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(54) Drop bag fitting

(57) The invention provides a drop bag fitting (10) which comprises a frame (11) for receiving a mail bag so as to hold the bag in such a manner that items can be deposited in the bag, and a movable platform (23) which is biased upwardly by springs (24,25,26). The platform (23) is arranged to move downwardly when the bag and the items deposited therein reach a predetermined weight. One end of a rod (28) is attached to the platform (23) and the other end of the rod (28) has a portion (30,31) which is visible to a user of the fitting until the platform (23) moves, thereby to indicate when the predetermined weight has been reached.

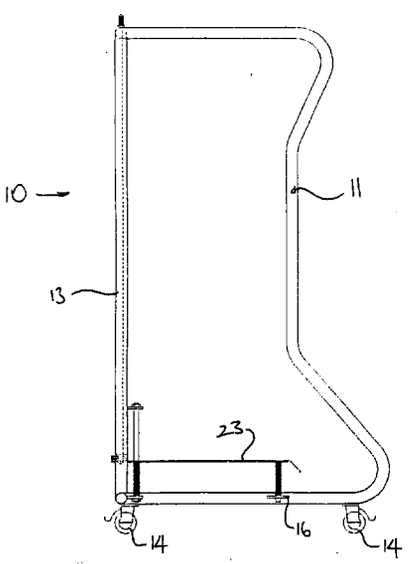

Fig. 1

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Description

The present invention relates to a drop bag fitting, used to support a bag, such as a mail bag, in an open configuration such that items can be deposited in the bag.

During the manual sorting of mail, some items of mail are placed directly into a suitably-supported mail bag until the bag is full. The bag is then removed from its support and replaced by another bag and the process is repeated.

Drop bag fittings are widely used for supporting such mail bags. For example, a postal authority may use them in automated processing centres, local delivery offices, delivery offices, post rooms and at post office counters. In addition, they may be used in the mail rooms of businesses and the like.

Known drop bag fittings comprise a rectilinear frame with a lower square frame part having posts extending upwardly therefrom and connected to an upper square frame part. The upper frame part has hooks to which the four corners of a mail bag are attached to retain the bag in an open configuration.

A major health and safety problem associated with such known drop bag fittings concerns the removal of a loaded bag therefrom. At present, the weight limit for a loaded mail bag is 22 kg (although it is preferable if the bag weighs no more than 11 kg). However, a person removing a mail bag from a known drop bag fitting has no way of knowing whether the weight of that bag has reached the limit, or indeed whether it has exceeded the limit. Accordingly, many injuries are caused by people trying to remove a mail bag which is too heavy. Typical injuries affect the back, arms, hands, wrists or shoulders.

According to a first aspect of the present invention, there is provided a drop bag fitting, comprising:

a support for receiving a bag so as to hold the bag in such a manner that items can be deposited in the bag; and

weight indication means associated with the support and arranged to indicate when the bag and the items deposited therein reach a predetermined weight.

The weight indication means preferably comprises a movable member which is arranged to contact the bag and which is resiliently biased so that it moves when the bag and the items deposited therein reach the predetermined weight, and an indicator which indicates when the movable member moves.

The movable member may be located anywhere in or on the support. For example, the movable member could form part of means, e.g. hooks, used to suspend the bag in the drop bag fitting. In this case, when the bag and the items deposited therein exceed the predetermined weight, the suspending means moves downwardly and the indicator indicates that the weight has been exceeded.

However, it is preferred that the movable member be a substantially horizontal platform located at the lower end of the support so as to move up and down therein, one or more springs biasing the platform upwardly. Preferably, the platform has one or more posts extending downwardly therefrom and slidably located in corresponding bores in the lower end of the support, the or each post having a spring to bias the platform upwardly. In this way, the bag and the items deposited therein rest on the platform, causing the platform to move downwardly when the predetermined weight is reached.

The platform may also have a bore therein through which is slidably received a bar connected to the support, the bar having a spring to bias the platform upwardly. The bar retains the platform so that it moves only up and down.

