

W. H. SOMMER.

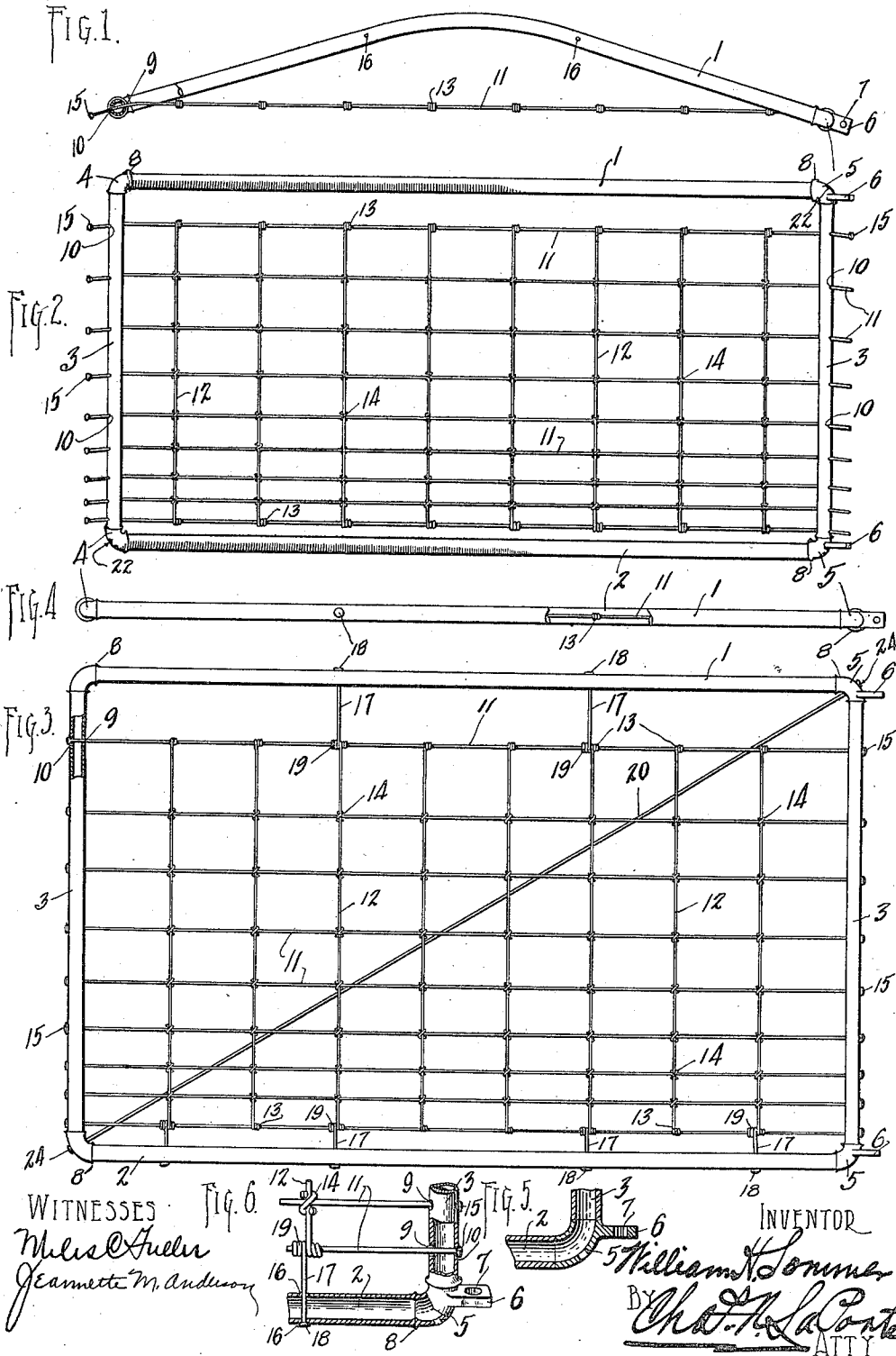
GATE.

APPLICATION FILED FEB. 26, 1912.

Patented June 3, 1913.

2 SHEETS-SHEET 1.

1,063,223.



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2 SHEETS—SHEET 2.

