Nov. 11, 1924. 1,514,917

W. A. LOTZ

BAG FRAME HINGE

Filed Nov. 3, 1923

Fig. 1.

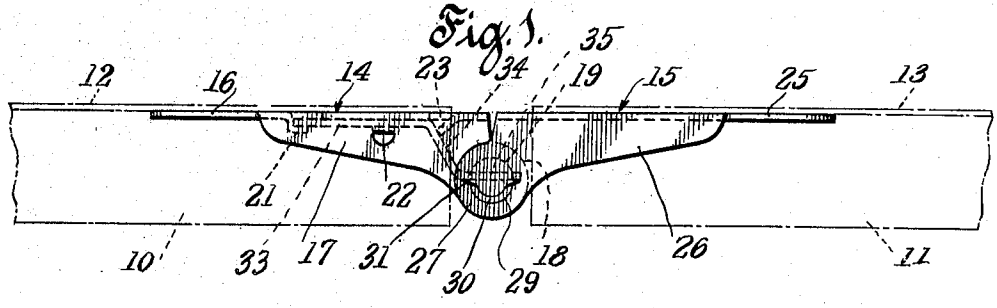


Fig. 2.

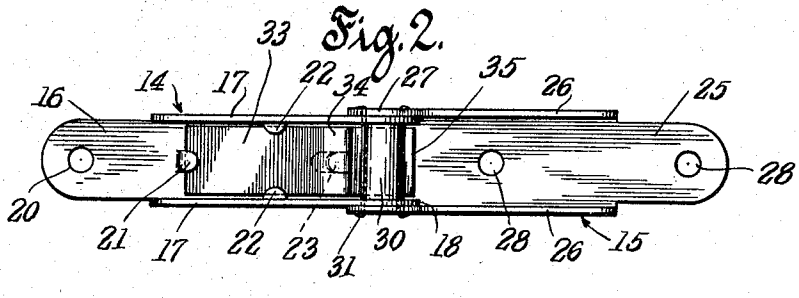


Fig. 3.

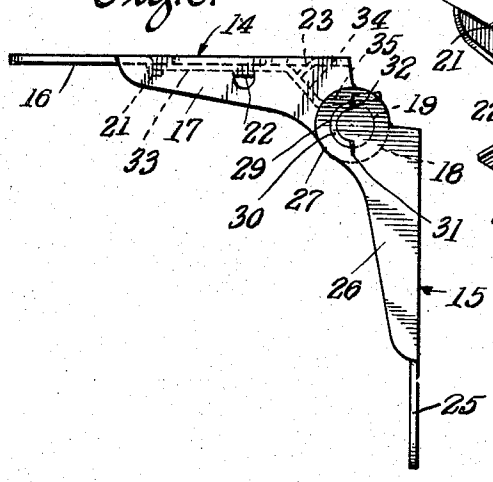


Fig. 4.

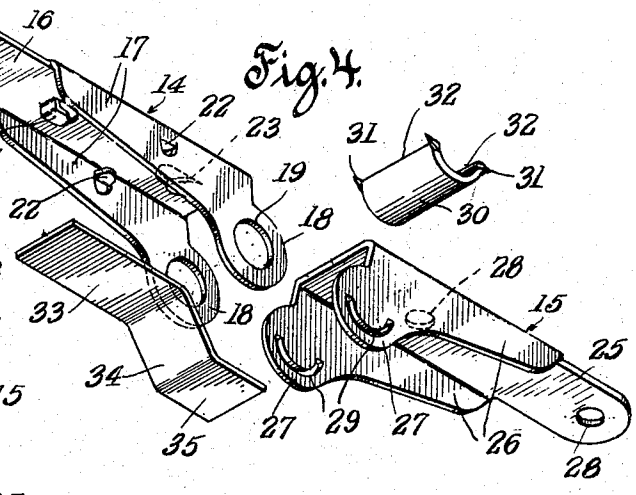
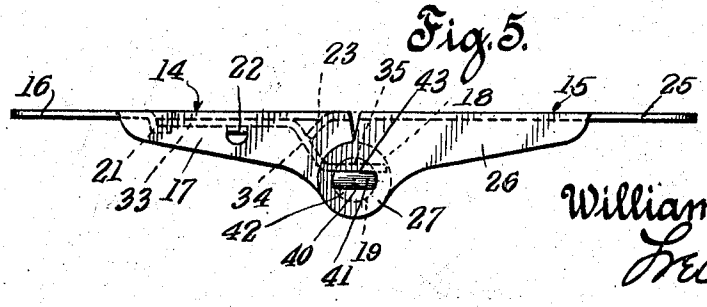


Fig. 5.