The indicator could be any appropriate indicator and may be electronic. It is preferred however if the indicator is a rod, one end of which is attached to the platform and the other end of which has a portion which is visible to a user of the device until the platform moves. Such an arrangement is simple and requires relatively little maintenance. The rod may extend through the support such that said other end thereof extends from the upper portion of the support. This ensures that the upper end of the rod is clearly visible to a user of the drop bag fitting until the predetermined weight has been reached at which time the platform and rod move downwardly, resulting in the upper end of the rod moving into the support and being no longer visible to the user.

Advantageously, the support has two side portions and upper and lower cross portions connecting the side portions at the rear thereof. Thus, the support has no front cross bar and therefore a bag can be easily removed from the fitting.

According to a second aspect of the present invention, there is provided a drop bag fitting, comprising a support for receiving a bag so as to hold the bag in such a manner that items can be deposited in the bag, wherein the support has two side portions and upper and lower cross portions connecting the respective side portions at the rear thereof.

In the drop bag fitting of the first and second aspects of the invention, the support is preferably a frame. This means that the support is light and is easily manufactured.

For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:-

Figure 1 is side view of a drop bag fitting in accordance with the present invention;

Figure 2 is a front view of the frame of the drop bag fitting of Figure 1;

Figure 3 is a plan view of the drop bag fitting of Figure 1; and

Figure 4 is partial view of the weighing means of the drop bag fitting of Figure 1.

Referring to Figures 1 and 2, a drop bag fitting 10 comprises a frame 11 which is typically of tubular steel for strength and lightness. The tubular steel preferably has a round cross-section so that the frame has no sharp edges, and may have a diameter of 25 mm and a wall thickness of 2 mm. However, frame 11 could be of any suitable material, e.g. plastics, etc. Frame 11 has side portions 11a, 11b, the top and bottom ends of which are linked by upper 11c and lower 11d cross portions, respectively.

Lower cross portion 11d has connected thereto a member 12 having a generally inverted V-shape, such that lower cross portion 11d and member 12 define between them a triangle. A rear tube 13 connects the apex of this triangle with upper cross portion 11c. Thus, the front of frame 11 is open, i.e. when viewed from above, it defines a C-shape (see Figure 3).

Frame 11 is mounted on castors 14 so that it can be easily moved, and the respective upper parts of side portions 11a, 11b each have two hooks 15 for receiving the respective four corners of a mail bag.

Referring to Figures 3 and 4, drop bag fitting 10 includes a weight indication means. At the bottom of drop bag fitting 10, a cross member 16 having bores 17a, 17b therein, extends between side portions 11a, 11b. In addition, at the centre of lower cross portion 11d and at the centre of member 12 (i.e. at the apex thereof and where rear tube 13 is connected), flanges 18, 19, respectively, extend inwardly towards cross member 16. Flanges 18, 19 each have a bore therein into which the respective ends of a bar 20 are secured by means of nuts 21, 22.

A substantially horizontal platform 23 has two posts 23a, 23b extending downwardly therefrom to be slidably received in bores 17a, 17b, respectively. In addition, platform 23 has a bore 23c therein through which bar 20 slidably extends. Platform 23 is biased upwardly by means of springs 24, 25 located around posts 23a, 23b between cross member 16 and the lower surface of platform 23, and a spring 26 located around bar 20 between flange 18 and the lower surface of platform 23. Thus, it will be appreciated that the action of a force against springs 24, 25, 26 moves platform 23 downwardly, with posts 23a, 23b passing through bores 17a, 17b respectively.

Located at the rear of platform 23 substantially below rear tube 13, there is a boss 27, the bore of which is aligned with a second bore 23d through platform 23. A rod 28 extends upwardly through bore 23d, boss 27 and tube 13, and beyond upper cross portion 11c. The lower end of rod 28 is secured in boss 27 by means of a screw 29.

The upper end of rod 28, which extends beyond upper cross portion 11c, has a first portion 30 and a second portion 31 separated from each other by a band. First 30 and second 31 portions are visibly distinct from each other. In this embodiment, first portion 30 is coloured green and second portion 31 is coloured red.

