E. D. WHEELOCK & B. T. CUBINE.

GRAVITY HINGE.

APPLICATION FILED OCT. 24, 1910.

984,724. Patented Feb. 21, 1911.

Fig. 1.

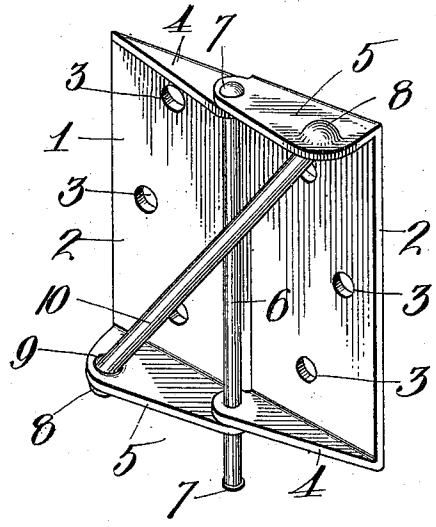


Fig. 2.

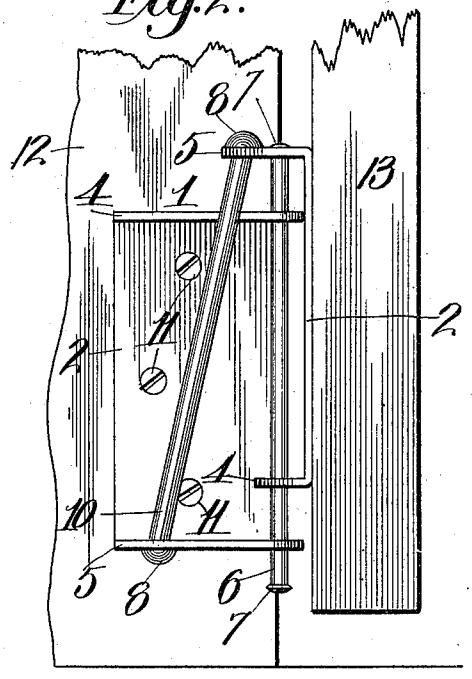


Fig. 3.

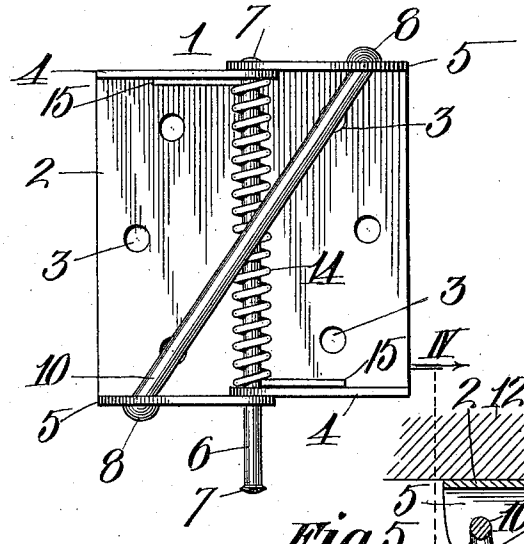


Fig. 4.

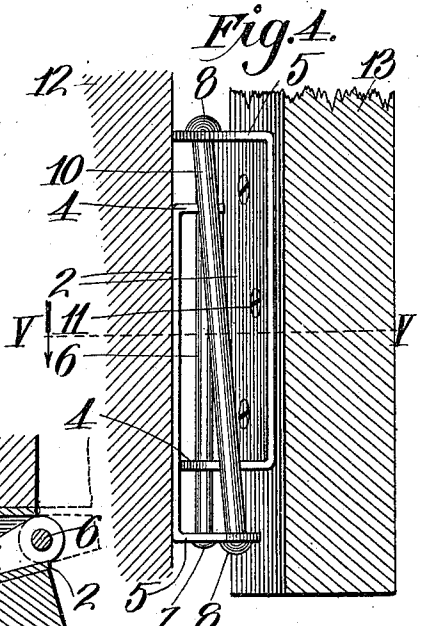
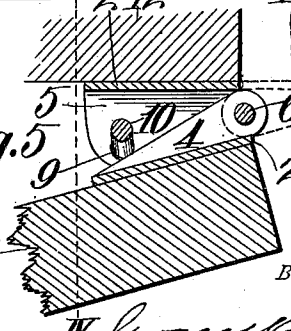


Fig. 5.



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GRAVITY-HINGE.

984,724. Specification of Letters Patent. Patented Feb. 21, 1911.

Application filed October 24, 1910. Serial No. 588,928.

To all whom it may concern:

Be it known that we, ELTON D. WHEELOCK and BURT T. CUBINE, citizens of the United States, residing, respectively, at Beatrice, in the county of Gage, State of Nebraska, and Kansas City, county of Jackson, State of Missouri, have invented certain new and useful Improvements in Gravity-Hinges, of which the following is a specification.

This invention relates to hinges and has for its object the production of a hinge whereby the gravitative tendency of the door or its equivalent carried by the hinge, shall be utilized in automatically effecting its closing movement.

A further object is to produce a hinge of this character which will offer a uniform resistance during the entire opening movement of the door and thus prevent the latter from swinging open under a wind pressure insufficiently strong to overcome the gravitative tendency of the door.

A still further object is to produce a hinge of simple, strong, durable and cheap construction which can be secured in position as easily and quickly as an ordinary hinge.