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UNITED STATES PATENT OFFICE.

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BAG-FRAME HINGE.

Application filed November 3, 1923. Serial No. 672,519.

To all whom it may concern:

Be it known that I, WILLIAM A. LOTZ, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bag-Frame Hinges, of which the following is a specification.

This invention relates to improvements in bag frame hinges and particularly to such types of bags as have frames of inverted U shape, consisting of a central, normally horizontal element having right angled pendant integral elements extending downward at the ends of the bag and pivotally joined at their extremities to form pairs.

Bags provided with such types of frames, particularly when their contents is heavy, are held open with difficulty when suspended by their handles, attached ordinarily to the horizontal cross element, the side elements acting in the manner of levers, tending to close the frames inward or towards each other, a condition more pronounced as the weight of the contents is increased.

The main object of the invention is therefore, to provide a device incorporated in the hinge structure, which acts to retain the frame when in a fully opened position, permitting free and unimpeded access to the interior of the bag.

Another purpose is to produce means for holding a bag fully open, that are positive in action, relatively inexpensive to construct and which are entirely concealed from observation when applied.

A further aim is in the provision of a spring controlled hinge capable of general extended use whenever such structure is desirable.

These several aims, objects and purposes are accomplished by the novel design, construction and arrangement of parts hereinafter described and shown in the accompanying drawing, forming a material part of this disclosure, and in which:—

Figure 1 is a side elevational view of an embodiment of the invention, showing the hinge elements extended outwardly and indicating its application.

Figure 2 is a plan view of the same looking from the inner side thereof.

Figure 3 is a side elevational view of the hinge, showing the main elements disposed at an angle of ninety degrees.

Figure 4 is a general perspective view, showing the several parts in detail.

Figure 5 is a side elevational view of a modified form of spring hinge structure.

Referring more in detail to the drawing the numeral 10 designates one of the end members of a conventional type of frame and 11 the other, said members having the usual outer flanged or channel elements 12 and 13 respectively.

The hinge members 14 and 15 are distinct entities, the former being composed of a flat plate 16, here shown as having a rounded outer end, and bent by ordinary press methods to present outstanding, parallel side flanges 17, extending from a point midway in its length to blend into semi-circular lugs 18.

Said lugs contain circular concentric openings 19, the centers of which are substantially in the plane of the inner end of the plate 16 and in registration.

The plate 16 is provided with one or more openings 20 to receive rivets or like fastening means by which it may be firmly secured to the frame element 12 in a manner well understood.

The plate is also sheared and bent to produce a raised clip 21, reaching towards the pivot carrying end and similar inreaching clips 22 are formed from the sides 17.

In addition, a projection 23 is formed to extend angularly rearward on the plate 16, at a point remote from the clip 21, the purposes of which will later appear.

The opposite adjoining hinge element 15 is constructed in a like manner and consists of a plate 25 having raised sides 26 blending into semi-circular lugs 27, these sides and lugs being so proportioned as to receive between them the corresponding lugs and sides 17 and 18 of the mating member.

The plate 25 is provided with openings 28 to receive securing means, as before described and in the lugs 27 are formed arcuate slots 29, concentric with the outer curved edge of the lugs, the outer edges of the slots being of the same radius as the openings 19 in the mating hinge member.

The pivot 30 on which these members turn, shown in detail in Fig. 4 consists of a tubular section or sheet of metal rolled to pass through the opening 19 and have its ends inserted in the arcuate slots 29 which retains it in fixed position assisted by upsetting the

corners 31 of the pivot as shown, preventing longitudinal movement and holding the pivot so as to present its flat edges 32 substantially parallel with the plate 25 at all times.

