Jan. 6, 1959 E. BLOCH 2,867,362

DEVICE FOR SUPPORTING DISPLAY FIGURES

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Fig. 1.

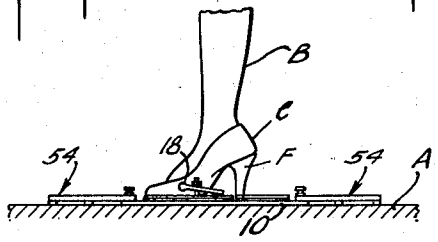


Fig. 2.

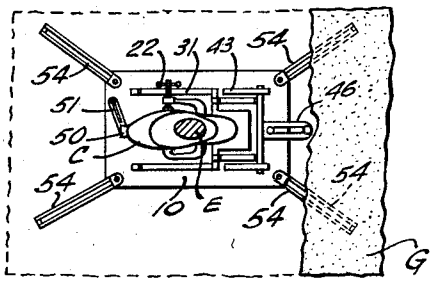


Fig. 3.

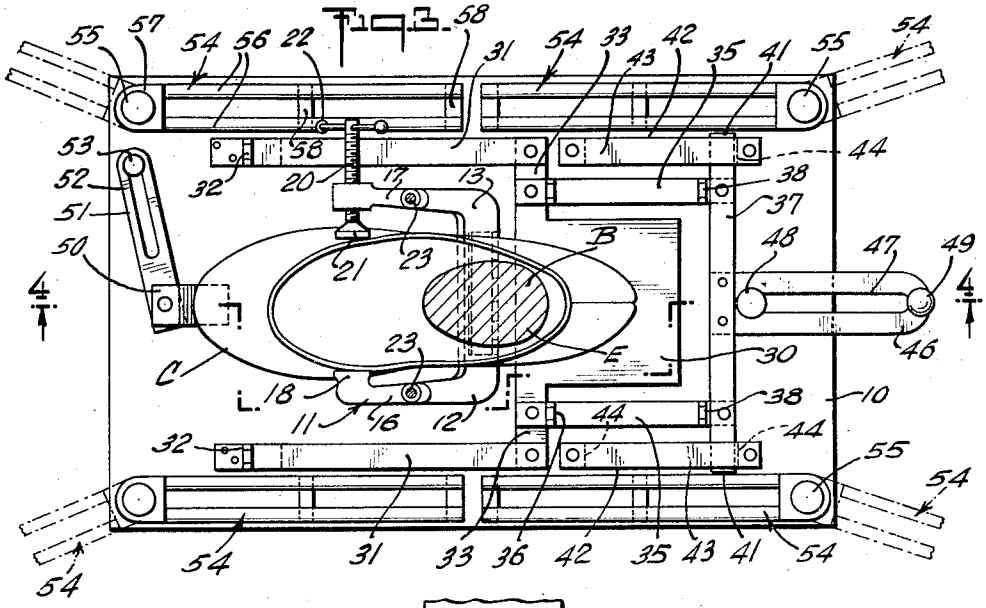
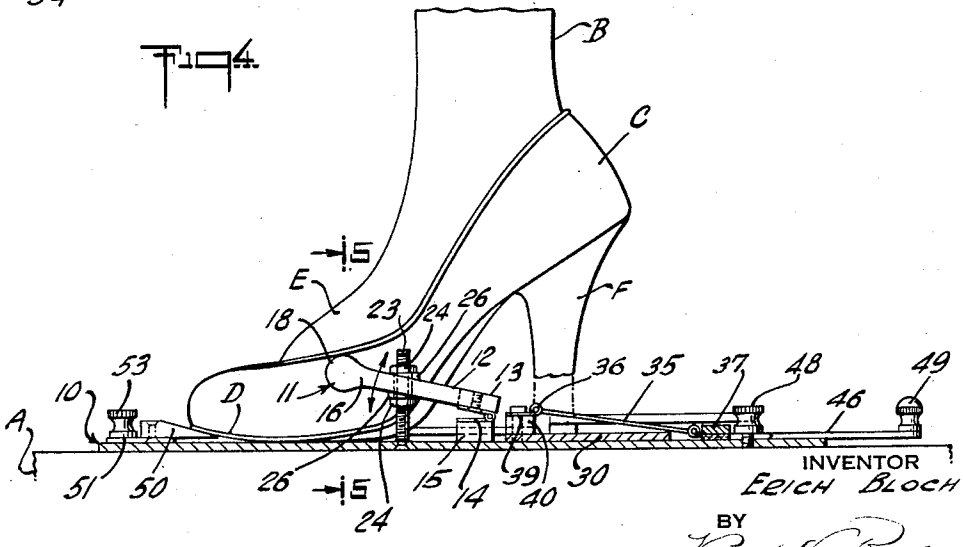


Fig. 4.



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DEVICE FOR SUPPORTING DISPLAY FIGURES

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Fig. 6.

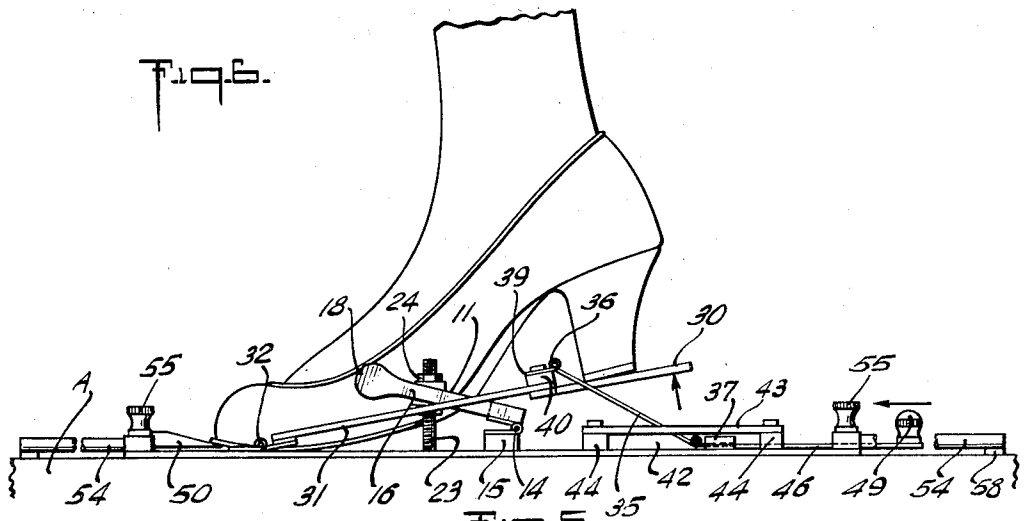


Fig. 5.

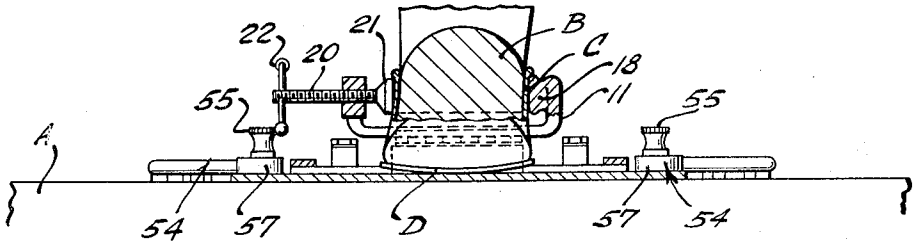


Fig. 9.

