

May 3, 1955

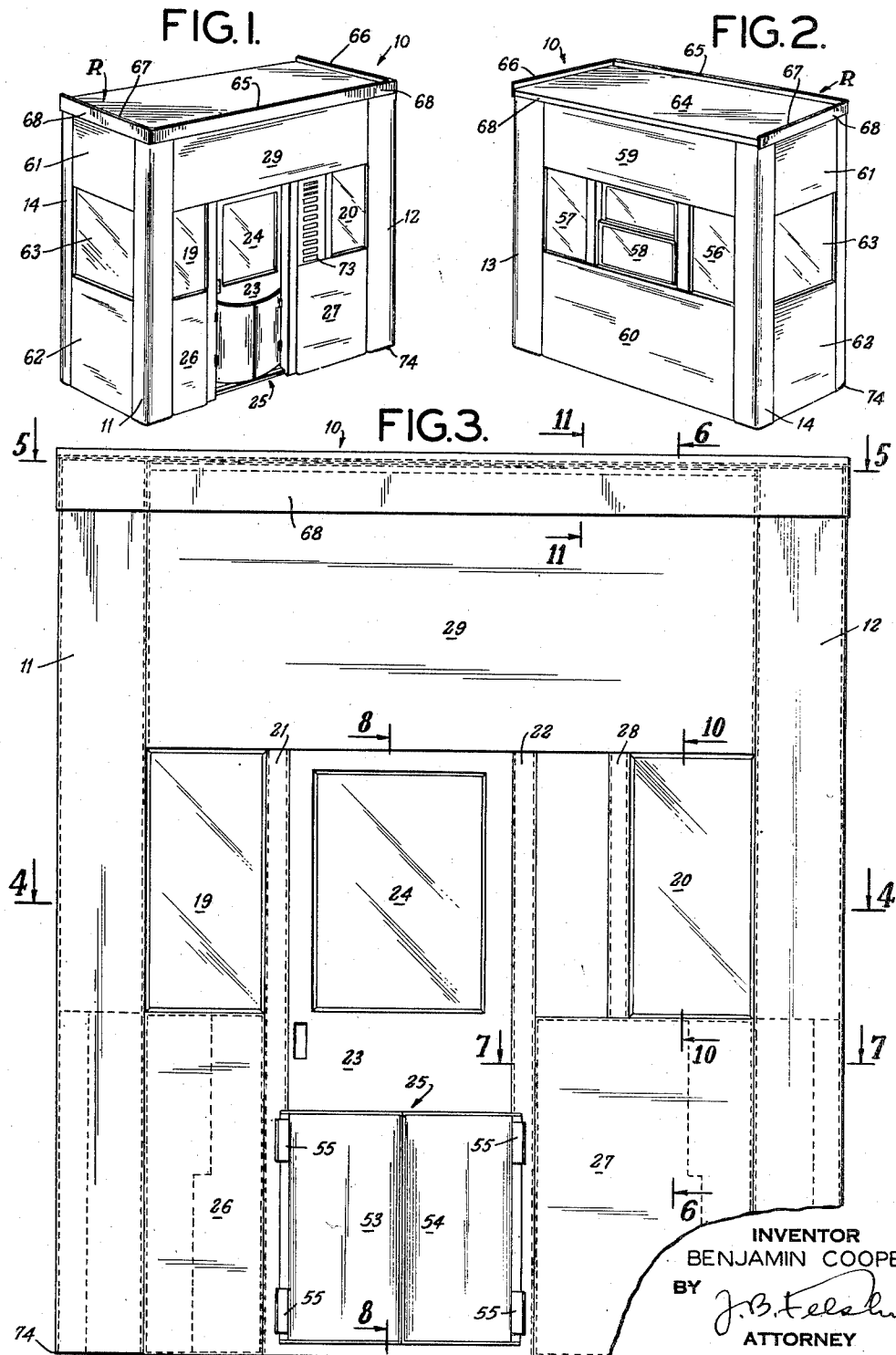
B. COOPER

2,707,426

PREFABRICATED TOLL COLLECTION BOOTHS

Filed July 21, 1950

4 Sheets-Sheet 1



