E. E. WITTER.

HINGE.

APPLICATION FILED FEB. 5, 1920.

1,340,866.

Patented May 18, 1920.

Fig. 1.

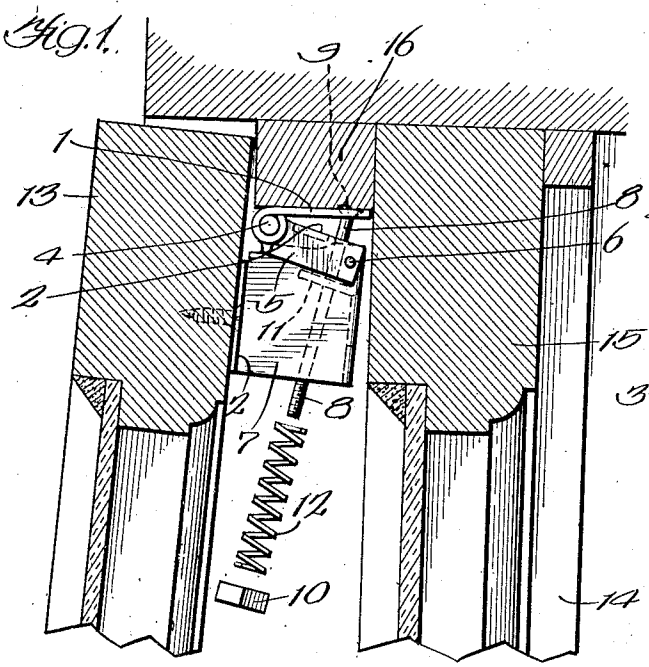


Fig. 3.

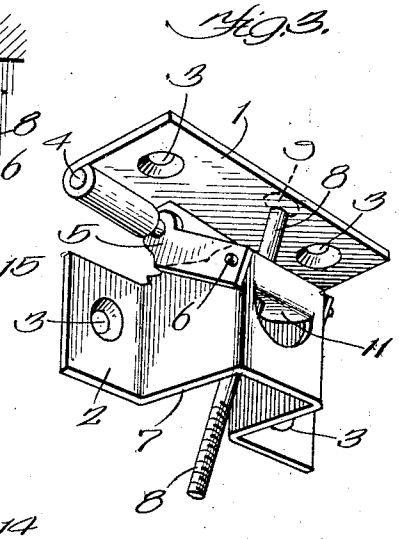


Fig. 2.

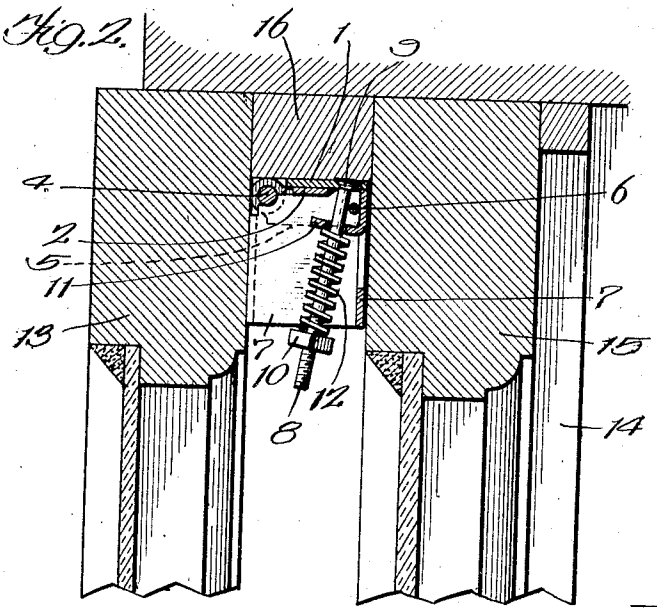
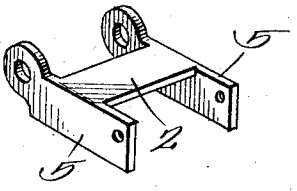


Fig. 4.



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UNITED STATES PATENT OFFICE.

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HINGE.

1,340,866. Specification of Letters Patent. Patented May 18, 1920.

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To all whom it may concern:

Be it known that I, EZRA E. WITTER, citizen of the United States, residing at Zion City, in the county of Lake and State of Illinois, have invented a certain new and useful Improvement in Hinges, of which the following is a full, clear, concise, and exact description.

My invention relates to hinges and has for its object the provision of an improved assembly of the leaves of a hinge whereby they may be spread apart at the hinge pintle to facilitate the attachment of the leaves to parts which are to be brought into hinged relation thereby and to afford loose hinge connection between such parts if such should be desired. Where the hinge connection between parts is not to be loose I employ means for bringing the leaves of the hinge into normal relation. This means is desirably in the nature of spring mechanism that is preferably inclusive of a bolt having one end in engagement with one spring leaf and its other end provided with an enlargement that is preferably in the form of a nut threaded upon the bolt. A coiled spring surrounds the bolt and is interposed between the nut and the other leaf of the spring. The hinge leaves are permanently assembled by means of a link engaging the hinge pintle that is provided upon one hinge leaf and a link pintle upon the other leaf. This link serves to maintain the hinge leaves in assembly in all relative positions thereof and to define their relative motion when being spread apart or brought together at the hinge pintle. The hinge of my invention, while not being limited to any particular use thereof, is of especial service in mounting storm windows and screens as this work may be done, by means of such a hinge, entirely within doors to make it safe for the mechanic.

