Dec. 27, 1938. D. ROBERTS 2,142,005

KNOCK-DOWN STRUCTURE

Filed Dec. 27, 1937 2 Sheets-Sheet 1

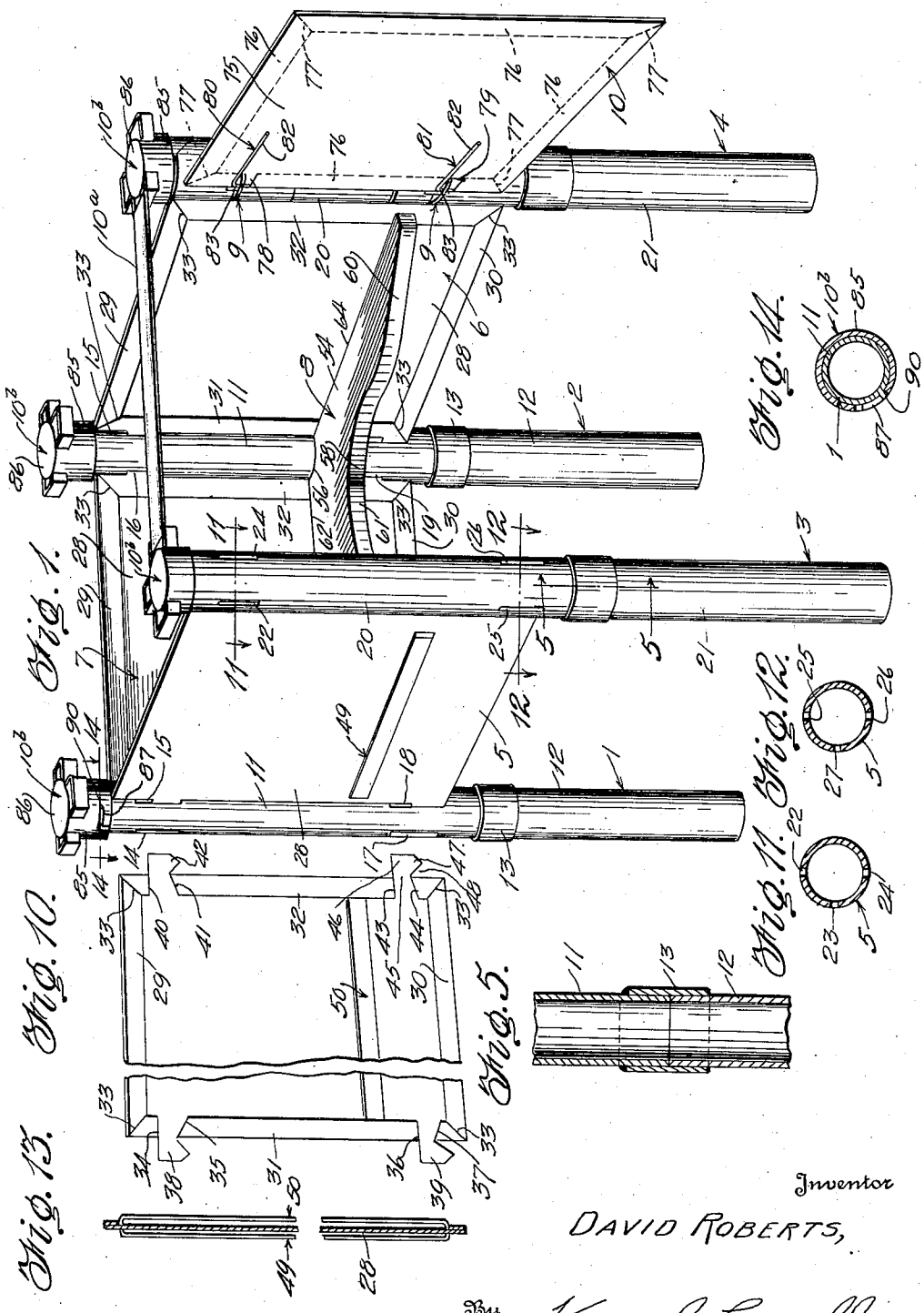


Fig. 1.

Fig. 4.

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 5.

