

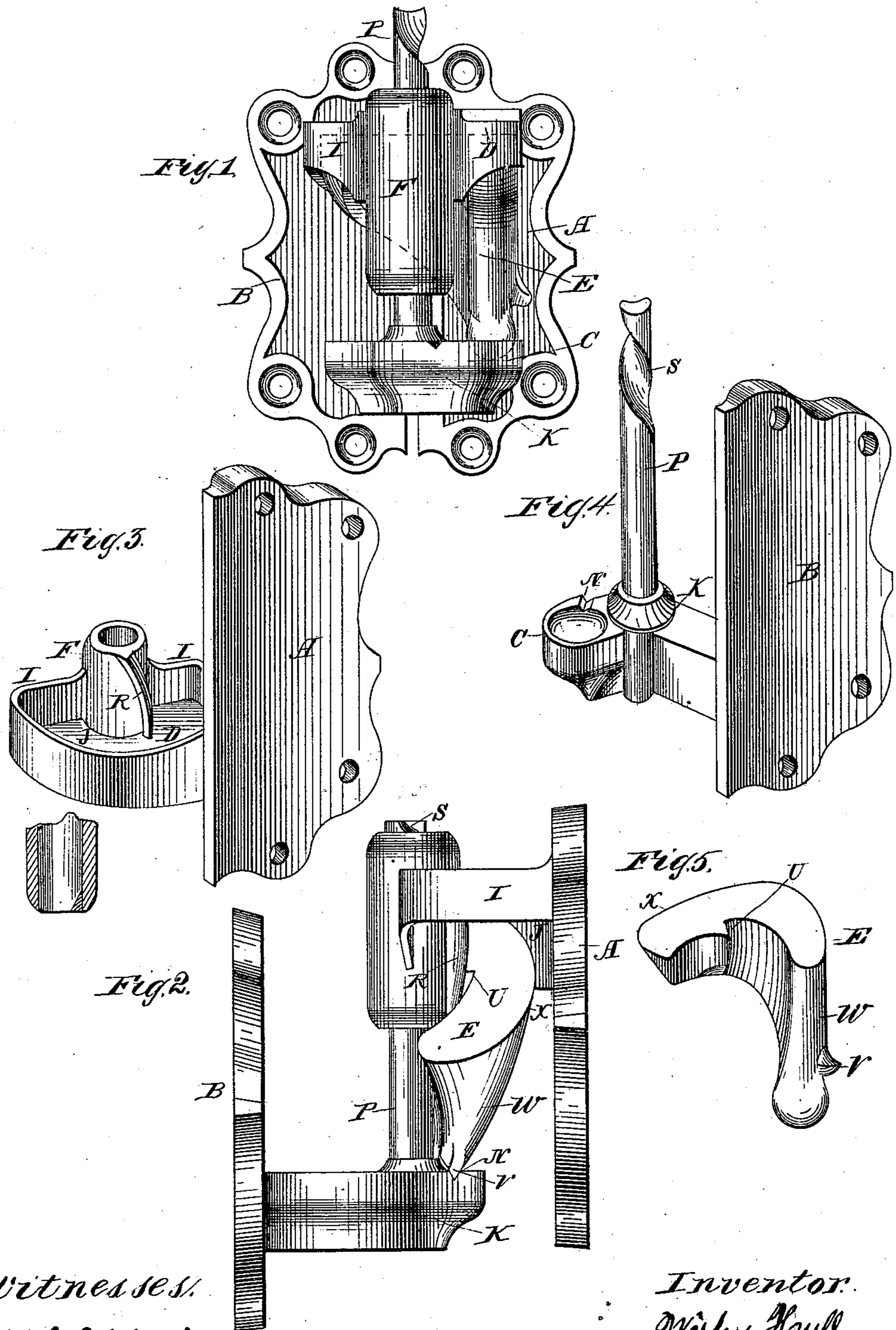
(Model.)

W. HULL.

AUTOMATIC GATE HINGE.

No. 251,589.

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Witnesses:
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GATE-HINGE.

SPECIFICATION forming part of Letters Patent No. 251,589, dated December 27, 1881.

Application filed October 3, 1881. (Model.)

To all whom it may concern:

Be it known that I, WESLEY HULL, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Improvement in Automatic Gate-Hinges, which is fully set forth in the following specification and accompanying drawings, in which like letters represent like parts in different figures.

My invention relates to that class of automatic gate-hinges constructed in such a manner as to cause the gate or door to close by its own gravitation; and it consists in arranging upon one leaf of the hinge a semicircular plate, extending out at right angles therewith, having a chamber formed on the under side of said plate which rests upon the upper surface of the semicircular horizontal arm of an elbow-shaped operating device resting within said chamber, while the other arm of said device extends downward and forward at an angle of about forty-five degrees, its base resting in the cavity of the cup, extending out from the knuckle of the lower leaf of the hinge, and in front of the upper leaf, which is supported on the upper surface of the horizontal arm of said device, inclining back from its base in said cup in the direction the gate closes, and so constructed that in opening the gate its weight will always be sustained in the rear of its base sufficient to close it by its own gravitation until opened nearly in a line with its closed position, when a projection on the inclined arm of the operating device or elbow drops into a recess in the rim of the cup, in which it is pivoted, thus locking the gate open. The upper portion of the pintle is depressed in a spiral shape to prevent the gate from being removed, all of which will hereinafter be more fully set forth.

In the accompanying drawings like letters represent like parts in different figures.

