

S. FREY.
GRAVITY HINGE.
APPLICATION FILED APR. 1, 1912.

1,049,072.

Patented Dec. 31, 1912.

Fig. 1.

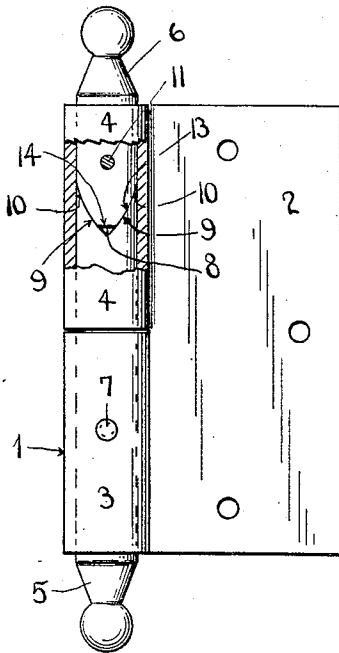


Fig. 2.

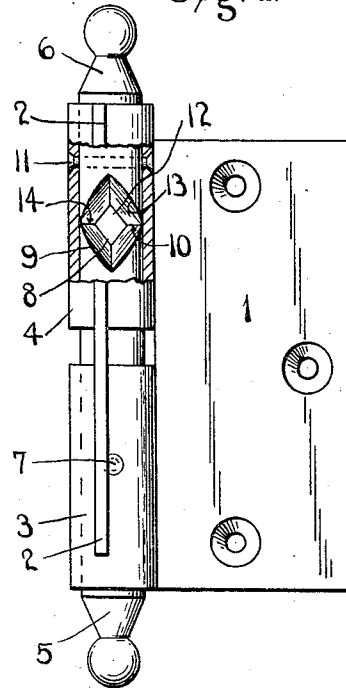
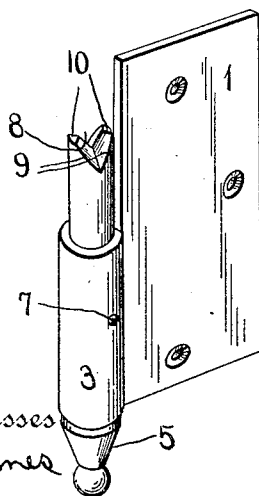


Fig. 3.



Witnesses
L. B. James
C. E. Hunt

Fig. 4.

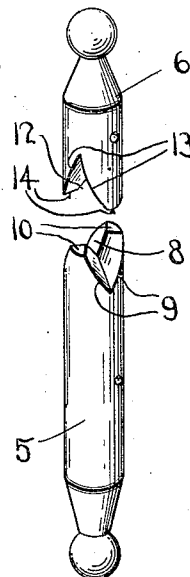
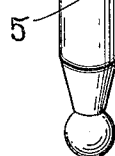


Fig. 5.



Inventor

Sigmund Frey

by *A. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

SIGMUND FREY, OF LOS ANGELES, CALIFORNIA.

GRAVITY-HINGE.

1,049,072.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 1, 1912. Serial No. 687,703.

To all whom it may concern:

Be it known that I, SIGMUND FREY, a subject of the King of Hungary, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Gravity-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.

This invention relates to improvements in hinges for doors, blinds and the like.

One object of the invention is to provide a hinge of this character having an improved construction and arrangement of pivot pins or pintles whereby when the door, blinds, or the like to which the hinge is connected is swung part way open or closed, the swinging member of the hinge will gravitate and carry the door or blind to a full open or closed position and which if desired, will support the door or blind in a partly open position.

With this and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a side view of my hinge when in a full closed position, parts being broken away and in section; Fig. 2 is a similar view of the hinge in partly open position; Fig. 3 is a perspective view of the stationary inner leaf and lower member of the pivot pin or pintle of the hinge; Fig. 4 is a perspective view of the upper member of the pin or pivot of the hinge removed from the latter; Fig. 5 is a similar view of the lower member of the pintle removed from the hinge.

Referring more particularly to the drawings 1, denotes the stationary leaf of my improved hinge here shown as the lower leaf and 2 denotes the swinging leaf of the hinge here shown as the upper leaf and which, for convenience, will be herein referred to as the upper and lower leaves, although it is obvious that they may be reversed in position. On the lower portion of the inner edge of the stationary leaf 1 of the hinge is formed a knuckle 3, while on the upper portion of the swinging leaf of the hinge is formed a knuckle 4.

The pivot pin or pintle of my improved hinge is in two sections, and comprises a lower member 5 and an upper member 6 which are engaged respectively with the knuckles 3 and 4 on the stationary and movable leaves of the hinge. The outer ends of the pintle members 5 and 6 preferably project beyond the outer ends of the knuckles 3 and 4 and are provided with any suitable form of ornamental heads.

