

UNITED STATES PATENT OFFICE.

JOHN J. OBER, OF KIBBEY, MONTANA.

GATE-HINGE.

SPECIFICATION forming part of Letters Patent No. 655,106, dated July 31, 1900.

Application filed November 16, 1899. Serial No. 737,227. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. OBER, a citizen of the United States, residing at Kibbey, in the county of Cascade and State of Montana, 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 appertains to make and use the same.

This invention relates to improvements in gate-hinges, and is particularly designed as an improvement upon the construction of hinge for sliding and swinging gates shown and described in a former application filed by me May 4, 1899, Serial No. 715,592.

The objects of the present invention are to simplify the construction and reduce the number of parts of the hinge, to mount the gate so as to pivot directly upon the roller-bracket, and to provide an antifriction-bearing for said bracket which will subserve also the function of a lock to hold the bracket securely against casual displacement.

To this end the invention consists of certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front view of a gate, showing the application of the invention. Fig. 2 is a cross-section on the line X X of Fig. 1. Fig. 3 is a front view of the fixed hinge-bar. Fig. 4 is a vertical central section of the hinge-bar, showing the bracket in position. Fig. 5 is a perspective view of the bracket detached.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The hinge-post 1 and latch-post 2 are disposed on opposite sides of the opening in the fence 3, closed by the gate 4, which is formed of longitudinal rails 5 and end battens 6, firmly attached to the rails at their ends.

The fixed bar 7 of the hinge is provided at its ends with flattened portions 8, apertured for the passage of screws 9 or other suitable fastening devices rigidly securing it to the post 1. This bar is preferably cast and is reinforced at its longitudinal edges by means

of rearwardly-extending flanges 10 and is provided at intervals in its length with elongated openings or longitudinal slots 11. Depressions 12 are formed in the outer face of the horizontal bar and receive the projection 13 of the bracket carrying the flanged roller. These depressions communicate with the slots 11. Inclined or cam portions 14 are provided upon the inner or rear face of the bar 7 at opposite sides of the longitudinal slots 11 and act in the manner of wedges against the lateral extensions of the T projection 15 of the roller-bracket to draw said bracket close up against the face of the bar.

The bracket 16 is formed with or has applied thereto the T projection 15 and the straight projection or lug 13, which are adapted to cooperate with any of the slots 11 and the depressions 12 communicating therewith. The T projection 15 has its neck portion of a diametrical extent corresponding to the width of the slots 11, so as to touch the sides of said slots and prevent any lateral play of the bracket when in position. The head portion of the projection is adapted to pass through any one of the slots 11 and to be turned so as to sit crosswise thereof and engage with the bar 7 upon opposite sides of said slots and prevent outward displacement of the bracket. The lateral extensions of the T projection are also inclined in conformity to the cam portions 14, so as to secure an extended contact therewith.

When placing the bracket in position, it is turned at right angles to the length of the bar 7, so as to permit the interlocking projection 15 to pass readily through the required slot, after which the bracket is turned into parallel relation with the bar, whereby the head of said projection interlocks with the bar upon opposite sides of the slot or opening through which it has been passed. The bracket is released and gravitation causes the lateral extensions of the interlocking projection 15 to ride upon the cam portion 14, whereby the bracket is drawn closely against the face of the bar 7. The depression 12, immediately below the slot receiving the interlocking projection 15, receives the straight projection or lug 13, which serves to prevent any lateral movement of the bracket at its lower end. When it is required to shift the posi-

tion of the bracket, either to raise or to lower it, the bracket is elevated so as to disengage the lateral extensions of the interlocking projection 15 from the cam portions 14, where-
 5 upon the lower end of the bracket can be swung outward to disengage the projection 13 from the bar 7, after which the bracket is turned at right angles to the length of the bar to permit said interlocking projection to be
 10 withdrawn from the engaging slot. The bracket is engaged with the required slot of the bar 7 by a repetition of the operation previously described. This construction of interlocking means, which renders the roller-
 15 bracket vertically adjustable on the bar 7, is shown, described, and claimed in my former application and while preferably used in connection with the improved bracket herein shown may be dispensed with and any other
 20 suitable interlocking connection substituted therefor.

The bracket 16 is provided with a horizontal bearing hub or projection 17, the opening 18 of which is vertically disposed and receives
 25 the shank 19 of the flanged roller-support 20, whereby said support is swiveled or pivotally mounted upon the bracket. The support 20 is in the form of a yoke, having its arms 21 connected at their lower ends by a head or
 30 base plate 22, from which the shank 19 depends. Between these arms the flanged roller 23 is disposed and mounted on a shaft 24, journaled in said arms. The arms are of unequal length, the outermost one having an
 35 extension 25, which projects above the upper portion of the roller, so as to overlap the horizontal rail of the gate resting directly upon the roller and prevent lateral displacement of the gate. The upper face of the bearing
 40 17 and lower face of the base-plate 22 of the yoke are formed with annular grooves or raceways 26, in which travel balls 27, forming an antifriction-bearing between said parts. The shank 19 of the yoke is also formed with an
 45 annular groove or raceway 28 adjacent to its lower end, which groove coacts with a similar groove or raceway 29, formed in the wall of the opening 18, and arranged in these grooves are balls 30, forming an antifriction
 50 thrust-bearing for the lower end of the shank. This bearing is located adjacent to the lower end of the shank and opening 18 in order to avoid the formation of a fulcrum, and thereby prevent tilting and binding of the lower
 55 end of the shank against the wall of the opening. Communicating with said groove 29 is a filling-bore 31, arranged at right angles to the axis of the opening 18 and opening to the exterior through the front of the hub or bear-

ing 17. Through this bore the balls 30 are 60 inserted and removed, and a plug 32 is fitted therein and prevents the escape of the balls. The balls are thus retained securely in place and serve as stops, bearing against the walls of the grooves 28 and 29 and forming an in- 65 terlocking connection to obviate casual displacement of the shank.

By constructing and mounting the bracket in the manner above described the usual hinge connections upon the hinging-post are 70 dispensed with and the gate is adapted to swing freely and easily upon its roller-bearing.

Having thus described the invention, what is claimed as new is— 75

1. A gate-hinge comprising a fixed vertical bar adapted for attachment to a gate-post, a bracket adjustable on said bar, and a roller-support consisting of a yoke swiveled to the bracket and having a roller journaled be- 80 tween its arms, said arms being of unequal length and the longer arm forming a guard extending some distance above the roller to hold a gate resting thereon against outward displacement, substantially as described. 85

2. A gate-hinge comprising a fixed vertical bar adapted for attachment to a gate-post and provided with a series of locking-slots, an adjustable bracket having a locking projection to engage said slots and carrying a 90 bearing, and a roller-support consisting of a yoke swiveled to the bracket and having a roller journaled between its arms, said arms being of unequal length and the longer arm forming a guard extending some distance 95 above the roller to hold a gate resting thereon against outward displacement, substantially as described.

3. A gate-hinge comprising a fixed bar, a bracket adjustably connected with the bar 100 and having a bearing formed with an opening having at or below its center a groove or raceway in the wall thereof and a filling-bore communicating with said groove, a roller-support consisting of a yoke having a roller jour- 105 naled therein and provided with a pendent shank fitting in said opening and also having a groove or raceway, antifriction-balls in said grooves and between the under side of the yoke and upper surface of the bearing, 110 and a plug closing the filling-bore, substantially as described.

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

JOHN J. OBER. [L. S.]

Witnesses:

F. L. SMITH,

THOMAS A. SCULLY.