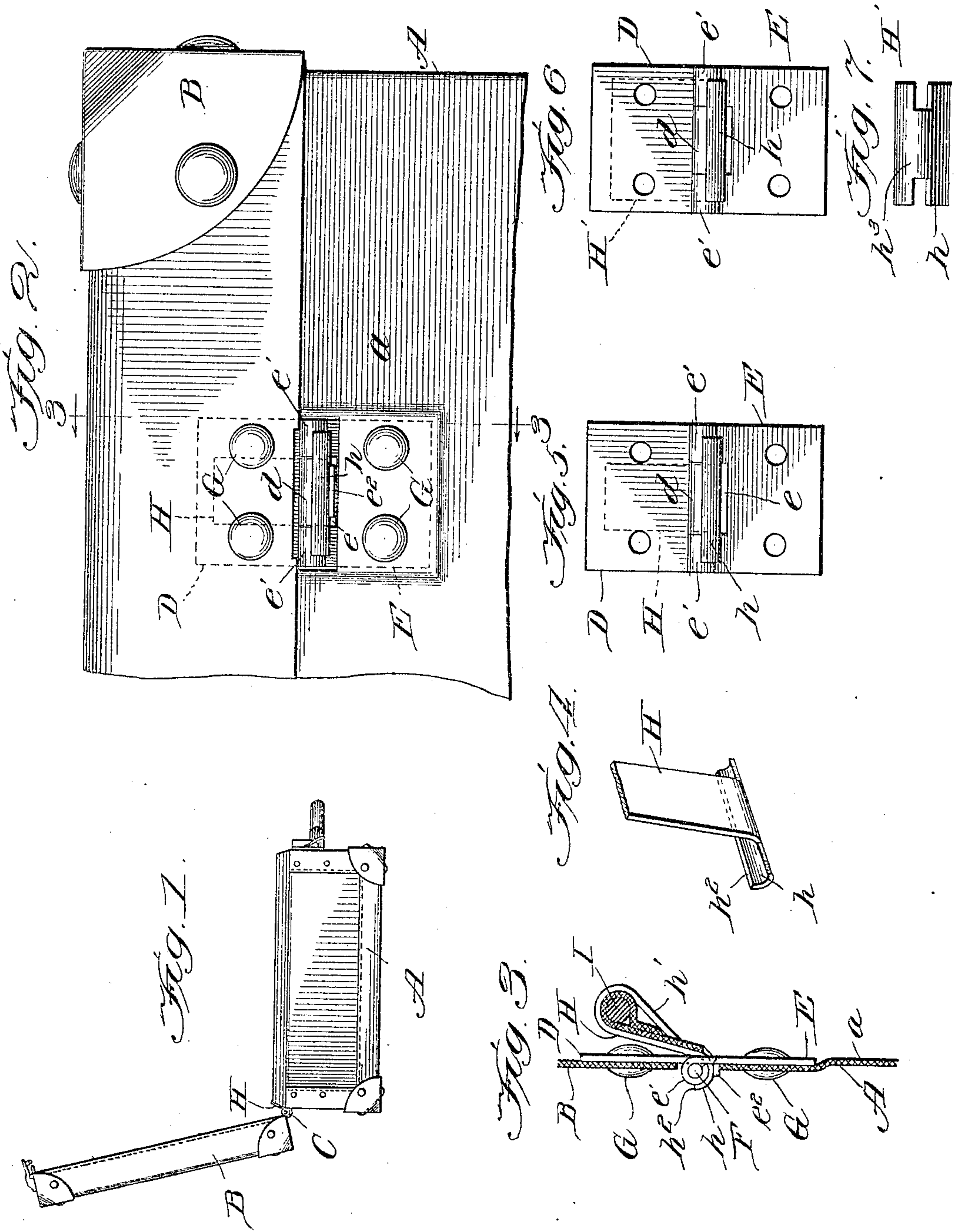


T. G. RIORDAN.
HINGE.

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UNITED STATES PATENT OFFICE.

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HINGE.

943,997.

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To all whom it may concern:

Be it known that I, TIMOTHY G. RIORDAN, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Hinges, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

It is often desirable to attach lids or covers of receptacles by means of hinges which will support them in a partly raised position when swung back to uncover the receptacles. It is evident that in such an arrangement a considerable strain comes upon the hinges and particularly upon the fastenings between the receptacle and the members of the hinges attached thereto; the strain on these fastenings being in such direction that there is a strong tendency to pull the fastenings out. Unless the wall of the receptacle to which the hinges are secured is very strong, then, even if the fastening devices are powerful enough to withstand the strain imposed upon them, the wall is apt to give way. Hinges of this kind are particularly useful in suitcases, making it possible for the lid to remain substantially upright when it is raised to open the case; but, by reason of the peculiar construction of suitcases in order to secure lightness the walls thereof are poorly adapted to withstand the tearing strain upon the fastenings for the hinges.

