Oct. 12, 1926. 1,602,729

C. G. WALTERS

SPRING HINGE

Filed April 6, 1925

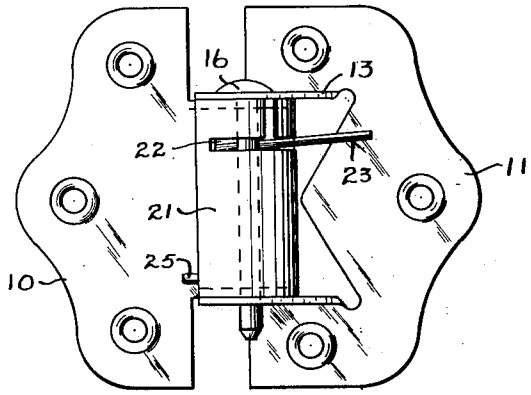


FIG.- 1

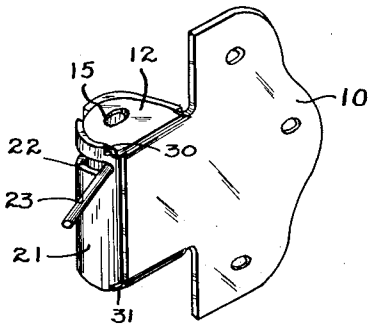


FIG.- 4

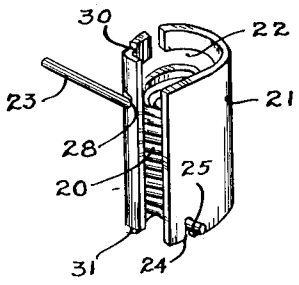


FIG.- 3

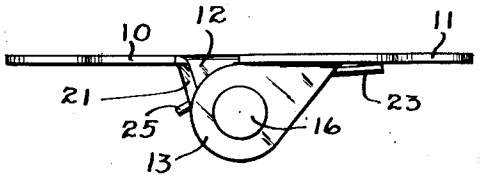


FIG.- 2

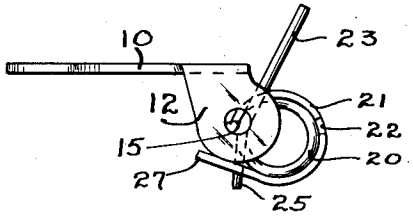


FIG.- 5

Inventor

Cornelius G. Walters

By

Bates, Markham & Gobrisp & Care

Attorneys

Patented Oct. 12, 1926. 1,602,729

UNITED STATES PATENT OFFICE.

CORNELIUS G. WALTERS, OF LAKEWOOD, OHIO.

SPRING HINGE.

Application filed April 6, 1925. Serial No. 20,918.

This invention relates to separable spring hinges, particularly those which are adapted for use in connection with screen doors and the like. One form of separable hinge heretofore used has the spring permanently carried by one of the separable sections wherefore in the event of spring failure the entire hinge must be replaced. Another form of separable hinge has the spring removable from the section, but the spring is held in place only by the hinge pintle. The principal objection to this arrangement is the difficulty of holding the spring in place while the hinge pintle is being forced into position.

One of the objects of the present invention therefore, is the provision of a separable spring hinge wherein the spring may be removed from one of the sections, but is normally held thereby when the hinge pintle is removed and the hinge is separated. An important advantage of this provision is that the spring may be readily replaced in the event of failure, yet may be held sufficiently rigid in position by one of the sections while in use so that no difficulty is experienced in joining the sections by the use of the hinge pintle.

A further object of my invention is to simplify the hinge construction so that all of the parts, except the spring and pintle may be made by stampings, wherefore the manufacturing costs may be reduced to a minimum.

I carry out the above objects by providing a hinge having separable sections, one of which is arranged to frictionally engage a spring housing and to hold it in the desired position. The housing maintains the spring under normal initial tension and enables the spring to be removed from one of the sections as a unit, without disturbing the screws which are employed for holding the sections in place. Moreover, by employing friction for holding the casing then the pintle may be removed without allowing the spring to fall out of place.

The preferred means for carrying out my invention is set forth in the drawings wherein Fig. 1 is an elevation of an assembled hinge embodying my invention; Fig. 2 is a plan view of the hinge shown in Fig. 1; Fig. 3 is a perspective view of the spring and casing apart from the hinge section; Fig. 4 is a perspective view showing the spring and casing frictionally held by one of the sections; and Fig. 5 is a plan view of the section shown in Fig. 4 and illustrating the casing as partly removed therefrom.