Inventor

DAVID ROBERTS,

By Kimmel & Crowell,

Attorneys

Dec. 27, 1938. D. ROBERTS 2,142,005

KNOCK-DOWN STRUCTURE

Filed Dec. 27, 1937 2 Sheets-Sheet 2

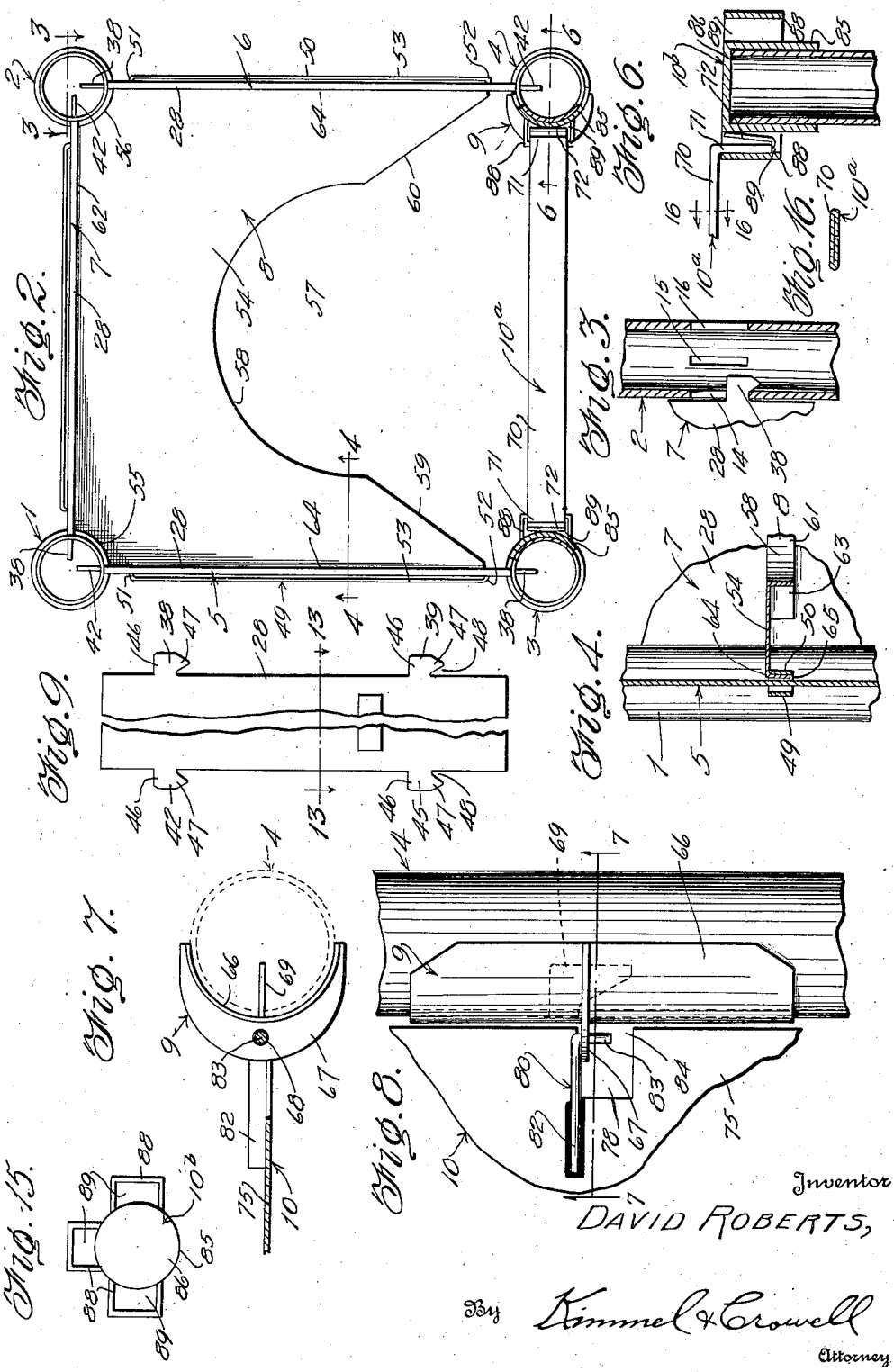


Fig. 2.

Fig. 6.

Fig. 10.

Fig. 3.

Fig. 4.

Fig. 9.