May 3, 1955

B. COOPER

2,707,426

PREFABRICATED TOLL COLLECTION BOOTHS

Filed July 21, 1950

4 Sheets-Sheet 3

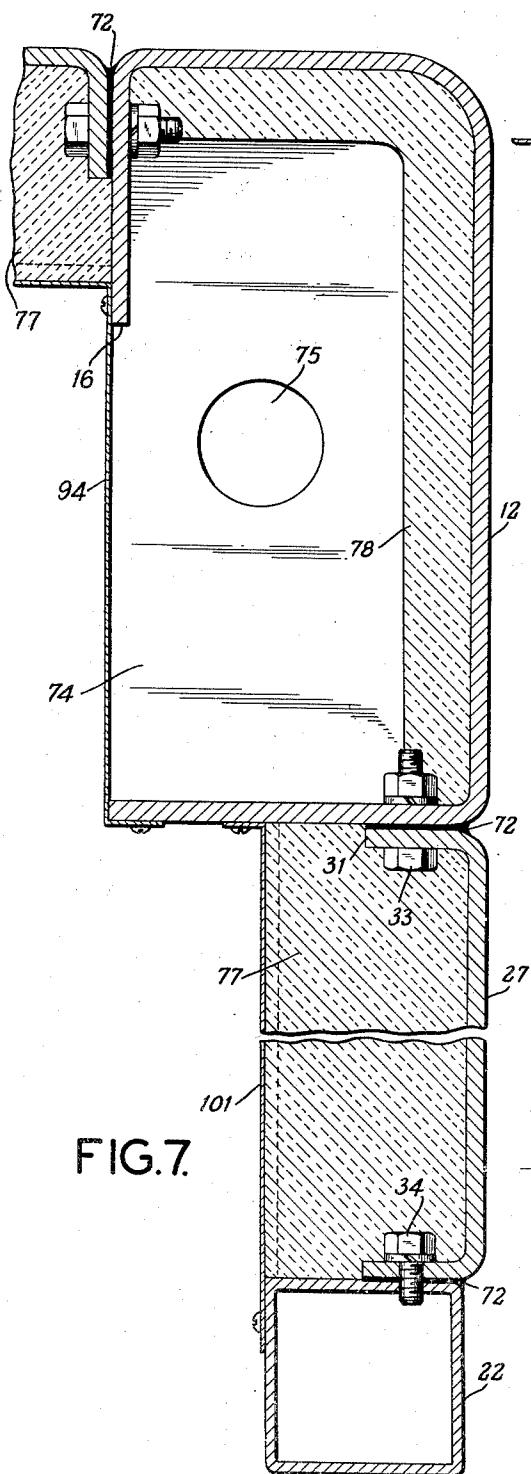


FIG. 7.

