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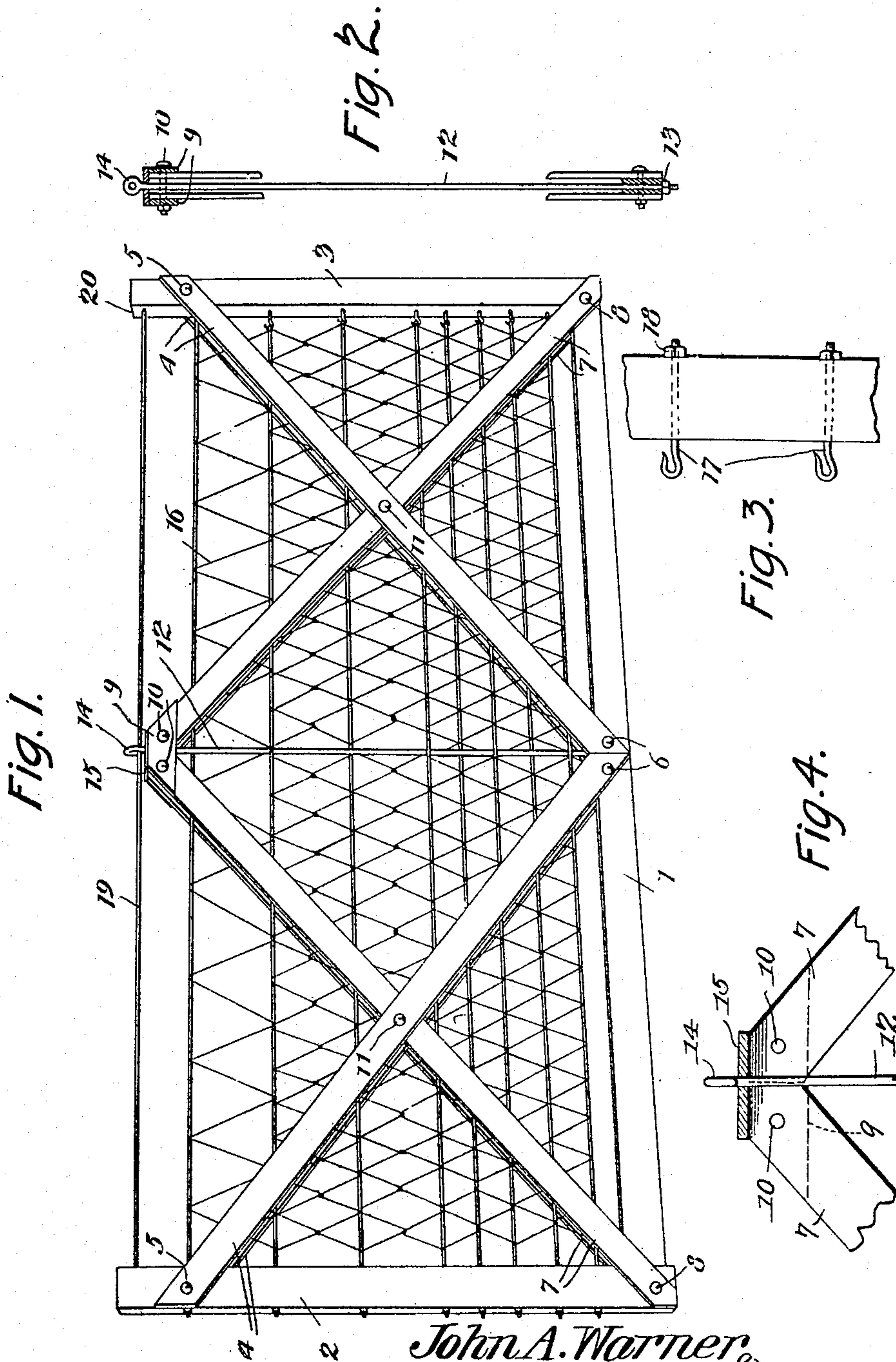
No. 835,208

PATENTED NOV. 6, 1906.