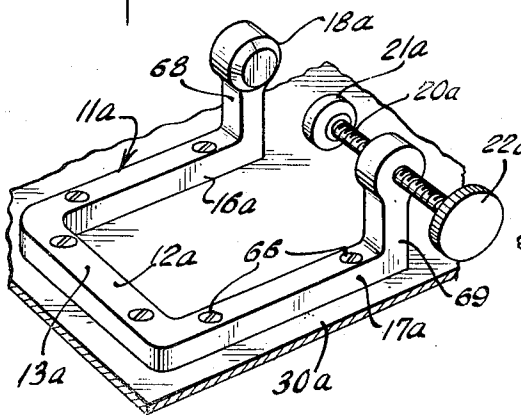
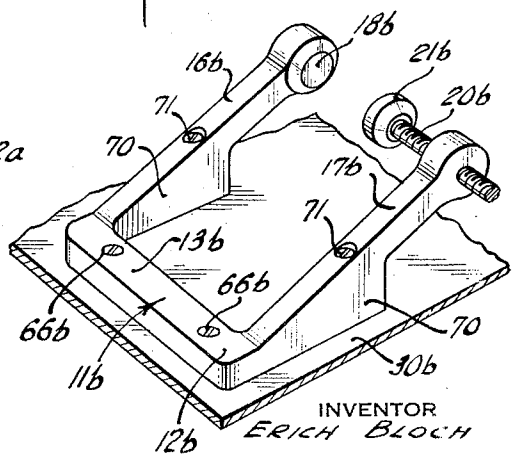


Fig. 10.



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DEVICE FOR SUPPORTING DISPLAY FIGURES

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Fig. 7.

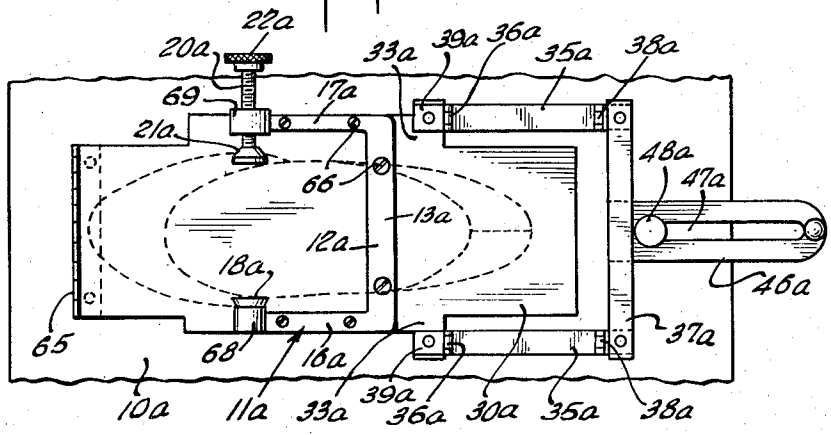


Fig. 8.

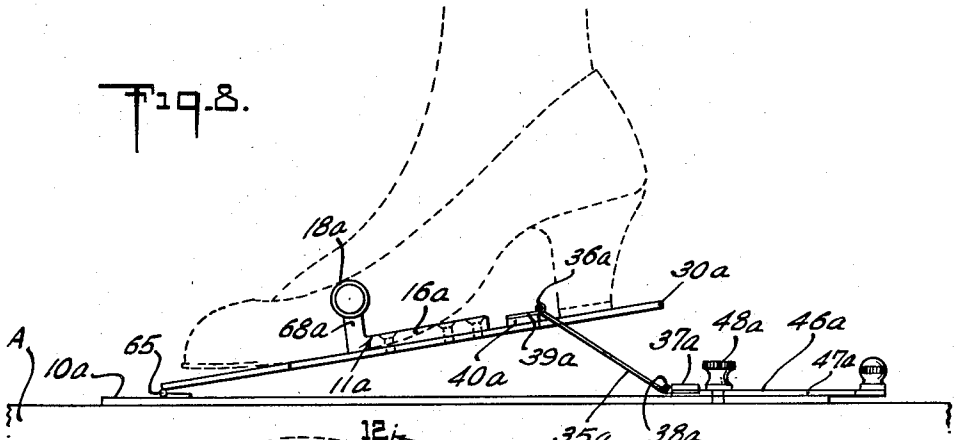


Fig. 12.

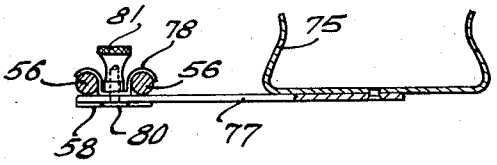
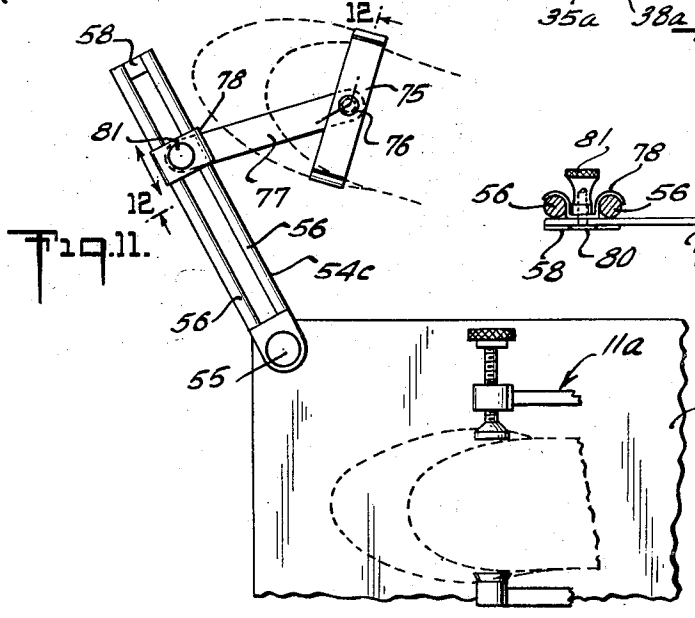


Fig. 11.



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Fig. 13.

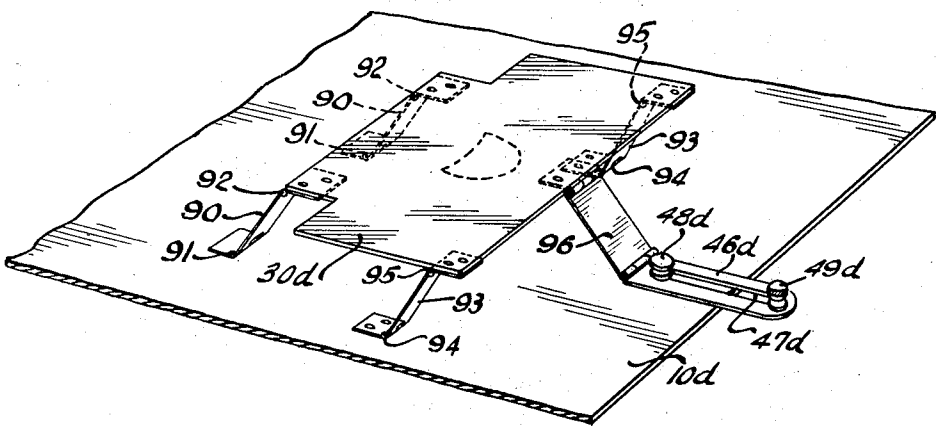


Fig. 14.