My invention is shown with a separable hinge having sections 10 and 11 which are arranged to be fastened to the door jamb and to the door respectively. The section 10 is illustrated as having upstanding ears 12, while the section 11 is shown as having upstanding ears 13. The ears on the section 10 are preferably inside those on the section 11 as shown in Fig. 1, but the respective ears have registering openings 15 for receiving a hinge pintle 16.

The spring which I employ is shown as a coiled member 20 which is disposed under tension within a casing 21. To accomplish this the casing is slotted as at 22 adjacent one end thereof to provide a shoulder against which one end 23 of the spring may engage. This slot also functions to permit the end 23 of the spring to be swung with reference to the casing and thereby to permit opening of the screen door. During such opening movement the spring is placed under further tension in the usual way. At the opposite end of the casing a slot 24 provides a shoulder for receiving the end 25 of the spring. Thus the casing functions to maintain the spring under normal tension independently of the sections 10 and 11.

To position the casing and therefore the spring with reference to the separable sections, I have shown the casing as being reduced to admit the tongue 12. This reduced portion is indicated in Fig. 3 at 30 and 31 respectively. The depth of the reduced portion is approximately equal to the thickness of the metal which forms the ears 12, whereby the outer surfaces of the ears are flush with the edges of the casing. Moreover the ears 12 are rounded, as shown in Fig. 4, so as to close the ends of the casing. Since the hinge sections are made of light sheet metal, then the ears 12 are slightly yieldable wherefore the casing may be held by frictional contact between said ears. The extent of such frictional contact between the ears and casing is such, however, that if desired, the casing may be removed with the application of only slight manual pressure, yet may be prevented from falling out of place in the event the pintle is removed.

The use of a casing which normally holds

the spring under initial tension is advantageous since it permits a spring to be replaced without replacing the entire hinge. Moreover, in the manufacture of such hinges the spring may be mounted independently of the separable sections within the casing. This obviates the necessity for holding the spring under tension with the fingers during the assembling operation. In Fig. 5 the casing is partially inserted between the ears 12, and illustrates the ease with which the assembling or dismantling operation may be accomplished.

When the hinge is assembled, it will be noted that it acts as an ordinary spring hinge since one end 23 of the spring is arranged to abut the section 11 while the edge 27 of the casing is arranged to abut the section 10 while the door is being opened. The angular position of the slot 25 with reference to the shoulder 28 in the slot 22 can be so determined, that the casing holds the spring under normal initial tension. Thus the pintle may be readily removed or replaced without requiring the spring to be manually compressed.

Having thus described my invention, I claim:

1. A separable spring hinge comprising two main members adapted for attachment to the door and jamb respectively and a removable pintle connecting the same, in combination with a casing which is separable from and is yieldably held by one of said members, and a spring carried by the casing in such manner that the casing holds the spring under normal initial tension.

2. A separable spring hinge comprising in combination two separable sections, one of said sections having ears formed integrally therewith, a removable pintle passing through said ears and joining said sections together, a casing disposed between said ears and being yieldably held thereby, and a spring surrounding the pintle, said spring being held under normal initial tension by said casing, and being out of contact with said pintle.

3. A separable spring hinge comprising in combination two sections, a removable hollow casing having open ends, a spring carried under normal initial tension by said casing, one of said sections having portions thereon frictionally and yieldably engaging the casing and functioning to close the ends thereof, and a removable pintle extending through said portions and functioning to hold said sections together.

4. A separable spring hinge comprising in combination two sections, each having upstanding portions, the upstanding portions on one section being inside those on the other, a hollow casing yieldably held by the inner portion, said inner portions being adapted to provide a closure for the ends of said casing, a removable pintle extending through all of said portions, and a spring held under normal initial tension by said casing independently of said pintle.

5. A separable spring hinge comprising in combination two separable sections, a pintle extending through the sections and connecting them together, a spring surrounding the pintle and the housing for the spring, said housing comprising a one-piece sheet metal member which is formed independently of the sections and which is adapted to hold the spring under normal initial tension, said housing being yieldably held by one of said sections.

6. A separable spring hinge, comprising in combination two separable sections, each of said sections having upstanding ears formed integrally therewith, the ears of one section fitting within the ears of the other section, a hinge pintle extending through the ears for holding the sections together, a spring surrounding the pintle, and a housing comprising a cylinder of light sheet metal, said housing having shoulders therein for holding a spring in initial tension independently of the pintle.

In testimony whereof, I hereunto affix my signature.

CORNELIUS G. WALTERS.