To all whom it may concern:

Be it known that I, David F. Youngblood, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Rust-Resisting and Adjustable Supporting Yoke for Fire-Escape Chutes, of which the following is a specification.

This invention relates to improvements in yokes for supporting the chutes of fire escapes of the straight gravity type, and the invention is designed as an improvement on the structure shown in the Patent No. 1,200,986 issued to me October 10, 1916, on a fire escape.

The object is to provide a rust-resisting yoke of simple construction, which may be easily and quickly installed in position transversely of the chute to rigidly support the same and prevent buckling, bending or opening thereof while under the weight of persons using the same, as when escaping from a building, the said yoke being spaced from the exterior of the chute throughout the length thereof so as to prevent the retention of rain or moisture, and thus avoid the accumulation or formation of rust, and permit the chute and yoke to be painted or coated uniformly throughout their surfaces.

Another object is to provide such a supporting yoke having means at its center or lowest point for adjustable connection to the bottom of the chute, whereby the latter may be shifted to a limited degree to the right or the left for the purpose of centering the same with relation to the yoke, and to enable the straight, longitudinal alignment of the chute from one end to the other.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, it being understood that while the drawing shows a practical form of the invention, the latter is not to be confined to strict conformity with the showing thereof, but may be changed or modified, so long as such changes or modifications mark no material departure from the salient features of the invention, as specifically pointed out in the appended claims.

In the drawing, in which similar reference characters designate corresponding parts throughout the several figures:

Figure 1 is a side elevation of a fire escape, of the straight chute type and showing the improved yoke applied thereto at variable intervals.

Figure 2 is a top plan view of the same.

Figure 3 is an enlarged detail longitudinal sectional view showing the application of the yoke to the chute.

Figure 4 is a transverse section through the chute and showing the spaced mounting of the yoke thereon.

Figure 5 is a detail elevation of the bracket adapted to be welded to the chute for laterally adjusting the same.

Figure 6 is a detail section showing the manner of connecting the upper ends of the yoke arms in spaced relation to the chute.

In employing the method of mounting the chute within the yoke as shown in the above-mentioned patent, especially when located out of doors, experience has shown that rapid deterioration of the metal chute and other parts adjacent thereto results by reason of the fact that water is held at the joint, so that the relatively thin sheet metal is soon rusted through and made worthless for use.

To overcome this defect it is proposed to hold the chute and the supporting and strengthening yoke together, but in spaced relation throughout the length of the yoke, with the desirable result that water will run through the joint to the bottom of the chute without collecting and forming rust, and with the added advantage that such a connection permits the several parts to be properly coated with paint, etc., to further provide against such results.

Referring to the drawing there is shown a chute 1 formed of sheet metal, and which may consist of one or more sections, depending on the length required to reach the point of exit 2 of the building 3 upon which the fire escape is mounted. The chute is bent or formed into a semicircular bottom 4, the terminal, longitudinal side edges of the sheet metal being extended upwardly in substantially parallel relation a distance to form side walls 5, thus providing a continuous, smooth, uninterrupted surface down.
which persons escaping from a burning building may slide while in a sitting position or lying prone.

The chute is, of course, in an inclined position, the upper end being suitably connected to and supported by a balcony or landing, suitably held to the building in proper relation to the exit 2, while the lower end of the chute is supported by legs 7 of any desired form or construction, one or more pairs of intermediate legs 8 being also employed to support the chute, the number depending on the length of the chute. The several pairs of legs are preferably, though not necessarily, formed of suitable size angle iron.

At the lower end the chute is provided with an arcuate curved landing plate 9 adapted to retard the speed of movement of the person sliding down the chute, and said plate may be supported upon a base 10 preferably formed of concrete, the lower ends of the several legs being also embedded in concrete bases 11, the entire structure being thus strong and durable and requiring no replacement of any of the parts so long as they are kept in a painted or coated condition.

In order to prevent spreading of the sides of the chute or otherwise bending or distorting the same, yokes 12 are provided at suitable intervals between the legs and at any other desired point along the length of the chute. The yokes are bent to conform to the shape of the chute in cross section, the dimensions being such as to permit the yokes to surround the chute in spaced relation thereto, as clearly shown in Figure 4 of the drawings, and while said yokes may be formed of any desired kind of bar metal, it is preferred to form the same of angle iron, as being lighter, stronger and cheaper.

