F. P. MARTIN.

CULVERT FORM.

APPLICATION FILED JAN. 8, 1918.

1,275,457.

Patented Aug. 13, 1918.

3 SHEETS—SHEET 1.

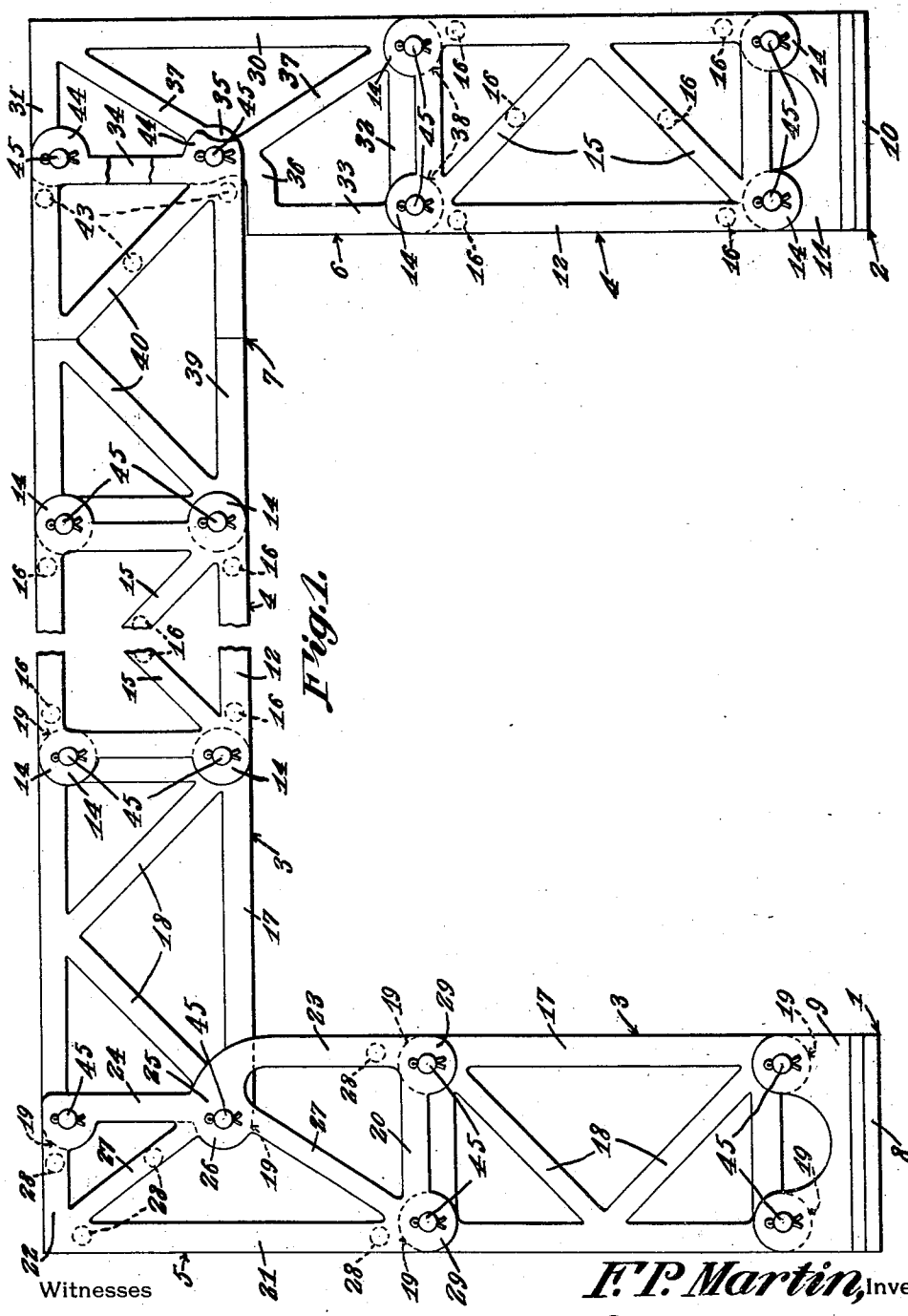


Fig. 1.

