P. T. SIMMONS.

HINGE.

APPLICATION FILED DEC. 21, 1914.

1,166,551. Patented Jan. 4, 1916.

Fig. 1.

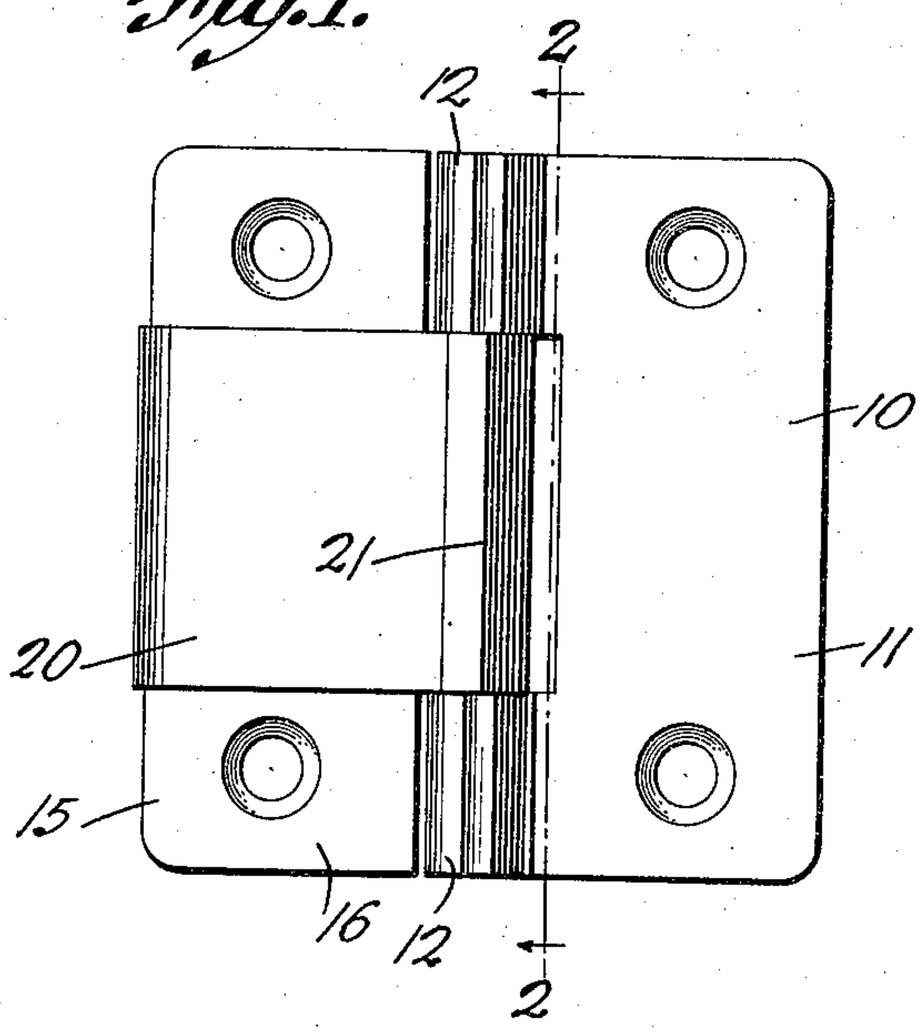


Fig. 2.

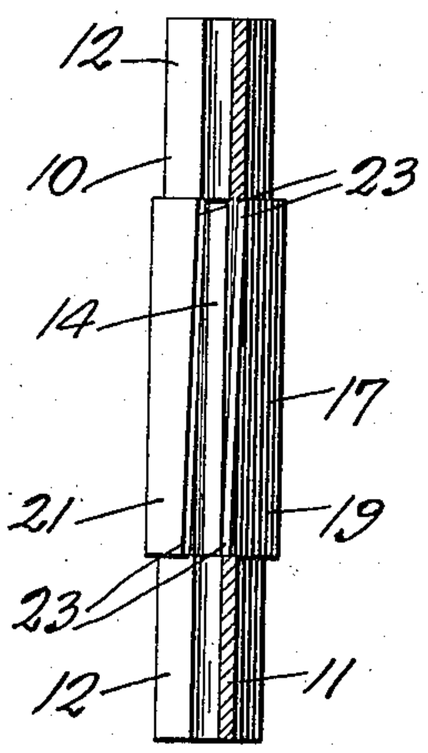
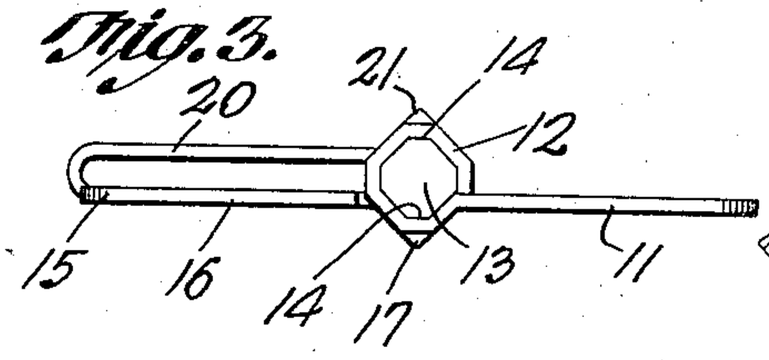


Fig. 3.