In use, the four corners of a mail bag are suspended from hooks 15. The height of the drop bag fitting 10 is such that the bottom of the bag rests on platform 23. Items of mail are deposited in the mail bag where they rest on platform 23.

When the downward force created by the weight of the items deposited in the mail bag exceeds the upward force exerted by the springs 24, 25, 26, the platform 23 moves downwardly. Because rod 28 is secured to platform 23 by means of boss 27, rod 28 also moves downwardly. The effect of this is that the green first portion 30 at the upper end of rod 28 moves into upper cross portion 11c and is no therefore longer visible. Thus, only the band and the red second portion 31 are visible, which indicates to the person filling the mail bag that the weight of the items therein has reached the predetermined limit. Accordingly, the mail bag can be unhooked from hooks 15 and removed from drop bag fitting 10. If further items are placed in the bag and rod 28 moves further downwardly, only the red second portion 31 is then visible, which indicates that the weight has exceeded the predetermined limit.

The removal of the mail bag is made easier by the fact that the front of frame 11 is open. Accordingly, the bag can simply be dragged from platform 23 with little or no lifting thereof required.

Calibration of the weight indication means is carried out by placing on the platform an object having the predetermined weight and adjusting the position of rod 28 in boss 27 so that the band and the second portion 31 of rod 28 protrude from upper cross portion 11c. The rod 28 is then secured in place by means of screw 29.

The weight at which the platform 23 moves downwardly is determined by the springs 24, 25, 26. Accordingly, the springs are selected according to the weight at which it is desired that platform 23 moves.

The drop bag fitting of the present invention is modular, that is to say that a plurality of fittings can be secured together in a line one next to the other by means of a clamp or other suitable securing means. It is currently preferred that the fittings are secured together by means of clamps which have two bores therein for receiving the tubular frames of adjacent drop bag fittings. The clamp is preferably of plastics and is split into two parts which can be secured together by means of a nut and bolt received in a third bore extending through both parts.

Claims

1. A drop bag fitting (10), comprising:

a support (11) for receiving a bag so as to hold the bag in such a manner that items can be deposited in the bag; and

weight indication means associated with the support and arranged to indicate when the bag and the items deposited therein reach a predetermined weight.

2. A drop bag fitting (10) as claimed in claim 1, wherein the weight indication means comprises a movable member (23) which is arranged to contact the bag and which is resiliently biased so that it moves when the bag and the items deposited therein exceed the predetermined weight, and an indicator (28) which indicates when the movable member (23) moves.

3. A drop bag fitting (10) as claimed in claim 2, wherein the movable member is a substantially horizontal platform (23) located at the lower end of the support (11) so as to move up and down therein, one or more springs (24,25,26) biasing the platform (23) upwardly.

4. A drop bag fitting (10) as claimed in claim 3, wherein the platform (23) has one or more posts (23a,23b) extending downwardly therefrom and slidably located in corresponding bores (17a,17b) in the lower end of the support (11), the or each post (23a,23b) having a spring (24,25) to bias the platform (23) upwardly.

5. A drop bag fitting (10) as claimed in claim 3 or claim 4, wherein the platform (23) has a bore (23c) therein through which is slidably received a bar (20) connected to the support (11), the bar (20) having a spring (26) to bias the platform (23) upwardly.

6. A drop bag fitting (10) as claimed in claim 2, 3, 4 or 5, wherein the indicator is an elongate rod (28), one end of which is attached to the movable member (23) and the other end of which has a portion (30,31) which is visible to a user of the device until the movable member (23) moves.

7. A drop bag fitting (10) as claimed in claim 6, wherein the rod (28) extends through the support (11) such that said other end thereof extends from the upper portion (11c) of the support (11).

8. A drop bag fitting (10) as claimed in any preceding claim, wherein the support (11) has two side portions (11a,11b) and upper (11c) and lower (11d) cross portions connecting the side portions (11a,11b) at the rear thereof.

9. A drop bag fitting (10), comprising a support (11) for receiving a bag so as to hold the bag in such a manner that items can be deposited in the bag, wherein the support (11) has two side portions (11a,11b) and upper (11c) and lower (11d) cross portions connecting the respective side portions (11a,11b) at the rear thereof.