J. A. & W. A. WARNER.
GATE.

APPLICATION FILED DEC. 21, 1905. RENEWED OCT. 10, 1906.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
H. S. Shepard

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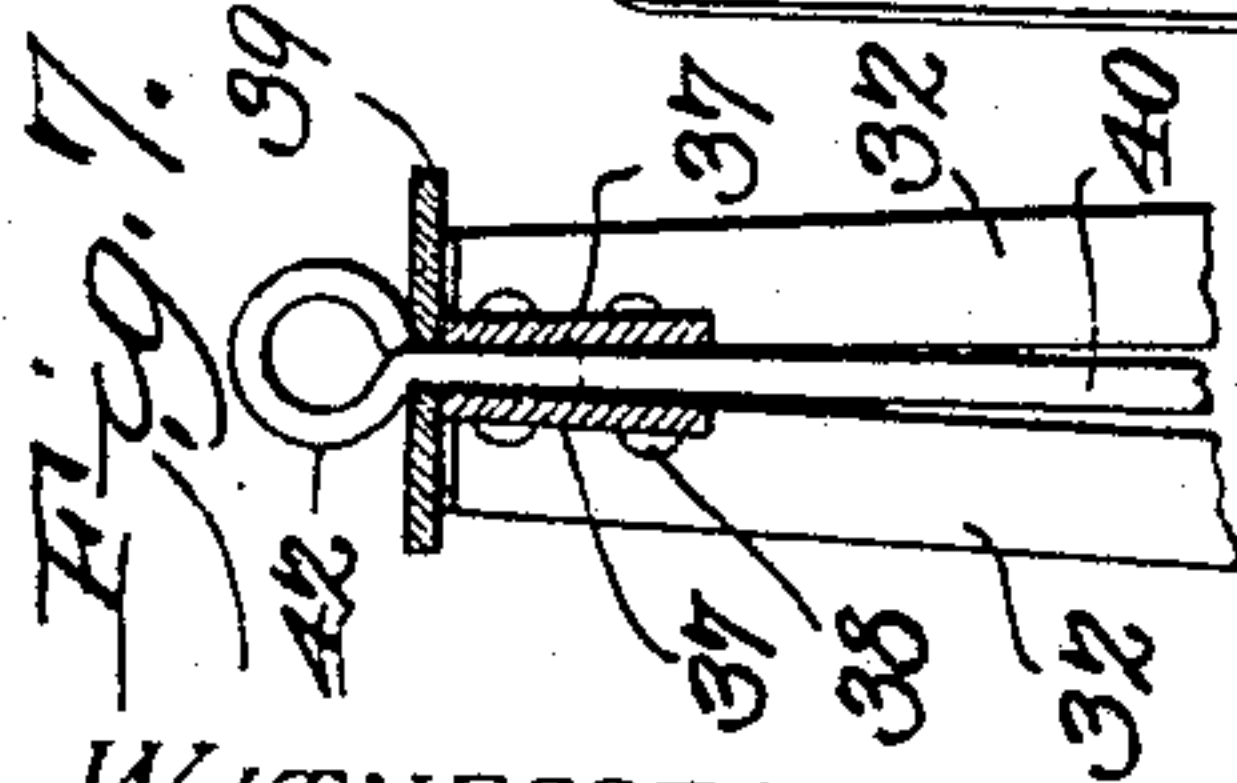