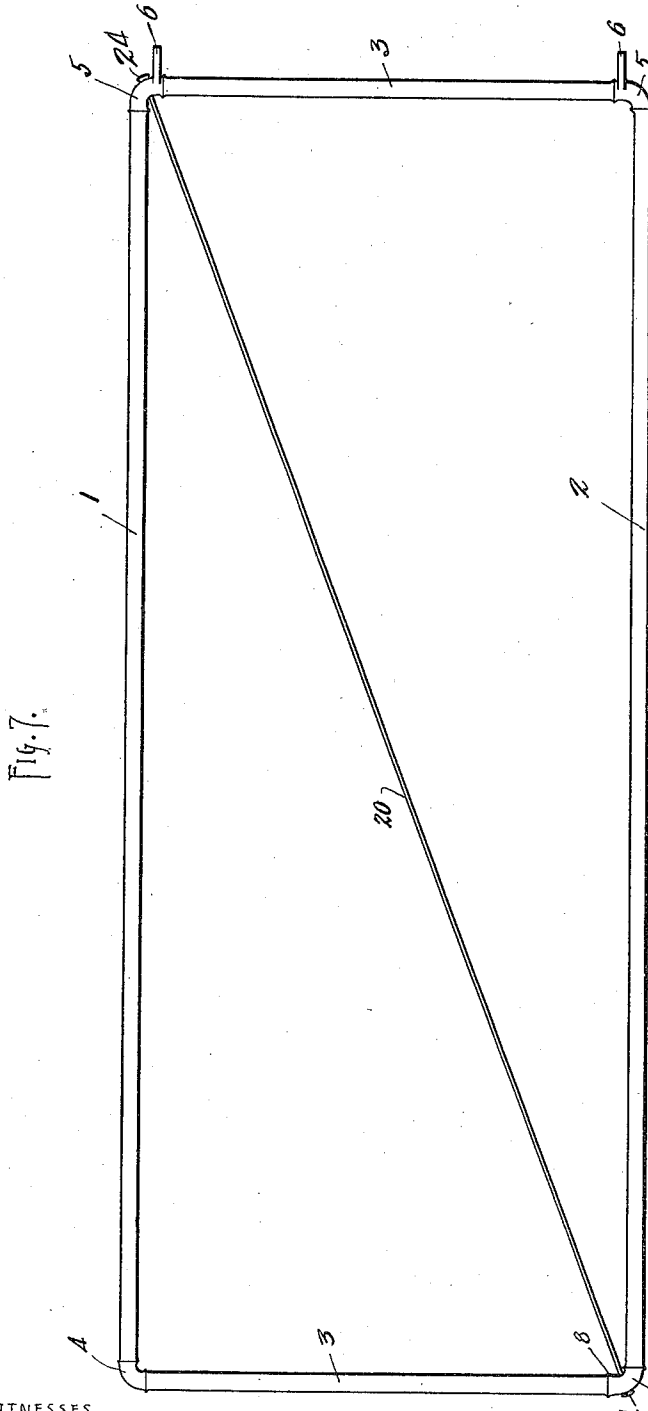


Fig. 7.

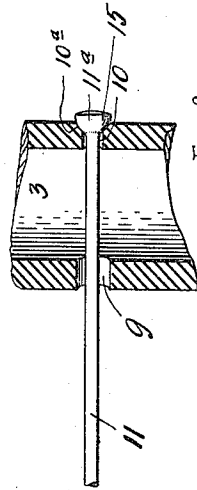


Fig. 9.

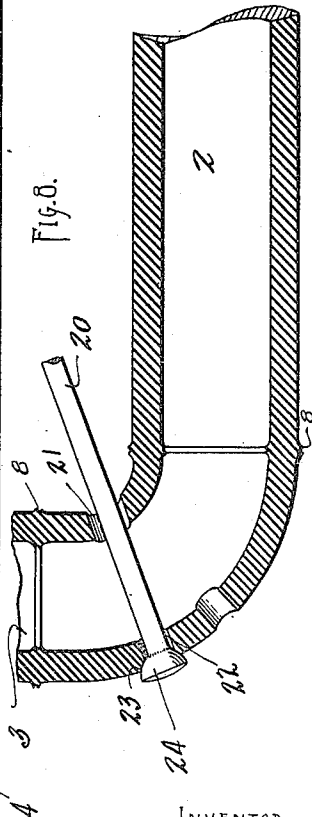


Fig. 8.

WITNESSES
W. H. Sommer
James M. Anderson

INVENTOR
W. H. Sommer
BY *Chas. H. LaPorte* ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM H. SOMMER, OF PEORIA, ILLINOIS.

GATE.

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To all whom it may concern:

Be it known that I, WILLIAM H. SOMMER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Gates, of which the following is a specification.