Fig. 7.

Fig. 8.

Fig. 15.

Inventor
DAVID ROBERTS,

By Kimmel & Crowell
Attorneys.

Patented Dec. 27, 1938 2,142,005

UNITED STATES PATENT OFFICE

2,142,005

KNOCK-DOWN STRUCTURE

David Roberts, Sedalia, Mo.

Application December 27, 1937, Serial No. 181,924

8 Claims. (Cl. 20—3)

This invention relates to a knock-down structure designed primarily for use, when assembled, as a voting booth, but it is to be understood that a structure in accordance with this invention is for employment in any connection for which it may be found applicable.

As is well known, it is the practice in many counties, between election days, to place voting booths of the canvas type in the care of someone living in a township; usually the constable. However, despite the care that is taken of them, the booths are often destroyed or seriously damaged from one election to the other. Rain, rats, rot and insects take their toll, and the booths become soiled or impaired to an extent to prevent their use at a coming election.

It is the aim of this invention to overcome the objections referred to with respect to a booth of the canvas type and to such end the invention consists in providing in a manner as hereinafter set forth a voting booth formed of a set of metallic interengageable elements so formed as to enable them of being expeditiously assembled to provide a durable voting booth and of being quickly disassembled and arranged in a compact manner for storage.

The invention further aims to provide, in a manner as hereinafter set forth, a strong, durable, voting booth of the knock-down type having the elements thereof of metallic material of novel form and of simple construction, and with such elements so constructed to readily engage one with another, to assemble the booth in a rigid manner and to be quickly disengaged for the purpose of dismantling the booth when desired.

The invention further aims to provide, in a manner as hereinafter set forth, a strong, durable, compact voting booth which is comparatively inexpensive to manufacture; pleasing in appearance; having the elements thereof capable of being washed when desired; and with the elements so formed to enable their quick assembling in detachable relation to provide the booth and their quick disassembling to knock down the booth.

To the above ends essentially and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawings wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a perspective view of the booth in open position,

Figure 2 is a top plan view of the booth,

Figure 3 is a section on line 3—3, Figure 2,

Figure 4 is a section on line 4—4, Figure 2,

Figure 5 is a section on line 5—5, Figure 1,

Figure 6 is a section on line 6—6, Figure 2,

Figure 7 is a section on line 7—7, Figure 8,

Figure 8 is a fragmentary view in elevation of the structure shown in Figure 7,

Figure 9 is an elevation broken away looking towards the outer face of a back wall or either one of the side wall forming elements,

Figure 10 is a fragmentary view in elevation looking towards the inner face of a back wall or a side wall forming element,

Figures 11 and 12 are respectively sections on lines 11—11 and 12—12, Figure 1,

Figure 13 is a section on line 13—13, Figure 9,

Figure 14 is a section on line 14—14, Figure 1,

Figure 15 is a top plan view of the form of combined locking and coupling caps, and

Figure 16 is a section on line 16—16, Figure 6.

The booth shown in Figure 1 is what is termed a master booth, and to the sides thereof may be attached what are termed annex booths or in other words, when a bank of booths are set up, the bank will include a master booth and one or more annex booths detachably connected with and extended laterally from one side of the master booth. The latter will consist of a pair of spaced front corner posts, a pair of spaced rear corner posts, a pair of side wall forming elements, a door forming element, a rear wall forming element, a coupling bar between the front corner posts, a shelf forming element, a pair of hinge connection elements for the door element and a combined locking and coupling cap on the upper end of each corner post. Each annex booth will consist of a front and rear corner post, a back wall forming element, a side wall forming element, a shelf forming element, a door forming element, a pair of hinge connection elements for the door, a coupling bar and a combined locking and coupling cap on said front and rear posts. When a bank of booths is set up the rear corner posts are of like form; the back wall forming elements are of like form; the side wall forming elements are of like form; the front corner posts are of like form; the door forming elements are of like form; the shelf forming elements are of like form; the door hinge connection elements are of like form; the caps are of like form; and the coupling bars are of like form.

With reference to Figure 1, it illustrates what is termed a master booth, and if an annex booth is attached to each side of the master booth, each annex booth will have as a part thereof one of the front and rear corner posts and one side wall forming element of the master booth, a back wall forming element, a side wall forming element, a rear corner post, a front corner post, a door forming element, hinge connection elements and a coupling bar between one of the front corner posts of the master booth and the front corner post of the annex booth.