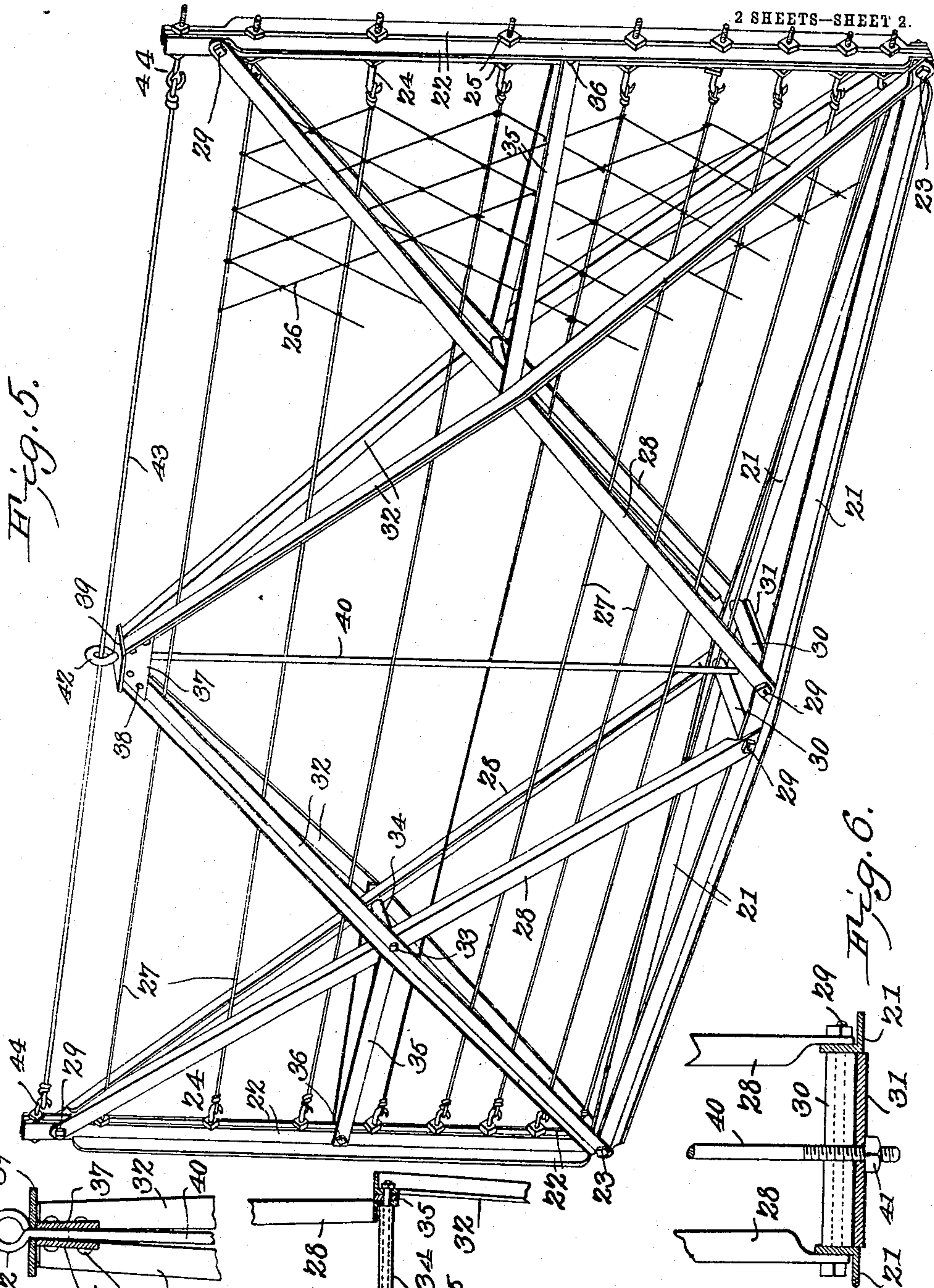
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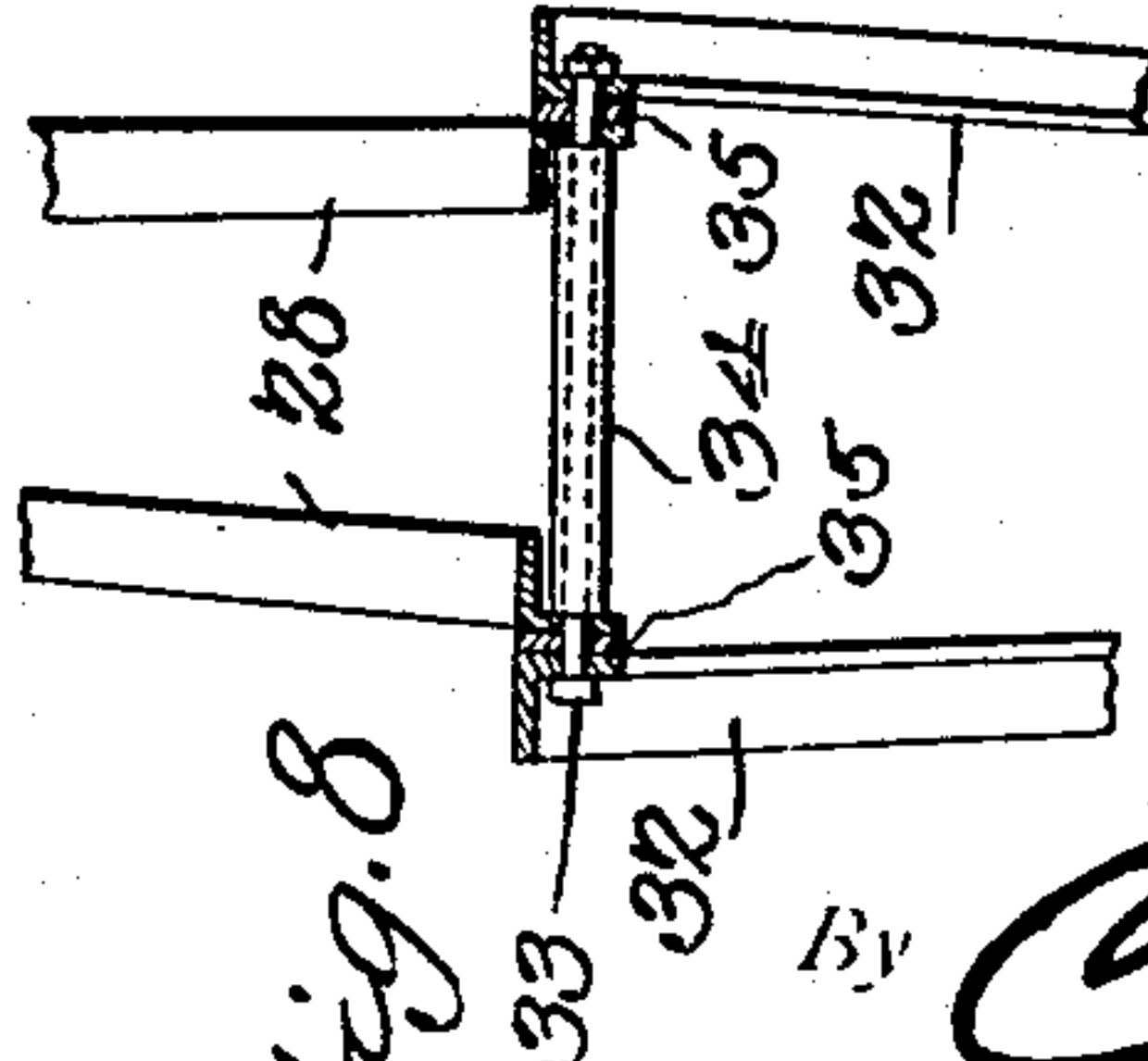


