(Model.) 2 Sheets—Sheet 1.

L. PORTER.

BLIND HINGE.

No. 442,689. Patented Dec. 16, 1890.

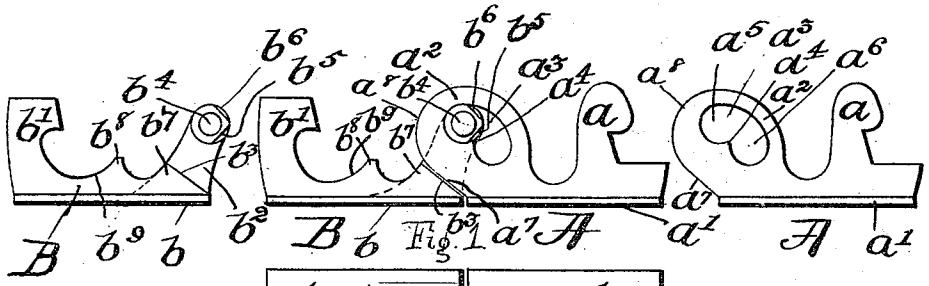


Fig. 1.

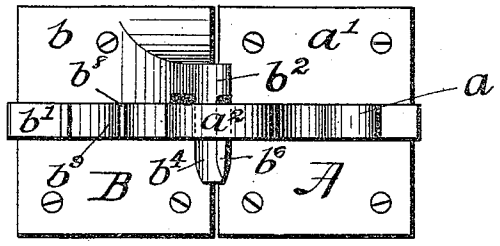


Fig. 2.

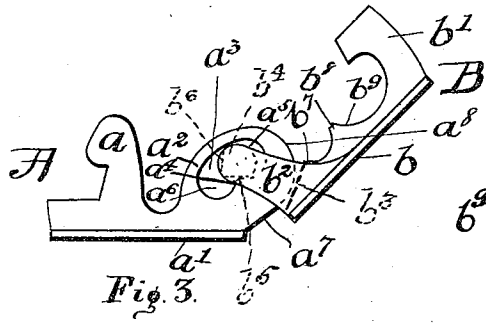


Fig. 3.

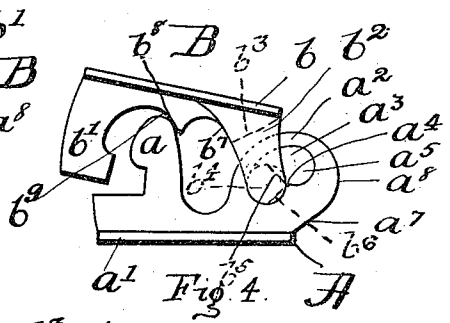


Fig. 4.

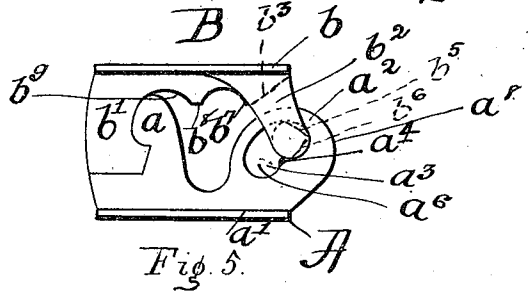


Fig. 5.

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(Model.) 2 Sheets—Sheet 2.

L. PORTER.

BLIND HINGE.

No. 442,689. Patented Dec. 16, 1890.

