May 18, 1954 H. C. WESTPHAL 2,678,463

HINGE FOR SCREEN DOORS

Filed March 26, 1953

Fig. 1

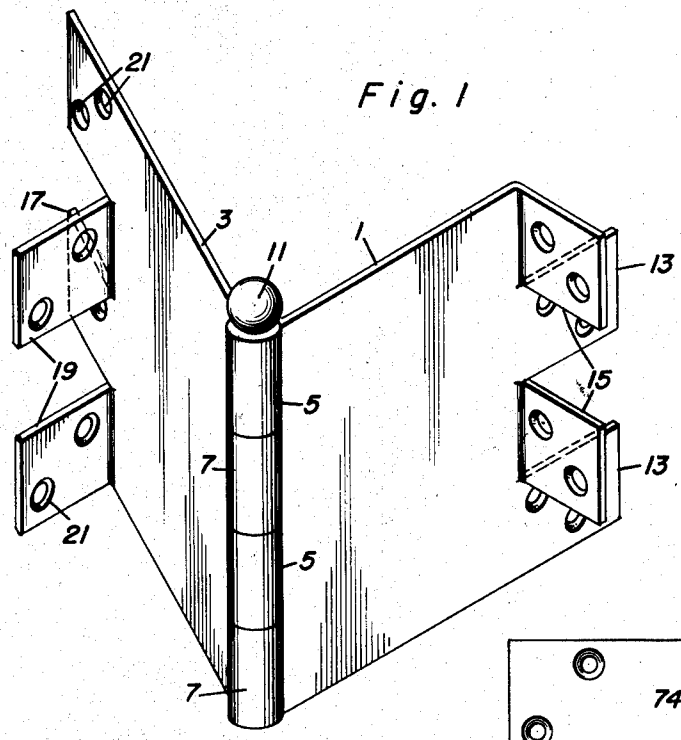


Fig. 3

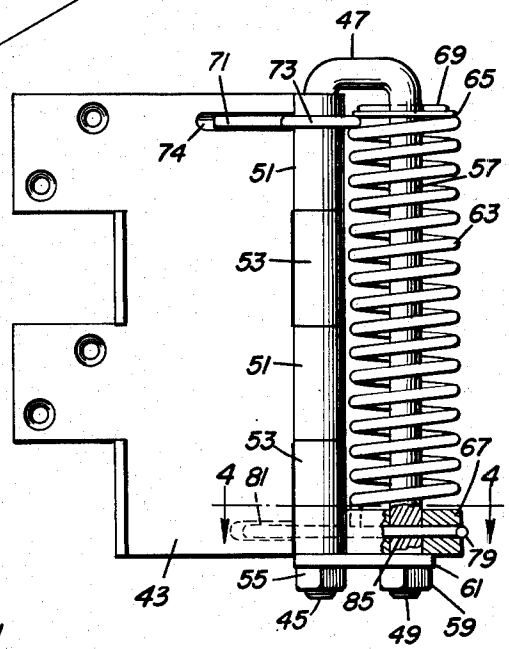


Fig. 2

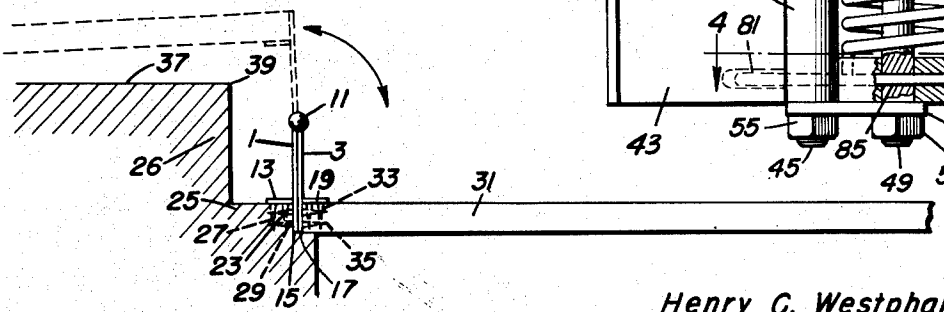
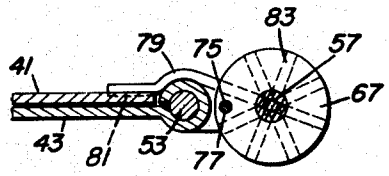


Fig. 4



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HINGE FOR SCREEN DOORS

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2 Claims. (Cl. 16—180)

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My invention relates to improvements in hinges of the double-leaf type for screen doors.

The primary object of my invention is to provide a sturdy hinge for hanging screen doors in setback position in outside doorway frames to swing open outwardly 180 degrees and clear the adjacent vertical outer edge of the doorway frame, all to the end that such setback doors and the vertical adjacent edge of the doorway frame will not be damaged by swinging of the door against said edge.

Another object is to provide in conjunction with the above for wide opening of such setback screen doors and limiting such opening by engagement of the screen door with the outside wall of the building.

Still another object is to provide a hinge for the above purposes tensioned by a coil spring against opening, and novel means for varying the tension exerted by the spring as occasion may require.

Still another object is to provide a hinge of the type and for the purposes above specified and which is comparatively inexpensive to manufacture and easy to install.

Other and subordinate objects, together with the precise nature of my improvements and the advantages thereof will become readily apparent when the following description and claims are read with reference to the drawing accompanying and forming part of this specification.

In said drawing:

Figure 1 is a view in perspective of my improved hinge in one embodiment thereof;

Figure 2 is a fragmentary view partly in transverse section and partly in plan illustrating the hinge installed by attachment to the doorway frame and a screen door;

Figure 3 is a view in side elevation of another embodiment of my invention in which the hinge is spring tensioned, and

Figure 4 is a fragmentary view in horizontal section taken on the line 4—4 of Figure 3.