Fig. 8

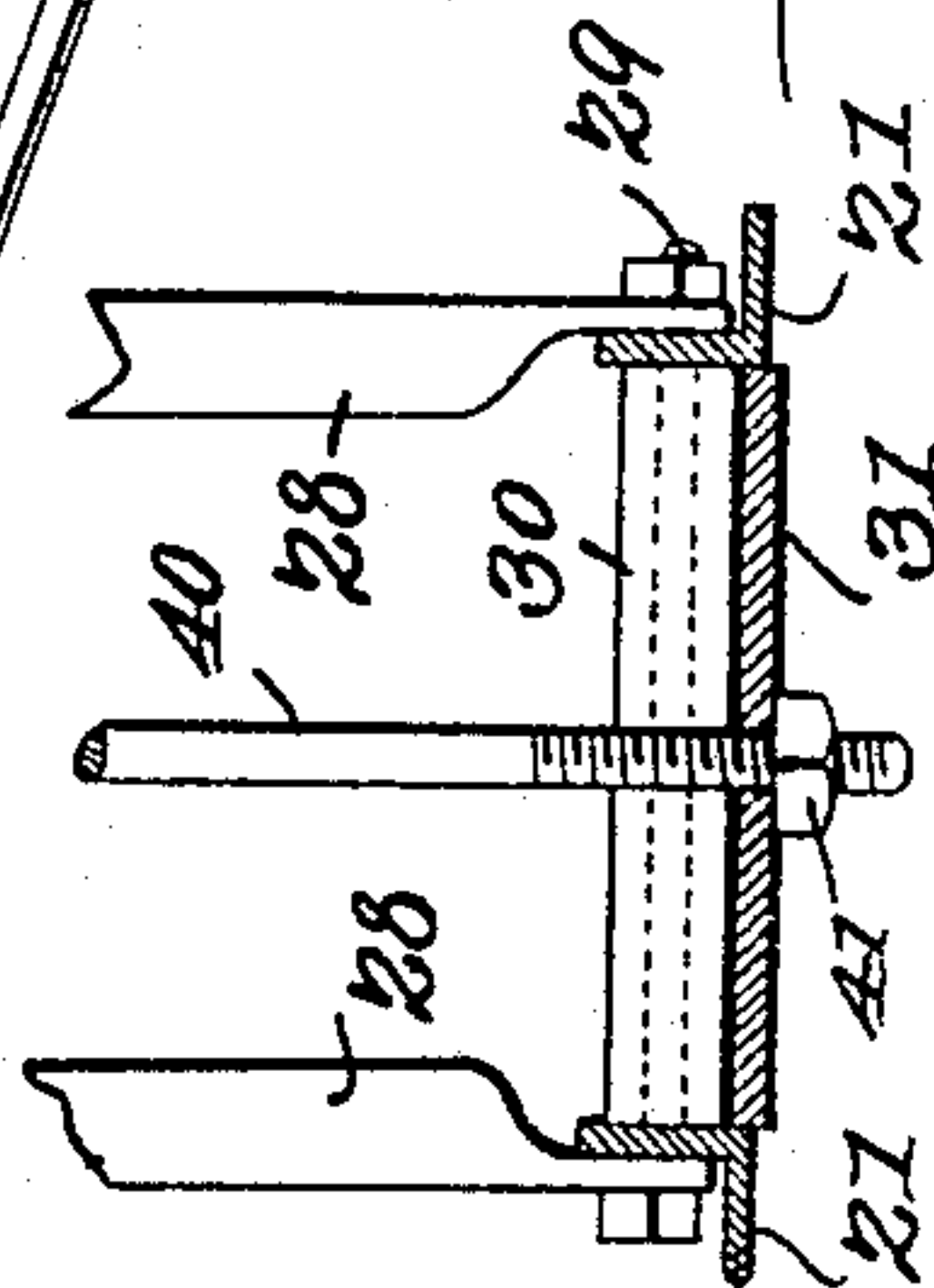


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN A. WARNER AND WILLIAM A. WARNER, OF BRONSON, MICHIGAN.

GATE.

No. 835,208.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed December 21, 1905. Renewed October 10, 1906. Serial No. 338,324.

To all whom it may concern:

Be it known that we, JOHN A. WARNER and WILLIAM A. WARNER, citizens of the United States, residing at Bronson, in the county of Branch and State of Michigan, have invented a new and useful Gate, of which the following is a specification.

This invention relates to gates, and has for its object to provide an improved form of gate for roadways and the like, and in particular to produce a strong, durable, and light structure which is effectually braced against sagging and is arranged to take up looseness in a convenient manner, so as to maintain the gate in the desired rigid condition.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of a wooden gate-frame embodying the features of the present invention. Fig. 2 is a cross-sectional view thereof. Fig. 3 is an enlarged detail view showing means for tightening the gate. Fig. 4 is a detail fragmentary view of the upper portions of the upwardly-converged braces. Fig. 5 is a perspective view of a metallic gate-frame of the present invention. Fig. 6 is an enlarged detail view taken transversely through the middle of the sill of the gate. Fig. 7 is a cross-sectional view taken through the middle of the top of the gate. Fig. 8 is a detail cross-sectional view taken through the points of crossing of one pair of crossed braces.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

When the frame of the present gate is formed of wood, as in Figs. 1 to 4, inclusive, it includes a bottom sill 1, stiles 2 and 3 rising therefrom, each stile being braced by a pair of braces 4, embracing the upper end of the stile and secured thereto by a fastening 5, from which the braces incline downwardly to the middle of the sill 1, which is embraced by the lower ends of the braces and secured thereto by a fastening 6. It will be noted

that the meeting ends of the two sets of inclined braces are mitered, so as to come into mutual engagement. From each end of the sill 1 extends a pair of braces 7, which embrace the lower end of the adjacent stile, to which they are connected by a fastening 8. These braces incline upwardly and have their upper ends mitered to abut at the center of the top of the gate, as best shown in Fig. 4. The meeting ends of the two sets of braces 7 are embraced by metallic connecting-plates 9, through which extend suitable fastenings 10, such as bolts, which also pass through the respective pairs of braces, so as to connect the same. Each pair of braces 7 is embraced by the adjacent pair of braces 4, and at their points of crossing they are connected by a bolt or other fastening 11.

An upright tie-rod 12 pierces the middle of the sill 1 and is provided upon its lower end with a nut 13, while its upper end extends upwardly between the meeting ends of the two pairs of braces 7 and terminates in an eye 14, located above the tops of said braces. A metallic plate 15 rests upon the top edges of the plates 9, so as to form a bearing for the eye 14 when drawn downwardly by the nut 13.