Witnesses

J. R. Towles

F. P. Martin, Inventor

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. P. MARTIN.

CULVERT FORM.

APPLICATION FILED JAN. 8, 1918.

1,275,457.

Patented Aug. 13, 1918.

3 SHEETS—SHEET 2.

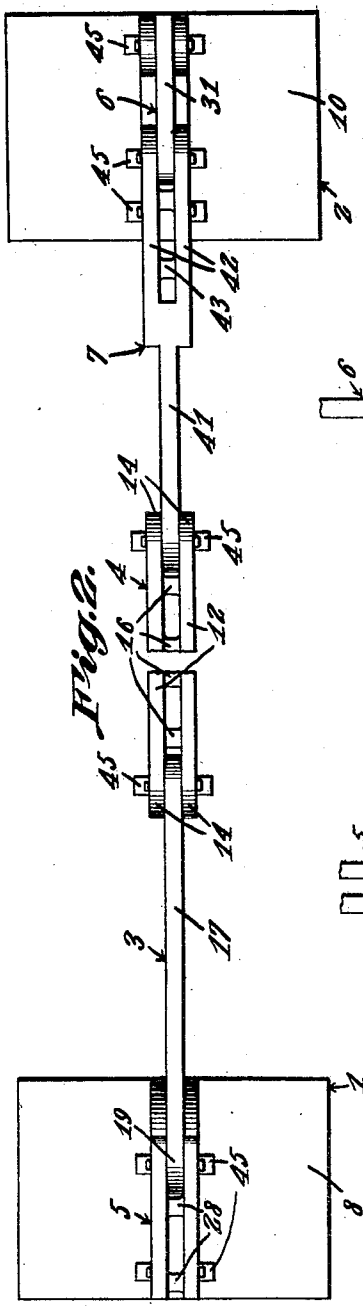


Fig. 2.

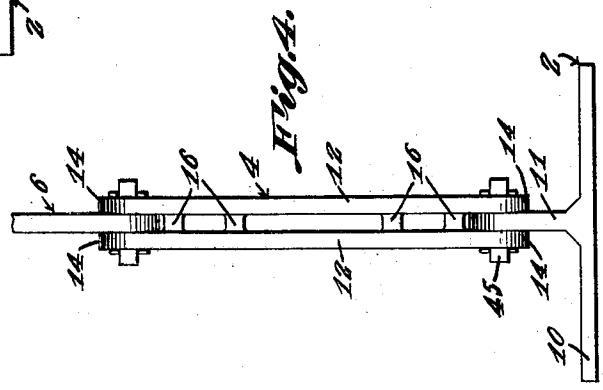


Fig. 4.

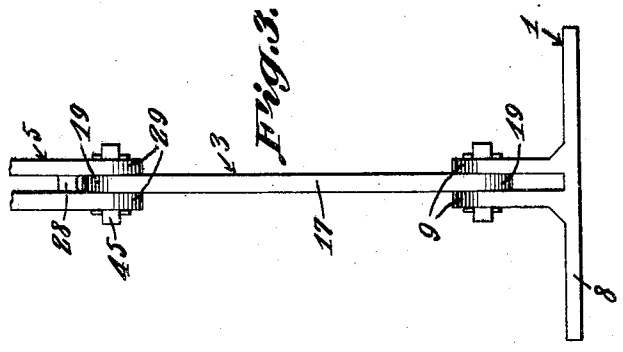


Fig. 3.

Witnesses

J. R. Tomlin

F. P. Martin, Inventor

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. P. MARTIN.

CULVERT FORM.

APPLICATION FILED JAN. 8, 1918.

1,275,457.

Patented Aug. 13, 1918.