With these objects in view and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described, and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawing, in which:—

Figure 1, is a perspective view of a hinge embodying our invention. Fig. 2, is a view of the same as secured to a door and door casing, the former being shown about half opened. Fig. 3, is a face view of the hinge as equipped with a spring for facilitating the closing movement of the door. Fig. 4, is a vertical section of the casing and door when the latter is fully opened, the section being taken on the line IV—IV of Fig. 5. Fig. 5, is a horizontal section on the line V—V of Fig. 4.

In the said drawing 1 indicates a hinge constructed as follows:—2 are duplicate hinge plates each provided with the customary holes 3 and its opposite ends with outwardly projecting flanges 4 and 5, the flange 4 tapering by preference from the inner edge of the plate toward the outer edge of the same and the flange 5 from the outer edge of the plate toward the inner edge thereof. The plates are then arranged in inverted position with respect to each other, so that the inner ends of the flanges 4 shall lie between the inner ends of flanges 5. 6 indicates the hinge pin or pintle extending through the overlapped ends of said flanges and the ends of said pins or pintles are preferably upset to produce heads 7, to guard against accidental dislocation of the hinge pin or pintle. The flanges 5 near diagonally opposite corners of the hinge are stamped as at 8 to produce the rounded sockets 9 in their inner faces, and fitting at its opposite ends in said sockets is a stiff lift pin 10.

In practical use, the plate or member 2 whose flange 4 underlies the flange 5 of the companion member, is secured by screws 11, to the door casing like an ordinary hinge, the other member is secured by screws 11 to the door and when the latter is closed, the plates or members of the hinge occupy the relation shown by Figs. 1 and 3. As the door swings open the angularity of the rod 10 is diminished, and in its approach to an upright position, it lifts the door carrying hinge member as will be readily seen by reference to Figs. 2 and 4, and it will be apparent that as soon as the door is released, it will swing back to closed position, the angularity of the lift rod decreasing until the door is fully closed, the flanges of the door carrying member are again in engagement with the flanges of the companion member.

From the foregoing it will be apparent that because it is impossible for the door to be opened without incidentally rising under the lifting action of the rod 10, the weight of the door is utilized in holding it in closed position, and that because of this fact it cannot be swung open even if unlatched, under the pressure imposed by a draft of wind through the house.

If it is desired to effect a quicker automatic closing of the door than is possible through its gravitative action as described, a coiled spring 14 is mounted upon the hinge pin or pintle between the flanges 4, which spring will be compressed as the door is opened so as to exert a downward pressure on the door carrying member and thus facilitate the closing action thereof. If de-

sired the coiled spring may be provided with terminals 15 to bear against the outer faces of the hinge members so that as the door is opened and the member secured thereto rises, it will not only compress the spring endwise but will increase its tension by torsional action. The chief function of the spring will be to give the door a quick start in its closing movement as without the spring the initial part of the closing movement is relatively slow.

From the above description it will be apparent that we have produced a hinge possessing the features of advantage enumerated as desirable and while we have illustrated and described the preferred embodiment of the invention we wish it to be understood that we do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

We claim:—

1. A hinge, comprising a pair of members provided with outwardly projecting flanges at their ends with the inner end of each flange of one member above the inner end of the corresponding flange of the other member, a hinge pin extending through said inner ends of the flanges and of greater length than the members, and a lift pin bearing a pivotal relation to said members and extending from the outer lower corner of one member to the outer upper corner of the companion member.

2. A hinge, comprising a pair of members provided with outwardly projecting flanges at their ends with the inner end of each flange of one member above the inner end of the corresponding flange of the other member, the outer end of the lower flange of one member and the outer end of the upper flange of the other member having upwardly and downwardly opening sockets respectively, a hinge pin extending through said inner ends of the flanges and of greater length than the members, and a lift pin fitting pivotally at its ends in the said sockets of the said members.

3. A hinge, comprising a pair of members provided with outwardly projecting flanges at their ends with the inner end of each flange of one member above the inner end of the corresponding flange of the other member, a hinge pin extending through said inner ends of the flanges, and of greater length than the members, a left pin bearing a pivotal relation to said members and extending from the outer lower corner of one member to the outer upper corner of the companion member, and a spring exerting downward pressure upon the member with which the upper end of the lift pin is pivotally engaged.

4. A hinge, comprising a pair of members, provided with outwardly projecting flanges at the inner end of each flange of one member above the inner end of the corresponding flange of the other member, a hinge pin extending through said inner ends of the flanges and of greater length than the members, a lift pin bearing a pivotal relation to said members and extending from the outer lower corner of one member to the outer upper corner of the companion member, and a coiled spring fitting on the hinge pin and bearing at its lower end upon the lower flange of the member with which the upper end of the lift pin is engaged and at its upper end against the upper flange of the other member.

5. A hinge, comprising a pair of members, provided with outwardly projecting flanges at the inner end of each flange of one member above the inner end of the corresponding flange of the other member, a hinge pin extending through said inner ends of the flanges and of greater length than said members, a lift pin bearing a pivotal relation to said members and extending from the outer lower corner of one member to the outer upper corner of the companion member, and a coiled spring fitting on the hinge pin and bearing at its lower end upon the lower flange of the member with which the upper end of the lift pin is engaged and at its upper end against the upper flange of the other member, and provided with arms bearing against the outer faces of said members.

In testimony whereof we affix our signatures, in the presence of two witnesses.

ELTON D. WHEELOCK.
BURT T. CUBINE.

Witnesses:
HELEN C. RODGERS,
G. Y. THORPE.