

[54] BAG CLOSURE

[76] Inventor: **Oscar S. Ippolito**, 2959 Bronwood Ave., Bronx, N.Y. 10469

[22] Filed: **June 8, 1972**

[21] Appl. No.: **260,756**

[52] U.S. Cl. .... **150/3, 24/30.5 R, 24/205.18**

[51] Int. Cl. .... **B65d 33/16**

[58] Field of Search ..... 150/3, 23, 15, 26; 24/30.5 R, 205.18; 70/65, 64

[56] **References Cited**

**UNITED STATES PATENTS**

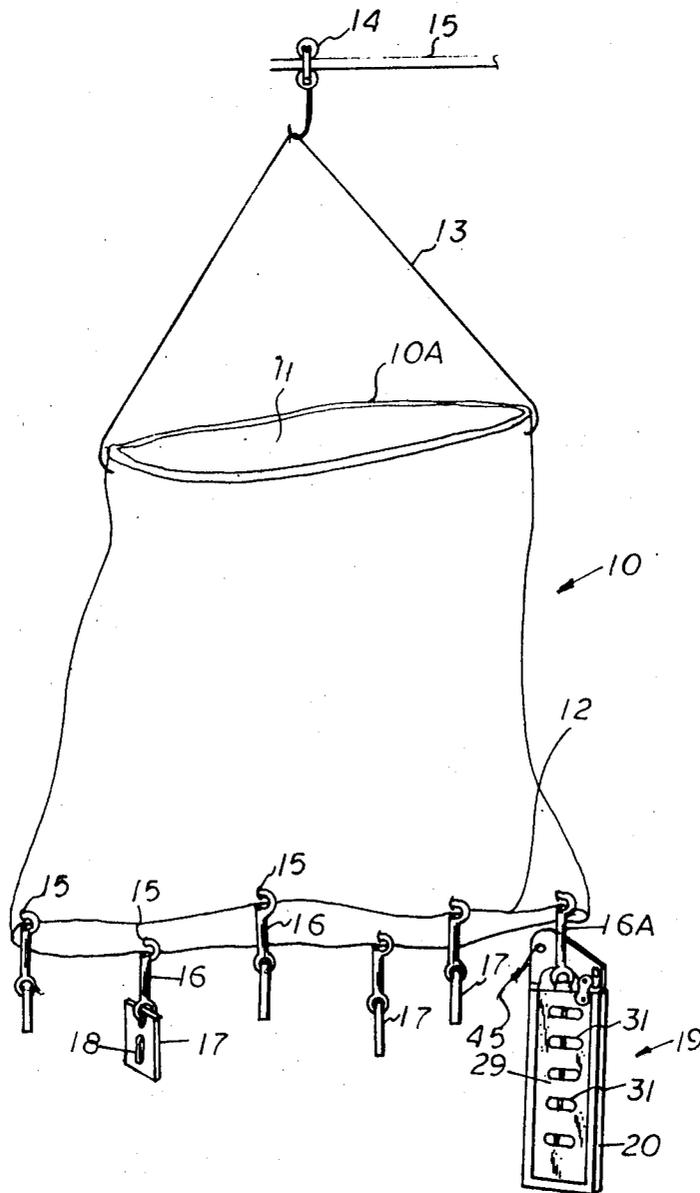
293,123	2/1884	Van Camp.....	150/26
1,588,695	6/1926	Boehm.....	150/3 X

Primary Examiner—Donald F. Norton

[57] **ABSTRACT**

This disclosure is directed to a bag closure for use with a load carrying bag having an opened end portion through which the contents can be unloaded. The bag closure includes a frame having a slide mounted thereon for relative movement, with slide being formed with a series of openings adapted to gather and secure locking rings circumferentially spaced about the periphery of the bag opening to effect a closing therefor. Latching pins are associated with each slide opening to secure the holding rings in a bag closing position until released. An operating lever is operatively connected to the slide to effect a relative movement to effect a simultaneous release of the holding rings from the latching pins of the closure when the load contained in the bag is to be released.