3 SHEETS—SHEET 3.

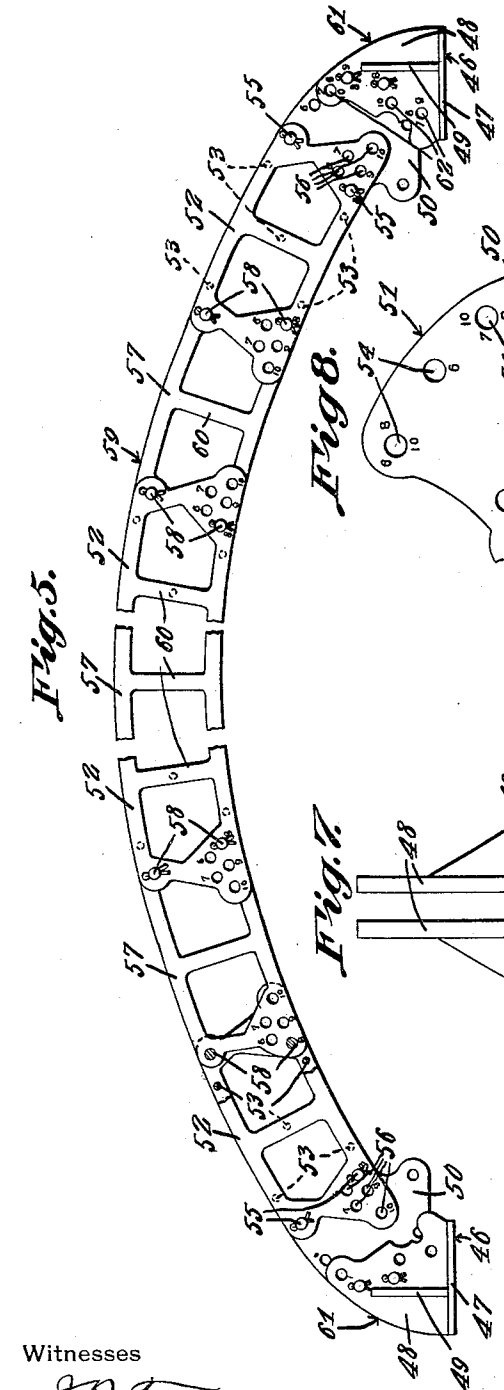


Fig. 5.

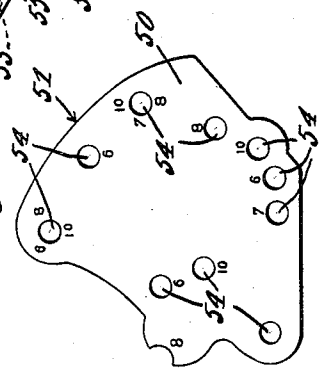


Fig. 8.

Fig. 7.

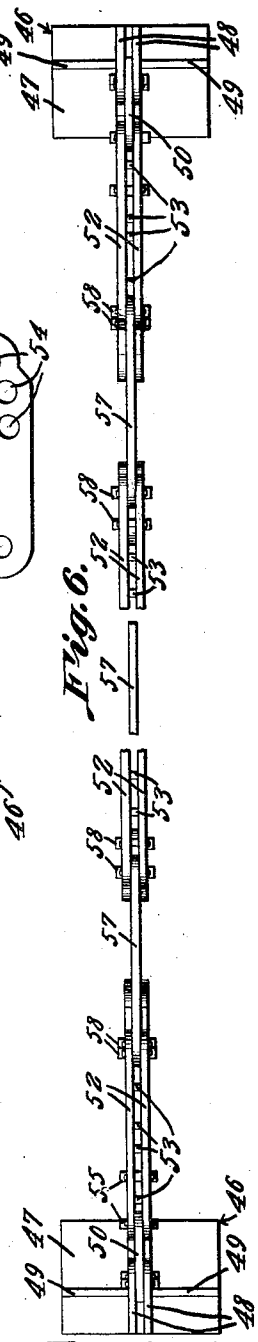


Fig. 6.