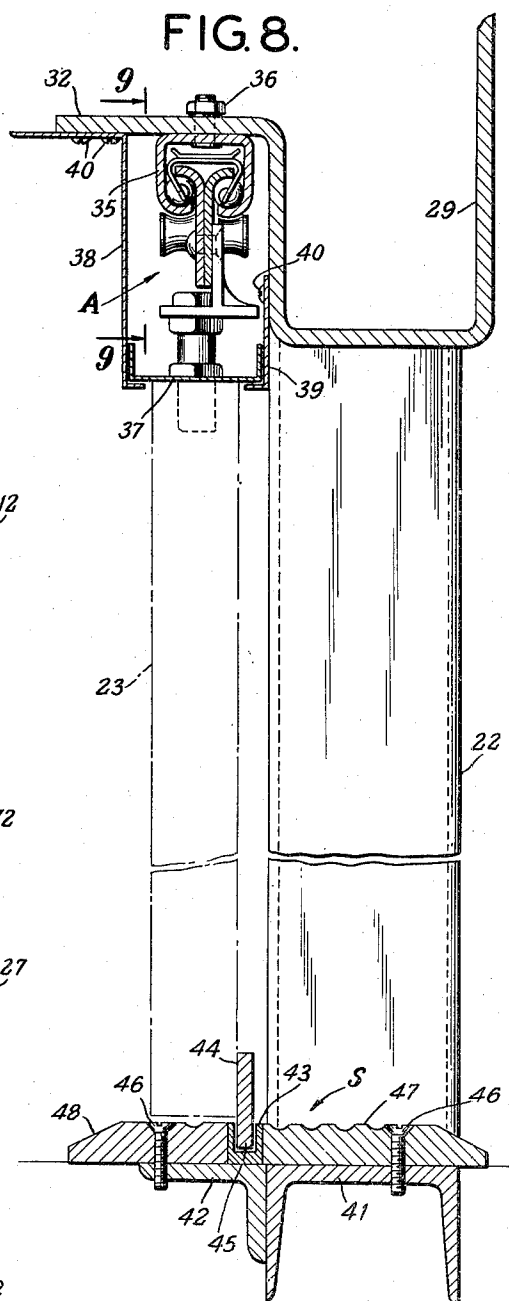


FIG. 8.

INVENTOR
BENJAMIN COOPER
BY *J. B. Feelskin*
ATTORNEY

May 3, 1955

B. COOPER

2,707,426

PREFABRICATED TOLL COLLECTION BOOTHS

Filed July 21, 1950

4 Sheets-Sheet 4

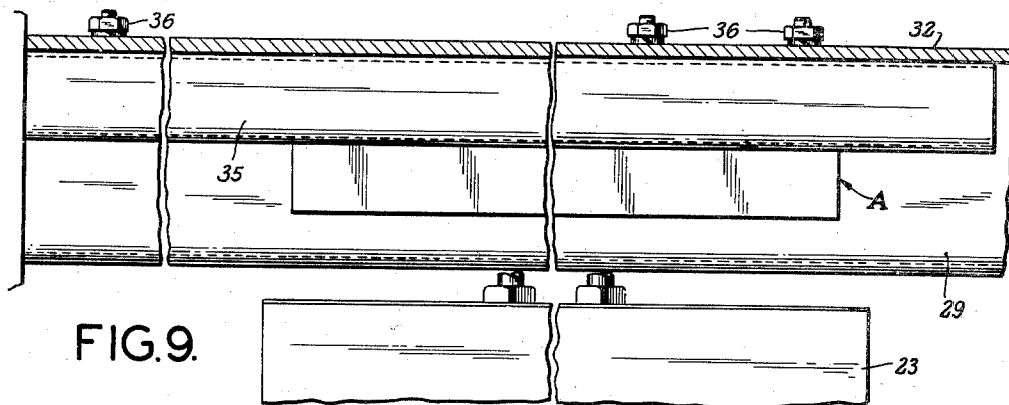


FIG. 9.

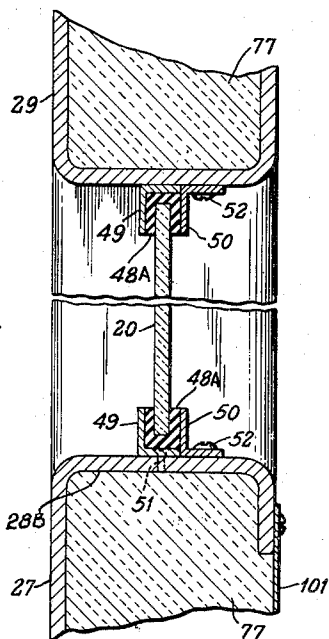


FIG. 10.

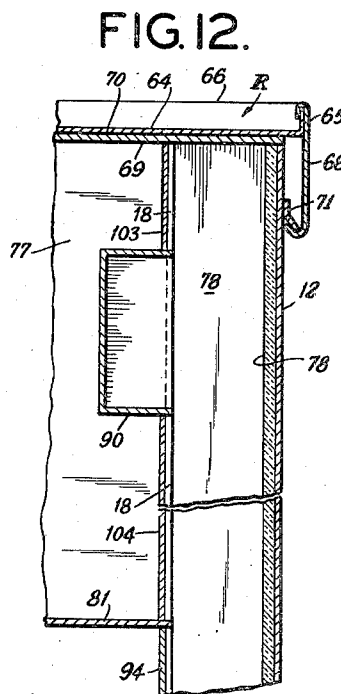


FIG. 12.