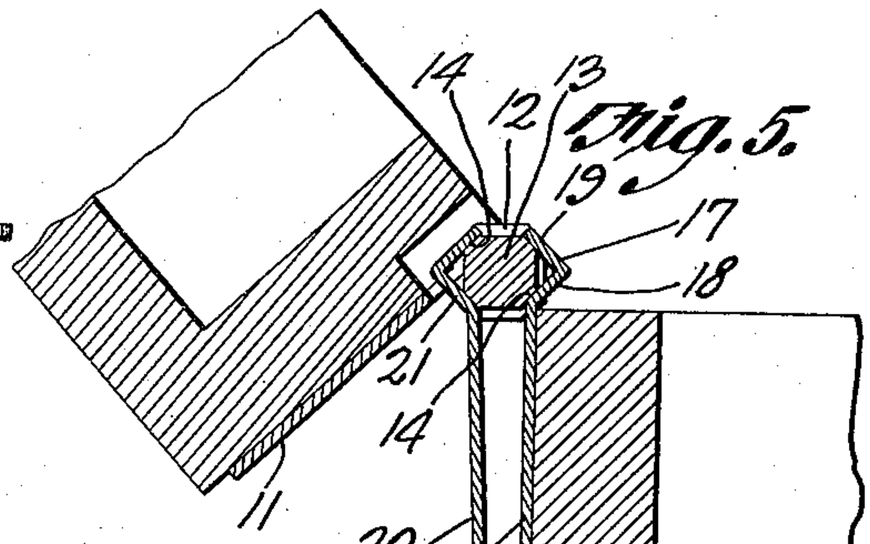


Fig. 5.

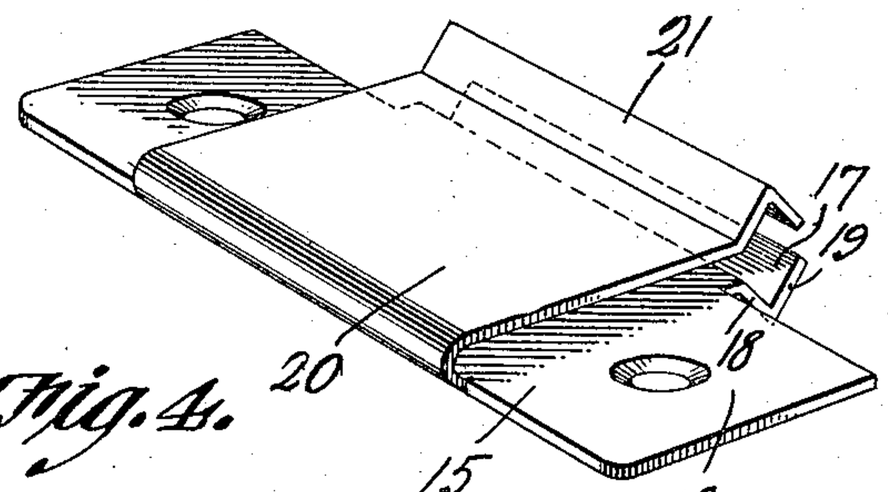


Fig. 4.

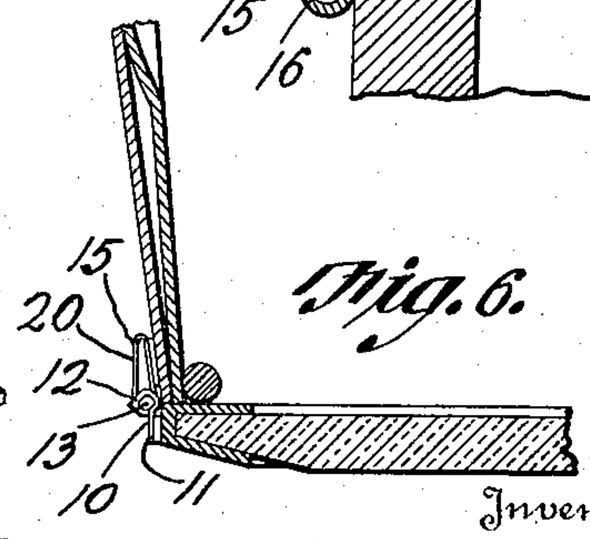


Fig. 6.

Witnesses

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HINGE.

1,166,551. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, PARKER T. SIMMONS, a citizen of the United States, residing at Attleboro Falls, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

The invention has for an object to give a hinge suitable for use on jewelry boxes, lamps for motor vehicles, and on hinged closures generally which will embody a spring means for holding the lids, doors or other closures tending to close, and which will also operate as a check to hold the closures in various positions, as desired.