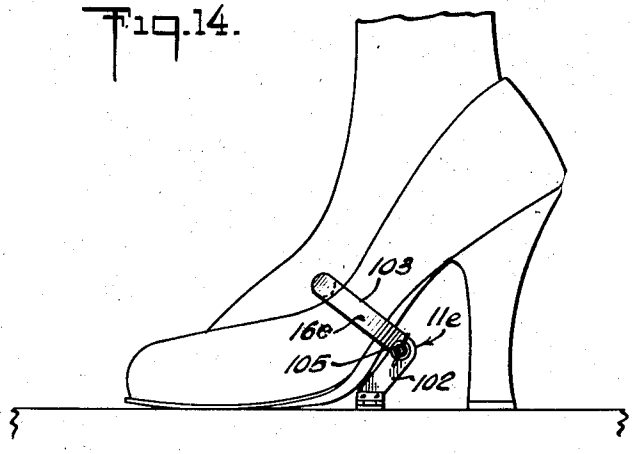
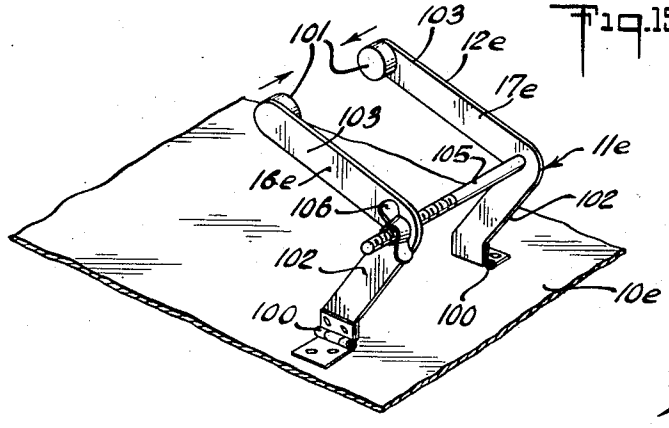


Fig. 15.



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DEVICE FOR SUPPORTING DISPLAY FIGURES

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Fig. 16.

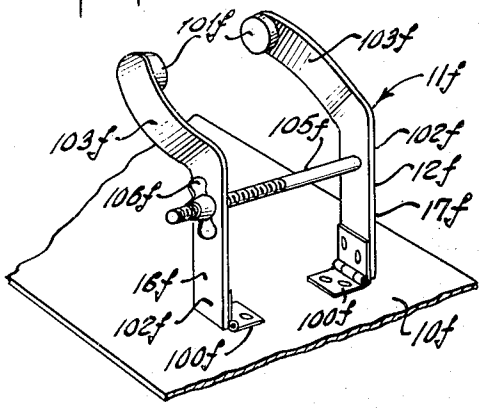


Fig. 17.

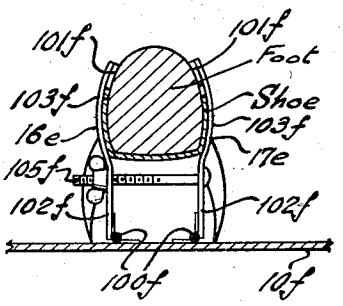


Fig. 18.

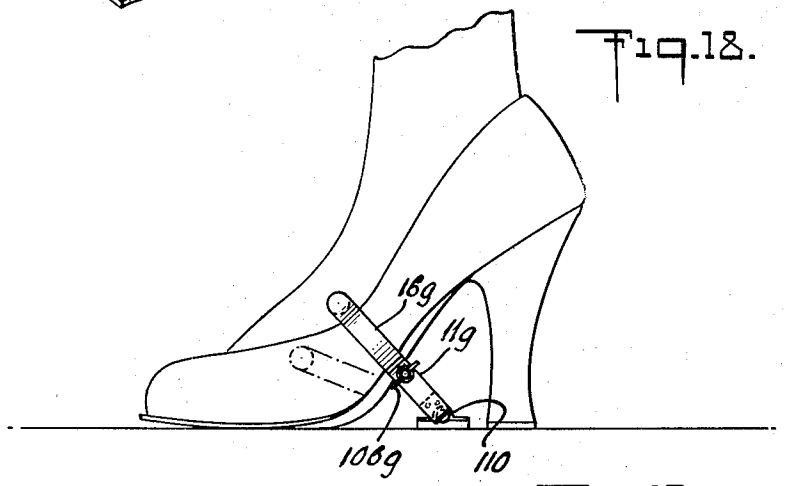
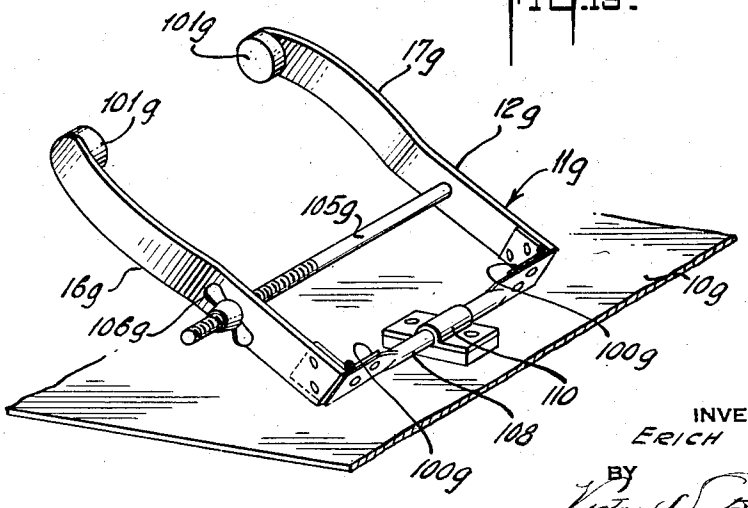


Fig. 19.



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United States Patent Office 2,867,362 Patented Jan. 6, 1959

2,867,362

DEVICE FOR SUPPORTING DISPLAY FIGURES

Erich Bloch, New York, N. Y.

Application August 24, 1955, Serial No. 530,351

19 Claims. (Cl. 223—120)

The present invention relates to devices of the type employed to support display figures, and particularly to support manikins.

A device for firmly supporting a manikin in free standing natural display position and in such a way that said device is almost concealed or unobtrusive, must be secured to the lowest extremity of the manikin and must be located as close as possible to the floor. It is, therefore, desirable to attach such a support device to the feet of the manikin. Since the manikin may be wearing different types and sizes of shoes, and since the feet of the manikin resemble only remotely the shape of a human foot and therefore do not conformably fill the shoes, the difficulties of meeting the different requirements indicated above and of allowing at the same time shoes of the manikins to assume different angular positions relative to the floor in simulation of different natural poses become apparent. If the support device grips the shoes of the manikin at rigid parts thereof, as for example at the soles, this does not hold the manikin steadily, since the terminal parts of the manikin's legs, because of their shapeless form, do not fit securely in the shoes. Since the manikins are usually top heavy, these manikins with such support devices have a tendency to fall out of their shoes and topple over.

One object of the present invention is to provide a new and improved support device for a display figure, which meets the requirements indicated above for stability and substantial invisibility, which can be easily and quickly adjusted to accommodate manikin shoes of different sizes and types, which can be easily and quickly adjusted by a simple manipulation to accommodate shoes in different angular positions relative to the floor in accordance with the pose of the manikin or the height of the heel, and which although designed to span in use a large floor area to attain steadiness, can nevertheless be folded into a comparatively small compact unit for storage or transportation.

In accordance with certain features of the present invention, the support device comprises a base plate adapted to rest flat on the floor, and a clamp with a frame mounted on the base plate and carrying opposed jaws, at least one of which is movable towards the other to permit these jaws to close or open. This clamp is mounted to circumvent the peripherally protruding soles of the manikin's shoe and to cause its jaws to press against the sides of the lower foot extremity above the sole of the shoe, that is either against the shoe itself or against the foot above the shoe. Since the sides of the shoe above the sole are flexible, the clamping pressure of these jaws when applied to the shoe is transmitted almost full force to the foot of the manikin in said shoe. Therefore, even though the foot of the manikin is somewhat shapeless and does not fill the shoe with a conforming fit, the pressure of the clamp on the flexible sides of the shoe and upon the foot of the manikin, compresses the shoe and foot into a rigid unit, and holds the manikin

firmly in upstanding position. Clamping pressure on the foot above the shoe also holds the manikin in upstanding position.

As another feature of the invention, the device has a heel support on the base plate designed and mounted to be moved from horizontal position close to the base plate to an elevated position in relation to the plate, to position the shoe in accordance with the height of the heel or to support the shoe or foot in angular position in relation to the floor in accordance with the pose of the manikin. As an additional feature in connection with this heel support, the movement of the support in relation to the base plate is effected through manipulation of a slide along the base plate.

