H. G. THOMSON.

GATE.

APPLICATION FILED JUNE 14, 1918.

1,283,359.

Patented Oct. 29, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

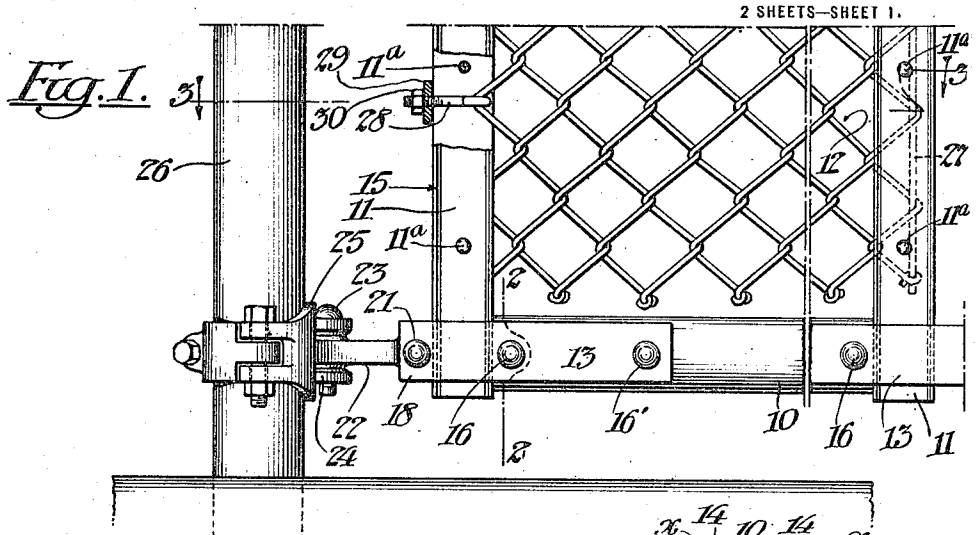


Fig. 2.

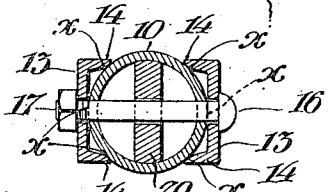


Fig. 3.

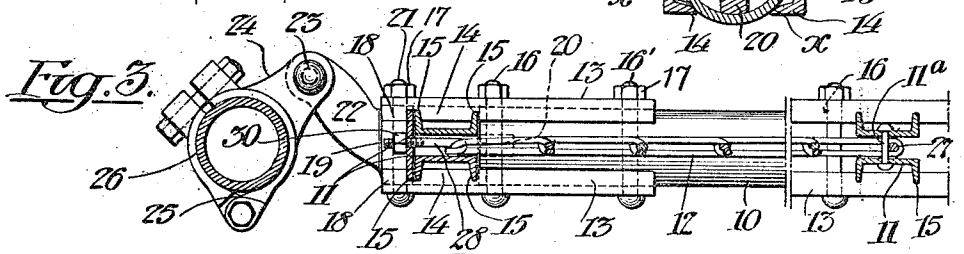


Fig. 4.

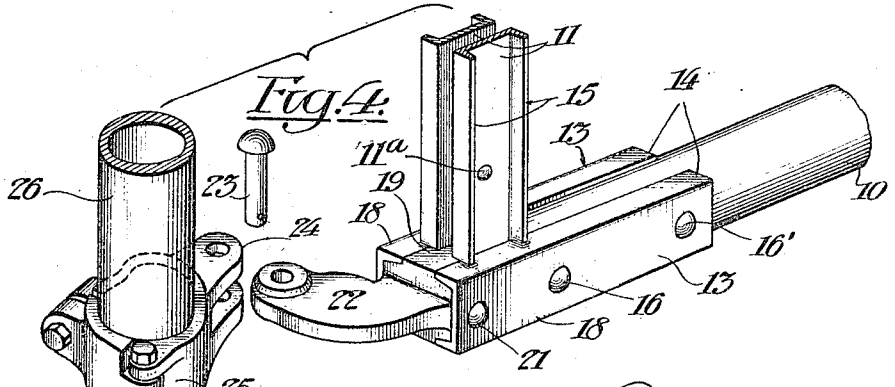
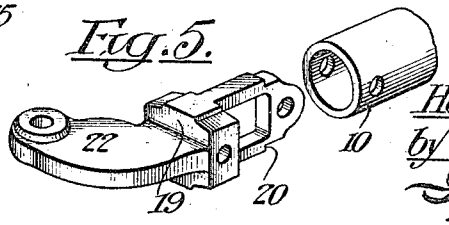


Fig. 5.