The object of my invention is to provide a simple and novel reinforced hinge for supporting a lid or cover in a partially opened position without imposing upon the hinge fastenings a strain tending to pull the fastenings out of place.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its object and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is an end view of a suitcase equipped with my improved hinges, the lid being shown in its normal position when open; Fig. 2 is a view on an enlarged scale of a fragment of the case, showing a portion

of the lid and one of the improved hinges in position; Fig. 3 is a section on line 3—3 of Fig. 2; Fig. 4 is a perspective view showing one of the elements of my improved hinge; Figs. 5 and 6 are front views of two modified forms of hinges; and Fig. 7 is an end view of one of the elements shown in Fig. 6.

Although I have illustrated my invention as embodied in hinges for suitcases, since this is one of the fields to which my invention is particularly applicable, I do not desire to be limited to this particular use for it will, of course, be understood that my invention may be used to advantage for connecting any two relatively movable members which it is desired to hinge together. For the sake of brevity, however, I shall hereafter refer to the two relatively movable members which are hinged together as a suitcase and its lid.

Referring to the drawing, A represents a suitcase having a lid or cover B.

C is one of the hinges connecting the lid to the case. In accordance with my invention I so construct the hinge or hinges that when the lid is swung open it stands approximately upright, being supported in this position by the hinge or hinges or parts associated therewith. The hinges themselves may take any desired form, that illustrated comprising simply two members D and E connected together by means of a pintle F. The member D is secured to the lid and the member E to the rear wall *a* of the body of the case. Any suitable fastening means, such as rivets G, may be employed.

It will be seen from Fig. 1 that if one of the hinge members were provided with a shoulder upon which the other member could rest when the lid is open the tendency would be to tear the lower hinge member away from the body of the case and this tendency would be very great because the center of gravity of the lid must naturally be at a point at a considerable distance in rear of the case in order that the lid may be stable in its raised position. In accordance with my invention means are provided whereby this tearing strain upon the hinge fastenings is transferred to some part which is or can readily be made to be well adapted to withstand such strain without being affected thereby. To this end I have provided a clip H which has a hook *h* at one end partially surrounding the joint of the hinge. The other end of the clip may conveniently be

bent around the upper edge of the wall to which the member of the hinge E is attached. It will be seen that the extreme end of the hook affords a shoulder upon which the hinge member D or the portion of the lid immediately adjacent thereto may rest when the lid is swung open. The hook may therefore be given any desired length, depending upon the angle at which it is desired to support the lid when open. When the lid is open it will be seen that it acts upon the extreme end h^2 of the hook as a fulcrum and tends to lift the lower member of the hinge in a direction parallel to the wall to which it is attached. There are consequently only two active forces, namely a downward pressure upon the hook which is taken care of by the clip and an upward pull on the lower hinge member; the transverse pull tending to tear the lower hinge member out of place being entirely lacking.

The clip may conveniently be made of a flat strip of metal which is inserted through a slot e cut in the body of the hinge member E immediately adjacent to the pivotal connection. The body of the clip is made no wider than the tongue member d of the hinge D which is bent about the pintle F. The hook h is preferably made wider than the shank so that it will extend not only under the member d but also under the corresponding members e^1 which project from the member E and are bent around the pintle. In order to increase the strength and the rigidity of the hinge the member E of the hinge may be provided with an out-turned lip e^2 which bears against the underside of the hook h as indicated in Figs. 2 and 3. By this arrangement, when the lid is open, there will be a downward pressure upon the member h and an upward pull upon the member E; but, because of the engagement of the lip e^2 with the underside of the member h it will be impossible for the lower hinge member to be carried upwardly without carrying the member h with it: Consequently the weight of the lid which comes upon the member h acts as a positive force to hold the lower hinge member in its normal position and substantially the whole strain comes upon the clip instead of upon the hinge fastenings or the portions of the wall of the case surrounding the fastenings.

Since it is common to provide strong iron or steel frames about the top edges of suitcases as indicated at I in Fig. 3 it will be seen that a very satisfactory support for the clip is usually at hand so that it is unnecessary to remodel a suitcase in order to equip it with hinges arranged in accordance with my invention. Moreover, since hinges arranged in accordance with my invention need differ from other hinges only in that they show the additional feature of the detachable clip any hinge may be remodeled

by simply cutting therein a slot corresponding to the slot e and inserting therethrough a clip of suitable shape and form.