It is an important object to improve the manufacture of such a device to improve its functions and also to facilitate its application to use. That is to say, in one particular as to function, for instance, it is sought to obviate tendency of the device to stiffly resist pivotal movement of a closure up to a certain point, and then yield suddenly, which in the case of a jewelry box cover would incur a liability of jarring the contents from the box, with a possibility of loss. Also, it is an aim to give an improved spring construction liable in a minimum degree to breakage by repeated flexure, although forming an integral part of a butt or the like.

Additional objects, advantages, and features of invention will appear, from the construction, arrangement, and combination of parts hereinafter set forth and shown in the drawings, where—

Figure 1 is an elevation of a butt hinge constituting one of the possible embodiments of my invention, Fig. 2 is a section on the line 2 of Fig. 1, Fig. 3 is an end view of the hinge, Fig. 4 is a perspective of the spring-butt, Fig. 5 is a sectional view of a portion of a box and hinge, Fig. 6 shows one form of my hinge on an auto lamp.

There is illustrated a hinge of the butt type in the present instance, although it will be apparent that other forms are possible, the blank for the butt 10 of which is of a familiar form, including the rectangular leaf portion 11 apertures for the reception of fastening screws and from the edge of which spring the two knuckle ears 12, the length of which, however, is slightly longer than customary. These ears are bent snugly around a rectangular pintle 13, the corners of which are flattened as at 14, throughout its length. A spring-butt 15 is provided, which includes the leaf portion 16 having the same area as that one numbered 11, and having extended from its inner edge an ear 17 having a width corresponding to that of the space between the ears 12, and a length sufficient for it to extend half way around the pintle 13. This ear is bent obliquely on a line parallel to and a little beyond the inner edge of the leaf 16 to extend at an angle of 45 degrees to the plane of the leaf, and at a distance from the first bend corresponding to the thickness of the pintle between opposed broader faces is again bent, this time at an angle of 90 degrees and toward the plane of the leaf 16, forming an outer part 19 having the same dimension as the inner oblique portion 18. On the outer edge of the leaf there is formed an integral spring extension 20, having the same width as the ear 17, recurved over the leaf 16 its outer part lying in opposition to the ear 17 and being similarly bent on lines alined with the bends of the ear 17 to form a corresponding opposed spring ear 21. The spring extension is so formed as to be under tension bearing toward the leaf 16 so that the pintle is tightly clamped between the ears 17 and 21, and opposed sides of these ears will engage snugly against opposed sides of the pintle. The engagement of the ears 12 with the pintle will cause it to turn between the ears 17 and 21 upon pivotal movement of the leaves relatively, and the clamping action of the ears 17 and 21 will resist such turning movement to a certain degree and will hold the leaves yieldably in position with either the broad sides of the pintle resting against the sides of the ears 17 and 21, or with the flattened corners of the pintle so engaged. Before the bending of the ears 17 and 21 and coincident with the formation of the blank the outer edges of the ear 17 and spring extension are cut on the bias so that when the parts are bent the short end of one is opposed to the long end of the other. The variation in length, however, is very slight, as indicated at 23 in Fig. 2. With this construction, it will be seen that there is a constant bearing of these biased edges on the corner portions of the pintle while passing thereunder and the resistance to the turning of the pintle will be extended over a degree of movement

corresponding to the degree of bias. It will be understood that with unbiased edges on these ears the corners of the pintle would pass them abruptly with a consequent sudden lessening of resistance to turning of the pintle which is not present in my device.

It will be apparent that a very desirable hinge for use on cabinets, boxes, and other objects with hinged closures, is provided, and it can also be applied to use on doors for rooms, and for the pivotal support of various objects which it would be desirable to adjust in various positions. For lamp doors, the hinge may be made with small leaves, which may be soldered to the body of the lamp and the frame of the door, as indicated in Fig. 6. If used as a door hinge, a suitable mortise is formed in the door to receive the spring extension 20, but for boxes, the hinge is preferably attached with the spring on the outer side next the box, as shown in Fig. 5.

What is claimed:

1. A hinge of the class described comprising two leaf members, an angular pintle fixed to one, the other having an ear on its inner edge engaging the pintle and a spring extension on its outer edge extended inwardly over the leaf and having its extremity engaged with the pintle in opposition to the ear, the ear and spring being shaped to engage flatly against opposed faces of the pintle, and having biased engaging edge portions for the purpose described.

2. A hinge of the character described comprising a pintle member having at least a portion angular in cross section, a supporting member fixed thereto, a member pivoted thereon comprising a plate of resilient sheet metal having an inner edge portion bent to form an offset bearing to engage flatly on the pintle, and an outer edge portion bent inwardly over the leaf and its outer part disposed to engage the pintle in opposition to the inner edge portion, at least one of the engaging portions last named being shaped to engage more than one side of the pintle, and each having biased edge portions for the purpose mentioned.

3. In a hinge of the class described a leaf stamped from resilient sheet metal and comprising a body portion for attachment to a support an inner edge portion shaped to engage an angular pintle, and an outer edge portion recurved over the body with its extremity shaped and disposed to engage the pintle in opposition to the inner edge portion.

In testimony whereof I have affixed my signature in presence of two witnesess.

PARKER T. SIMMONS.

Witnesses:
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