The lower pintle member 5 is of much greater length than the upper pintle member 6 and said lower member 5 is secured in the knuckle 3 of the stationary leaf of the hinge 1 by a transversely disposed rivet 7 or other suitable fastening means. The upper portion or inner end of the pintle 5 projects a considerable distance beyond the knuckle 3 and said projecting end of the member 5 is adapted to receive the lower portion of the knuckle 4 of the swinging leaf of the hinge whereby said swinging leaf is pivotally connected with the stationary leaf. The inner end of the pintle member 5 has formed therein a V-shaped notch 8, said notch being arranged transversely to the plane of the leaf 1 of the hinge. The edges of the notch 8 are formed on a wide bevel to provide cam faces 9 the purpose of which will be hereinafter described. The portion of the inner end of the member 5 between the outer ends of the beveled faces of the notch 8 form flat seats 10, the purpose of which will also be hereinafter described. The upper pintle member 6 is secured in the upper end of the knuckle 4 of the movable member 2 of the hinge by a rivet 11 or other suitable fastening means. In the lower end of the pintle member 6 is a V-shaped notch 12, said notch being arranged in the same plane as the leaf 2 of the movable hinge member. The edges of the notch 12 are formed on a wide bevel to provide cam bearing faces 13, which when the hinge is in closed position engage the cam faces 9 of the notch 8 in the lower member of the pintle. The portion of the lower end of the member 6 between the lower edges of the cam faces 13 form flat seats 14 which, when the leaves of the hinge are swung half way open or are in positions at right angles to each other, will engage the seats 10 on the inner end of the lower pintle member, said lower pintle member thus supporting

the movable member of the hinge and the blind, door or the like to which the same is attached in a half or partly open position.

In the operation of the hinge, assuming
5 that the leaves thereof are in a closed or folded position in which position the blind or door hung by the hinge will also be closed, and it is desired to open said blind or door, the latter together with the movable
10 leaf of the hinge is swung outwardly to a position at right angles to the stationary leaf of the hinge. In thus swinging the door or blind and movable member of the hinge outwardly, the cam faces 13 formed
15 by the notch in the inner end of the pintle member 6 will ride up the cam or inclined faces 9 of the notch 8 in the inner end of the lower pintle member, thus lifting the movable leaf of the hinge, together with the
20 blind or door upwardly until the seats 14 on the inner end of the pintle member 6 engage the seats 10 on the inner end of the lower pintle member in which position the movable hinge member will remain until the
25 blind or door is swung open far enough to disengage the seats 12 and 14 whereupon the cam faces of the upper and lower hinge pins will again come into engagement, and when so engaged the weight of the door or
30 hinge will cause the movable leaf and upper member of the pintle pin to drop or move downwardly on the lower member of the pintle. In thus moving downwardly the engagement of the cam faces 13 of the upper
35 member of the pintle with the cam faces 9 on the inner end of the lower member of the pintle will swing the movable leaf of the hinge and the blind or door to a full open position wherein the leaves of the hinge will
40 be in the same vertical plane.

In closing the door or blind, the operation just described is reversed and a further description of this operation is not thought to be necessary. It will be noted that when the
45 blind or door is swung to a full closed position that the lower edge of the same may be permitted to drop down into close engagement with the floor or sill, as when the blind or door is swung open the same is raised or
50 lifted, said raising or lifting movement beginning as soon as the blind or door begins to swing outwardly, so that any obstructions or unevenness of the window sill or floor will not interfere with the opening move-
55 ment of the blind or door. By forming the pintle members of the hinge separate from the leaves, said pintle members may be constructed of case hardened steel or other wear

resisting metal, while the leaves and knuckles thereon may be formed of ordinary 60 cast, rolled or sheet metal.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without 65 requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advan- 70 tages of the invention as claimed.

Having thus described my invention, what I claim is;

1. A hinge comprising door and frame members having cooperating knuckles on 75 their adjacent edges, a pintle for insertion in said knuckles to hingedly and slidably connect said members, said pintle being formed in separably connected sections and each section secured to the knuckle of one of 80 said members, one section projecting at its inner end beyond the inner end of the knuckle to which it is secured, and the other section being shorter and terminating within the knuckle to which it is secured, the longer 85 section extending into the knuckle of the shorter section, and the inner ends of said sections having interlocking co-acting cam faces.

2. A hinge comprising two leaf members 90 each having a knuckle, a pintle for insertion in said knuckles composed of separably connected sections of different lengths, the shorter section being fixed within the knuckle of one leaf with its inner end terminat- 95 ing within said knuckle, the longer section projecting beyond the inner end of the other leaf knuckle and adapted to extend into the knuckle of the other leaf, said inner pintle ends each having a V-shaped notch therein, 100 the notch of one section having beveled cam faces, and the notch of the other section having cooperating cam faces for engagement with the beveled faces of said first mentioned section, the points formed by said 105 notches being flattened to form seats for engagement when the leaves are at right angles to each other.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 110 nesses.

SIGMUND FREY.

Witnesses:

J. E. HOPKINS,
A. H. JONES.