Witnesses

J. R. Stanley

F. P. Martin, Inventor

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRED PAYNE MARTIN, OF OTTAWA, KANSAS.

CULVERT-FORM.

1,275,457. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed January 8, 1918. Serial No. 210,927.

To all whom it may concern:

Be it known that I, FRED P. MARTIN, a citizen of the United States, residing at Ottawa, in the county of Franklin and State of Kansas, have invented a new and useful Culvert-Form, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for supporting a form of the kind on which arches, culverts and the like are built, the device being of peculiar utility when concrete structures are being erected.

The device is in the form of an arch, either of rectangular or curved outline, and it is one object of the invention to secure, by a simple means, the necessary adjustments both as to outline and as to dimensions.

Another object of the invention is to provide an arch the parts of which may be interchanged readily to permit the necessary variations in the size and form of the structure.

Another object of the invention is to provide a device of the sort mentioned in which lightness will be combined with the necessary strength, the constituent members of the arch being so constructed and braced that this result will be brought about.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Figure 1 shows in side elevation, a rectangular arch support constructed in accordance with the present invention, parts being broken away;

Fig. 2 is a top plan of the structure shown in Fig. 1;

Figs. 3 and 4 are end elevations, wherein parts are broken away;

Fig. 5 is an elevation showing a modified form of the invention, portions being broken away;

Fig. 6 is a top plan of the structure delineated in Fig. 5;

Fig. 7 is an elevation showing one of the feet; and

Fig. 8 is a side elevation showing a plate which forms a connection between the foot and the arch proper.

The structure hereinafter described and claimed preferably but not necessarily is made of metal throughout, and as disclosed in Figs. 1, 2, 3 and 4, includes a foot 1, a foot 2, single-wall supports 3, double-wall supports 4, a double-wall corner member 5, a single-wall corner member 6, and a compromise plate 7 which, if desired, may be omitted.

The foot 1 comprises a base 8 and upstanding wings 9, the foot 2 including a base 10 and a single upstanding wing 11.

The double-wall supports 4 each include frames 12 having extensions 14 at their corners. Braces 15 converge from two corners of each frame 12 and unite with each other, and with the opposite side of the frame, at a point approximately half way between the ends of said side of the frame. The constituent members of the supports 4 may be united by integral pin-like connections 16, some of which unite the frames 12, others of which unite the braces 15.

The support 3 is in the form of a frame 17 having braces 18 disposed like the braces 15, the frame 17 having extensions 19 at its corners.

The double-wall corner member 5 includes a pair of open frames each comprising a bottom bar 20, an outer side bar 21, a top bar 22 disposed approximately parallel to the bottom bar 20, and an inner side bar connecting the top bar with the bottom bar. The inner side bar includes a lower part 23, an upper part 24 set inwardly from the lower part 23, and connected therewith by means of a transverse arm 25 merging into a hub 26 from which radiate braces 27 extended to two corners of the frame and corresponding to the braces 18 and 15. The constituent frames of the double-wall corner member 5 are united by spaced, integral pin-like connections 28, corresponding to the parts 16. At its lower corners, the member

5 is provided with extensions 29. The single-wall corner member 6 includes an outer side bar 30, a top bar 31, a bottom bar 32, and an inner side bar. The inner side bar includes a lower part 33, an upper part 34 offset from the lower part 33, and a transverse arm 36 connecting the parts 33 and 34. The said arm 36 merges into a hub 35 from which radiate braces 37, corresponding to the braces 27 and extended to two of the corners of the member 6. At its lower end, the corner member 6 is provided with extensions 38.

The compromise plate 7 includes a frame 39 having braces 40 corresponding to the braces 18. At one end, the compromise plate 7 is of single thickness as shown at 41, but at its inner end, bifurcations 42 are formed, the bifurcations being united by connections 43 constructed like the connections 16 hereinbefore alluded to. At the corners of the compromise plate 7, extensions 44 are fashioned. As hereinbefore stated, the compromise plate 7 may be omitted, but it will be found to be a useful adjunct.