10. A drop bag fitting (10) as claimed in claim 8 or claim 9, wherein the support is a frame (11).

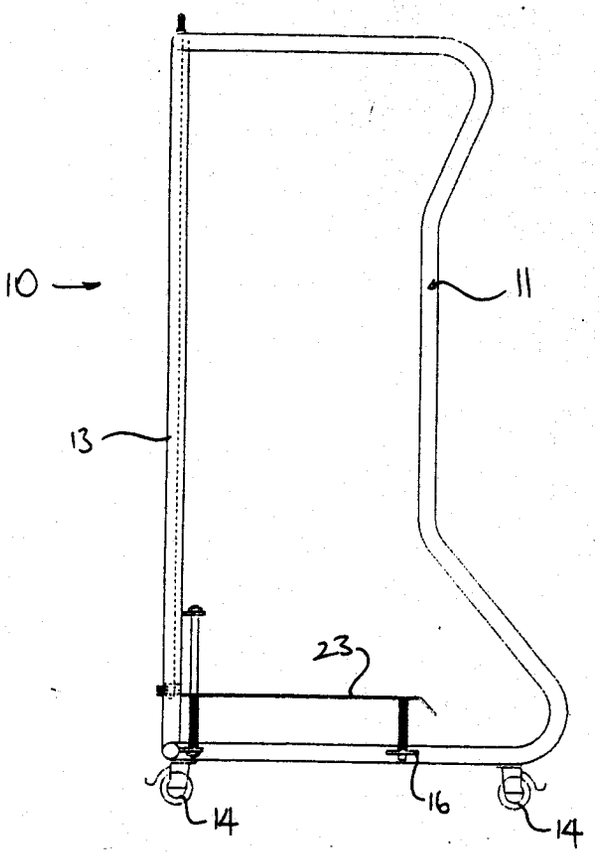


Fig. 1

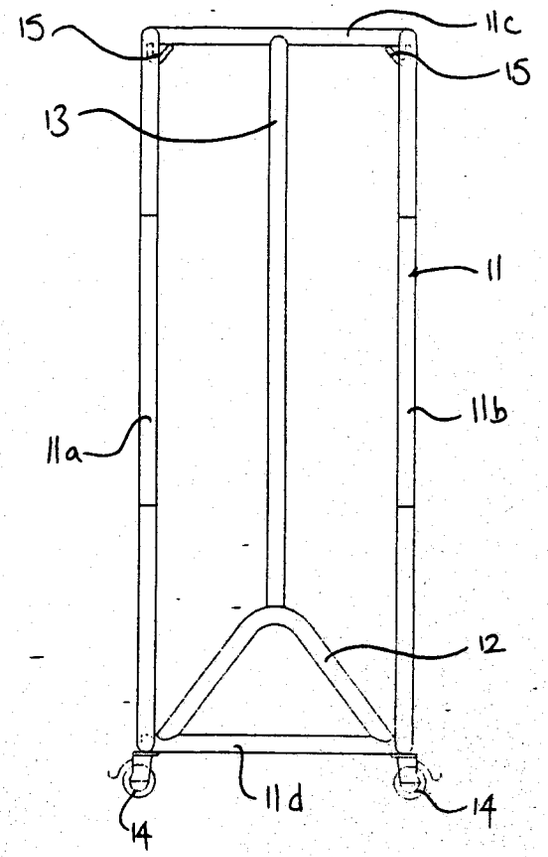
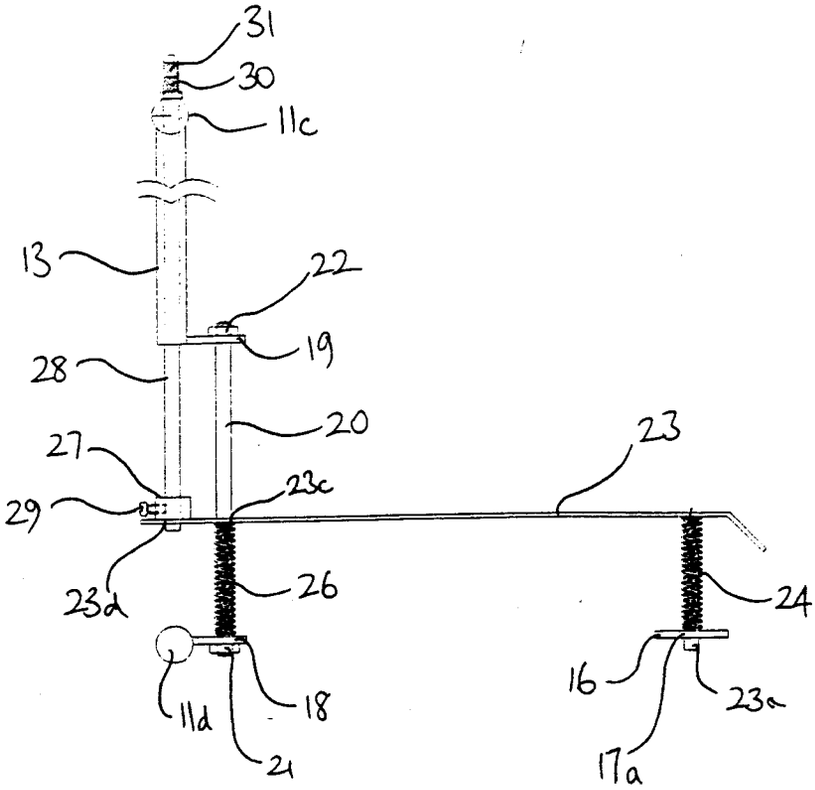