As a further feature, the device has a series of side extensions desirably in the form of radiating arms, which are movable sideways from the base plate in any direction therefrom spiderlike, to span a comparatively large floor area for stability in use, and which can be folded to nest against the base plate to form a comparatively small compact unit for storage and/or transportation or when the available floor space is small.

Various other objects, features and advantages of the invention are apparent from the following description and from the accompanying drawings, in which

Fig. 1 is a side view of one form of manikin support device embodying the present invention and shown in connection with a manikin having high heel shoes;

Fig. 2 is a top plan view of the manikin support device shown with its arms extended from the base plate for added floor support;

Fig. 3 is a top plan view of the manikin support device of Figs. 1 and 2 but shown on a larger scale, and with its arms folded inwardly against the base plate;

Fig. 4 is a longitudinal section of the manikin support device taken on lines 4—4 of Fig. 3;

Fig. 5 is a transverse section of the manikin support device taken on lines 5—5 of Fig. 4;

Fig. 6 is a side elevation of the manikin support device of Fig. 1 but shown on a larger scale and with its heel support elevationally adjusted to accommodate a low heel manikin shoe;

Fig. 7 is a top plan view of a modified form of manikin support device having an adjustable sole support and embodying the present invention;

Fig. 8 is a side elevation of the manikin support device illustrated in Fig. 7 and shown with its heel and sole support in inclined adjusted position;

Fig. 9 is a perspective of the clamp forming part of the support device of Fig. 7;

Fig. 10 is a perspective of another form of clamp which may be used in connection with any of the forms of support device illustrated;

Fig. 11 is a fragmentary top plan view of another form of manikin support device in accordance with the present invention affording firm anchorage for one of the manikin's shoe and foot, this device being shown with an attachment to one of its arm extensions for steadying the other foot of the manikin;

Fig. 12 is a section of the manikin support device taken on lines 12—12 of Fig. 11;

Fig. 13 is a fragmentary perspective of another form of elevationally adjustable heel support constituting another embodiment of the present invention;

Fig. 14 is a side view of an applied clamp designed to grip the lower foot extremity of the manikin and constituting another embodiment of the present invention;

Fig. 15 is a fragmentary perspective of the clamp, of Fig. 14;

Fig. 16 is a fragmentary perspective of a clamp designed to grip the lower foot extremity of the manikin and con-

stituting still another embodiment of the present invention;

Fig. 17 is a vertical section through the clamp of Fig. 16 shown applied to the lower foot extremity of the manikin;

Fig. 18 is a side elevation of an applied clamp designed to grip the lower foot extremity of the manikin and constituting a still further embodiment of the present invention; and

Fig. 19 is a fragmentary perspective of the clamp of Fig. 18.

Referring to Figs. 1–6 of the drawings, there is shown a manikin support device comprising a flat metal base plate **10** of rectangular form adapted in use to be placed on the floor A on which a display manikin B (the lower part only being shown) is adapted to be sustained in display position. Adjustably mounted on the base plate **10** is a clamp **11** comprising a U-shaped frame **12** having an intermediate section **13**, secured by a hinge **14** to a cleat **15**, welded or otherwise rigid with the base plate and having side branches or limbs **16** and **17**. The limb **16** terminates at its outer end in a cheek or jaw **18** and the other limb **17** has threaded therein at its outer end a screw **20**, which carries at one end a cheek or jaw **21**, having a swivel connection to said screw to permit said screw to turn without turning said jaw **21**, and which carries at its other end a turning handle **22**. The clamp **11** is thereby permitted to swing adjustably up or down about its hinge support **14** to raise and lower its jaws **18** and **21** and is held in angularly adjusted position by screw posts **23** passing through holes in the limbs **16** and **17** respectively with sufficient clearance to allow the limbs to change their angular position in relation to said posts. These posts **23** are affixed at their lower ends to the base plate **10**, as for example, by riveting, and each of these posts is provided with a pair of locking nuts **24** threaded thereon on opposite sides of the corresponding limb **16** or **17** of the clamp **11**, to hold said limbs in the desired angular position. The clamp limbs **16** and **17** have on their upper and lower sides bosses **26** serving as seats for the nuts **24**.

The clamp **11** is supported in position on the base plate **10** to cause said clamp to straddle the anchored shoe C (Figs. 1–5) of the manikin B clear of the peripherally protruding sole D of said shoe and to cause the jaws **18** and **21** to flank the flexible sides of the shoe above said sole and to press against the lower foot extremity of the manikin comprising the foot E and the shoe C. In the specific form shown, the jaws **18** and **21** are in position to press directly against the sides of the shoe.

The shoe C (Figs. 1–5) of the manikin B to be anchored is placed on the support device with its sole D resting directly on the base plate **10** and with its heel F resting directly on a support **30** affording a seat for said heel and shown in the form of a platform. This platform **30** is adapted to be elevationally adjusted and in the specific form shown, angularly adjusted to accommodate shoes of different heel heights or to accommodate shoes in different tilted positions according to the pose of the manikin, as shown in Fig. 6. To that end, the platform **30** is in the form of a metal plate, and is connected to the base plate **10** by a linkage comprising a pair of parallel bars **31** on opposite sides of the clamp **11**. These bars **31** are connected at one end to the base plate **10** by means of axially aligned hinges **32** close to said base plate and are rigidly secured at their other ends by riveting or the like to ears **33**, extending sideways from one end of the platform **30**. With this arrangement, the platform **30** is rigid with the parallel bars **31** and is maintained parallel thereto substantially in the plane of said bars and through said bars, the platform is pivotally connected to the floor plate **10** for angular movement about the pivot axis of the hinges **32**.

To lift the platform **30** angularly about the pivot axis of the hinges **32**, two parallel links **35** are provided flanking opposite sides of the platform, these links being pivotally connected at their forward ends to the ears **33** of the platform by hinges **36** and being pivotally connected at their rear ends to a cross-bar **37** by hinges **38**. Each of the hinges **36** has a leaf **39** secured to a block **40** affixed to the top of a corresponding platform ear **33** to raise the link **35** at its forward end in lowermost position of the link and to prevent thereby dead center locking of the linkage in said position, as shown in Fig. 4 and as will be made more apparent.

The ends **41** of the cross-bar **37** extend through respective guideways **42** formed by a pair of parallel guide bars **43** rigidly secured at the ends to the base plate **10** by suitable fastening elements and spaced therefrom by blocks **44** to define said guideways. For moving the cross-bar **37** along the guideways **42**, there is rigidly secured to the middle section of the cross-bar a slide **46**, movable along the base plate **10** and having an elongated slot **47** therealong through which extends the shank of a thumb screw **48** threaded into said base plate. This thumb screw **48** serves as a guide post for the slide **46** when the screw is loosened and also serves to lock the slide in adjusted position when tightened. A finger knob **49** at the outer end of the slide **46** facilitates manipulation of the slide. There are certain types of shoes in which the soles bend upwardly near their outer ends when the shoe is flat on a support. To prevent the shoe from rocking or tilting forward, there is provided a wedge **50**, pivotally secured to one end of a bar slide **51**, having an elongated slot **52** therealong to receive the shank of a thumb screw **53** threaded into the base plate **10**. The slide **51** may be adjusted angularly about the thumb screw **53** or lengthwise across said screw, when said screw is loosened and may be locked in adjusted position by tightening said screw. The wedge **50** can be fitted tightly between the upwardly bent sole of the shoe and the base plate **10** to prevent said shoe from rocking and the manikin figure from tilting.