The various elements above described may be duplicated to any desired extent, depending upon the size and contour of the structure. Many combinations may be made up, and it is impossible to describe all of them. A single method of combining the various parts will be described, others suggesting themselves readily to the user when the construction and operation of the device is understood. The constituent members of the structure are united by removable pins 45 extending through the extensions, of which the parts 29 and 19 may be taken as typical.

In the drawings, the single-wall support 3 is mounted between wings 9 of the foot 1, the upper end of the support 3 being received between the parts of the double-wall corner member 5. A single-wall support 3 is received at one end between parts of the corner member 5, the support 3 coöperates with a double-wheel support 4, the double-wheel support 4 coacts with the part 41 of the compromise plate 7, the bifurcations 42 of the compromise plate coact with the single-wall corner member 6, the single-wall corner member 6 is engaged with a double-wall support 4, and the latter, at its lower end, is assembled with the wing 11 of the foot 2. The foregoing is a simple combination in which all of the various parts of the device are used, but it will be appreciated that by duplicating and rearranging the constituent members, an almost endless variety of combinations may be made up, permitting variations both as to size and as to contour.

In Figs. 5 to 8, a modified form of the invention has been shown, the modification consisting in adapting the structure to form a supporting means of curved outline. Since the device shown in Figs. 5 to 8 is constructed generally like the structure of Fig. 1, the description may be shortened considerably.

As shown in Figs. 5 to 8, feet 46 are employed, each foot including a base 47 and wings 48 sustained by braces 49. A plate 50 is mounted between the wings 48, the upper edge of the plate being curved as shown at 51 so as to correspond to the curved outer edges 61 of the wings 48. The plate 50 forms a connection between the foot 46 and the arch proper, the upper or inner end of the plate 50 being received between the walls 52 of a double-walled member, the parts of which are united by identical connections 53. There are openings 54 in the plate 50, suitably numbered for identification, and adapted to receive pins 55 whereby the plate may be connected to the wings 48 of the foot 46 and to the walls 52 of the arch member, there being a plurality of openings 56 in the arch member and there being a plurality of openings 62 in the wings 48 of the foot 46, to permit of the necessary adjustment. The double-walled arch member coacts with a single-wall arched member 57, these parts being connected by pins 58, the construction above described being duplicated until the opposite foot 46 is reached. The various arch members are in the form of open frames, reinforced by internal braces 60, the arch members being curved on their outer edges as shown at 59, so as to coöperate with the edge 51 of the plate 50, and with the edges 61 of the wings 48.

In both forms of the invention, it is possible to make the necessary adjustments to secure variations in the size and contour of the structure, and in both forms of the invention, lightness is combined with strength.

Reverting to Fig. 1, it will be observed that since the parts 24 and 34 of the corner members 5 and 6 are set outwardly, the thrust from the top part of the arch will be carried downwardly within the contour of the feet 1 and 2 and, owing to the presence of the braces 27 and 37, the corner members will possess the requisite strength.

Having thus described the invention, what is claimed is:

1. A device of the class described including feet, and an arch extended between the feet, the arch comprising single-wall and double-wall members, the ends of the single-wall members being received between the ends of the double-wall members, all of the members of the arch being in the form of open frames having transverse internal braces, the walls of the double-wall members being united by integral spaced pin-like connections; removable pins connecting the inner and outer portions of the terminal

members of the arch with the feet; and removable pins connecting the coacting ends of the arch members together.

2. A device of the class described, of rectangular outline, and including feet, corner members, supports detachably uniting the feet with the corner members, and other supports detachably connected with each other, the supports being in the form of open frames, the corner members each including an inner side bar comprising a lower part, an upper part, and an arm connecting said parts, the upper part being set outwardly with respect to the lower part, the terminal ones of said other supports being detachably connected with the upper parts of the inner side bars of the corner members to bring the downward thrust within the contour of the feet.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRED PAYNE MARTIN.

Witnesses:

CHARLES M. HYMES,

ALBERT R. SAUERWEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."