Inventor:
Herbert G. Thomson
by his Attorney
John T. Nolan

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

H. G. THOMSON.

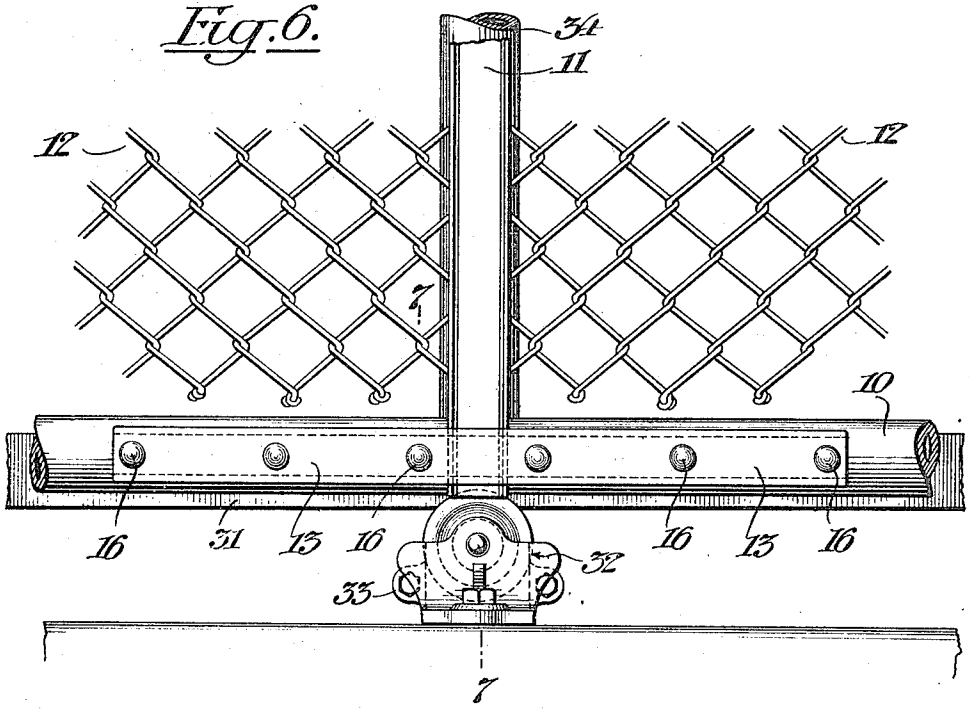
GATE.

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2 SHEETS—SHEET 2.

Fig. 6.



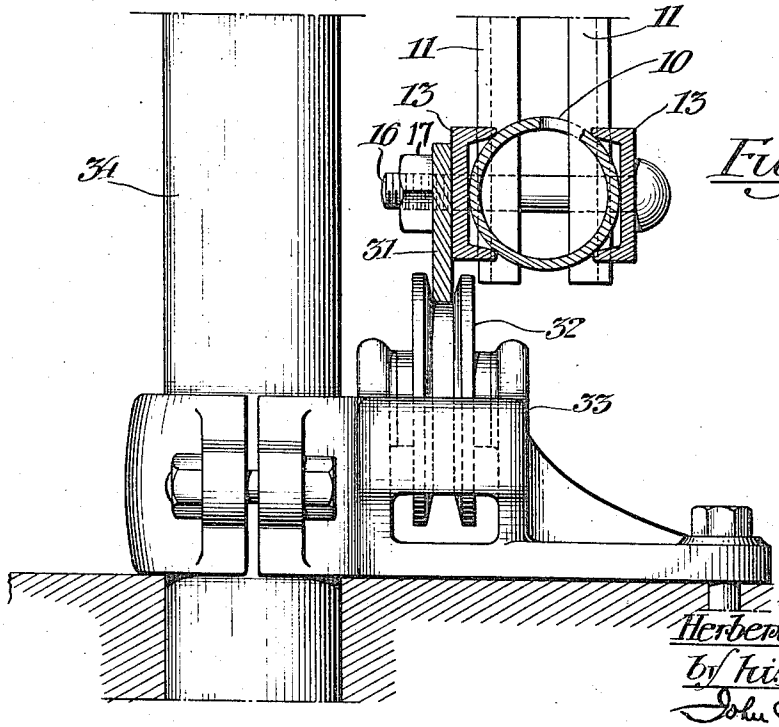


Fig. 7.

Inventor:
Herbert G. Thomson
by his Attorney.
John R. Nolan

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

UNITED STATES PATENT OFFICE.

HERBERT G. THOMSON, OF NEW YORK, N. Y.

GATE.

1,283,359. Specification of Letters Patent. Patented Oct. 29, 1918.

Application filed June 14, 1918. Serial No. 239,973.

