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LUGGAGE HINGE

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Fig. 1.

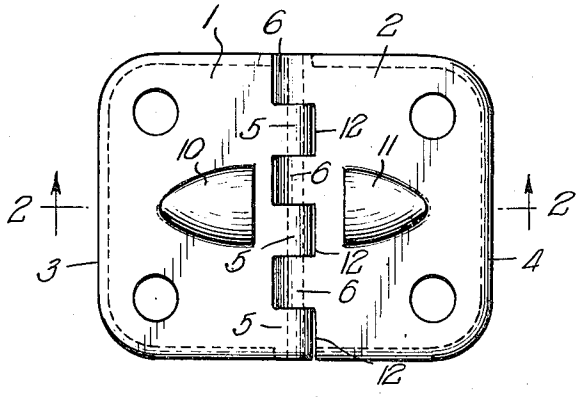


Fig. 2

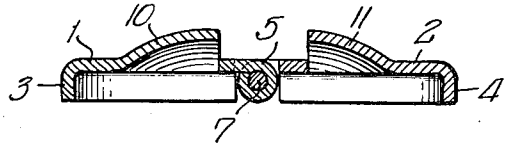
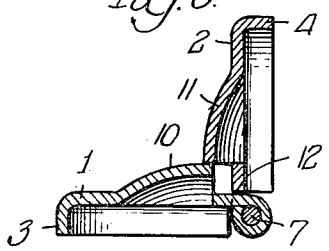


Fig. 3.



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LUGGAGE HINGE

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4 Claims. (Cl. 16—191)

This invention relates to luggage hinges and has for its principal object the provision of a new and improved device of this kind.

The main object of the invention is to provide a luggage hinge equipped with integral stops for limiting the movement from closed to open position of the luggage parts with which the hinge is used.

Another object of the invention is to provide a luggage hinge that can be manufactured from comparatively lightweight stock without sacrificing strength.

Another object of the invention is to provide a luggage hinge that lies close against the luggage parts and is free from sharp cornered projections that are apt to catch upon objects with which the luggage comes into contact.

Another object of the invention is to provide a luggage hinge that can be manufactured at low cost without sacrificing quality.

Further objects of the invention, not specifically mentioned here, will be apparent from the detailed description and claims which follow, reference being had to the accompanying drawings in which a preferred embodiment of the invention is shown by way of example and in which

Fig. 1 is a plan view of the hinge;

Fig. 2 is a cross sectional view taken substantially along the line 2—2 of Fig. 1, looking in the direction of the arrows and showing the hinge in one limit position; and

Fig. 3 is a view similar to Fig. 2, showing the hinge in the other limit position.

Manufacturers of luggage, particularly hand luggage, frequently employ hinges whose movements are limited so that the movement of the cover of the luggage from closed to open position is limited to approximately 90° with the cover standing upright when the luggage is completely open. Prior art hinges used for this purpose, insofar as I am aware, have employed extra elements journaled on the pintle of the hinge and functioning to limit the relative movement of the leaves thereof. These devices present a plurality of sharp cornered projections which are objectionable and are liable to become distorted through normal use of the luggage, with the result that proper functioning of the hinge is impaired. Furthermore, such hinges are unduly expensive because of the additional parts required.

In the manufacture of luggage, particularly the so-called airplane type, every effort is made to reduce the dead weight of the luggage as far as possible, without undue sacrifice of strength and durability. The hinge of the present invention is designed to overcome the shortcomings of prior art devices of which I am aware, as to simplicity, lightness of weight, and durability of the hinge.

In its preferred form, the hinge of the present invention is composed of light gauge metal that is stiffened and thereby reinforced by the use of flanges. The pintle barrel is formed within the flanges so that the hinge lies flat against the luggage and affords a minimum of projecting corners apt to catch upon objects with which the luggage comes into contact. To limit the movement of the hinge, integral bosses are provided and located so that they engage each other when the hinge parts are in limit position, and these bosses are shaped so as to readily slide over objects with which they come into contact rather than to catch thereupon. Because of the stiffening of the structure by the flanges and by the bosses, and reinforcing of the pintle barrel by the bosses, the hinges of the present invention may be made out of lighter gauge material than has been possible heretofore in the production of hinges of comparable strength. The hinge of the present invention lends itself readily to high speed production on fully automatic equipment furnished, with the result that the cost of the product is low.

Referring now to the drawings in more detail, the hinge leaves 1 and 2 are relatively thin sheet metal having flanges 3 and 4 respectively, extending downwardly from three of their edges. Along the fourth edge of leaf 1 are spaced apart pintle barrel sections 5 which, in the example shown, are three in number. Along the fourth edge of leaf 2 are similar pintle barrel sections 6 which are intermeshed with the barrels 5. Sections 5 and 6 together form a pintle barrel through which a wire or rod 7 is projected to secure together the leaves 1 and 2 and to form a pintle around which the leaves may be rotated. It will be noted particularly from Figs. 2 and 3 that the upper face of the leaves 1 and 2 are tangential to the pintle barrel and that a plane through the bottom edges of the flanges 3 and 4 will also be tangential to this barrel. Thus the pintle barrel lies completely within the hinge when the hinge is secured to the luggage parts.