This invention has reference to improvements in gate structures and preferably of that type comprising a frame which is adapted to sustain and have connected therewith, a section of a fence fabric, which together with the frame of the gate, constitutes the body thereof.

The invention has for one of its objects the securing of the wires to the frame of the gate by heading or riveting the ends of the wires.

The invention has for a further object to secure the wires to the gate frame, by bending or bowing, preferably, the top and bottom bars or parts of the gate; passing the ends of the wires through the side bars or parts; heading or riveting the ends of the wires, and bending or causing the upper and lower bars of the gate to be returned to their normal position, thereby stretching the wires, and by means of the heading or riveting of the ends of such wires, tightly and firmly connecting such wires to the frame of the gate.

That the invention may be more fully understood, reference is had to the accompanying drawings forming a part of this description, in which:

Figure 1 is a top plan view of a gate, partly broken away; the frame of the gate having been bowed or bent to adapt the securing of the wires to the gate, by heading or riveting the ends of the wires and bending the frame of the gate back into its normal position for firmly connecting the wires to the frame of the gate; Fig. 2 is an elevation of Fig. 1; Fig. 3 is an elevation of a gate, partly in section, showing a gate embodying my improvements after the wires have been secured thereto, to constitute a part of the gate body; Fig. 4 is a plan view partly broken away, of Fig. 3; Fig. 5 is a sectional detail showing a part of the bottom and one of the end bars of the gate frame and one of the lower corner pieces or elbows in position with the ends of the bottom and end parts abutting with the ends of the elbow just prior to the "butt welding" of said parts, the parts being shown in cross

section, differing from each other to indicate that the parts are separate and distinct; Fig. 6 is a perspective view, partly in section, of the parts shown in Fig. 5, with the addition of wires which are shown connected by the heading or riveting method to the frame of the gate, and the corner piece or elbow is shown united by "butt welding" to the bottom and end bars of the gate, with the cross sectioning indicating that through the process of welding, they have become integral; Fig. 7 is an elevation of the frame of what may be referred to as a farm gate or a gate of considerable length, showing the diagonally disposed brace and the method of securing the same to the corner piece of the frame; Fig. 8 is an enlarged sectional detail of the lower left hand corner of the gate shown in Fig. 7, showing the manner of connecting the brace of the gate to the frame, and Fig. 9 is an enlarged sectional detail of a portion of one of the end parts of the gate, showing the openings therein, to receive the longitudinal wire and the head or rivet end of the wire for securely fastening the wires of the frame.

Like numerals of reference indicate corresponding parts throughout the figures.

The frame of the gate comprises the top bar or part 1, the bottom bar or part 2, both of which may be of any suitable length and spaced any suitable distance from and parallel with each other; also the duplicate end bars or parts 3 which may be of any desired length and which will determine the height of the gate, and the corner pieces or elbows 4 and 5. The corner pieces or elbows 4 serve to unite the ends of the top and bottom bars or parts 1 and 2 to the ends of the end part or bar 3, which serve as the free end of the gate, and the corner pieces or elbows 5 serve to unite the opposite ends of the top and bottom bars or parts 1 and 2 with the ends of the bar or part 3 which serve as the hinge end of the gate. The corner pieces or elbows 5 are provided with the integral ear pieces or plates 6 which have perforations 7 through which the pintles or hinge bolts may be inserted to support the gate. Such pintles or hinge bolts being omitted as they form no part of the invention and are usually secured to the post to which the gate is hinged.

In carrying out my invention, I prefer that the frame of the gate shall be preferably rectangular in form and made of metal,

such metal parts being preferably tubular; although it may be found convenient and desirable to make the frame of metal parts other than tubular.

5 The ends of the top and bottom bars or parts 1 and 2 and the end bars or parts 3 are united to the corner pieces or elbows 4 and 5 by "butt" welding such parts, in the manner seen in the figures, preferably as
10 shown in detail in Figs. 6 and 8. In Fig. 5 the lower corner piece or elbow 5 is shown abutting with the end of the lower bar or part 2 and the end of the bar or part 3 before the parts 2, 3 and 5 have been welded
15 to each other, but by any suitable process of "butt" welding, the parts 2, 3 and 5 as well as the other corner pieces or elbows are welded so that they become united and form an integral part, such as shown in Figs. 6
20 and 8. Where the parts are welded there is produced a fin or ridge 8, which may serve as an ornamentation, where the parts are connected, or if desirable, the fin or ridge 8 may afterward be removed.