The corner posts are interchangeable and the back and side wall forming elements are also interchangeable. The corner posts are of like form. The side wall forming elements are of like form and the back wall forming element corresponds in form to the side wall forming elements.

With reference to Figure 1, the master booth includes a pair of rear corner posts 1, 2 of like form, a pair of front corner posts 3, 4 of like form, a pair of side wall forming elements 5, 6 of like construction, a back wall forming element 7, a shelf forming element 8, a pair of hinge connection elements 9 of like form (Figures 7 and 8), a door forming element 10, a bracing bar or element 10a and combined latching and coupling caps 10b of like form.

Preferably, the rear corner posts 1, 2 will be of tubular form and are so shown. The posts 1, 2 are constructed from metallic material, are of the same length and preferably will consist of a pair of sections which are to be coupled together in endwise abutting relation. The sections of each of the rear corner posts are indicated at 11, 12. One end terminal portion of the section 11 has secured thereto and extended therefrom a coupling sleeve 13. When the sections 11 and 12 are coupled together, one end of the section 12 extends into the sleeve 13 and abuts an end of the section 11. The inner diameter of the sleeve 13 is such with respect to the outer diameter of section 12 to provide for the latter to frictionally engage with the inner face of the said sleeve 13 whereby the sections 11 and 12 are coupled together in endwise relation. The section 11 of each rear corner post is formed near its upper end with spaced slots 14, 15, 16 lengthwise thereof. The slot 15 is spaced ninety degrees from the slots 14, 16. The slots 14, 16 are spaced one hundred eighty degrees apart. The slots 14, 16 are diametrically opposed. The slot 15 is arranged in the front of the section 11. Slots 14, 16 are arranged in opposite sides of the section 11. When the corner posts 1, 2 are coupled together and set up in upstanding position, the slot 14 of the section 11 of the corner post 1 aligns with the slot 14 of the section 11 of the corner post 2. The slots 16 of the sections 11 of the rear corner post are used when connecting annex booths to the master booth. The section 11 of each corner post is provided in proximity to the sleeve 13 with a set of spaced slots 17, 18 and 19, which vertically align in spaced relation with the slots 14, 15, 16 respectively of such section. Although each of the front corner posts preferably will be formed of two sections, it is to be understood that each may be formed of a single length of material. The slots 14, 15, 16 are termed an outer set. The slots 16, 17, 18 are termed an inner set.

The front corner posts 3, 4 are of like form and each is constructed in the same manner as, and is of the same length as the rear corner posts. The sections of each front corner post are indicated at 20, 21, the outer set of slots at 22, 23, 24, the inner set of slots at 25, 26, 27 and the coupling sleeve at 28. The slots 22, 25 are arranged in the back of the sections 20 and align with the slots 15 of the sections 11. The slots 23, 24 of post 3 are arranged respectively in the outer side and in the front of the section 20 of post 3. The slots 23, 24 of post 4 are arranged respectively on the inner and outer sides of the section 20 of post 4. The slots 26, 27 of post 3 are arranged respectively in the outer side and front of the section 20 of the post 3. The slots 27, 28 of post 4 are arranged respectively on the inner side and front of the section 20 of post 4.

The back wall forming element, as well as each side wall forming element consists of a rectangular panel 28 formed of sheet metal of the desired gauge. The marginal portions of the panel are bent against the inner face of the latter throughout, to provide the folds 29, 30, 31 and 32. The folds are mitered as at 33. The folds constitute reinforcements for the panels. The fold 31 is slitted, at 34, 35 and at 36, 37. The material freed by the slits 34, 35 is bent outwardly to provide an attaching lug 38. The material freed by the slits 36, 37 is bent outwardly to provide an attaching lug 39. The fold 32 is slitted as at 40, 41 and the material freed by such slits is bent outwardly to provide an attaching lug 42. The fold 32 is slitted as at 43, 44 and the material freed by such slits is bent outwardly to form an attaching lug 45. The attaching lugs extend from the side edges of the panel. The slits in the folds 31, 32 are so formed whereby each attaching lug (Figure 9) will consist of a rectangular part 46 and a tapered part 47 extending from the inner side of the part 46. The part 47 is arranged in spaced relation to the side edge of the panel 28 thereby providing a gullet 48. The attaching lugs are arranged between the transverse median and ends of the panel 28. Secured to the inner and outer faces of the panel 28, in proximity to the lugs 39, 45 are suspension members 49, 50 of strap-like form. The members 49, 50 are arranged in alignment and each consists of a pair of end portions 51, 52 and an intermediate portion 53 which is offset with respect to the portions 51, 52. The members 49, 50 are oppositely disposed and the end portions 51, 52 are suitably anchored to the panel 28 in proximity to its side edges.