Projecting from the leaf 1 is a boss 10 located midway between the ends of the leaf and extending adjacent the pintle barrel. Leaf 2 is provided with a similar boss 11. As will be seen in Fig. 3, when the leaves 1 and 2 are rotated into approximately 90° apart position, bosses 10 and 11 engage each other thereby forming a stop limiting the movement of the leaves. It will be noted that the point of engagement of the bosses 10 and 11 is radially outward from the axis of the rod 7, in the examples shown this distance being slightly greater than the diameter of the pintle barrel. Thus the forces imposed upon the hinge parts by the movement of the luggage parts is arrested at the point spaced radially outward from the axis of rotation and the strength of the hinge arrangement is greatly enhanced.

It will be noted that with the hinge parts in open position, as shown in Fig. 3, the lines 12, forming the bottom of the spaces between barrel sections 6 into which barrel sections 5 are projected, lies above the upper face of the leaf 2 so that no strain is placed on the hinge leaves at these points. This eliminates distortion of the hinge barrel by forces tending to rotate the luggage parts beyond the limit position, these forces being resisted solely by the bosses 10 and 11 which rise out of the leaves 1 and 2 respectively, at points far enough away from the pintle barrel that any distortion of the leaves occasioned by vigorous efforts to move the luggage parts beyond limit position will not impair the proper operation of the hinge.

When composed of relatively light gauge steel suitably coated with a protective plating or coating, the hinge of the present invention is surprisingly strong, notwithstanding that it is relatively light in weight. The exposed surfaces are all rounded, consequently the hinge will slide over platforms and the like with which the luggage comes into contact, and damage to the hinge is therefore minimized.

While I have chosen to illustrate my invention by showing and describing a preferred embodiment of it,

I have done so by example only as there are many modifications and adaptations which can be made by one skilled in the art within the teachings of the invention.

Having thus complied with the statutes and shown and described a preferred embodiment of my invention, what I consider new and desire to have protected by Letters Patent is pointed out in the appended claims.

What is claimed is:

1. In a hinge for luggage, a pair of planar leaves composed of relatively thin metal; flanges projecting at right angles from three edges of each leaf to stiffen the leaf; spaced apart hollow cylindrical barrels projecting from the fourth edge of each leaf in the direction of said flanges, the barrels of each leaf being intermeshed with the barrels of the other leaf; a rod projecting through said barrels to secure the leaves together and forming a pintle around which the leaves may be rotated; and an integral boss spaced from and independent of said barrels and projecting outwardly from the face of each leaf in a direction opposite that of said flanges, said bosses abutting together along a line spaced radially outwardly from said barrels as the leaves are rotated to limit said rotation.

2. In a hinge for luggage; a rectangular planar metallic leaf; flanges projecting at right angles from three edges of said leaf; spaced apart cylindrical barrels projecting from the other edge of said leaf in the same direction as said flanges; a second and similar leaf disposed with its barrels intermeshed with the barrels of said first leaf; a pin extending through said barrels to secure the leaves together and forming a pintle around which the leaves may be rotated; bosses independent of said barrels rising out of the faces of said leaves in a direction opposite that of said flanges, which bosses are disposed midway between the ends of the pintle and spaced outwardly from the barrel and adapted to be engaged together as the leaves are rotated to limit said rotation.

3. In a hinge for luggage, a pair of planar leaves; flanges projecting at right angles from three edges of each leaf; a pintle barrel formed of intermeshed sections on each leaf; a rod extending through said barrel and forming a pintle around which the leaves may be rotated, the face of each leaf opposite said flanges being located in a plane that is tangent to one side of said barrel and the flanges on each leaf being terminated in a plane tangent to the opposite side of said barrel; and bosses independent of said barrel rising out of said faces of said leaves in a direction opposite that of said flanges and spaced outwardly from said barrel and adapted to engage each other to limit the rotation of said leaves.

4. The combination with a luggage hinge in which pintle barrel sections are formed in each of two planar leaves and intermeshed to form the barrel which is disposed with one face of the leaves tangential thereto and in which each leaf engages the junctions of the barrel sections and other leaf when the leaves are disposed approximately ninety degrees apart to limit relative rotation of the leaves at that point; of flanges on the leaves projecting at right angles from the edges thereof in the same direction as said barrel sections and terminating in a plane that is parallel to said one face of the leaves and tangential to said barrel sections so that when the hinge is mounted upon luggage the pintle barrel is encased within the hinge; and bosses rising out of the surfaces of the leaves in a direction opposite that of said flanges and engaged together at a point disposed radially outwardly from the axis of the hinge when said leaves are in said ninety degree position, to prevent distortion of the hinge by forces tending to rotate the leaves past said rotation limiting point.

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