To all whom it may concern:

Be it known that I, HERBERT G. THOMSON, a citizen of the United States, and resident of the city of New York, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Gates, of which the following is a specification.

This invention relates to that class of gates in which heavy wire fabric is supported under tension by and within a rectangular frame structure of metal work.

The object of my invention is the provision of a gate wherein the members of the frame structure are united and reinforced in such a manner as to provide a substantially integral construction possessing great strength, rigidity and relative lightness.

A further object of my invention is the provision of a simple and reliable hinge connection for a gate of the character mentioned.

A further object of my invention is the provision of novel means whereby wire fabric can be readily applied to the frame structure and supported therein under tension.

With these and other objects in view my invention comprises, in a gate, various novel features of construction and combinations of parts which will be hereinafter described and claimed.

In the drawings—

Figure 1 is a partial front elevation of the lower portion of a swinging gate embodying my invention.

Fig. 2 is a transverse horizontal section, enlarged, as on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section, as on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of a corner of the gate frame and the adjacent supporting post and hinge connections, showing the complementary hinge elements separated from each other.

Fig. 5 is a detached perspective view of one of the hinge elements and a portion of the adjacent rail of the gate frame.

Fig. 6 is an elevation of the lower middle portion of a sliding gate embodying my invention, showing one of the guide rollers and its supporting parts.

Fig. 7 is a transverse vertical section, enlarged, as on the line 7—7 of Fig. 6, the wire fabric being omitted.

Referring to the drawings, 10 designates a portion of the lower horizontal rail of a gate frame, and 11 portions of the vertical end members thereof, it being understood that the top and bottom rails are or may be of the same construction, and that the vertical members at the respective ends of the frame also are or may be similar in construction to each other.

12 designates interlooped or interwoven open wire fabric which is secured to and held under tension between the respective end members of the frame, as hereinafter described.

In a preferred form of embodiment of my invention, each rail 10 comprises a stout metal tube, and each end member 11 comprises two channel bars arranged back to back and in spaced relation to each other and connected at intervals by means of transverse bolts 11^a. At or near each end of the respective pairs of bars are two exteriorly arranged parallel cheek members 13 which extend horizontally toward and embrace the adjacent rail. These members 13 are composed of sections of channel iron whereof the channels are arranged to face each other and to receive the adjacent portions of the cylindrical surface of the rail. The web and flanges of each cheek member are so proportioned as to contact with the confined portion of the rail at three circumferentially spaced points, indicated at *x* Fig. 2,—that is, the vertical inner face of the web contacts tangentially with the opposing circumferential surface of the rail and the inner edges of the flanges contact with the two portions of such circumferential surface opposed thereto.

In view of the fact that the outer surface of the rail is a true circle and that the inner surfaces of the webs are straight lines, the contact of each surface of a web is necessarily at a single point. This point, in addition to the points of contact of the flange edges with the rail, results in three "points" of contact for each cheek member. It is thought that this is apparent from Figs. 2 and 7, and hence the proximate portion of the rail is firmly gripped and sustained against lateral and vertical displacement.

The flanges 14 of each cheek member 13 are electrically welded to the contiguous flanges 15 of the adjacent bar 11, and hence said bar and cheek member constitute, in effect, an integral structure. The complemen-

tary cheek members and the portion of the rail embraced thereby have alining transverse holes therein for the passage of securing bolts 16, 16'. Nuts 17 applied to the projecting threaded ends of the bolts coact with the latter to clamp the members 13 firmly against the rail. The construction just described provides a rigid and substantial gate frame, the parts of which can be readily and accurately assembled. This construction when embodied in a swinging gate, enables the hinge connections to be applied thereto in an effective way, so that during the opening and closing of the gate there will be little tendency to twist or distort the structure. The lower hinge connection only is illustrated as the upper connection is or may be a duplicate thereof. When a hinge connection is employed the outer ends of the adjacent cheek members 13 are extended somewhat beyond the bars, as at 18. An element of the hinge connection includes a block 19 having a tongue-like extension 20, said block being formed and proportioned to fit snugly between the spaced lower portions of the channeled ends 18 of the cheek members, and said tongue extension being shaped to fit snugly between the vertical frame bars 11 and enter the adjacent open end of the rail 10. The inner end of the tongue is transversely perforated for the passage of the bolt 16, and the ends 18 and block are similarly perforated for the passage of a securing bolt 21. The block 19 is provided with an outwardly extending perforated portion 22 which is connected by means of a vertical pintle 23 to a complementary hinge member 24 projecting from a clamp bracket 25 on an adjacent post 26. By this construction the hinge connection is rigidly attached to the rail and end bars of the gate frame and at the same time serves as an effective space member for said bars.