To assure steady support of the manikin device on the floor, there are provided spider arms **54**, four being shown, mounted by thumb screws **55** at the corners respectively of the base plate **10** for swinging adjusting movement about said screws. Each of these spider arms **54** is shown comprising a pair of parallel rods **56** rigidly secured together at one end to a head **57**, as for example by welding, and rigidly secured together at spaced sections therealong by a pair of straps **58**, welded or otherwise affixed thereto. The head **57** may be bevelled slightly, so that when the arm **54** extends outwardly and the head is clamped down by the screw **55**, the arm will extend downward from the base plate **10** with sufficient slant to cause the strap **58** at the outer end of the arm to seat against the floor. The base plate **10** is thin enough, so that such bevelling of the head **57** may be dispensed with, and the necessary slight tilting of the arm from the base plate attained through the clearance afforded by the hole in the head through which the screw **55** passes.

The arms **54** rest on the base plate **10** along its sides when not in use, to form a compact unit easily storable and transportable, as shown in Fig. 3 and are short enough to lie in pairs in longitudinal alignment on each side when nested close to the base plate in this position. When the support device is set up for manikin display, the thumb screws **55** are loosened and the arms **54** are swung outwardly about said screws, so that said arms radiate from the base plate, as shown in full lines in Fig. 2 and in dot and dash lines in Fig. 3. When so extended, the arms **54** steady the device and assure that the center of gravity of the manikin falls within the floor area encompassed by the support device in all

poses of the manikin normally employed, thereby assuring steady anchorage and support of the manikin in all these positions.

In the operation of the device of Figs. 1–6, the arms 54, after loosening of the screws 55, are extended from the base plate 10 if the pose and nature of the manikin require the additional steadying afforded by said arms. The screws 55 are tightened down on the extended arms 54 to lock them in this position. The shoe of the foot of the manikin to be anchored is then placed on the support device with its sole on the base plate 10 and its heel resting on the platform 30. If the heel is of the high type shown in Fig. 4, then the platform 30 need not be raised into sloping position, but may be left flat against the base plate 10, as shown.

With the arms 54 of the support device extended, and the shoe of the manikin set up on the support device as described, the clamp 11 is angularly adjusted about the axis of its hinge 14, by moving the appropriate nuts 24 on the posts 23 to attain the desired elevation of the jaws 18 and 21, moving the limbs 16 and 17 of the clamp 11 against these nuts and tightening the other nuts against said limbs. The adjustments described are so made as to bring the jaws 18 and 21 into position to flank the sides of the shoe above the sole in the flexible parts of said shoe. After this adjustment has been made, the screw 20 is turned to impinge the jaw 21 carried thereby against one side of the shoe, while the jaw 18 presses against the opposite side. Since the jaw 21 has a swivel connection with the screw 20, this screw can be turned without turning this jaw on the shoe, and without therefore marring this shoe. The resulting pressing action of the jaws 18 and 21 on the flexible sides of the shoe is transmitted by these flexible sides with full force against the foot of the manikin inside said shoe, even though said foot is incompletely shaped and even though it has no similarity to the shape of a human foot, thereby binding the shoe and foot together compressively into a firm unit and consequently affording firm anchorage to the manikin, so that it will not topple over.

With the shoe so anchored, if the forward end of the sole of the shoe bends upward, then after the shoe has been clamped in position in the manner described, the slide 51 is angularly adjusted to fit the wedge 50 tightly between the sole and the base plate 10 and the screw 53 is tightened down to prevent rocking of the shoe.

If the shoe has a low heel as shown in Fig. 6, then it may be necessary to lift the platform 30 to impart to the shoe the desired angularity, according to the posture of the manikin. Under these conditions, before clamping the shoe in position, the platform 30 is angularly raised by loosening the screw 48 and pushing the slide 46 inwardly, to cause said platform to rise angularly about the axis of hinges 32 through the agency of the bars 31 and links 35, as shown in Fig. 6. Since the bars 31 flank the shoe, the bars with the platform 30 rigidly secured thereto, are permitted to move angularly up or down, while the sole of the shoe rests directly on the base plate 10. After the desired angularity of the shoe is attained through adjusting manipulation of the slide 46 in the manner described, the screw 48 is tightened down to hold said slide in adjusted position.

The support device after being set for anchorage of the manikin thereto, can be covered easily with a rug G (Fig. 2) around the shoe, to conceal said device, while exposing the shoe. The fact that the support device, even when set up, has its elements close to the base plate 10, permits such concealment.

Figs. 7, 8 and 9 show a modified form of support device, particularly useful in connection with manikins having low heel shoes, or where it may be desired to display manikins in a large number of varying positions requiring sometimes tilting of the shoe at a substantial angle in relation to the horizontal. For that purpose, there is provided a platform 30*a* of generally oblong rectangular shape, long enough to support directly thereon, not only the sole of the manikin's shoe but also the heel. The forward end of the platform 30*a* is pivotally secured to the floor plate 10*a* by a hinge 65.

For lifting the platform 30*a* angularly about the pivot axis of the hinge 65, two parallel links 35*a* are provided flanking opposite sides of the platform, these links being pivotally connected at their forward ends by hinges 36*a* to ears 33*a* extending from the sides of the platform intermediate its ends and being pivotally connected at their rear ends to a cross-bar 37*a* by hinges 38*a*. Each of the hinges 36*a* has a leaf 39*a* secured to a block 40*a* affixed to the top of a corresponding platform ear 33*a* to raise the link 35*a* at its forward end in lowermost position of the link and to prevent thereby dead center locking of the linkage in said position.

For swinging the platform 30*a* about the axis of its hinge 65, there is secured to the middle section of the cross-bar 37*a* a slide 46*a*, movable along the base plate 10*a* and having an elongated slot 47*a* therealong through which extends the shank of a thumb screw 48*a* threaded in said base plate.

The operation of raising and lowering the platform 30*a* for adjustments in the position of the shoe in relation to the horizontal is believed apparent from what has been described in connection with the embodiment of the invention of Figs. 1–6.

In the construction of Figs. 7, 8 and 9, the clamp 11*a* is not supported on the base plate 10*a*, as in the construction of Figs. 1–6, but is rigidly secured to the platform 30*a* for angular movement therewith. This clamp 11*a* is shown comprising a U-shaped frame 12*a*, which has an intermediate section 13*a* and parallel side branches or limbs 16*a* and 17*a* extending for a substantial length in the plane of said intermediate section and which is affixed to the platform 30*a*, as for example by studs 66. The ends of the limbs 16*a* and 17*a* are offset to form legs 68 and 69 upstanding from the platform 30*a* substantially at right angles thereto. The leg 68 terminates at its upper end in a cheek or jaw 18*a* and the other leg 69 has threaded therein at its outer end a screw 20*a*, carrying at one end with a swivel connection a cheek or jaw 21*a* and carrying at its other end a turning knob 22*a*.

The height of the legs 68 and 69 is such as to bring the jaws 18*a* and 21*a* thereon opposite to the flexible sides of the shoe above the sole. Since the sole and heel of the shoe rest on the platform 30*a*, so that the angular position of the shoe on the platform is set in relation to said platform and since the clamp 11*a* is rigidly secured to the platform, no adjustments of the clamp are necessary to maintain the jaws 18*a* and 21*a* in proper relation to the flexible sides of the shoe on the platform.

The construction of Figs. 7 and 8 will need no wedge such as the wedge 50 in the construction of Figs. 1–6, to hold the anchored shoe against rocking action but may have spider arm extensions (not shown) corresponding to the arms 54 in the construction of Figs. 1–6.

Fig. 10 shows a modified form of clamp 11*b*, which may take the place of the clamp 11*a* in the construction of Figs. 7 and 8. This clamp 11*b* has a U-shaped frame 12*b* with an intermediate section 13*b* seated on the platform 30*b* and firmly secured thereto, as for example, by studs 66*b* and limbs or branches 16*b* and 17*b* sloping upwardly from the platform and having bosses 70 extending therealong for part of their length from said intermediate section for seating engagement with said platform. Studs 71 secure these limbs 16*b* and 17*b* to the platform 30*b*.

