means for simultaneously righting said displays when said rack is expanded and for
5 tilting them when said rack is collapsed.

8. Display apparatus, comprising, an expansible rack having superimposed rigid shelves, a base on which said rack is mounted having a guide on which said rack is
10 adapted to slide, locks carried by said rack for holding said shelves spaced apart on said guide, and legs carried by the outer ends of said trays for spacing the shelves apart when said rack is collapsed.

9. A display rack for goods, comprising, in combination, a series of display frames vertically superimposed, a supporting frame on which said display frames are vertically
15 slidable, display supports mounted on said display frames, means for spacing said frames vertically, whereby the goods on said supports may be displayed, means for collapsing said frames upon each other, and means for automatically tilting said sup-
20 ports during said collapsing movement; whereby goods on said trays may be conveniently packed for transportation.

10. A device of the class set forth, comprising, in combination, a support, a plu-
25 rality of display frames vertically slidable on said support, whereby they may be separated and assembled, trays pivoted on said frames and adapted to hold goods, and a tilting lever connected with said trays in
30 each frame and with an adjacent frame, whereby the assembling of one frame upon another tilts the trays of said frame into a position adapted to the close assembling of said frames and the protection of the goods
35 therein.

11. In a sample display rack for shoes, a series of superimposed display frames adapted to be raised and lowered upon each other, a plurality of shoe trays in each of said
40 frames, said frames being formed with an upstanding edge and a lug adapted to hold a shoe resting on said tray in position, and means for rotating said shoe trays simultaneously with the lowering of one frame upon
45 another, whereby the space occupied by said shoes is lessened and the display frames of said rack are adapted to be more completely

collapsed upon each other, for the purposes set forth.

12. A display rack for sample shoes, com- 55
prising, a series of superimposed display frames and a support on which said frames are mounted, a plurality of shoe trays pivoted in said frames and adapted to hold sample shoes in a position for display, means
60 for spacing said frames for the display of the shoes on the trays and for assembling said frames in close proximity, and an operative connection between said means and said trays, whereby the assembling thereof
65 is adapted to rotate said trays into a position adapted to the economic packing of the sample shoes.

13. In a display case for sample shoes, a base having extensible supporting rods
70 mounted thereon, slidable frames mounted on said rods and adapted to be fixed at intervals on said rods for the display of shoes on said frames, means for collapsing said frames upon each other, and a carrier fitted
75 to said collapsed frames.

14. In a display rack, a pair of substantially vertical and extensible guide posts, a plurality of guide blocks movable upon said posts, rigid shelves carried by said guide
80 blocks, means for securing said blocks to said posts to space and hold said shelves vertically distanced apart, and connections interposed between said trays for raising a tray by another one which is superimposed.
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15. In a display rack, a pair of substantially vertical and extensible guide posts, a plurality of guide blocks movable upon said posts, superimposed rigid shelves carried by said guide blocks, means for detachably se-
90 curing said blocks to said posts to space and hold said shelves vertically distanced apart, and means for supporting the outer ends of said shelves in separated condition when said shelves are lowered.
95

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

NATHANIEL J. LITTLE.
THOMAS G. CUMMINGS.

Witnesses:

H. L. LINCOLN,
HANS J. PETERSEN.