The shelf forming element 8 consists of a body part 54 formed of sheet metal of the desired gauge, and having oppositely disposed rounded inner corners 55, 56. The body part 54 is formed with a cutout 57 opening at the front thereof when the shelf is set up. The shelf constitutes what may be termed a desk. The cutout 57 has a substantially semi-circular edge portion 58 and a pair of oppositely outwardly inclined edge portions 59, 60. Formed integral with the body portion 54 and coextensive with the edge of cutout 57, as well as disposed at right angles to the outer face of body part 54 is a flange 61 which is vertically disposed when the shelf is mounted in position. Formed integral with the rear edge 62 of the body part 54 and arranged between the corners 55, 56 of such body part is a flange 63 disposed at right angles with respect to the latter and depends from body part 54 when shelf 8 is mounted in position. Each side edge 64 of body part 54 has formed integral therewith a flange 65 which is disposed at right angles with respect to body part 64 and depends from the latter when the shelf 8 is mounted in position. The flanges 65

extend from the corners 55, 56 to the front end of body part 54.

Each hinge connection 9 (Figures 7 and 8) consists of a semi-cylindrical body portion 66 formed intermediate its outer periphery with a crescent-shaped extension 67 provided centrally thereof with an opening 68. The extension 67 is disposed at right angles to the body part 66. The inner face of body part 66 on its lengthwise median has formed integral therewith an angle-shaped attaching lug 69 disposed in lengthwise relation with respect to said inner face and extending inwardly from the latter. The element 9 is constructed from sheet metal of the desired gauge.

The door forming element 10 consists of a rectangular panel 75 formed of sheet metal of the desired gauge. The marginal portions of the panel 75 are bent inwardly against one face thereof to form folds 76 which are mitered, as at 77. The panel 75 is cut out at spaced points as at 78, 79. The cutouts are aligned in spaced relation and open at an edge of panel 75. Anchored to one face of the panel 75 is a pair of spaced aligned hinge members 80, 81 consisting of a leg 82 and a leg 83 disposed at right angles to the outer end of leg 82. The legs 82 are anchored to the panel 75 and each aligns with what would be the upper wall of a cutout when the element 10 is mounted in position. The legs 83 align with the open ends of the cutouts, but said legs 83 are of such length that they terminate above those walls of the cutouts which are disposed parallel to the walls of the cutouts with which the legs 82 align. The manner of setting up the legs 83 with respect to the cutouts form passages 84 (Figure 8) for a purpose to be referred to.

The bracing bar or element 10^a is formed from a length of sheet metal having an intermediate part and a pair of end parts of materially less width than the said other part. The side edges of the end parts are spaced equi-distant from the side edges of the intermediate part. The end parts are termed extensions. The web other than the extensions is folded from each side upon itself to provide element 10^a to include a flat body part 70 of a cross sectional contour as shown by Figure 16. The end terminal portions of body part 70 are bent to form a pair of depending legs 71, only one shown. The lower ends of the leg 71 merge into upstanding inwardly inclined resilient latching members 72 provided by the extensions at the ends of the intermediate part of the web. After the legs 71 are formed the said extensions are bent upwardly and inclined to provide the members 72.