25 The end bars or parts 3 are provided with a plurality of pairs or sets of perforations or openings 9 and 10, best seen in Figs. 6 and 9. These pairs or sets of perforations or openings may be spaced throughout the
30 length of the bars or parts 3, in any suitable manner, either equi-distant from each other or at graduated distances apart. If equi-distant from each other, they will receive wires which are spaced at uniform distances
35 apart, but if said pairs or sets of perforations or openings are spaced at graduated distances apart, they will receive the wires which are similarly spaced. The perforations or openings 9 are much larger in size
40 than the perforations or openings 10, for purposes which will be explained, and said perforations or openings 9 are preferably upon what may be termed the inside faces of the bars or parts 3 and diametrically op-
45 posite the perforations or openings 10 which are upon the outside of such bars or parts. The perforations 10 where they open out of the end parts 3 are cup shaped or are formed with the concave seat 10^a, best seen
50 in Fig. 9, for a purpose which will be further explained.

A section of a fence fabric is shown which forms a part of the body of the gate, comprising the longitudinal strand or running
55 wires 11 and the transverse stays or picket wires 12. In the particular fence fabric shown the stay or picket wires have their ends wrapped around the outside marginal or selvage wires of the fabric as shown at
60 13, and at the intersection of each of the stay or picket wires with the longitudinal strand or running wires, the same are connected or united by means of a tie-wire 14. While I have selected a fence fabric comprising longitudinal running or strand
65

wires and transverse stay or picket wires connected by a suitable form of tie-wire, as a preferred form of structure to embody as a part of the gate; it is to be understood that any other suitable or desirable form of fence
70 fabric may be substituted for that shown, or just the plain longitudinal running wires may be used to complete the body of the gate, without the necessity of having stays or picket wires connected therewith.

75 One of the objects of the invention is the method of and means for securing the wires to the gate frame, particularly the longitudinal or running wires 11 with the end bars or parts 3 and it makes very little difference whether or not the longitudinal
80 wires are connected with each other, although it is preferable. The ends of the longitudinal or running wires 11 pass through the perforations or openings 9 and also through the perforations or openings
85 10 in the bars or parts 3 and the protruding ends of said longitudinal or running wires 11 are headed or riveted, as shown at 15, for the purpose of securing such wires to the gate frame and to prevent longitudinal dis-
90 placement of such wires thereto, thereby firmly securing the wires or fence section within the confines of the gate frame. Reference is had to Fig. 9 which shows consid-
95 erably enlarged, the form of the head or rivet on the ends of the wires 11 and the seat for the same in the openings 10 in the end parts 3. It will be observed upon ex-
100 amination of Fig. 9 that the head 15 is substantially semi-spherical in shape, having the convex surface 11^a where the same merges into a wire length. After the head or rivet 15 is formed it will seat itself in
105 the cup or concave seat 10^a of the opening 10. In other words, the head 15 and the seat therefor in the opening 10 will act as a ball and socket, one capable of movement in the other, in the manner and for a purpose which will be further explained.

110 To secure the fence section and particularly the wires 11 thereof to the gate frame, in the manner herein shown, a piece of fence fabric or longitudinal wires, if only such
115 are used, are first stretched so that the wires 11 will all be of uniform length; a section of a suitable length is then cut out of the fence fabric or from such longitudinal wires preparatory to attaching or securing the same
120 to become a part of the gate structure. The gate frame is then bowed or bent by preferably bowing or bending the top and bottom bars or parts 1 and 2 in the manner shown in Figs. 1 and 2, which shortens the
125 distance between the end bars or parts 3. The fence section or longitudinal wires which are to form a part of the gate structure are then connected to the frame of the gate by passing the ends of the longitudinal
130 wires through the pairs or sets of openings

9 and 10 in such end bars or parts 3 as shown in Figs. 1 and 2, then before bending or causing the top and bottom bars 1 and 2 to assume their normal positions, the ends of the wires 11 are headed or riveted as at 15, by any suitable means. Such heading of the wires will prevent the wires from being displaced when the top and bottom bars 1 and 2 are bent back into their normal positions, being that position shown in Figs. 4 and 5, and as said bars are bent back into position which will lengthen the distance between the bars or parts 3, such bars or parts 3 will come into engagement with the heads or riveted ends 15 of the wires 11, the heads seating themselves in the seats 10^a of the openings 10, and stretch such wires so that they will become taut, and firmly hold the fence section or longitudinal wires in position within the confines of the gate and as shown in Fig. 3. It will be observed that such connecting means of the wires 11 with the frame of the gate produces a very neat connection and that when properly done, the manner of securing the wires to the frame of the gate will hardly be observable.