Referring to the drawing by numerals, the hinge of my invention, in the embodiment shown in Figures 1 and 2, comprises a pair of rectangular hinge leaves 1, 3 extending from vertical hinge barrels 5, 7, alternating relatively, and rotatable about the usual hinge pintle 11 so that said leaves 1, 3 are pivotally connected at corresponding edges thereof for opening and closing movement. At the other edges, constituting the attaching edges thereof, the hinge leaves 1, 3 have formed thereon vertically alternating saddle forming ears designated 13, 15 on leaf 1

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and 17, 19 on leaf 3, the ears 13, 17 being coplanar with the leaves 1, 3 and the leaves 15, 19 being coplanar on each leaf and bent thereon at a right angle to the ears 15, 17. Preferably the ears 13, 15, 17, 19 are rectangular. Suitable screw holes 21 are provided in each of said ears.

As shown in Figure 2, the hinge leaf 1 is attached to the vertical corner 23 of an outside door stop 25 of a doorway 26 with the ears 13, 15 straddling said corner and fixed to said stop by screws 27, 29 so that leaf 3 is attached to said stop, whereas, the ears 17, 19 are attached in straddling relation to one vertical corner of the screen door 31 by screws 33, 35. As shown in Figure 2, when the leaves 1, 3 are closed to close the screen door 31, said leaves each lie in a vertical plane at a right angle to the plane of the doorway frame 26 with the pintle 11, that is the axis of the hinge, being arranged so that the screen door 31 and hinge leaves 1, 3 may be opened 180 degrees to swing the screen door 31 against the outside wall 37. As will be seen, by attaching the hinge to the setback door stop 25 the screen door 31, when closed, is correspondingly set back in the door frame 26. As will also be seen from Figure 2, the hinge is offset from the adjacent vertical corner 39 of the doorway frame 26 so that when the screen door 31 is fully opened the leaf 3 attached thereto cannot engage said corner 39.

In the embodiment of the invention shown in Figures 3 and 4, the leaves 41, 43 are constructed as in the first described embodiment, but are spring tensioned against opening by the following means.

The pintle comprises one leg 45 of a U-bolt 47, said leg being extended downwardly through the hinge barrels 51, 53 with a nut 55 threaded on the lower end thereof, and its other leg 57 being spaced outwardly of the barrels 51, 53 parallel therewith and provided with a nut 59 threaded on the lower end thereof. The lower ends 45, 49 are connected below the leaves 41, 43 by a suitable flat link 61 retained on said ends by the nuts 55, 59 and connecting said legs rigidly together at said ends thereof.

A coil spring 63 on the leg 57 is confined thereon between an upper washer 65 on said leg 57 and a lower collar 67 on said leg 57 rotatable about the same and seated on the link 61. A cotter pin 69 in said leg 57 backs up the washer 65. The upper end 71 of the coil spring 63 is bent, as at 73 around one side of one hinge barrel 51 and slidably fitted in a transverse groove 74 in the leaf 43. The other end 75 of the spring

63 is anchored in a recess 77 in the upper face of the collar 67 and a pin 79 is extended diametrically through said collar 67 and extends around one of the hinge barrels 53 and is slidably fitted in a transverse groove 81 in the other leaf 41. Thus, the coil spring 63 exerts tension against the leaves 43, 41 to oppose opening of the hinge and to close said hinge for closing a screen door to which the hinge is attached. The collar 67 is provided with angularly related diametrical bores 83 for selective insertion of the pin 79 therethrough and the leg 57 is provided with a diametrical bore 85 with which said bores 83 may be registered selectively by rotation of the collar 67 so that the pin 79 may be inserted through selected bores 83 and bore 85 in differently rotated positions of the collar 67 in which the spring 63 is variably tensioned by said collar. As will be clear, when the leaves 41, 43 are attached to a screen door in the manner previously described with reference to the first embodiment, the spring 63, leg 57 and collar 67 and link 61 will rotate 90 degrees when the hinge opens 180 degrees so that the tension exerted against the leaves 41, 43 by the spring 63 will be equalized against both leaves. This results because the spring 63 is wound up during opening of the leaf 43 until its tension is sufficient to rotate the collar 67 ninety degrees against the resistance imposed on the free end of the pin 79 by the stationary leaf 41.

The outside door stop 25 may be formed on the usual brick moulding of brick buildings, or in frame buildings, or store fronts, by the usual door stop on the outside door casing.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, is susceptible of modification without departing from the inventive concept and right is herein reserved to such modifications as fall within the scope of the appended claims.

What is claimed as new is as follows:

1. A hinge for hanging a screen door at its rear edge to the inwardly offset vertical corner of an outside door stop, said hinge comprising a pair of hinge leaves having hinge barrels pivotally connected together for opening and closing of said leaves, attaching edges comprising vertically alternating ears forming saddles adapted to straddle said corner and edge respectively, a U-bolt having a pintle forming leg pivotally connecting said barrels and another parallel leg, a coil spring on said other leg, means connecting said spring to said leaves to tension said leaves against opening comprising an extended end on said spring bearing against one leaf, a collar on said other leg to which the other end of said spring is connected, and a pin extending through said collar and other leg and bearing against the other leaf.

2. A hinge according to claim 1, said other leg having a diametrical pin receiving bore therein, and said collar being rotatable on said other leg and having diametrical angularly related pin receiving bores therein for registration selectively with said first named bore by rotation of the collar to permit fastening of said collar by said pin to said other leg in different rotated positions to variably tension said spring.

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