Figure 1 is a front view of the hinge when the gate is closed. Fig. 2 is a rear view of the hinge when the gate is open in a line with its closed position and locked. Fig. 3 is an oblique detached view of the upper leaf of the hinge, showing the chamber with the rib on its side. Fig. 4 is an oblique view of the lower leaf of the hinge, showing the cup and cavity in it and the spiral pintle. Fig. 5 is a detached view of the operating device, showing the pro-

jection on the inclined arm and recess in the inside of the curved or semicircular arm.

In the annexed drawings, A represents the upper leaf of the hinge as seen in Fig. 3; B, the lower leaf of the hinge as seen in Fig. 4.

To the front of leaf A, at right angles therewith, is secured a semicircular or curved plate, D, secured on its front to socket F, to each side of which is secured band I, extending around and below the edge of said plate and secured to the front of leaf A, thus forming a chamber on the under side of said plate between the socket and leaf to receive the upper portion of the operating device or elbow E. Within said chamber, on the side of socket F, is secured the inclined rib R, as seen in Fig. 3, detached view, to enter a recess in the operating device E to retain it in place.

To the knuckle of lower leaf, B, is secured a projecting cup, C, nearly parallel with said leaf, and in front of the upper leaf, A, having a circular cavity formed in the upper portion of said cup, while in the edge of the rim thereof is formed a notch or recess, N, for the end of projection V of the inclined arm W to enter.

The upper portion of pintle P of leaf B is depressed on one side in a spiral or auger shape, as seen in Fig. 4, of a proper spiral turn to move freely through an aperture formed to fit it in the extreme upper end of socket F of the upper leaf, A, in such a manner that in opening the gate it will allow the spiral S of the pintle and the gate to operate freely, and yet not allow it to be lifted off or raised sufficiently to disengage the operating device E until opened nearly in a line with its closed position.

The upper end of the pintle, if made of soft metal, may be riveted down, if desired, to prevent the separation of the hinge or lifting off the gate.

The pintle of the lower leaf of the hinge, in passing up through the socket F of upper leaf, A, connects them together, thus bringing chamber J of the upper leaf above and in the rear of cup C of the lower leaf of the hinge, and is sustained within chamber J upon the upper surface of the curved or semicircular arm X of the operating device E, near its front end, on its horizontal surface, the inclined arm W extending down and inclining forward at an angle of

about forty-five degrees, resting its base in the cavity of cup C, secured to knuckle K of the lower leaf of the hinge, as seen in Fig. 1, thus sustaining the base of the operating device E, while its summit sustains the upper leaf of the hinge in an inclined direction back from its base in the direction the gate closes, thus causing the gate to close by its own gravitation.

The upper surface of the semicircular arm X of the operating device E is also curved in such a manner as to support the upper leaf of the hinge, near the heel or front of the upper surface of said device, when the gate is closed as seen in Fig. 1; but in opening the gate chamber J of the upper leaf of the hinge, within which the upper portion of the operating device E enters, is carried around and forward in the direction of its base, elevating its rear end as it is drawn forward and around, thus sustaining the upper leaf of the hinge at a point still farther back from the front end as it advances forward, and continues to recede or travel back as the upper portion of the operating device is drawn forward until it reaches the rear end of the curved arm X, forming the upper portion of the operating device E, and sustaining the upper leaf near the rear end of said device still in the rear of its base, resting in cup C, sufficient to cause the gate to close by its own gravitation until it is almost in a line with its closed position, when projection V upon the inclined arm W drops into recess or notch N in the rim of cup C, thus locking the gate open, as seen in Fig. 2, which is a rear view of the hinge at a point to which it is seldom if ever opened in general use, thus avoiding all danger of the gate remaining open when not necessary or desirable, and at the same time affording the convenience of free ingress or egress when desirable.

On the side of socket F is formed an inclined rib, R, within chamber J, which enters a recess, U, formed on the inside of the curved arm X or upper portion of the operating device E next the socket, intended to prevent the said device from being withdrawn in the act of unlocking or releasing the gate when desiring to close it, which, as soon as released, will close again by its own gravitation, exerting the greatest force at the point of closing, thus giving

greater security to inclosures than those closing with least force at the closing-point. As the lower leaf of the hinge supports the upper leaf upon the operating device, the lower leaf must be attached to the gate-post and the upper leaf to the gate, like a common hinge, to assist in supporting the gate, and at the same time allow the hinge herein described to operate freely, all of which, being old, is not herein described.

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

1. The operating or closing device E, having a horizontal semicircular arm, X, curved upon its upper surface, forming the upper portion of said device, in combination with plate D of leaf A, for the purpose of closing the gate or door, arranged, constructed, and operating substantially in the manner and for the purpose set forth and described.

2. Bands I I, encircling plate O, forming chamber J, in combination with the semicircular arm X, forming the upper portion of the operating device E, to keep it in place when operating the gate and also protect it from moisture, substantially as and for the purpose described.

3. The combination of closing device E with cup C, secured to the knuckle of the lower leaf of the hinge, arranged, constructed, and operating substantially as and for the purpose specified.

4. Notch N in the rim of cup C, in combination with projection V on the inclined arm W, for the purpose of locking the gate open when desired, substantially as herein described.

5. Rib R on socket F, in combination with recess U on the inside of the operating device E, to prevent it from being withdrawn in the act of unlocking the gate when desiring to close it, substantially in the manner and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature thereto in presence of two witnesses.

WESLEY HULL.

Witnesses:

S. O. HULL,
N. E. ELDRED.