(No Model.)

W. DURAND.

STAY HINGE FOR TRUNKS, BAGS, &c.

No. 385,255. Patented June 26, 1888.

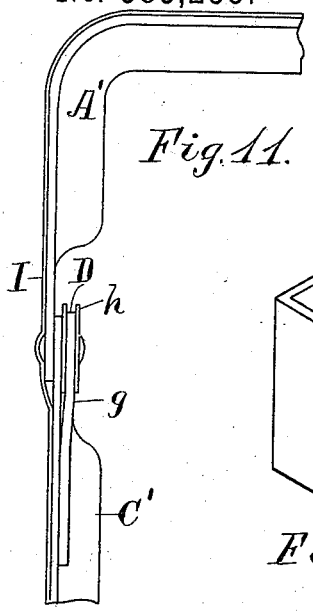

Fig. 11.

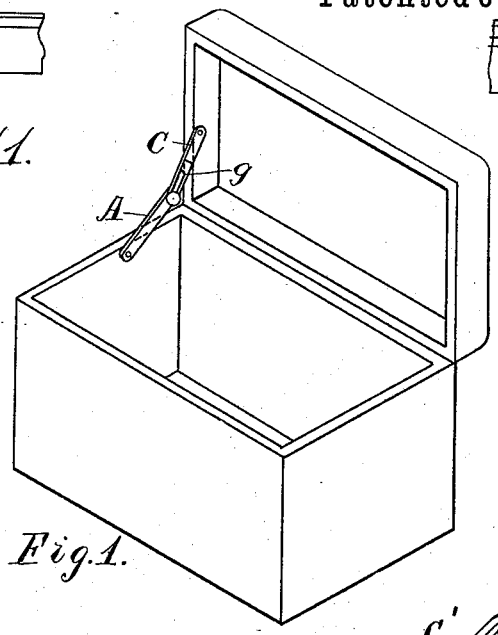

Fig. 1.

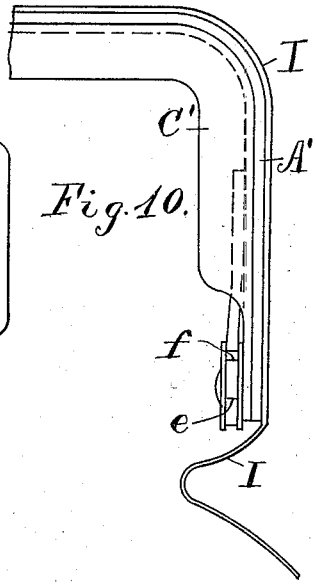

Fig. 10.

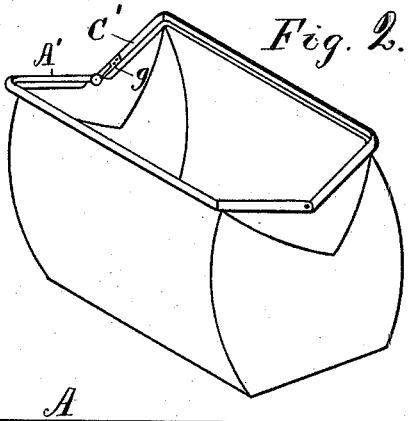

Fig. 2.

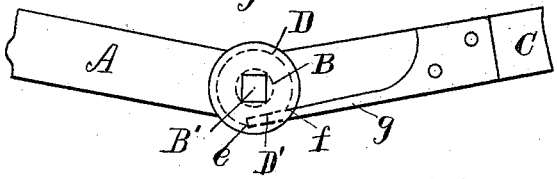

Fig. 3.

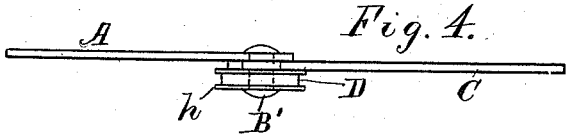

Fig. 4.

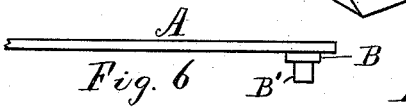

Fig. 6

Fig. 7.