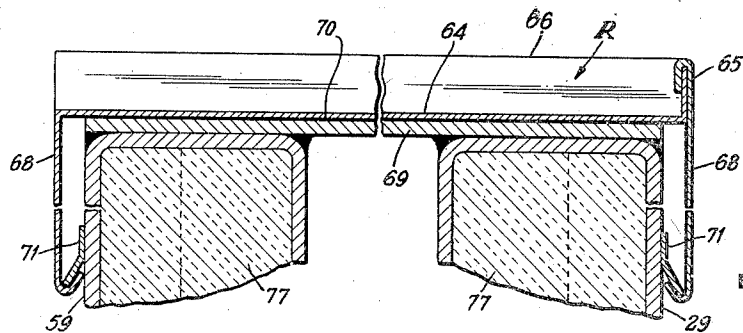


FIG. 11.

INVENTOR
BENJAMIN COOPER
BY *J. B. Felskin*
ATTORNEY

1

2

2,707,426

PREFABRICATED TOLL COLLECTION BOOTHS

Benjamin Cooper, New York, N. Y.

Application July 21, 1950, Serial No. 175,132

3 Claims. (Cl. 98—33)

This invention relates to prefabricated constructions and is directed particularly to prefabricated highway toll collection booths.

In the past, highway toll collections booths were constructed at their site on the highway. Evidently, thinking in terms of ordinary construction methods, it was believed that a prefabricated toll booth would either be too fragile to withstand the abuse of transportation from the factory, or too expensive if made extra-strong so as to undergo such handling without damage.

The advantages of constructing such a unit at the factory, where materials, machines, tools etc., are available in efficient organization are manifest.

The present invention, because of its unique features, succeeds for the first time in making a prefabricated toll collection booth practical.

One of the objects of this invention is to provide a prefabricated toll collection booth that is simple and functional and at the same time strong enough to withstand the possibility of rough handling during transportation.

Another object of this invention is to provide a prefabricated toll collection booth that can be completely equipped at the factory, so that it remains only to fix it at the highway location and connect the usual service lines to complete the installation.

Another object of this invention is to provide a prefabricated toll collection booth having a central heating system wherein main structural members of the booth serve additionally as hot air conduits.

Another object of this invention is to provide a prefabricated toll collection booth that, as a unit, for strength and simplicity, is constructed like a steel structural member.

Another object of this invention is to provide a prefabricated toll collection booth having outer walls comprised of easily replaceable panels so that wall sections damaged in use can be readily and inexpensively renewed.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention:

Fig. 1 is a front elevational view, in perspective, of a toll booth embodying the invention;

Fig. 2 is a rear elevational view, in perspective, of a toll booth embodying the invention;

Fig. 3 is a front elevational view of a toll booth embodying the invention;

Fig. 4 is a horizontal cross-sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a horizontal cross-sectional view taken on line 5—5 of Fig. 3;

Fig. 6 is a vertical cross-sectional view taken on line 6—6 of Fig. 3;

Fig. 7 is an enlarged cross-sectional view rotated through ninety degrees taken on line 7—7 of Fig. 3;

Fig. 8 is a sectional view taken on line 8—8 of Fig. 3;

Fig. 9 is a sectional view taken on line 9—9 of Fig. 8;

Fig. 10 is a sectional view taken on line 10—10 of Fig. 3;

Fig. 11 is a sectional view taken on line 11—11 of Fig. 3; and

Fig. 12 is a partial sectional view taken on line 12—12 of Fig. 5.

Referring now in detail to the drawings, 10 represents a prefabricated toll booth in accordance with this invention. Said booth comprises four column members, 11, 12, 13 and 14, which are preferably fabricated of steel and which form the horizontal corners of the booth. These column members are formed, as seen in cross-section, in the general shape of a rectangle, with rounded corners and with the greater part of the inner side open, as at 15, 16 and 17 and 18 respectively (Figs. 4 and 5).