I will explain my invention more fully by reference to the accompanying drawing in which Figure 1 illustrates a storm window, in section, about to be positioned in front of a window, also shown in section, with the aid of hinges of my invention; Fig. 2 shows the structure of Fig. 1 with the storm window finally in place; Fig. 3 is a perspective view of the hinge showing the leaves thereof in a spread apart position; and Fig. 4 shows the link which is preferably employed for maintaining the hinge leaves in assembly.

Like parts are indicated by similar characters of reference throughout the different figures.

In the hinge illustrated the leaves 1 and 2 thereof are limited to an angular relation, but the invention is not to be thus restricted.

These leaves are provided with holes 3 for the reception of hinge screws. The hinge pintle 4 is carried upon one hinge leaf and is brought into assembly with the other hinge leaf by means of a bilateral link 5 through one end of which the pintle 4 passes. A link pintle 6 passes through the other end of the link and through the sides of a U-shaped extension 7 of the hinge leaf 2, this U-shaped extension underlying the hinge 1 and incidentally serving to prevent the hinge leaves from closing together within an angle of 90°, though the invention is not to be thus restricted. The link 5 thus coöperates with the hinge pintle 4 in assembling the hinge leaves. If the parts joined by the hinge leaves are to be loosely connected, the structure thus far described may be unprovided with further adjuncts, but if the hinge pintle 4 is to be normally maintained in fixed position with respect to the hinge leaf 2 as well as with the hinge leaf 1, I employ means for forcing the hinge leaves together at the hinge pintle. This means is desirably in the form of spring mechanism which serves to turn the link 5 upon or at the pintle 4 to bring the base of the U-shaped projection 7 against the inner face of the hinge leaf 1, the spring mechanism desirably operating upon the hinge leaf 2 to secure this result and also to bring the inner longitudinal edge of the leaf 2 at the hinge pintle 4.

This spring mechanism is desirably inclusive of a bolt 8 having a head 9 at one end that is in rocking engagement with the hinge leaf 1 and having another enlargement at its other end which is preferably in the form of a nut 10 adjustably positioned upon the bolt shank by being threaded thereon. The bolt freely passes through an ear 11 carried by the hinge leaf 2 and preferably formed by inturning a part of the base portion of the projection 7 of the leaf 2.

A spring 12, which is made heavy enough to serve the purpose to be accomplished thereby, surrounds the bolt and is interposed between the nut 10 and the hinge ear 11, the spring serving to exert pressure, when the nut 10 is tightened, to bring the hinge leaves into normal relation.

Referring now more particularly to Figs. 1 and 2 which illustrate one use to which the hinge of my invention may be put, I have there shown a storm window 13 which, in Fig. 1, is in the process of being mounted in front of a window structure 14, Fig. 2 illustrating the final positioning of the storm window. When the storm window is to be positioned the upper window sash 15 is lowered to afford access to the rail 16 to which the leaves 1 of two or more hinges are to be attached by means of screws passed through the holes 3 in these hinge leaves, the springs 12 and the nuts 10 then being desirably removed from the bolts 8 in order that the hinge leaves 2 may be readily attached to the top rail of the storm window before the storm window is finally raised to position, all as is clearly illustrated in Fig. 1. When the parts have been partially assembled as illustrated in this figure the springs 12 are placed about the bolts 8 and the nuts 10 are threaded upon said bolts whereby the hinge leaves are pressed together to occupy the relation therebetween illustrated in Fig. 2, the storm window being elevated into position and drawn close to the railing or framing 16 surrounding the window opening. The springs 12 thus serve as an adjusting means, in conjunction with the nuts 10 and bolts 8 to move the storm window upwardly and inwardly into just the position it is finally to occupy.

The storm window may, obviously, be readily demounted at the conclusion of a winter season by unscrewing the nuts to allow the hinge leaves to spread apart to bring the screws in the holes 3 in the leaves 2 into more accessible positions.

While I have herein shown and particularly described one use to which the hinge of my invention may be put, the invention is to cover the use of the hinge when employed in any connection. Nor is the invention to be limited to the particular construction of hinge illustrated as changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A hinge having two leaves; a pintle carried by one leaf; a link pivotally connected with the other hinge leaf and coupling the same with said pintle whereby the hinge leaves may be moved with relation to each other at the hinge pintle; and means for forcing the hinge leaves together at the hinge pintle.

2. A hinge having two leaves; a pintle carried by one leaf; a link pivotally connected with the other hinge leaf and coupling the same with said pintle whereby the hinge leaves may be moved with relation to each other at the hinge pintle; and a spring for forcing the hinge leaves together at the hinge pintle.

3. A hinge having two leaves; a pintle carried by one leaf; a link pivotally connected with the other hinge leaf and coupling the same with said pintle whereby the hinge leaves may be moved with relation to each other at the hinge pintle; a bolt engaging one hinge leaf; a nut threaded upon the bolt; and a spring between this nut and the other hinge leaf to force the hinge leaves together at the hinge pintle.

In witness whereof I hereunto subscribe my name this 31st day of January, A. D. 1920.

EZRA E. WITTER.