Fig. 2


31
30
11c
13
22
19
28
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23
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23c
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23d
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11d
21
23a
17a

Fig. 4

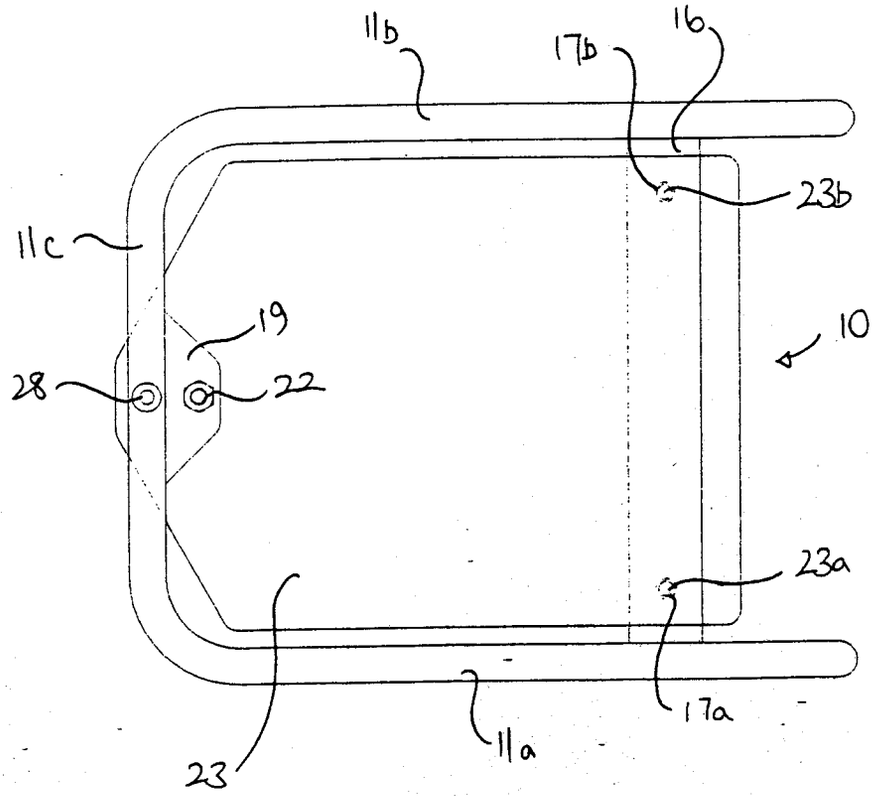
11b
17b
16
23b
11c
19
10
28
22
23a
17a
11a
23

Fig. 3