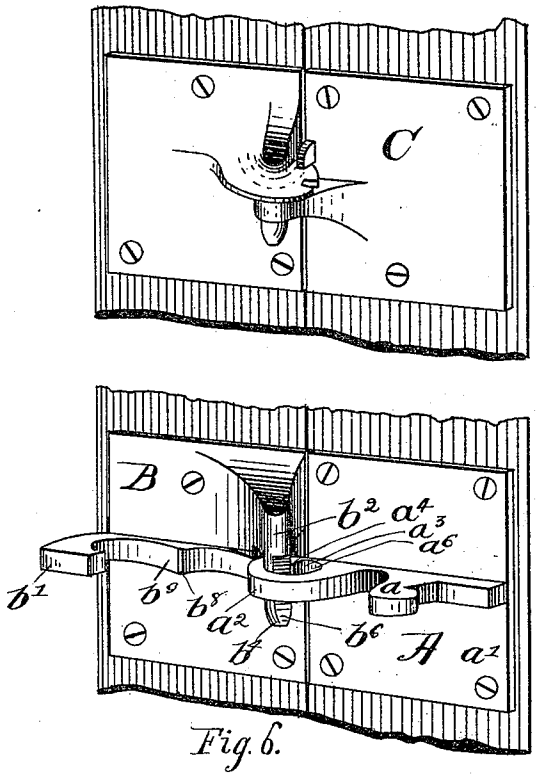


Fig. 6.

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UNITED STATES PATENT OFFICE.

LANSING PORTER, OF AUBURN, NEW YORK.

BLIND-HINGE.

SPECIFICATION forming part of Letters Patent No. 442,689, dated December 16, 1890.

Application filed February 24, 1890. Serial No. 341,574. (Model.)

To all whom it may concern:

Be it known that I, LANSING PORTER, a citizen of the United States, and a resident of Auburn, in the county of Cayuga, State of New York, have invented certain new and useful Improvements in Blind-Hinges; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of specification.

This invention relates to lock-hinges, and has for its object the construction of a hinge which, when the blind or door with which it is used is opened, will securely lock it in that position against the ordinary causes which would close it and at the same time present no obstacle to its being closed by force applied in the correct manner.

The invention further relates to the novel combination and arrangement of parts hereinafter fully set forth, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 shows the hinge, looking at its bottom, the leaves being shown separated at the extreme right and left. Fig. 2 is a face or front view of the hinge as seen in an operative position. Fig. 3 is a plan view showing the swinging leaf turned to a slight extent from the plane of the stationary leaf. Fig. 4 shows the relative position of parts when the swinging leaf is nearly open. Fig. 5 shows the same fully opened. Fig. 6 is a perspective view of the device.

Referring to the drawings by letter, A and B designate, respectively, the stationary and the swinging leaves of the hinge. The stationary leaf is secured to the window-casing and has projecting from near its outer edge and in a plane at right angles to that of the main plate the catch or arm a, having its head projecting outwardly. An ear a^2 projects from near the inner edge of the plate and in the same plane with the catch a. This ear has a slot a^3, which is divided by the lug a^4 into two parts a^5 and a^6, somewhat in the shape of arcs formed by intersecting circles. On the outer edge of the said ear is a straight portion a^7 and a cam a^8, which is in the form of an arc of a circle struck from a center removed a short distance from the center of the circle of the portion a^5 and in such a position that the said cam will approach nearer said center of the part a^5 as the opening movement of the leaf B progresses, the purpose of which will be explained later on. The leaf B is attached to the stile of the blind in a suitable position, and has projecting from its outer end the arm b', having a hooked end which extends inward. This arm and the projection b^8 are in the same horizontal plane as the arm a and the ear a^2 when the two leaves are connected in an operative position. From near the inner edge of the plate b and in a horizontal plane above that of the arm b' projects the arm b^2, carrying the downwardly-extending pintle b^4. A projection b^7 extends from the inner side of the plate b in the same horizontal plane as that of the arm b', and has a flat side b^3, which contacts as the blind opens, first with the straight portion a^7 of the ear a^2, then the cam a^8. A projection b^8 extends from the plate b in the same horizontal plane as that of the arm b' and the projection b^7 and between the same, and has a curved or inclined portion b^9. When the blind has been opened to the extent that the side b^9 of the projection b^8 contacts with the rounded end of the arm a, causing the leaf B to fulcrum on the said arm a and lift the pintle out of the part a^6 of the slot a^3 and, by reason of the inclination of the portion b^9, be forced back into the part a^5, bringing the arms or hooks a and b' into engagement. The flat sides b^6 and b^5 of the pintle facilitate the passage of the same over the projection a^4 in opening and closing the blind respectively, and allow a smooth and easy motion of the contacting parts.