The outer end of the limb 16*b* terminates in a jaw or cheek 18*b* and the outer end of the limb 17*b* has threaded therein a screw 20*b* carrying at one end by means of a swivel connection a jaw 21*b* and carrying at the other end a turning knob or handle (not shown).

The operation of the clamp 11*b* in Fig. 10 is similar to that of the clamp 11*a* in Fig. 9.

In all of the forms so far discussed, only one support

device is provided for a single shoe and foot of the manikin. The other shoe and foot receives no direct support and may be placed on the floor in any desired position in relation to the anchored shoe and foot. There may be occasions depending on the nature of the manikin and its posture, when it may be desirable to steady the foot and shoe of the manikin which is not firmly anchored to the main support device of the present invention. To that end, in the construction of Figs. 11 and 12, one of the spider arms 54c of the support device, similar to the spider arm 54 in the construction of Figs. 1–6 except for the absence of the intermediate strap 58, has a shoe steadying attachment, comprising a U-shaped spring clip 75 adapted to be snapped onto the unanchored shoe, to straddle and engage this shoe with holding pressure. This clip 75 is pivotally secured at 76 to one end of a bar 77, the other end of which is secured to a slide 78 by means of a screw 80 passing upward through the bar and through the slide and threaded into a thumb nut 81 seated on the slide. The slide 78 has a middle section extending down between the two rods 56 of the arm 54c and seated on the bar 77 and curved ends conformably engaging said rods, whereby the slide can ride along the arm for adjustments, when the thumb nut 81 is loose. Also, when this thumb nut 81 is loose, the bar 77 can be angularly adjusted in relation to the arm 54c. By swinging the clip 75 in any desired angular position in relation to the bar 77, swinging this bar in any angular position in relation to the arm 54c, and adjusting the slide 78 in any desired position along the arm 54c, the foot and shoe of the manikin which are not firmly anchored down to the main part of the support device are steadied in any desired position, as shown in Fig. 11. The clip 75 with its resilient side arms pressing on the flexible sides of the shoe, also grip through these flexible sides of the foot of the manikin inside said shoe. The slide 78 with the bar 77 and clip 75 may be removed from the arm 54c by removal of the nut 81 and screw 80, when it is not desired to employ this attachment during manikin display or during storage and/or transportation.

As far as certain aspects of the invention are concerned, instead of connecting the spring clip 75 to one of the corner spider arms 54c as in the construction of Figs. 11 and 12, the clip may be attached to an arm pivotally mounted on the base plate 10a in any suitable position, and the clip may be mounted on said arm for positional adjustments therealong.

In the construction of Figs. 1–6, the heel supporting platform 30 is shown mounted on the base plate 10 for angular adjustment to accommodate the support device for manikin shoes of different heel heights. In this construction, one end of the platform 30 in all of its adjusting positions, remains pivotally anchored to the platform. However, as far as certain aspects of the invention are concerned, the heel supporting platform may be mounted for elevational translational adjustment, free of angular movement or may be mounted for elevational adjustment combining both translational and angular movements. In the embodiment shown in Fig. 13, the platform 30d is mounted to permit it to be elevationally adjusted, while maintaining it substantially parallel to the base plate 10d. For that purpose, the platform 30d is supported on the base plate 10d by a parallel motion mechanism comprising a pair of parallel links 90 of equal lengths hinged at one end 91 to the base plate and hinged at their other ends 92 to the forward end of the platform 30d near the sides thereof. A pair of links 93 of equal lengths, parallel to the links 90 are hinged at one end 94 to the base plate 10d and hinged at their other ends 95 to the rear end of the platform.

To lift the platform 30d to any desired level, a slide 46d is provided, movable along the base plate 10d and hinged to one end of a link 96, the other end of which is hinged to the midsection of the rear end of the platform 30d. This slide 46d has an elongated slot 47d therealong through which extends the shank of a thumb screw 48d threaded into said base plate. This thumb screw 48d serves as a guide post for the slide 46d, when the screw is loosened and also serves to lock the slide in adjusted position when tightened. A finger knob 49d at the rear end of the slide 46d facilitates manipulation of the slide.

In lowermost position of the platform 30d, the slide 46d is in its forwardmost position with the platform lying almost against the base plate 10d and with the links 90 and 93 folded down between said platform and said base plate. In this position, the rear end of the platform 30d is raised slightly in relation to the front end, by any suitable means, as in the case of the construction of Figs. 1–6, or the entire platform is raised slightly above the base plate 10d, to prevent the links 90 and 93 from being locked in dead center position.

When the slide 46d is pulled back for adjustment, the platform 30d will rise to the desired level, while maintaining a position substantially parallel to the base plate. The platform 30d may be locked in adjusted position through the thumb screw 48d.

The manikin support device of Fig. 13, except as otherwise set forth, may be as shown in Figs. 1–6, and as described in connection with the latter figures. For that purpose, the heel of the manikin shoe would rest on the platform 30d, while the sole would rest on the base plate 10d. This platform 30d would be raised in accordance with the height of the heel and/or the desired angularity of the shoe in relation to the floor.

By making the forward links 90 shorter than the rear links 93, the platform 30d may be made to incline downwardly and forwardly in all adjusted positions of the platform.

Although it has been indicated herein, that the clamp of the support device may be applied to any part of the lower foot extremity of the manikin, i. e. either to the shoe or to the foot above the shoe, the constructions so far illustrated have shown the clamp specifically applied directly to the shoe and through the shoe to the part of the foot inside the shoe. Even though the part of the foot inside the shoe may not be completely formed in the usual manikin, the exposed part of the foot above the shoe is well formed and affords sufficient body to receive effective clamping pressure.

Figs. 14 and 15 show a modified form of adjustable clamp, which may be applied to the foot of the manikin above the shoe. In this modification, the base plate 10e corresponding to the base plate 10 in the construction of Figs. 1–6, supports a clamp 11e comprising a frame 12e having a pair of similar opposed arms or limbs 16e and 17e mounted at their lower ends to the base plate by hinge connections 100 with parallel hinge axes, permitting said limbs to swing towards and away from each other for gripping and releasing action. The upper ends of the limbs 16e and 17e carry jaws 101 respectively and the limbs are extended, so that these jaws come opposite to the foot of the manikin above the shoe, as shown in Fig. 14.

To reduce the obtrusion of the clamp 11e to a minimum, so that the natural appearance of the lower foot extremity of a person may be simulated by the manikin, without too much distraction from the mechanical supporting devices, the limbs 16e and 17e are of angular or L-shape and each has a lower section 102 sloping rearwardly and upwardly and an upper section 103 sloping upwardly and forwardly at an angle of about 90° with the lower limb section 102. With the clamp limbs 16e and 17e angled in this manner, the lower sections 102 of these limbs will extend along the sloping shank or part of the shoe sole in front of the heel, in close proximity to said shank to follow somewhat the outline of the shoe, as shown in Fig. 14, while the upper sections 103 of said limb extend across the shoe to the exposed regions of the foot above the shoe, as shown in

Fig. 14. The clamp **11***e* in this manner will not be too apparent or exposed.

For moving the clamp limbs **16***e* and **17***e* towards each other about the axes of their base hinge connections **100** for gripping action, there is provided a screw **105**, one end of which is anchored to the limb **17***e* at the knee between its sloping sections **102** and **103**, the other threaded end section passing freely through the knee of the other limb **16***e* and carrying a wing nut **106**. The opening in the limb **16***e* through which the screw **105** passes affords sufficient clearance for said screw to permit movements of the limbs **16***e* and **17***e* towards and away from each other.

The limbs **16***e* and **17***e* may be curved to follow the curvature of the sides of the shoe, if the nature of the shoe warrants it, to bring the jaws **101** into engagement with the foot above the shoe, or the jaws may be in the form of buttons as shown, long enough to grip the foot, even though the limbs may be flat.