A flat spring having a base 33 is suited in width to fill the space between the sides 17 of the spring element 14, its outer end being engaged below the clip 21 and its main portion below the clips 22.

The integral, forwardly extending angular element 34 of the spring abuts the point of the projection 23 and is thus held fast to the plate 16, and the raised, active element 35 of the spring, normally parallel with the base, forcibly abuts the edges 32 of the pivot in such manner that when the elements 14 and 15 are extended at length, as shown in Figure 1, the power of the spring will be exerted to retain these elements in a spread or open position as will be obvious.

However when force is exerted to close the bag frame sides, the spring element 35 rides easily over the curved surface of the pivot.

In the modification, shown in Figure 5, the construction is identical except that the sides 27 are pierced to present a rectangular opening 40, having rounded ends and disposed in the plane of the plate 25 and a pivot pin 41 flattened on its opposite sides 42 and 43 inserted therein in place of the arcuate slot and curved pivot 30.

This construction utilizes the force of the spring not ony to hold the frame sides extended but closed as well, the spring element 35 bearing, in either case, upon the opposite sides of the flattened pin in a manner which will be clearly understood.

It is to be noted that the cross section of the pivots may vary from that shown, as for instance taking the form of a solid semicircle or other shape in which at least one flat surface is produced, and it may be further noted that the projection 23 not only keeps the spring in proper operative position, but acts as a fulcrum on which the bent or angular portion 34 may move in the manner of a lever when the spring is stressed.

While certain preferred embodiments of this device have been shown and described, it will be understood that changes in the form, arrangements, proportions, sizes and details thereof may be made without departing from the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim is new and desire to secure by Letters Patent, is:—

1. Bag frame hinges comprising channelled elements secured to the ends of the frames, said elements being engaged in paired relation, a pivot fixed in one member of each pair of elements and rotatable in the other member, said pivot having at least one flat surface disposed in a plane parallel with the body of the element to which it is attached, and a flat spring secured in the opposite channelled element, having its free end disposed to make contact with the flattened surface of said pivot.

2. Bag frame hinges comprising channelled elements secured to the ends of the frames, one of said elements embracing the sides of the other at their points of contact, the wider containing arcuate slots in its side members and the other element having circular openings in their side members registering with the mentioned slots, a pivot shaped to rotate in the circular openings and rigidly engaged at its ends in the mentioned slots, said pivot presenting a substantially flat face parallel with the body of the wider element of the hinge, and a flat spring secured to the narrow member, said spring being bent to engage the flat face of said pivot when said hinge elements are extended.

3. Bag frame hinges comprising channelled elements secured to the ends of the frames, the sides of each element projecting at their inner ends, one embracing the other, the narrower projecting end having a circular opening, a pivot pin rotatable in the mentioned opening, said pin being fixed at its ends in the adjacent wider side members and having one or more flat surfaces, and a bent flat spring in the narrower element having its free end arranged to impinge upon the flat surface of said pivot pin.

4. Bag frame hinges comprising channelled elements secured to the ends of the frames, the sides of each element projecting at their inner ends, one embracing the other, the narrower projecting end having a circular opening, a pivot pin rotatable in the mentioned opening, said pin being fixed at its ends in the adjacent wider side members and having one or more flat surfaces, a bent flat spring seated in the narrower members between the sides thereof, said spring impinging upon the surfaces of said pivot pin, and means integral with said narrower element for maintaining said spring in operative positions.

5. Bag frame hinges comprising channelled elements secured to the ends of the frames, the sides of each element projecting at their inner ends, one embracing the other, the narrower projecting end having a circular opening, a pivot pin rotatable in the mentioned opening, said pin being fixed at its ends in the adjacent wider side members and having one or more flat surfaces, and a bent flat spring in the narrower element, a bent flat spring seated in the narrower member between the sides thereof, said spring impinging upon the surfaces of said pivot pin, clips integral with the base

and side walls of the narrow element for holding said spring in position, and a projection on the base of the last named element abutting the bent portion of said spring preventing longitudinal movement thereof and acting as a fulcrum on which the spring operates.

This specification signed and witnessed this first day of November, 1923.

WILLIAM A. LOTZ.

Witnesses:
FRED'K C. FISCHER,
FERDINAND HALL.