The yokes are each bent to form a semicircular intermediate portion to lie beneath the chute, and terminating in side arms 13 extending up parallel to the sides of the chute and adjacent to the top edges of the latter, which are firmly riveted to reinforcing angle irons 14 running longitudinally of the chute and forming convenient hand rails for the user.

The longitudinally disposed flanges of the angle irons comprising the yokes, are each provided near their upper ends with apertures 15 (see Figure 6) for the reception of rivets 16, which also traverse the upper portions of the sides of the chute as well as the vertically disposed flange of the angle iron hand rails 14, the three elements being thus firmly held together with the space between the chute and the yoke maintained at the sides by spacing washers 17, surrounding the said rivets 16 and abutting at the ends against the chute and the yoke respectively.

The bottom of the chute is provided with an angle iron bracket 18, having one of its plates electrically welded to the under face of the chute and at the longitudinal center thereof, said welding being done in a manner to unite the entire surface of said plate to bring the edges thereof in close union with the chute for the purpose of preventing the entrance of any water or moisture therebetween. The other plate 19 of the bracket extends transversely across the bottom of the chute and perpendicular thereto, and is provided with a series of holes 20 arranged in a horizontal row, one of which is adapted to register with one of a series of similarly arranged holes 21 formed in the perpendicular partially disposed flange of the angle iron forming the yoke. A removable bolt 22 is secured through such registering holes, and the yoke is thus held to the chute in spaced relation to permit the free passage of water or moisture between the two members, and to permit the air to quickly evaporate any moisture adhering, thus preventing rust from attacking the metal at any point, and having the additional advantage of permitting the entrance of a paint brush between the parts to give the chute the necessary coating of paint, etc. If it should be found that the chute is slightly out of longitudinal alignment as viewed from the top, the bolt 22 may be removed and the chute shifted in the desired direction to straighten the same, when some other pair of the two series of overlapping holes will register for the admission of said bolt, in an obvious manner.

From the foregoing it will be seen that a simple, cheaply manufactured and easily installed supporting yoke for use in connection with fire escapes of the chute type with any other form of chute, has been provided which effectually prevents the accumulation of water or moisture and eliminates rust, and which also permits of the adjustment of the chute to straighten the same when necessary.

What is claimed is:
1. A stiffening and supporting yoke for chutes, comprising an angle iron bent to conform to the shape of the chute in cross section and slightly larger than the same, means including spacing elements for securing the ends of the yoke to the upper free edges of the chute to lie in spaced transverse relation to the latter throughout the length of the yoke, and adjusting means for connecting the chute at the bottom to said spaced yoke to permit transverse adjustment of the chute.

2. An adjustable stiffening and supporting yoke for chutes, comprising a bar bent to conform to the lower, closed side of the chute and to lie externally to the sides and bottom thereof and in spaced relation to the same, fastening means connecting the ends
of the yoke to the sides of the chute, spacers on said fastening means to maintain said spaced relation, and a fastening means connecting the chute and yoke at the bottom and having means for transversely adjusting the chute.

3. An adjustable yoke for the gravity chute type of fire escape, said chute having a round bottom, comprising an iron bent to conform to the round bottom of the chute and on a larger radius than the same and having straight, parallel, terminal arms, said yoke being adapted to be permanently connected to the exterior of said chute at the top of said arms and having spacing elements for maintaining the yoke in spaced relation to the chute, a bracket adapted to be welded to the bottom of the chute at the center and having a depending ear arranged transversely of the chute to abut against the yoke, the yoke and the ear each having a series of registering openings adapted to register when the chute is adjusted laterally, and a removable bolt traversing the same to hold the chute in position within the yoke to avoid retention of moisture.

4. An adjustable stiffening and supporting yoke for chutes, comprising a bar bent to conform to the lower, closed side of the chute and to lie externally to the sides and bottom thereof and in spaced relation to the same, fastening means connecting the ends of the yoke to the sides of the chute, and spacers on said fastening means to maintain said spaced relation.

5. A stiffening and supporting yoke for chutes comprising a bar bent to conform to the shape of the chute in cross section and somewhat larger than the same, means for securing the ends of the bar to the upper free edges of the chute and including spacing means to cause the chute to lie in spaced relation to the bar throughout its length, angle iron hand rails, and means for securing said hand rails to each side of the chute at the inner side so as to overhang both the chute and the yoke and the space between the same at the top edge.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

DAVID FRANKLIN YOUNGBLOOD.