The combined latching and coupling caps 10^b are of like form and each consists of an annular cap-like body 85 closed at its upper end, as at 86, and opening at its lower end. The body 85 is provided with a circumferentially extending bayonet-shaped slot 87. Formed integral with the outer face of body 85 is a set of three radially disposed yokes 88 disposed in equi-spaced relation at right angles to each other to form in connection with body 85 closed loops 89. The yokes 88 extend from three sides only of the body 85. The slot 87 is arranged below the yokes. The latter at their upper ends are flush with the top edge of a corner post. The slots 87 coact with lateral pins 90 on the corner posts for detachably connecting the caps and posts together and with the caps positioned on the upper ends of the posts. The caps bearing on the top edges of the side and back wall forming elements and latch them in position. The inwardly extending aligned yokes of the caps on the front corner posts receive the legs 71 of the element 10^a and with the body part 70 of the latter seating on the top edges of such yokes. When element 10^a is mounted as aforesaid, the members 71 bind against the bodies of the caps on the front corner posts for latching element 10^a in bracing position with respect to the front of the booth.

It will be assumed that the rear corner posts 1, 2 have been assembled. The back wall forming element is then detachably connected to the sections 11 of the corner posts 1, 2 by the lugs of said back wall forming element engaging in the slots 14, 17 of the sections 11. A side wall forming element is then attached to the section 11 of the corner post 1 by certain of its lugs engaging in the slots 15, 18 of the section 11 of the corner post 1 and the other lugs of the side wall forming element engaging in the slots 22, 25 in the section 20 of the front corner post 3. The other side wall forming element 6 is connected to the section 11 of the rear corner post 2 by certain of the attaching lugs of element 6 engaging in the slots 15, 18 of section 11. The other attaching lugs of the element 6 are engaged in the slots 22, 25 in the section 20 of the front corner post 4. The shelf 8 is then mounted in position by positioning the flange 63 thereof rearwardly of the suspension 50 on the element 7, and the flanges 65 of shelf 8 are then positioned between the body parts of the elements 5, 6 and the suspension members carried by such elements. The shelf when mounted in position is supported upon the suspension members 50 carried by the elements 5, 6 and 7. The caps 10^b are then connected to the upper ends of the front and rear corner posts.

The hinge connection elements 9 may be attached to corner post 3 of corner post 4 and are shown by way of example as attached to corner post 4. The lugs 69 of the elements 9 are inserted into the slots 23, 27 of section 20 of the post 4. The extensions 67 project laterally from section 20 of post 4. The door forming element 10 through the medium of the cutouts 78, 79 is then positioned to overlap and the legs 83 of members 80, 81 pass downwardly through the openings 68 in the extensions 67 whereby the door will be hingedly supported from the corner post 4 and when swung open will appear as shown in Figure 1. After the element 10 has been hingedly connected to the post 4, the coupling bar 10^a is then mounted into position and has the legs 71 thereof extend in and latched to the inwardly extended aligned yokes 88 of the caps 10^b on the front corner posts. After the elements and the coupling bar have been assembled in a manner as referred to, the booth will appear as shown in Figure 1.

When the elements 6, 7 and 8 are mounted in position, the corner posts engage in the gullets 48 provided by the tapered parts 47 of the attaching lugs 42, 45 and the manner in which said lugs are set up functions to retain the elements 5, 6 and 7 in position, relative to the corner posts. When the elements 5, 6 and 7 are set up the lugs thereon overlap a part of the inner faces of the corner post and also seat on the bottom walls of those slots through which they extend.

The connections between the elements 5, 6 and 7 and the corner ports are of detachable

form; and this statement applies to the connections between the shelf and suspension members, the connections between the elements 9 and a corner post; the connection between the element 10 and elements 9, and the connections between the coupling or bracing bar and the front corner posts whereby the booth may be quickly knocked down or disassembled when desired.

What I claim is:—

1. In a knock-down structure for the purpose set forth, a pair of rear and a substantially rigid pair of front corner posts, a rear wall forming element of panel-like form, said rear posts and element having superposed coacting interengaging means for detachably connecting them together, said element having its coacting means extended from its side edges, a substantially rigid pair of side wall forming elements of panel-like form, each arranged between a rear and a front corner post, each side wall forming element and the posts between which it is arranged having superposed coacting interengaging means for detachably connecting them together, each of said side wall forming elements having its coacting means extended from its front and rear edges, a pair of spaced apertured superposed hinge connection elements, one of said corner posts and said hinge connection elements having superposed coacting means for detachably connecting the hinged connection elements in superposed spaced relation to such corner post, and a substantially rigid door element of panel-like form having superposed spaced means engaging in the apertures of the hinge connection elements for pivotally suspending the door element relative to the corner post to which the hinge connection elements are detachably connected.