A suitable wire fabric 16 is disposed between the members of the several pairs of braces and stretched between the stiles or end bars 2 and 3 of the gate, one end of the fabric being fixed to one of the stiles in any suitable manner, while the other end is engaged with a series of adjustable fastenings—such, for instance, as eyebolts or hooks 17—piercing the stile with the hooks engaged with the meshes of the fabric and their shanks piercing the stile and movable endwise therethrough. The outer end of each fastening 17 is threaded and provided with a nut 18, whereby the fastening may be adjusted endwise to place the desired degree of tension upon the fabric.

By preference the stiles 2 and 3 rise for a short distance above the tops of the braces 7 and are connected by a wire or rod 19, which passes through the eye 14 of the tie-rod 12 and has one end connected to an adjustable fastening 20, similar to the fastening 17, whereby slack may be conveniently taken up.

In constructing the gate the tension rod or bar 12 is applied after the wire fabric has been connected to the frame, said rod or bar being passed downwardly alternately at opposite sides of the strand-wires of the fabric,

so as to prevent lateral looseness of the fabric at the middle of the gate.

When the nut 13 is tightened, a stress is placed upon the inner ends of the braces with a tendency to draw the same together, and as the braces tend to rock upon the fulcrums afforded by the connections 11 there is a strain placed endwise of the gate, which tends to tighten the fabric and to render the entire gate rigid. Undue separation of the end bars 2 and 3 is prevented by the sill 1 and the tie-wire 19.

When the frame of the gate is formed of metal, as shown in Figs. 5 to 8, inclusive, the several bars are formed of angle-iron. The base bar or sill of the gate is made up of a pair of angle-bars 21, which have their upstanding sides adjacent and their horizontal sides at the bottoms of the upstanding sides and extending outwardly therefrom. These sill-bars are spaced at a predetermined distance at their middles, from which they converge in opposite directions.

Each stile of the gate is made up of a pair of angle-bars 22, which are arranged to have corresponding sides in substantial parallelism and be received between the adjacent ends of the sill-bars, to which they are connected by a bolt or other fastening 23. The other sides of the bars 22 are disposed to extend laterally outward from the outer edges of the end bars, and between the end bars is a series of threaded hooks 24, which carry nuts 25 at opposite sides of the end bar, so as to adjustably clamp the hooks thereto. A suitable wire fabric 26 is stretched between the opposite end bars and has its strand-wires 27 engaged with the hooks, whereby the fabric may be stretched by adjustment of the nuts to move the hooks outwardly.

Between the upper end of each end bar of the gate and the middle of the sill there is a brace made up of a pair of angle-bars 28, which embrace the upper ends of the end bars 22 and are connected thereto by means of a suitable fastening 29. It will here be explained that the lateral or outwardly-directed flanges or sides of the end bars 22 are cut away at their tops and bottoms, so as to accommodate the brace-bar 28 and the sill-bars 21. Each of the brace-bars 28 is arranged to have its vertical flange outside of the gate, with its other flange extending inwardly from the top of the vertical flange, said other flange being cut away at its top and bottom to permit the vertical flange to lie against the adjacent end bar 22 and the outer side of the adjacent sill-bar 21, to which it is connected by a fastening 29. A suitable spacing-sleeve 30 embraces the fastening 29, so as to maintain the sill members 21 spaced at the desired interval.

The lower ends of the opposite braces do not come together, but lie at opposite sides of the middle of the sill, and in the space be-

tween the lower ends of the braces there is a plate 31, which lies against the under side of the sleeves 30 and between the sills.

From the lower corners of the gate-frame the braces extend upwardly to the middle of the top of the frame, each brace including a pair of angle-bars 32, embracing adjacent bars 28, from which they converge in opposite directions. The upright flange of each bar 32 is at its inner side and lies flat against the outer side of the upright flange of the adjacent bar 28 and is connected thereto by means of a fastening 33, which also pierces the other bars 28 and 32, there being a sleeve 34 embracing the fastening and engaging the bars 28 to maintain them spaced at the proper interval. The lower ends of the bars 32 embrace the sill members 21 and are connected thereto by the fastening 23, which also pierces the end bars 22, the lower ends of the transverse flanges of the bars 32 being cut away to accommodate the fastening 23 and to avoid the transverse flanges of the end bars 22. A suitable strut 35 has one end interposed between each pair of bars 32 and 28 and secured thereto by the fastening 33, the outer end of the strut being connected to the inner flange of the adjacent end bar 22, as at 36.