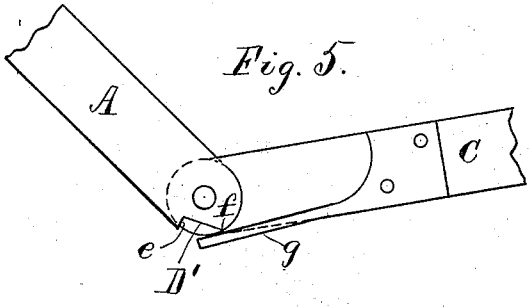

Fig. 5.

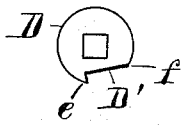

Fig. 9.

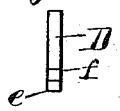

Fig. 8.

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Crane & Miller, Attys.

UNITED STATES PATENT OFFICE.

WALLACE DURAND, OF NEWARK, NEW JERSEY.

STAY-HINGE FOR TRUNKS, BAGS, &c.

SPECIFICATION forming part of Letters Patent No. 385,255, dated June 26, 1888.

Application filed April 6, 1888. Serial No. 269,792. (No model.)

To all whom it may concern:

Be it known that I, WALLACE DURAND, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Stay Hinges or Joints, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to provide an automatic stay hinge or joint for holding bag-frames and the lids of trunks and boxes open, and to permit the closing of the same without any reference to the presence of such brace.

The invention consists in a particular construction for a cam and spring connected, respectively, with the two arms of a joint, as hereinafter fully set forth, and in a guard-washer applied to such joint over the spring.

The construction will be understood by reference to the annexed drawings, in which—

Figure 1 is a perspective view of a trunk provided with my attachment. Fig. 2 is a perspective view of a hand-bag with the mouth opened and the frame constructed with my improvement. Fig. 3 is a side view of the operative parts of the attachment as they appear when distended. Fig. 4 is an edge view of the same. Fig. 5 is a view similar to Fig. 3, with the cam formed integral with the end of one arm and said arm turned to partially bend the spring. Fig. 6 is an edge view of one arm with the stud for the cam; Fig. 7, a side view of the other arm with the hole for the stud. Fig. 8 is an edge view, and Fig. 9 a side view, of the cam detached from the stud. Fig. 10 is an edge view of the attachment when formed upon the bag-frame, the two parts of the frame adjacent to the hinge which form the arm of the attachment being shown closed together, and the leather covering of the bag being partly shown in section; and Fig. 11 is a plan of the same parts distended, as in Fig. 2.

My invention may be applied directly to the arms of a bag-frame or a brace for upholding the lid of a trunk; or it may be formed as a separate attachment secured upon the pivot of a bag-frame.

I will describe my invention first in connection with two straight bars and with the hinge of a bag-frame, and it will then be obvious how it operates in sustaining the lid of a trunk or box, or performing any similar function in other constructions to which it may be applied.

In Figs. 3 and 4, A is a straight bar provided with a stud having a round body, B, and squared ends B′. C is a similar bar, formed with hole C′, to fit the body of the stud. The stud is shown passed through the hole C′, and a separate cam, D, fitted to the square end B′, and held thereon by riveting the head of the stud. The cam is provided, as shown in Fig. 9, with a notch, D′, having a shoulder, *e*, formed at one of its edges, and a corner, *f*, upon the opposite edge, and a spring, *g*, is shown fixed at one end upon the arm C, and having its free end adapted to fit against the shoulder *e*, while its inner side is adapted to bear upon the corner *f* when the arms are first turned around the stud.

In Fig. 5 the cam is formed by cutting the notch D′ directly in the arm C at one side of the stud, and fixing the spring upon the arm A to operate with the notch in the same manner as in Fig. 3.

In Fig. 3 the arms are shown at an obtuse angle, in which they are normally held when distended by the pressure of the spring upon the corner *f* of the cam, and the resistance of such spring to the turning of the arm by its pressure upon the corner *f* is clearly shown in Fig. 5, where the arm A is represented as turned a little way from its distended position, and the spring thereby partly pressed outward.

The reaction of the spring against the corner *f* would obviously tend to bend the arm A back to the same angle that it occupies in Fig. 3.

With the construction shown in Fig. 5 the two bars would be required to form the attachment as a "stay-hinge" for application to a trunk or box lid, as shown in Fig. 1, one arm serving to carry the spring, and the end of the other arm adjacent to the stud being shaped to form the cam.