As illustrated in Figs. 1 and 3, the spaced bars 11 at the respective ends of the gate frame facilitate the application of the woven fabric to the frame and the use therewith of simple and efficient devices whereby said fabric is held under tension; that is to say, the ends of the fabric are entered in the spaces between the respective pairs of vertical bars; a vertical rod 27 is passed through the loops of the fabric at one end of the gate so as to bear against the adjacent cross bolts 11^a; threaded hook-bolts 28 are engaged at intervals with the loops at the other end of the fabric, and bridge-pieces 29 are interposed between the spaced bars and the nuts 30 of the respective bolt hooks. Hence by manipulating the nuts the hooks may be adjusted to draw the fabric taut and maintain it under uniform tension.

In Figs. 6 and 7 is illustrated a gate construction wherein two panels including a pair of central vertical bars 11 are employed. In this construction the cheek members 13 are elongated so as to extend some distance beyond each side of the bars and overlap the lower alining rails 10 of the respective panels. These members are electrically welded to the adjacent bars, and are secured by bolts 16 to the contiguous rails 10 of the panels; the whole constituting a strong and rigid structure.

The plural panel construction just described is especially, though not necessarily, designed for a sliding gate having horizontal guide rails at the top and bottom thereof adapted to bear on suitably-disposed sheaves or rollers. A portion of the lower guide rail, which is indicated at 31, is conveniently bolted to the extended cheek members, and also to the outer end cheek members of the two panels, said outer members being of the general character first described. One of the guide sheaves or rollers for the lower guide rail is indicated at 32; the same being mounted in a clamp-bracket 33 at the foot of a supporting post 34.

Various changes in the form and construction of the parts above described may be made without departing from the principle of the invention as defined in the appended claims.

I claim—

1. In a gate, a frame structure including a cylindrical rail, a vertical channel bar, a cheek member of channel metal extending across, and having its flanges integral with the flanges of the bar, and means securing one end of said rail against the channeled face of said member.

2. In a gate, a frame structure including a cylindrical rail, a pair of vertical bars adjacent to each other, parallel cheek members of channel metal integral with and extending horizontally from the respective bars, said members having their flanged faces inwardly disposed and embracing an end portion of the rail, and means uniting said members and rail.

3. In a gate, a frame structure including a cylindrical rail, vertical channel bars arranged back to back in spaced relation to each other, parallel cheek members of channel metal extending across the channeled faces of the respective bars, said members having their channel faces inwardly disposed and their flanges integral with the flanges of the said bars, and means securing said rail to and between the channeled faces of said cheek members.

4. In a gate, a frame structure including a cylindrical rail, vertical channel bars arranged back to back in spaced relation to each other, parallel cheek members of channel metal extending across the channeled faces of the respective bars, said members having their channel faces upwardly disposed and their flanges integral with the

flanges of said bars, means securing said rail to and between the channeled faces of said members, a hinge element fitted between said bars, and securing means for said element.

5. In a gate, a frame structure including a cylindrical rail, vertical channel bars arranged back to back in spaced relation to each other, parallel cheek members of channel metal extending across the channeled faces of the respective bars and projecting beyond each side of said bars, said members having their channel faces inwardly disposed and their flanges integral with the flanges of said bars, the projecting portions of the members at the inner sides of the bars embracing the end portion of the rail, a hinge element fitted between the bars and between the faces of the projecting portions of the members at the outer sides of the bars, means securing the rail to said cheek members, and means securing the hinge element to said cheek members.

6. In a gate, a frame structure including two pairs of vertical end bars, the bars of each pair being in spaced relation to each other, looped wire fabric mounted within said frame with the vertical ends of the fabric interposed between the bars of the respective pairs, a vertical rod interposed between one pair of bars and engaged with the adjacent end loops of the fabric, tensioning bolt-hooks interposed between the other pair of bars and engaged with the adjacent end loops of the fabric, nuts on said bolts, and bridge-pieces interposed between the bars and the nuts.

Signed at Garwood in the county of Union and State of New Jersey this 11 day of June A. D. 1918.

HERBERT G. THOMSON.

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

Correction in Letters Patent No. 1,283,359.

It is hereby certified that in Letters Patent No. 1,283,359, granted October 29, 1918, upon the application of Herbert G. Thomson, of New York, N. Y., for an improvement in "Gates," an error appears in the printed specification requiring correction as follows: Page 2, line 129, claim 4, for the word "upwardly" read *inwardly;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office

Signed and sealed this 8th day of April, A. D., 1919.

[SEAL.]

F. W. H. CLAY,

Acting Commissioner of Patents.

Cl. 39—87.