The upper end of corresponding bars 32 are connected by a plate 37, lying flat against the outer sides of the upright flanges of the bars and secured thereto by rivets or other fastenings 38, which also secure a similar plate on the other side of the bars. A cap-plate 39 rests upon the tops of the bars 32, and an upright tie-rod 40 pierces the plate 39 and also the plate 31, there being a nut 41 provided upon the lower threaded end of the rod to engage against the under side of the plate 31, the upper end of the rod being provided with an eye 42, which engages the plate 39, whereby looseness of the frame of the gate may be readily taken up by tightening the nut 41 so as to place the necessary strain upon the trussed braces and sill of the gate-frame.

Between the upper ends of the end-bars 22 of the gate there extends a cross rod or wire 43, which passes through the eye 42, with its ends connected to adjustable fastenings 44, similar to the fastening 24 for the purpose of taking up slack in the rod or wire, and thereby to maintain the necessary strain across the top of the frame.

Having thus described the invention, what is claimed is—

1. A gate comprising in combination a base-sill, end bars rising therefrom, pairs of braces embracing the middle portion of the sill and inclined upwardly and outwardly therefrom with their upper ends embracing the upper ends of the respective end bars, other pairs of braces embracing the respective ends of the sill and converging upwardly therefrom with their ends connected above

the middle of the sill, a tension-rod extending downwardly between the upper ends of the last-mentioned braces and between the lower ends of the first-mentioned braces, the
 5 upper end of the rod having an eye located above the braces and bearing upon the tops thereof, a nut fitted to the lower end of the rod and bearing against the bottom of the sill, and a tie extending between the upper
 10 ends of the end bars and through the eye of the tension-rod.

2. A gate comprising in combination a base-sill, end bars rising therefrom, pairs of braces embracing the ends of the sill and con-
 15 verging upwardly, plates embracing the upper ends of the braces, fastenings connecting the plates and the braces, a cap-plate resting upon the upper edges of the connecting-plates, a tension-rod piercing the cap-
 20 plate and the sill, an adjusting-nut upon the lower end of the tension-rod and engaging the bottom of the sill, an eye provided upon the top of the tension-rod and engaging the cap-plate, and a tie extending between the
 25 upper ends of the end bars and passing through the eye.

3. A gate comprising in combination a base-sill, end bars rising therefrom, a wire fabric extending between the end bars, pairs
 30 of braces embracing the ends of the sill and the fabric and converged upwardly, means connecting the upper ends of the braces, a tie extending between the upper ends of the end bars, and pairs of braces embracing the mid-
 35 dle of the sill and fabric and diverging upwardly therefrom with their upper ends embracing and connected to the respective end bars.

4. In a gate, the combination of a base-
 40 sill, end bars rising therefrom, endwise-adjustable hooks piercing one of the end bars, a wire fabric connected to the other end bar and engaged with the hooks, pairs of braces

embracing the respective ends of the sill and the fabric and converged upwardly with
 45 their upper ends mitered and abutted above the middle of the sill, connecting-plates embracing the upper ends of the braces, a cap-plate supported upon the upper edges of the connecting-plates, a tension-bar piercing the
 50 cap-plate and the sill, an adjusting-nut upon the lower end of the rod and engaging the bottom of the sill, an eye provided upon the top of the rod and bearing upon the cap-plate, a tie extending between the upper ends of
 55 the end bars and passing through the eye, and other pairs of braces embracing the middle of the sill and diverged upwardly with their upper ends embracing and connected to the upper end portions of the end bars, and
 60 fastenings connecting the braces at their points of crossing.

5. A gate-frame comprising sill members spaced at their middles and converged toward their ends, stiles rising from the sills, braces
 65 extending between the middles of the sills and the upper ends of the respective stiles, each brace including spaced members secured to the middle portions of the respective sill members and converging upwardly there-
 70 from to the adjacent stile, and other braces converging upwardly from the ends of the sill, each of said other braces including a pair of members embracing the adjacent first-mentioned brace and converged up-
 75 wardly and downwardly therefrom, and a tie-bar connecting the upper ends of the stiles.

In testimony that we claim the foregoing as our own we have hereto affixed our signa-
 80 tures in the presence of two witnesses.

JOHN A. WARNER.

WILLIAM A. WARNER

Witnesses:

C. M. VAN EVERY, Sr.,

J. A. VAN EVERY.