The front of the toll booth, between column members 11 and 12, comprises two fixed windows 19 and 20, door frame posts 21 and 22, window post 23, a sliding door 23 having in its upper part a fixed window glass 24, a Dutch door 25 at the outside of said sliding door and enclosing the lower part thereof, and formed panels 26, 27 and 29.

Panels 26 and 27 are of sheet steel bent into U-shape at the top and bottom as at 28a and 28b in panel 27 (Fig. 6). The vertical ends of said panels are inwardly bent to form sides 30 and 31 (Fig. 4).

Panel 29 differs in construction only in that it has a horizontal extension 32 from its lower U-shaped conformation (Figs. 6 and 8).

Panels 26 and 27 are bolted along sides 30 and 31 to column members 11 and 12 respectively as by bolts 33 (Fig. 4). Panel 29 is similarly bolted between column members 11 and 12. Vertical door posts 21 and 22 are fixed, respectively, to panels 26 and 27 as by screws 34 tapped into said posts (Fig. 7). Window post 28 is welded between panels 27 and 29.

Sliding door 23 is supported in the usual manner by means of a hanger assembly A slidable in a hanger guide member 35, mounted as by bolts 36 along the underside of extension 32 of panel 29 (Figs. 8 and 9). Said hanger assembly is covered by a bottom cover member 37 at the top of said door, and side cover members 38 and 39 mounted as by screws 40 in panel 29, as shown in Fig. 8.

At the bottom of and welded between door posts 21 and 22 is a channel member 41. Welded along the inner side of said channel member and running along the upwardly extending portion at the bottom of panel 27, and welded thereto, is an angle iron 42. There is fixed to the top of said angle iron and along its length a U-shaped guide member 43. There is fixed along the bottom of sliding door 23 a guide piece 44 having an extending portion 45 slidably disposed in said guide member.

Mounted, as by screws 46, on the upper surface formed by channel member 41 and angle iron 42 is a door saddle S, comprising outer part 47 and inner part 48.

Windows 19 and 20 are mounted in rubber channels 48A held in place as by L-shaped brass members 49 and 50 screwed to the sides of the window frames as by screws 51 and 52 respectively (Fig. 10).

Dutch door 25 comprises a curved left half 53 and a curved right half 54 mounted by spring hinges 55 fixed to door posts 21 and 22. Said door is normally held shut by said spring hinges.

The rear of the toll booth, between column members 13 and 14, comprises two fixed windows, 56 and 57, a

3

double hung window 58, thereinbetween, and formed panels 59 and 60. Panel 59 is similar to panel 29. Panel 60 is similar to panels 26 and 27, differing only in that it extends the entire length of the booth from column member 13 to column member 14. Said panels are bolted to said column members in the same way that the front panels are bolted to their respective column members. A standard steel frame double hung window 58 is bolted between the lower end of panel 59 and the upper end of panel 60 in a similar fashion. Windows 56 and 57 are fixed in their openings in the same way that front windows 19 and 20 are mounted in their respective openings as hereinbefore detailed.

The vertical ends of the toll booth are identical and comprise formed plates 61 and 62, bolted to their respective column members, and fixed windows 63 mounted in the same way as the other fixed windows hereinabove detailed. Upper panels 61 are similar in construction to panels 29 and 59, and lower panels 62 are similar to panels 26, 27 and 60.

The top of the toll booth comprises a steel plate 69 welded to the top ends of column members 11, 12, 13 and 14 and to the upper ends of panels 29, 59 and 61, and a sheet-metal roof R capped over the top of the booth and slightly inclined so as to shed water to the rear. Said roof comprises a top portion 64, upwardly extending flange portions 65, 66 and 67 at the front and ends respectively, and a downwardly extending peripheral skirt 68 (Figs. 1, 2, 6 and 11). Interposed the top of the booth and roof R is a layer of tarred felt 70. Said roof is secured in place by being bent, at the bottom of skirt 68, under a locking member 71 welded around the periphery of the toll booth near its top (Fig. 11).