I have previously called attention to the fact that the perforations or openings 9 are much larger than the perforations or openings 10, and I mean by that, that the perforations or openings 10 are substantially large enough to receive the wires 11 intended to be secured to the gate frame, so that when the wires are headed, they cannot be drawn through such opening when the frame is rebent into its original form or position; but the perforations or openings 9 are much larger than the perforations or openings 10 and are so provided to give sufficient play to the wires if such wires are moved up and down or from side to side so that there will be no tendency to break the wires at this point, which otherwise might be the case if the openings 9 were only the approximate size of the wires.

The movement of the wires 11, such as that above referred to, is made possible by reason of the heading or riveting of the ends of the wires and forming a seat for such heads in the openings 10 of the end parts 3, whereby a substantially ball and socket joint is produced. It will thus be seen that if there is any movement of the wire, it is made possible by the openings 9, and the head of the wire will rock in the seat provided therefor in the opening 10.

When a section of a fence fabric having stay wires, is used, it is preferable to stay the top and bottom wires to the top and bottom bars 1 and 2, which, as will be apparent, will have a tendency to firmly stay the entire fence section between the bars, 1, 2 and 3. I accomplish this by providing a plurality of sets of perforations or openings 16 at suitable points in the top and bottom bars

1 and 2 of the gate frame and employ the stays 17, which at one end are passed through the perforations or openings 16 in either one of the bars 1 and 2 and having their outer ends headed as at 18 and their inner ends suitably wrapped around or coiled about the marginal wires 11, as at 19.

I now desire to call attention to the manner of bracing the frame of the gate, particularly in farm gates which are rather large, although such bracing may be employed in much smaller gates. The bracing to which I refer is the rod 20, best seen in Figs. 3, 7 and 8. This rod extends diagonally across the frame of the gate from the upper right hand corner piece or elbow 5 to the lower left hand piece or elbow 4. The rod 20 passes through openings 21 and 22, provided in the corner pieces or elbows 4 and 5; the openings 21 corresponding to the openings 9 in the end parts 3 and the openings 22 corresponding to the openings 10 in such end parts 3, and such openings 22 where they open out of the corner pieces or elbows are provided or formed with concave seats or depressions 23 to receive the heads or rivet ends 24 on the rod 20, see Fig. 8, said heads or rivet ends 24 of the rod 20 corresponding and being similar to the head or rivet ends 15 of the wires 11 and the functions of the heads on the rod 20 and the seats 23 in the openings 22 to receive such heads, correspond similarly to similar parts on the wires 11 and in the end parts 3. While I have shown only one brace rod in the frame of the gate, it is understood that other and additional rods may be provided, the manner of securing the same to the frame of the gate will be similar to that shown in connection with the rod 20.

It is to be understood that in the manner of securing the wires to the gate frame by heading or riveting the ends thereof, I do not wish to be limited to the use of a frame where the parts are tubular in cross-section, for the reason that the heading of the wires may be used in connection with other and various forms of frame, for instance, the frame where the parts are rectangular in cross-section or an angle bar frame. And I also wish it understood that I do not wish to be confined to the use of a frame having corner pieces or elbows welded to the top and bottom and end parts, when heading or riveting the wires, as the frame may be bent at the corners and the meeting ends of the frame "butt" welded.

What I claim is:—

1. In a metallic structure, a frame formed of top and bottom and end members, said end members provided with a plurality of sets of openings diametrically opposite to each other, the inner opening of each set of openings being larger than the outside opening, a plurality of wires forming the central

body portion of the structure and having their ends passing loosely through a set of openings in each of said end members, and the extremities of the wires being headed.

- 5 2. In a metallic structure, a frame formed of top and bottom and end members, said members being provided with a series of sets of openings, a section of a fabric comprising longitudinal and transverse wires forming the central body of said structure, the
10 ends of the longitudinal wires passing loosely through a set of openings in each of said end members and the extremities thereof being headed; and means for staying
15 said section of fabric from the top and bottom members, comprising wires connected with the marginal wires of the section of

fabric, each of said wires passing loosely through a set of perforations in the top and bottom members and being headed on their
20 ends.

3. In a metallic structure, a tubular member having alined openings, one of said openings being larger than the other and the smaller opening having a concave seat, a
25 wire passing through said openings and having a head adapted to seat itself in the concave seat aforesaid.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM H. SOMMER.

Witnesses:

CHAS. N. LA PORTE,
JEANNETTE M. ANDERSON.

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