In applying my invention to a bag-frame the sheet metal of which the frame is composed is seldom of suitable thickness to form the cam, and I therefore prefer to use the construction shown in Figs. 3 and 4, which is shown applied to a bag-frame in Figs. 2, 10, and 11. In this construction A′ represents one side of the bag-frame and C′ the opposite

side, and I the leather covering of the frames, while the cam and spring are lettered D and *g*, as in Fig. 3.

To prevent the covering or lining of the bag from crowding into the cam, I prefer in such construction to apply thin washers *h* to its opposite sides when first applied to the end B′ of the stud, such washers being held in place by the riveting of the stud and serving to guard the end of the spring upon both sides, as is clearly shown in Fig. 3.

It is obvious that the washer *h* could be applied to cover the end of the spring and the cam formed upon the arm A, as shown in Fig. 5, the washer being omitted in such figure to exhibit more clearly the formation of the cam integral with the arm.

In Fig. 10 the notch D′, which forms the cam, is clearly shown with the shoulder *e* and corner *f;* but the turning of the cam upon the free end of the spring when the frame is closed throws the spring around to the opposite side of the cam, where its free end rests upon the concentric surface of the cam without producing any effect.

I am aware of the state of the art shown in United States Patents Nos. 348,085, dated August 24, 1886, and No. 339,052, dated March 30, 1886, which show cams fixed upon the pivot of a bag-frame and operating in connection with springs in different manners. The Patent No. 348,085 shows no notched cam having a stop analogous to mine, but a square block upon the sides of which the spring operates, while the Patent No. 339,052 shows a rounded cam with a notch upon one side, and a tooth fitted to a hole in the spring to lock the bag positively open. With such latter construction the bag cannot be closed until the spring has been detached from the tooth by pressing upon a thumb-piece projected from the side of the spring, and the device is thus automatic only in locking the bag open. In my construction an efficient stop is provided, when locking the bag open, by forming a notch in the cam, against one side of which the end of the spring abuts when the bag is sufficiently opened; but such spring withdraws automatically from the notch when the bag is closed, and thus requires no attention from the operator in either opening or closing the bag. My invention also differs from any heretofore made in the facility with which it may be applied directly to the ends of straight arms, such as I have shown in Fig. 5. Such facility results from the extreme simplicity of the construction, in which one arm is formed as a plain flat bar with a straight spring attached, and the other as a flat bar merely rounded upon the end and provided with a notch to fit the extreme end of such spring. The inventions previously used could not be applied to any joint without forming a cam separate from the arms and attaching it to the arms, as the spring could not otherwise be applied to the cam. My invention also differs from others in the application of a guard-washer to the side of the cam to cover the point of the spring and thus prevent soft fabrics from crowding into the joint when the latter is used in a bag or trunk. I thus avoid interference with the working of the device and the injury that may result to clothing if caught in the joint and cut or torn thereby. My invention also differs from others in respect to the cam being attached exclusively to the pivot by squaring the latter and fitting it to a square hole in the cam.

Having thus distinguished my invention from others, I disclaim the above named patents and any construction in which a stop is not used, or in which the spring is provided with a hole to engage a tooth upon the cam, so that the spring must be released from the cam before the arms can be moved.

I claim my own invention as follows:

1. The combination, with the pivot of a jointed arm, of a cam formed with a rounded surface provided with the single notch D′, having the stop *e* at one side, and a jointed arm fitted to the same pivot and provided with a straight spring having its end fitted to the stop *e* at the side of said notch, and adjusted to arrest the movement of the arms when extended, substantially as herein set forth.

2. The combination, with the pivot of a jointed arm, of a cam formed with a rounded surface provided with the single notch D′, having the stop *e* at one side, and a jointed arm fitted to the same pivot and provided with a spring having its end fitted to the stop *e* when the arms are extended, and a guard-washer applied to the pivot and operating to cover the notch in the cam and the end of the spring which operates therein, substantially as herein set forth.

3. The combination, with a pair of jointed arms, of a pivot secured in one arm, a cam constructed substantially as described and secured to a square upon such pivot, a spring attached to the other arm and fitted to the notch in the cam, as set forth, and a guard-washer applied to the pivot to cover the notch in the cam and the end of the spring; as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALLACE DURAND.

Witnesses:
T. S. CRANE,
H. J. MILLER.