For the purpose of weather-proofing the toll booth structure, there are interposed the bolted surfaces of the panels, column members and door posts, layers of lead strip 72, peened at the outer end so as to present an artistic contour to the outer surfaces of the booth (Fig. 7).

The rectangular opening in the front of the toll booth between door post 22, window post 23 and panels 27 and 29 may preferably accommodate the usual toll collection and classification indicator panel 73 (schematically shown in Fig. 1) employed to visually indicate to a customer that his fare has been registered.

Each of the column members 11, 12, 13 and 14 is enclosed at its lower end by plates 74, welded thereto. Said plates each have a centrally located circular opening 75 through which stud bolts may pass for fixing the toll booth at its site of location on the highway. Column members 11 and 13 are further provided with openings 76 to allow for the entrance of service conduits and toll system wiring. Column members 12 and 14 are reserved as hot air conduits for the hot air heating system, hereinbelow detailed.

For the purpose of heat and cold insulation each of the inner surfaces of the panels 26, 27, 29, 59, 60, 61 and 62 is lined with a three inch thickness of insulation material 77. The inner surfaces of the column members 11, 12, 13 and 14 are insulated with a thinner layer of insulation 78. Within the booth, for the purpose of supporting a ceiling, there are two angle irons 79 and 80 welded between panels 29 and 59 and fitted so as to have a surface in a plane common with the underside surfaces of horizontal extension portions 32 of the panels. The ceiling comprises three sections of metal plate 81, 82 and 83 held as by screws to said supporting surfaces (Fig. 5 and 6).

For the purpose of heating the toll booth, there is mounted between said ceiling and the top of the booth a standard forced-circulation steam heating unit 84. This heating unit may be one such as Model No. 4121W Heating Unit manufactured by the Warren Webster Co. of Camden, New Jersey. Such a heater comprises an electric circulating fan 84A adapted to force air past a heating coil 84B. The heating coil may be electrically energized or may be, as in the present instance, steam heated from a remote source. Said heating unit is bolted against

4

a pair of channel irons 85 and 86 welded against the inner surface of panel 59 (Figs. 5 and 6).

Cold air from the booth is drawn into the heating unit through an opening 87 in ceiling section 82, and the heated air is blown from the top of said heating unit through a rectangular sheet-metal duct 88 extending towards the front of the booth. Said duct opens into separate column connecting ducts 89 and 90, duct 89 communicating with the opening 18 in column member 14 and duct 90 communicating with the opening 16 in column member 12 (see Fig. 12). Said column connecting ducts are provided with canvas connector sections 91 and 92 in order to prevent the transmission of mechanical vibration from the heating unit to the rest of the heating system (Fig. 5).

It is now evident that cold air is drawn from the top of the booth into the heater, where it is heated and forced through the ducts and down through column members 12 and 14. Side openings 16 and 18 of said channel members are closed as by cover plates 93 and 94 extending from the ceiling to within about 18 inches of the floor of the booth. Said side openings above the ceiling are also closed as is shown by cover plates 103 and 104 on column 12 in Fig. 12.

There is provided at each end of the toll booth a toll collector counter-desk 95 having money drawers 96. The lower right hand side of said desk is provided with a hot air register opening 97 through which the hot air from the heater unit passes out into the toll booth. The lower left side of said counter-desk, being readily accessible to opening 76 and the one or the other of channel members 11 and 12, preferably contains electrical equipment in connection with the toll collection system. Openings 15 and 17 in channel member 11 and 13 between the counter-desk and the ceiling are provided with cover plates 98 and 99 screwed to said channel members.

The inner sides of panels 26, 27 and 60 are covered by flat cover plates 100, 101 and 102 respectively, screwed thereto by self-tapping screws (Figs. 4 and 6).