To reduce the friction of the working of the lower hinge, an upper hinge is provided, which sustains nearly the entire weight of the blind. It consists of the knuckle c', attached to the blind and having a pintle c extending downwardly through the knuckle c^2, attached to the window-casing. This suspension of the blind by the upper hinge will cause it to have a tendency to swing inwardly toward the house.

The blind being closed and the parts of the hinge being in the relative positions shown in Fig. 1, the flat side b^3 of the projection b^7 contacting with the straight portion a^7 of the ear a^2 and the downwardly-projecting pintle b^4 in the part a^5 of the slot b^3, a movement of the leaf B toward the position in which it is shown in Fig. 3 will bring the face b^3 in contact with the cam portion a^8 of the edge of the ear a^2. The surface a^3, bearing first against the flat surface a^7 and then the cam surface a^8, will keep the pintle in the portion a^5 of the slot until the leaves have reached the proper position for it to move into the portion a^6. As the revolution of the leaf B progresses and the pintle is by the eccentricity of the cam a^8 allowed to move longitudinally of the slot a^3, the flat side b^5 of the said pintle will come in contact with the projection a^4, and as soon as the revolution of the leaf has progressed approximately to a right angle to the starting-point the eccentricity of the edge of the ear a^2 will have been passed, and the pintle will have slid into the part a^6 of the slot a^3 upon the guide formed by the flat surface b^5 contacting with the projection a^4, obviating all rattle by reason of the gradual descent and the fact that a round surface of the pintle is not required to mount the projection a^4, dividing the two parts of the slot a^3. The pintle has assumed the position shown in Fig. 4 and that a further revolution of the leaf B on said pivotal point will cause a contacting of the outer end of the arm a and the incline b^9 on the projection b^8, which will momentarily fulcrum the leaf B on said contact-point and release the pressure of the pintle, and a further revolution of the leaf around this point of contact will lift the pintle until the flat side b^6 of the same shall be raised above the projection a^4, the gravity of the blind and the contact of the parts a and b^9 will cause the leaf B to move in such a direction as to throw the pintle into the part a^5 of the slot a^3, and the hooks a and b' will be engaged and the blind locked in its open position.

To close the blind, the hooks a and b' must be disengaged by a proper pressure on the hinge edge of said blind, which will disengage the same, when the tendency which the lower part of the blind has to move inwardly will materially assist the hand in closing the same, the flat part b^3 ascending the cam a^8 of the ear a^2 and the square contacting surface of the said flat part b^3 and the straight part a^7 of the edge of said ear slightly resisting the action of wind to open the blind, although not locking it shut.

It will be observed in passing that by reason of the slot and other peculiarities of construction the hooks a and b' do not contact, which prevents any click and consequent wearing of parts. It is also to be observed that the leaf A is reversible for both blinds and that the only change necessary for an adaptation of this hinge to the other blind from that shown is to reverse the arm b^2 of the leaf B.

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

1. In a hinge, the combination of the leaves A and B, provided, respectively, with the hooks a and b', the leaf A carrying the ear a^2, having slot a^3, divided into two parts a^5 and a^6 by the projection a^4, and the leaf B carrying the pintle b^4, having flat sides for the purpose of providing a straight plane of motion for said pintle in passing over the projection a^4, substantially as specified.

2. In a hinge, the leaves A and B, carrying, respectively, the hooked arms a and b', the leaf A having the ear a^2, having a slot a^3, provided at its center with a projection a^4 to the traverse of the pintle b^4 on the leaf B, and the point b^8, adapted to contact with the end of the arm a and by the revolution of the leaf B around said contact lift the pintle thereon over the said projection a^4 and allow the gravity of the blind to engage the hooks a and b', substantially as specified.

3. In a hinge, the leaves A and B, the leaf A provided with a slotted ear a^2, the edge of said ear having the straight surface a^7 and the cam-surface a^8, the pintle b^4 on the leaf B, adapted to rotate in the said slotted ear, the said leaf B having a contact surface b^3 to bear against the surfaces a^7 and a^8 of the ear a^2, substantially as and for the purpose specified.

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

LANSING PORTER.

Witnesses:
A. P. WOOD,
S. M. WOOD.