

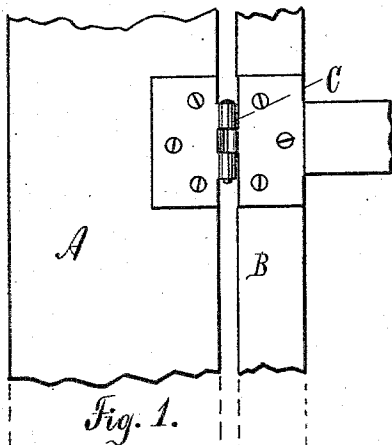
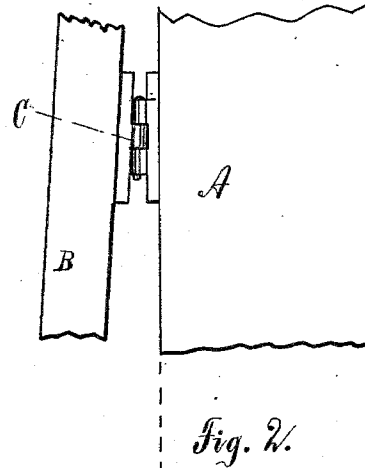
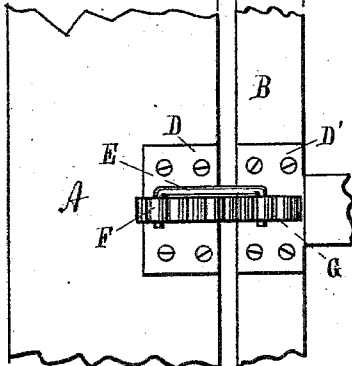
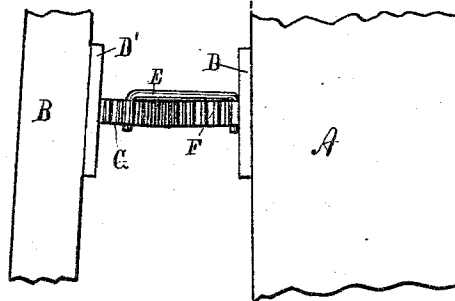
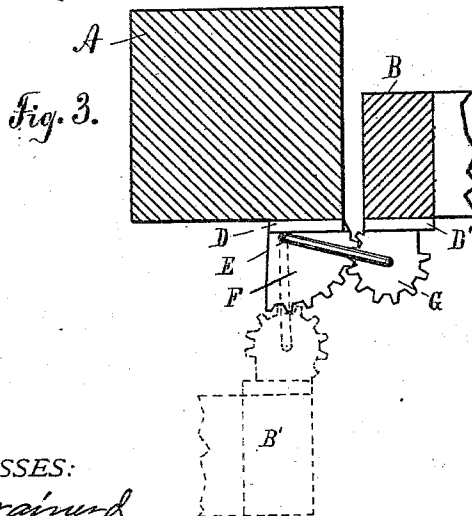
(No Model.)

2 Sheets—Sheet 1.

G. H. PATTISON.
GATE HINGE.

No. 283,416.

Patented Aug. 21, 1883.



WITNESSES:

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W. W. Greene

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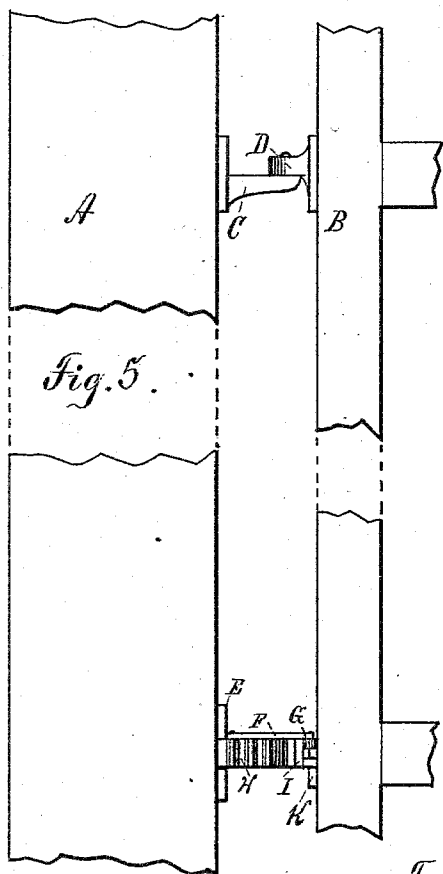


Fig. 5.

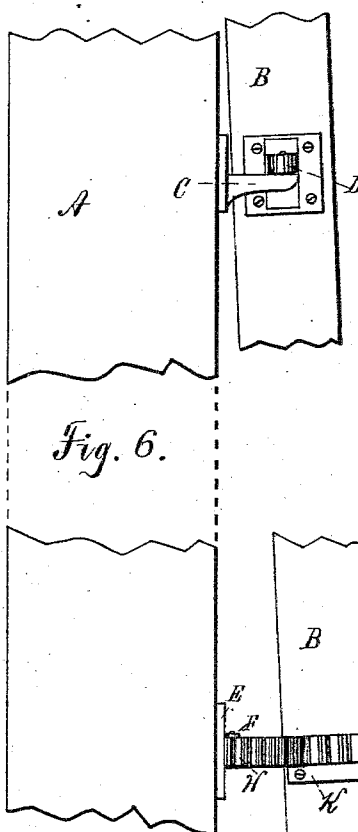


Fig. 6.