In Fig. 5 I have illustrated the same hinge as in Figs. 1 to 4 except that the lip e^2 is omitted.

In Figs. 6 and 7 I have illustrated a hinge having associated therewith a somewhat modified form of clip. The shank H^1 of the clip is of the same width as the hook h and is connected to the hook by means of a contracted neck h^3 . The neck is of the same width as the shank in the other form—that is—it is no wider than the tongue d on the hinge member D. The clip may, therefore, be added to the hinge without weakening either member for the member E must be cut away sufficiently at its center to receive the tongue d on the other member and the addition to the clip simply makes the cut away portion somewhat longer without reducing the effective cross section of metal. The clip shown in the first five figures has the advantage that it may be inserted and removed without taking the hinge apart. The clip shown in Figs. 6 and 7 makes it necessary to remove the pintle and separate the two hinge members whenever it is desired to put in the clip or take it out.

While I have shown the hinge member E as provided with two tongues and the member D with a single tongue it is, of course, understood that these conditions may be reversed and, in fact, any desired form of pivotal connection between the two hinge members may be employed.

While I have described in detail only preferred forms of my invention and have illustrated only a single example of its use, I do not desire to be limited except to the extent indicated by the terms employed in the definitions of my invention constituting the appended claims.

Having now fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination, a wall, a swinging member, a hinge connecting said member to said wall and a clip connected to said wall and extending in the opposite direction from the axis of the hinge from that in which the member of the hinge secured to the wall extends, said clip having a shoulder near its inner end in position to be engaged by and support said swinging member at one end of its swinging movement.

2. In combination, a wall, a swinging member, a hinge connecting said member to said wall, and a clip connected to said wall and extending in the opposite direction from the axis of the hinge from that in which the member of the hinge secured to the wall extends, said clip having a projection near its inner end in position to lie between the two members of the hinge so as to support the

said swinging member at one end of its swinging movement and at the same time press laterally on the member of the hinge secured to said wall.

5 3. In a hinge, a pair of pivotally connected members, a clip lying behind one of said members on one side of the pivotal axis and having a shoulder extending to the opposite side of the hinge in position to engage
10 with both of said members and be clamped between them when they approach to within a predetermined distance of each other in their relative angular movement toward each other.

15 4. In a hinge, a pair of pivotally connected members, a clip lying behind one of said members and having a projection extending in front of both of said members in position to be clamped between them when
20 they approach to within a predetermined distance of each other in their relative angular movement toward each other.

25 5. In a hinge, a pair of pivotally-connected members, a clip lying behind one of said members, the other member having an opening therethrough, and said clip having a hook extending through said opening from behind the hinge and surrounding the joint
30 lying in position to engage with and support the member behind which the clip lies when said members are at the limit of their relative movement.

35 6. In a hinge, a pair of pivotally-connected members, a clip lying behind one of said members the other member having an opening therethrough and said clip having a hook extending through said opening and surrounding the joint between said members,
40 the end of said hook lying in position to engage with and support the member behind which the clip lies when said members are at the limit of their relative movement, said hook being wider than said opening so as to
45 engage with portions of the hinge surrounding the opening.

7. In a hinge, a pair of pivotally-connected members, a clip lying behind one of said members, the other member having an opening therethrough, and said clip having
50 a hook extending through said opening from behind the hinge and surrounding the joint between said members, the end of said hook lying in front of the hinge in position to engage with and support the member behind
55 which the clip lies when said members are at the limit of their relative movement, the member through which said hook passes being provided with a shoulder engaging said hook and holding it against said joint. 60

8. In combination, a wall, a hinge one member of which is secured to said wall a short distance below the upper edge thereof, a clip bent around the upper edge of said wall and lying behind the other member of
65 said hinge, said clip having a projection extending in front of the latter member of the hinge in position to engage therewith and support it when swinging away from said wall, and a swinging wall carried by said
70 latter member.

9. In combination, a wall, a hinge one member of which is secured to said wall, and a clip extending from said member and bent over the edge of the wall on the side of said
75 member upon which the knuckle is located, and a swinging wall carried by the other member of the hinge.

10. In combination, a wall, a hinge one member of which is secured to said wall so
80 as to position the knuckle end nearest to and a short distance from one edge of said wall, a clip extending from said member and bent over said edge, and a swinging wall carried by the other member of the hinge. 85

In testimony whereof I sign this specification in the presence of two witnesses.

TIMOTHY G. RIORDAN.

Witnesses:

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