2. In a knock-down structure for the purpose set forth, a pair of rear and a substantially rigid pair of front corner posts, a rear wall forming element of panel-like form, said rear posts and element having superposed coacting interengaging means for detachably connecting them together, said element having its coacting means extended from its side edges, a substantialy rigid pair of side wall forming elements of panel-like form, each arranged between a rear and a front corner post, each side wall forming element and the posts between which it is arranged having superposed coacting interengaging means for detachably connecting them together, each of said side wall forming elements having its coacting means extended from its front and rear edges, a pair of spaced apertured superposed hinge connection elements, one of said corner posts and said hinge connection elements having superposed coacting means for detachably connecting the hinged connection elements in superposed spaced relation to such corner post, a substantially rigid door element of panel-like form having superposed spaced means engaging in the apertures of the hinge connection elements for pivotally suspending the door element relative to the corner post to which the hinge connection elements are detachably connected, and a bracing bar having means at its ends detachably coacting with the upper ends of the front corner posts for detachably connecting such posts together.

3. The structure as set forth in claim 1 having each of the corner posts thereof formed of a pair of tubular sections and means carried by one of the sections and frictionally engaging with the other of said sections for detachably connecting the sections in endwise aligned relation, one of the sections of each of said legs having its coacting means in the form of an inner and an outer set of spaced slots disposed lengthwise thereof.

4. In a knock-down voting booth, a pair of rear corner posts, a pair of front corner posts, a substantially rigid back wall arranged between and detachably connected to the rear corner posts, a pair of substantially rigid side walls, each arranged between and detachably connected to a rear corner post and a front corner post, said walls being of panel-like form, a substantially rigid shelf, said side walls and shelf having coacting means for detachably maintaining said shelf in abutting relation with the inner faces of the back and side walls and rear corner posts, a pair of superposed semi-cylindrical members detachably connected to one of said front corner posts and each having its outer face formed with a laterally disposed apertured extension, and a substantially rigid door of panel-like form having superposed hinge members seated on and detachably extending through the apertures in said extensions whereby the door is hinged to such front corner post.

5. In a knock-down voting booth, a pair of rear corner posts, a pair of front corner posts, a substantially rigid back wall arranged between and detachably connected to the rear corner posts, a pair of substantially rigid side walls, each arranged between and detachably connected to a rear corner post and a front corner post, said walls being of panel-like form, a substantially rigid shelf, said side walls and shelf having coacting means for detachably maintaining said shelf in abutting relation with the inner faces of the back and side walls and rear corner posts, a pair of superposed semi-cylindrical members detachably connected to one of said front corner posts and each having its outer face formed with a laterally disposed apertured extension, a substantially rigid door of panel-like form having superposed hinge members seated on and detachably extending through the apertures in said extensions whereby the door is hinged to such front corner post, and a bracing bar detachably engaging with the upper end of the front corner posts for coupling the latter together.

6. The structure as set forth in claim 4 having said walls and door of less height than the corner posts, the detachable connections between said walls and the corner posts being superposed and positioned at spaced points of the upper portions of the posts.

7. In a knock-down structure for the purpose set forth, a pair of substantially rigid rear and a pair of front corner posts, a rear wall forming element of panel-like form, said rear posts and element having coacting interengaging means for detachably connecting them together, a pair of substantially rigid side wall forming elements of panel-like form, each arranged between a rear and a front corner post, each side wall forming element and the posts between which it is arranged having coacting interengaging means for detachably connecting them together, a pair of spaced apertured hinge connection elements, one of said corner posts and said hinge connection elements having coacting means for detachably connecting the hinged connection elements in spaced relation to such corner post, a substantially rigid door of panel-like form having spaced means engaging in the apertures of the hinge connection elements for pivotally sus-

pending the door element relative to the corner posts to which the hinge connection elements are detachably connected, combined latching and coupling caps mounted on the upper end of each of the corner posts and seating on the top edges of the side and rear wall forming elements, and said posts and caps having coacting means for removably connecting the caps and posts together.

8. The structure as set forth by claim 7 having combined therewith a bracing bar detachably connected at its ends to the caps on the front corner posts.

DAVID ROBERTS.