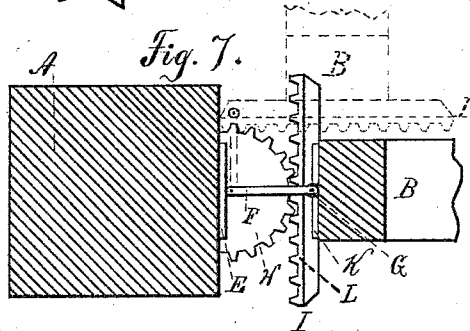


Fig. 7.

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UNITED STATES PATENT OFFICE.

GEORGE H. PATTISON, OF FREEPORT, ILLINOIS.

GATE-HINGE.

SPECIFICATION forming part of Letters Patent No. 283,416, dated August 21, 1883.

Application filed May 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PATTISON, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Gate-Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention is an improved gate-hinge, so constructed that the gate to which it is attached will close by its own weight when opened, the parts of the hinge being at the same time so connected as not to be liable to accidental separation. The hinge is made both single-acting and double-acting. Both forms are fully described in the following specification and shown in the accompanying drawings, in which—

Figure 1 is an elevation of a closed gate with the single-acting hinge attached; Fig. 2, an elevation of the same gate open; Fig. 3, a plan of the hinge closed, and Fig. 4 an elevation of the link which connects the two parts of the hinge. Fig. 5 is an elevation of a closed gate with the double-acting hinge attached; Fig. 6, an elevation of the same gate open, and Fig. 7 a plan of the double-acting hinge closed.

In Figs. 1, 2, 3, and 4 the single-acting hinge is shown, and in these figures A is the gate-post, and B the frame of the gate, the two being connected at the top by an ordinary hinge, C. F is a segmental gear formed integrally with a plate, D, which is screwed to the face of the post. G is a segmental gear lying in the same plane with the segment F, and engaging with it, and is formed integrally with a plate, D', which is screwed to the gate-frame B. A link, E, connects the segments F G, the ends of the links being turned downward at right angles to its body and passed through holes at the centers of the respective segments. The operation of the hinge is as follows: When the gate is closed, the post and gate are parallel (see Fig. 1) and the parts of the hinge are in the position shown by the full lines in Fig. 3. As the gate is opened the gear G rolls about the gear F, the space between the gate and post remaining the same

at the top, but constantly widening at the bottom, until after opening ninety degrees the parts reach the position shown in Fig. 2 and by the dotted lines in Fig. 3. During this entire motion the distance between the centers of the segments F G remains the same, and the link E, which swings with the motion of the gate, holds the two segments together and prevents any liability to disconnection of the parts. As the gate opens and the distance between the gate and post at the bottom increases the outer or free edge of the gate is lifted more and more, and the weight of the gate and its tendency to return to a level position will close it at once when released.

The segments F G may be of equal radius and equal angle, or their radii may bear any desired relation. They may also be eccentrics, provided they are so arranged that the points connected by the link shall always maintain a uniform distance from each other.

In Figs. 5, 6, and 7 the double-acting hinge is shown; and in these figures, A is the post, B the gate-frame, and C an ordinary hinge, which connects them at the top. H is a semi-circular pinion integral with a plate, E, which is secured to the face of the post contiguous to the gate, and I a straight toothed bar or rack formed integrally with a plate attached to the edge of the gate. A link, F, is pivoted at the center of the pinion E, and is provided at its free end with a vertical roller, G, which moves along the rear edge of a vertical flange, L, which is formed integrally with the rack I. The operation of this hinge is as follows: When the gate is closed, the parts are in the positions shown in Fig. 5 and the full lines of Fig. 7. As the gate is opened the teeth of the rack mesh successively with the teeth of the pinion, until after opening ninety degrees they reach the position shown by the dotted lines in Fig. 3. As the gate opens the roller G moves along the face of the flange L, being at all times exactly coincident with the teeth which are in mesh, so that the link F always prevents the separation of the rack and pinion. In this hinge, as in the single-acting hinge, the opening of the gate lifts its outer or free edge, and the weight of the gate closes it as soon as it is released. The dotted lines show

the gate opened ninety degrees in one direction. It is evident that it may be opened equally well in the other direction. For a single-acting hinge half the rack and half the pinion may be used, instead of the whole, as shown in the figures.

I am aware that gravity gate-hinges, both single and double acting, are already in use, and I do not therefore claim a gravity-hinge, broadly; but,

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a gate-hinge adapted for attachment to

the bottom of a gate, the combination of two geared parts attached to the gate and post, respectively, and a link connecting the two posts and holding their geared surfaces in contact in all positions of the gate, the whole being so constructed and combined that the weight of the gate shall close it when opened.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE H. PATTISON.

Witnesses:

R. H. WILES,
OSCAR TAYLOR.

Correction in Letters Patent No. 283,416.

It is hereby certified that in Letters Patent No. 283,416, granted August 21, 1883, to George H. Pattison, of Freeport, Illinois, for an improvement in "Gate Hinges," an error appears in line 17, page 2, of the printed specification forming a part of said patent, requiring correction as follows: the word "posts" should read *parts*; and that the specification should be read with this correction therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 28th day of August, A. D. 1883.

[SEAL.]

M. L. JOSLYN,
Acting Secretary of the Interior.

Countersigned:

E. M. MARBLE,
Commissioner of Patents.