The clamp **11***e* is shown hingedly supported on a base plate **10***e* which may correspond to the base plate **10** in the construction of Figs. 1–6. In that case, the sole of the shoe would be supported on the base plate **10***e*, while the heel would be supported on an adjustable platform (not shown) corresponding to the platform **30** in the construction of Figs. 1–6. However, the clamp **11***e* of Figs. 14 and 15 may also, if desired, be hingedly connected to an adjustable platform corresponding to the platform **30***a* in the construction of Figs. 7–9, in which the sole and heel of the shoe rest on the platform, and the platform with the clamp thereon is adapted to be angularly adjusted.

Although the clamp **11***e* of Figs. 14 and 15 is shown applied directly to the exposed parts of the manikin's foot above the shoe, it can be dimensioned and designed for direct gripping action on the sides of the shoe and in turn upon the parts of the foot inside the shoe.

Figs. 16 and 17 show still another modified form of clamp **11***f*, which in certain respects is similar to the clamp **11***e* of Figs. 14 and 15. This clamp **11***f* comprises a frame **12***f* having arms or limbs **16***f* and **17***f* connected to a base plate **10***f* by hinge connections **100***f* with parallel hinge axes, permitting said limbs to swing towards and away from each other for gripping and releasing action. The upper ends of the limbs **16***f* and **17***f* carry jaws **101***f* respectively and the limbs are extended to regions opposite the foot of the manikin above the shoe, as shown in Fig. 17.

The movement of the limbs **16***f* and **17***f* towards and away from each other for gripping or releasing action, is effected by means of a screw **105***f*, one end of which is anchored to the limb **17***f*, while the other threaded end section passes through the other limb **16***f* with clearance and carries a wing nut **106***f*.

The limbs **16***f* and **17***f* may be L-shaped as in the construction of Figs. 14 and 15, but in the specific form shown, the angularity of the limbs is less acute. For that reason, the lower sections **102***f* of the limbs **16***f* and **17***f* are shown extending straight upwardly substantially at right angles to the base plate **10***f*, while the upper sections **103***f* slope upwardly and forwardly to cause said upper sections to extend obliquely across the shoe, as in the case of Figs. 14 and 15.

In the construction of Figs. 16 and 17, the upper sections **103***f* of the limbs **16***f* and **17***f* are curved sideways and outwardly to present confronting concave faces following approximately the curvature of the side regions of the shoe along which these limb sections are adapted to extend. These upper curved limb sections **103***f* may have some clamping action on the sides of the shoe itself, while the jaws **101***f* press and grip the exposed parts of the foot above the shoe. In this way, more effective anchorage of the manikin is assured.

The clamp **11***f* is shown hingedly supported on a base plate **10***f* which may correspond to the base plate **10** in the construction of Figs. 1–6, but as in the case of the construction of Figs. 14 and 15, the clamp may be hingedly connected to an adjustable platform corresponding to the platform **30***a* in the construction of Figs. 7–9.

In Figs. 14–17, the clamps are shown applied directly to the exposed parts of the manikin's foot above the shoe, although as far as certain aspects of the invention are concerned, they could be dimensioned and designed for direct gripping action on the sides of the shoe and in turn upon the parts of the foot inside the shoe. In the construction of Figs. 18 and 19, however, the clamp **11***g* is constructed and mounted for swinging adjustment forwardly and rearwardly of the support device, to allow the jaws thereon to grip selectively either the sides of the shoe or the exposed parts of the foot above the shoe. In this construction of Figs. 18 and 19, the clamp **11***g* comprises a frame **12***g* having limbs **16***g* and **17***g* connected at their lower ends to the ends of a cross-shaft **108** by means of hinge connections **100***g* with parallel hinge axes, permitting said limbs to swing towards and away from each other for gripping and releasing action. The shaft **108** is mounted in a bearing **110** secured to a base plate **10***g* permitting said shaft to be turned to adjust the angularity of the limbs **16***g* and **17***g* in one direction, according to the style of the manikin's shoe and the part of the lower foot extremity of the manikin to be gripped by the clamp.

The upper ends of the limbs **16***g* and **17***g* carry jaws **101***g* respectively, and these limbs, except for their hinge connections, may be similar to the limbs **16***f* and **17***f* in the construction of Figs. 16 and 17. A screw **105***g*, anchored at one end to the limb **17***g* and passing with clearance through the limb **16***g*, and a wing nut **106***g* on said screw, serve as means by which the clamp **11***g* may be pressed against the foot extremity and releasably locked in pressing position.

By means of the construction of Figs. 17 and 18, the limbs **16***g* and **17***g* of the clamp **11***g* are mounted for universal movement, permitting said clamp to grip the exposed parts of the manikin's foot above the shoe, in one angular position of the clamp, as shown in full lines in Fig. 18 or to grip the sides of the shoe directly, in another angular position of the clamp, as shown in dot and dash lines.

The clamp **11***g* is shown hingedly supported on a base plate **10***g* which may correspond to the base plate **10** in the construction of Figs. 1–6, but as in the case of the constructions of Figs. 14–17, the clamp may be hingedly connected to an adjustable platform corresponding to the platform **30***a* in the constructions of Figs. 7–9.

While the invention has been described with particular reference to specific embodiments, it is to be understood that it is not to be limited thereto, but is to be construed broadly and restricted solely by the scope of the appended claims.

What is claimed is:

1. A support device for a display figure having lower portions simulating legs and lower foot extremities, comprising a base adapted to extend along the underside of a foot extremity, a platform for directly supporting at least a part of the underside of the foot extremity, said platform being adjustably secured to said base for elevational adjusting movement in relation to said base, a manipulable member on said base guided for movement along the top of said base, means responsive to the movement of said member along the top of said base for moving said platform elevationally in relation to said base, and means for clamping the lower foot extremity for anchorage to the support device.

2. A support device for a display figure having lower portions simulating legs and lower foot extremities, comprising a base plate presenting a seat for a sole part of a foot extremity, a platform for directly supporting the heel part of the foot extremity while the sole part rests on said seat, said platform having a yieldable connection to said

base plate permitting said platform to be raised and lowered in relation to said base plate in accordance with the elevation of the heel part, a slide on said base plate having an elongated slot therein, screw means comprising a screw passing through said slot and attached to said base plate to guide said slide for movement in the longitudinal direction of said slot when said screw means is loose and to lock said slide in position when said screw means is tight, means connecting said slide to said platform to move said platform up and down in relation to the base plate upon adjusting movement of said slide in said direction, and means for clamping the lower foot extremity in position with the sole part on the seat of the base plate and the heel part on said platform for anchorage to the support device.

3. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, comprising a base adapted to extend along the underside of a shoe, a support for directly seating the underside of the shoe in the vicinity of the heel while the sole of the shoe rests directly on the base, means securing the support to said base for movement up and down in relation to the base, while maintaining the sole of the shoe on the base, to accommodate for different heights of shoe heels or to adjust for the angularity of the shoe, means for locking the support in adjusted position, and means for clamping the lower foot extremity in adjusted position with the sole resting directly on the base for anchorage to the support device.

4. A support device for a display figure as described in claim 3, wherein said clamping means comprises a clamp connected to said base for adjusting movement up and down in relation to said base and having a pair of opposed jaws adjustably movable relatively towards and away from each other and located in position to flank the opposite sides of the lower foot extremity above the sole of the shoe and to grip the lower foot extremity above the sole upon the closing of the jaws, and means for locking the clamp in adjusted position.

5. A support device as described in claim 3, wherein said support securing means pivotally mount said support to permit said support to be angularly adjusted in relation to said base.

6. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, comprising a base adapted to be supported on a floor surface, a support for the shoe, means adjustably mounting the support on the base permitting the elevation of the support to be adjusted in relation to the base, a clamp having a pair of jaws located in relation to said base and said support to flank the opposite sides of the shoe above the sole of the shoe while said shoe is on said support in any adjusted position of said support, means supporting said jaws for relative adjusting movements towards and away from each other within a range, means for positively holding said jaws in any adjusted position within said range against relative movement away from each other, and screw means for moving said jaws relatively towards each other to cause said jaws to apply screw pressure to the sides of the lower foot extremity of the display figure above the sole to hold the lower foot firmly in relation to said base.

7. A supporting device as described in claim 6 wherein said support is a platform in the form of a plate for directly supporting the sole and heel parts, said platform resting flat against the base when the supporting device is not in use, said support mounting means being operable to raise angularly the platform for adjustment from position flat against said base.

8. A support device for a display figure having lower portions simulating legs and lower foot extremities, comprising a base adapted to extend along the underside of a foot extremity, a platform for directly supporting at least the heel part of the foot extremity, means mounting the platform to the base and including linkage means hinged to said platform and to the base by which said platform may be swung for elevational adjustment, a slide guided along said base, linkage means hinged to said platform and to said slide, to cause said platform to swing for elevational adjustment upon movement of said slide, means for locking the slide in adjusted position, and means for anchoring the foot extremity with its heel part resting on said platform.

9. A support device for a display figure having lower portions simulating legs and lower foot extremities, comprising a base adapted to extend along the underside of a foot extremity, a platform for directly supporting at least the heel part of the foot extremity, a support member rigid with said platform and extending from said platform forwardly to the base, a hinge connection between said support member and said base having its axis extending in a direction transverse to the longitudinal direction assumed by the foot extremity in anchored position, a pair of substantially parallel links flanking said platform and extending along said direction, a cross-bar between said links near the rear ends thereof, said links being hinged at one end to the sides of said platform and being hinged at the other end to said cross-bar, a slide affixed to the intermediate section of said cross-bar and extending rearwardly along said direction, whereby upon adjusting movement of said slide along said direction, said platform is moved angularly up and down about said hinge axis, means for locking the slide in adjusted position, and means for anchoring the foot extremity with its heel part resting on said platform.

10. A support device for a display figure having lower portions simulating legs and lower foot extremities bearing shoes, comprising a base plate adapted to support directly thereon a shoe of the display figure, means for clamping said shoe in position to said base plate to anchor said display figure, and means for propping the shoe against rocking movement due to the upward bend of the forward end of the sole of the shoe away from said base plate, and comprising a wedge, and means adjustably securing said wedge to said base plate in position to permit said wedge to be lodged between the tip of said shoe sole and said base plate.

11. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, comprising a base adapted to extend along the underside of one of the shoes, a clamp on said base having a pair of opposed jaws spaced apart sufficiently to flank the opposite sides of the shoe and spaced above said base a distance greater than the thickness of the sole of the shoe to grip the lower foot extremity above the sole upon the closing of the jaws on the lower foot extremity while the sole of the shoe rests directly on said base, means supporting said jaws for relative adjusting movements towards and away from each other within a range and permitting the jaws to be spread apart relatively and sufficiently to allow the shoe to be passed therebetween in setting up, adjusting or removing the display figure, means for positively holding said jaws in any adjusted position within said range against relative movement away from each other and screw means above said base for moving said jaws relatively towards each other to cause said jaws to apply holding screw pressure to the sides of the lower foot extremity of the display figure above the sole.

12. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, comprising a base adapted to extend along the underside of a shoe, a clamp on said base having a pair of opposed jaws adjustably movable relatively towards and away from each other and located in position to flank the opposite sides of the shoe above the sole of the shoe and to grip the lower foot extremity above the sole upon the closing of the jaws, screw means for moving said jaws relatively towards each other while holding the jaws positively against relative movement away from each other to

apply screw clamping pressure to the sides of the lower foot extremity of the display figure above the sole of the shoe, and means mounting the clamp for elevational adjustment between a position above the sole of the shoe but below the top of the shoe and a position above the top of the shoe to permit the selective location of its jaws either in position to grip directly the sides of the shoe and thereby compress the shoe above the sole and foot therein into a tight unit or in position to circumvent the shoe and grip the exposed sides of the foot above the shoe.

13. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, comprising a base adapted to extend along the underside of one of the shoes, a clamp on said base comprising a pair of spaced limbs flanking the shoe, jaws on the inner confronting faces of said limbs respectively, each presenting a clamping surface spaced inwardly from the inner face of the corresponding limb and having an area smaller than the area of said inner face, whereby clamping pressure is applied by said jaws in concentrated areas of the lower foot extremity, said jaws being spaced apart sufficiently to flank the opposite sides of the shoe and spaced above said base a distance greater than the thickness of the sole of the shoe to grip the lower foot extremity above the sole upon the closing of the jaws on the lower foot extremity while the sole of the shoe rests directly on said base, means supporting said jaws for relative adjusting movements towards and away from each other within a range and permitting the jaws to be spread apart relatively sufficiently to allow the shoe to be passed therebetween in setting up, adjusting or removing the display figure, means for positively holding said jaws in any adjusted position within said range against relative movement away from each other, and screw means above said base for moving said jaws relatively towards each other to cause said jaws to apply holding screw pressure to the sides of the lower foot extremity of the display figure above the sole.

14. A support device for a display figure having lower portions simulating legs and lower foot extremities including shoes, each shoe having an open space between the heel and the sole, comprising a base adapted to extend along the underside of a shoe, and a U-shape clamp on the part of said base where the open space of the shoe would be located when the shoe is on the base in operative position of the support device having a pair of opposed jaws spaced apart sufficiently to flank the opposite sides of the shoe and spaced above said base a distance greater than the thickness of the sole of the shoe to locate said jaws above the sole of the shoe, means supporting said jaws for relative outward adjusting movements away from each other and for relative inward adjusting movements towards each other, and means including a screw stem above said base having a connection to at least one of the jaws, for moving said jaws relatively inward towards each other and for applying the screw pressure from said stem to at least one of the jaws in a direction towards the other jaw, while positively holding said jaws against relative outward movements, to cause the jaws to grip the lower foot extremity above the sole upon the closing of the jaws.

15. A support device as described in claim 14, wherein said clamp has opposed limbs carrying the respective jaws, the means supporting said jaws for relative adjusting movements comprising hinge means mounting at least one of said limbs for swinging movement towards and away from the other to open and close the jaws, said screw stem being operatively connected to said hinged limb to swing said hinged limb towards the other limb for clamping action.

16. A support device as described in claim 15, wherein the upper sections of said limbs are curved to define concave confronting faces to snugly and substantially conformably receive the sides of the shoe, when the lower foot extremity is clamped.

17. A support device as described in claim 14, wherein said clamp has opposed limbs carrying the respective jaws, the means supporting said jaws for relative adjusting movements comprising universal mounting means for said limbs, permitting said limbs to move angularly towards and away from each other about axes extending in parallel directions to close and open the jaws and to move angularly about axes extending substantially at right angles to said directions to adjust the elevation of said jaws in relation to said base, said screw stem being operatively connected to both limbs to move said limbs angularly towards each other for clamping action.

18. A support device as described in claim 14, wherein said clamp has limbs carrying the respective jaws, said limbs having respective lower sections inclined to follow generally the outline of the shank of the shoe and located to lie close to said outline in clamping position.

19. A support device for a display figure having lower portions simulating legs and lower foot extremities, comprising a base adapted to extend along the underside of a foot extremity and defining a seat for a part of the underside of the foot extremity, a support on said base for directly seating another part of the underside of the foot extremity, while the first mentioned part is resting on said seat, said support being adjustably secured to said base for adjusting movement up and down in relation to said base, to accommodate for the inclination of said other part of said foot extremity in relation to said base, and a clamp mounted on said base and including screw means above said base for clamping the foot extremity with screw pressure for anchorage to said base.

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