It will thus be seen that there is provided a toll collection booth in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment set forth, it is to be understood that all matters herein described or shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In combination, a booth structure comprising four hollow vertical corner supporting columns, each of said columns comprising a substantially C-shaped member having a pair of outer walls at right angles to each other and a pair of flanges extending inwardly at right angles from the ends of said walls, a bottom end plate secured to the bottom end of said column, cover plates secured to the respective flanges substantially closing said columns to provide a hollow chamber therein, front, rear and side panels, interposed between and interconnecting said columns, a roof at the upper ends of said columns and panels, a ceiling disposed within the booth below the roof and below the upper ends of said columns and supported on said panels, air circulating means having an air inlet at its lower end and an air outlet at its upper end, said air circulating means being mounted between said ceiling and said roof and said inlet communicating with an opening in said ceiling, a conduit interconnecting said outlet with an opening in the upper end of at least one of said columns above the ceiling and adjacent to the roof, a chamber within the booth and below the ceiling communicating with the lower end of said column and provided with an opening communicating with the interior of the booth below the ceiling, whereby air

5

may be circulated by said air circulating means from said inlet through said circulating means, through said conduit and said column, and through said chamber to the interior of the booth below the ceiling.

2. In combination, a booth structure comprising four hollow vertical corner supporting columns, each of said columns comprising a substantially C-shaped member having a pair of outer walls at right angles to each other and a pair of flanges extending inwardly at right angles from the ends of said walls, a bottom end plate secured to the bottom end of said column, cover plates secured to the respective flanges substantially closing said columns to provide a hollow chamber therein, front, rear and side panels, interposed between and interconnecting said columns, a roof at the upper ends of said columns and panels, a ceiling disposed within the booth below the roof and below the upper ends of said columns and supported on said panels, air circulating means having an air inlet at its lower end and an air outlet at its upper end, said air circulating means being mounted between said ceiling and said roof and said inlet communicating with an opening in said ceiling, a pair of conduits, each interconnecting said outlets with a respective opening in each of a pair of diagonally oppositely disposed supporting columns, a pair of chambers within the booth and below the ceiling connecting respectively with an opening in the lower end of each of said columns and each being provided with an opening therein connecting with the interior of the booth below the ceiling, whereby air may be circulated by said air circulating means from the inlet through said circulating means, through said conduits and said supporting columns, and through said chambers to the interior of the booth below the ceiling.

3. In combination, a booth structure comprising four hollow vertical corner supporting columns, each of said columns comprising a substantially C-shaped member having a pair of outer walls at right angles to each other and a pair of flanges extending inwardly at right angles from the ends of said walls, a bottom end plate secured

6

to the bottom end of said column, cover plates secured to the respective flanges substantially closing said columns to provide a hollow chamber therein, front, rear and side panels, interposed between and interconnecting said columns, a roof at the upper ends of said columns and said panels, a ceiling disposed within the booth below and parallel to the roof and supported on said panels, air circulating means having an air inlet at its lower end and an air outlet at its upper end, said air circulating means being mounted between said ceiling and said roof and said inlet communicating with an opening in said ceiling, a conduit interconnecting said outlet with an opening in the cover plate of at least one of said columns above the ceiling and adjacent to the roof, a chamber within the booth and below the ceiling communicating with an opening in the cover plate at the lower end of said column, and said chamber being provided with a second opening communicating with the interior of the booth below the ceiling, whereby air may be circulated by said air circulating means from said inlet through said circulating means, through said conduit and said column, and through said chamber to the interior of the booth below the ceiling.

References Cited in the file of this patent

UNITED STATES PATENTS

288,260	Post	Nov. 13, 1883
1,044,230	Newhall et al.	Nov. 12, 1912
1,356,950	Whittredge	Oct. 26, 1920
1,723,097	Thompson	Aug. 6, 1929
1,929,776	Faber	Oct. 10, 1933
2,028,627	Sherron	Jan. 21, 1936
2,140,691	Crump	Dec. 20, 1938
2,182,690	Cole	Dec. 5, 1939
2,234,590	Evans et al.	Mar. 11, 1941
2,300,848	Shelton	Nov. 3, 1942
2,328,928	Sherron	Sept. 7, 1943
2,349,144	Corso	May 16, 1944
2,532,268	Christmann	Nov. 28, 1950