**11 Claims, 6 Drawing Figures**



SHEET 1 OF 3

FIG. 1

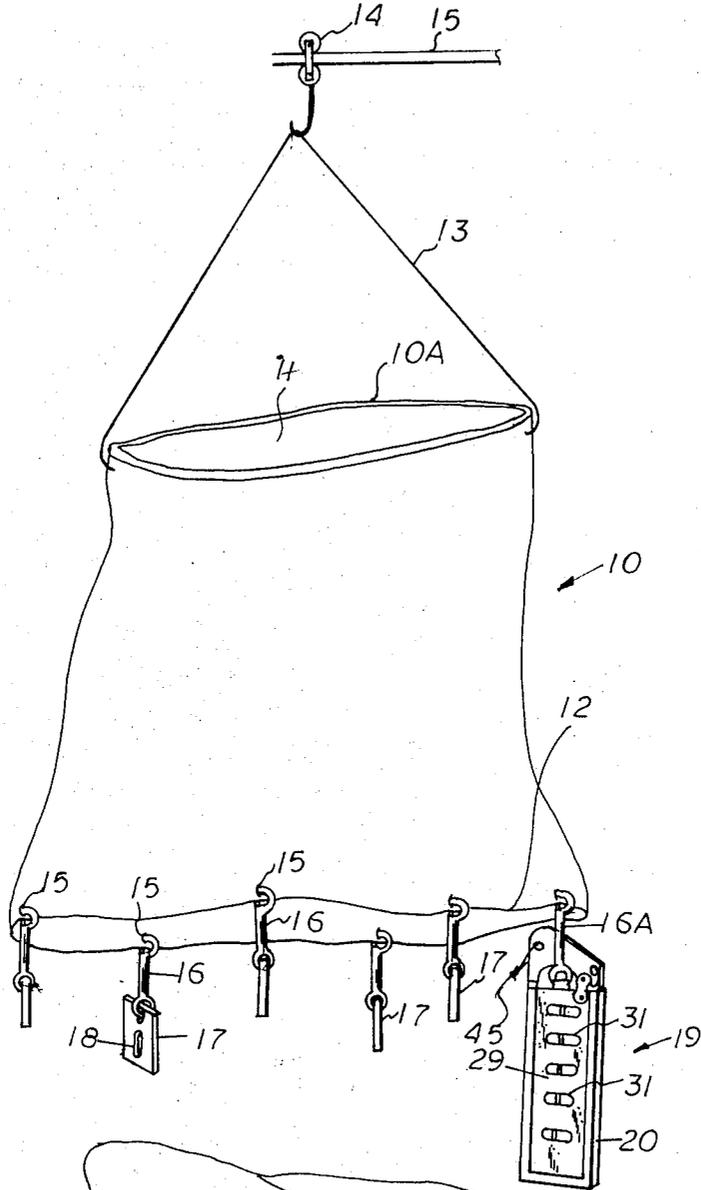
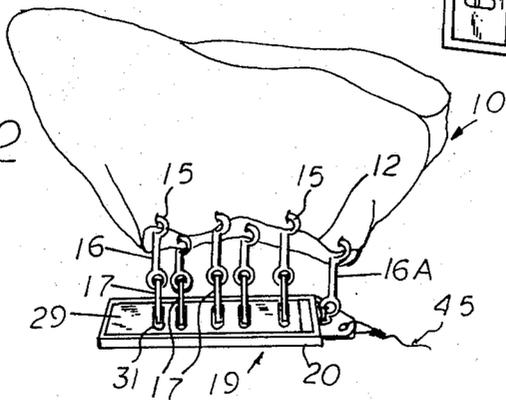


FIG. 2



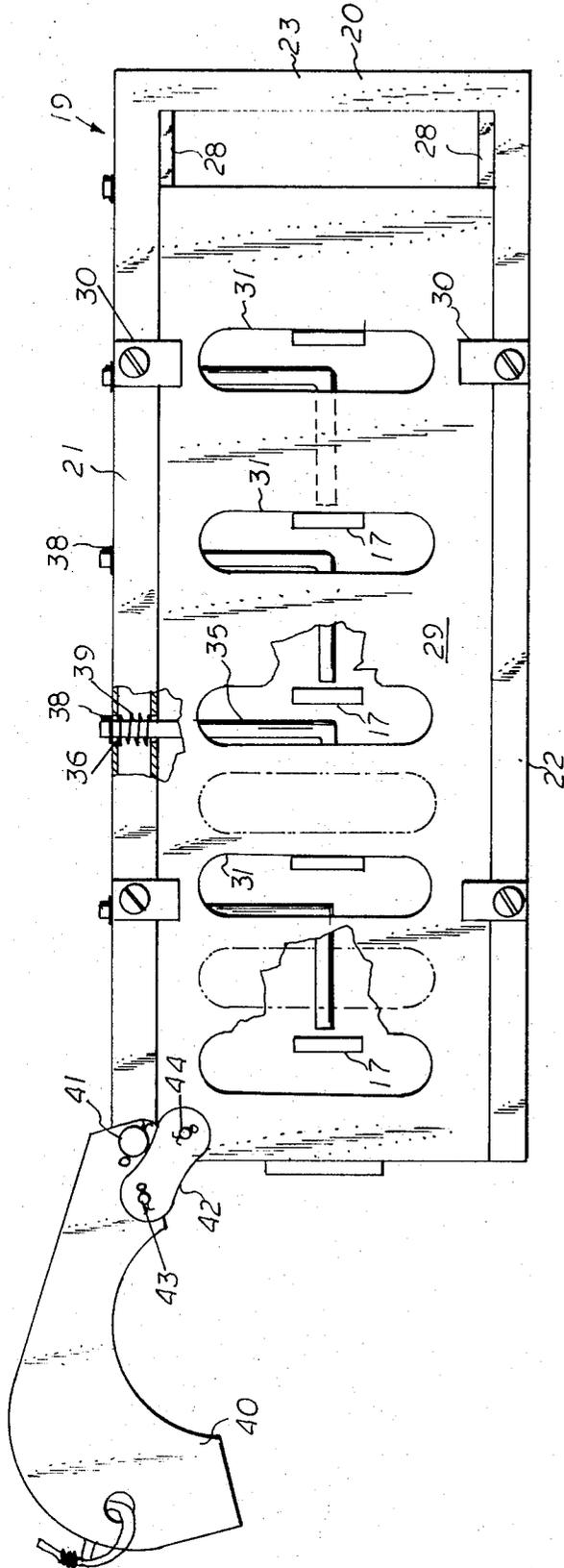


FIG 6

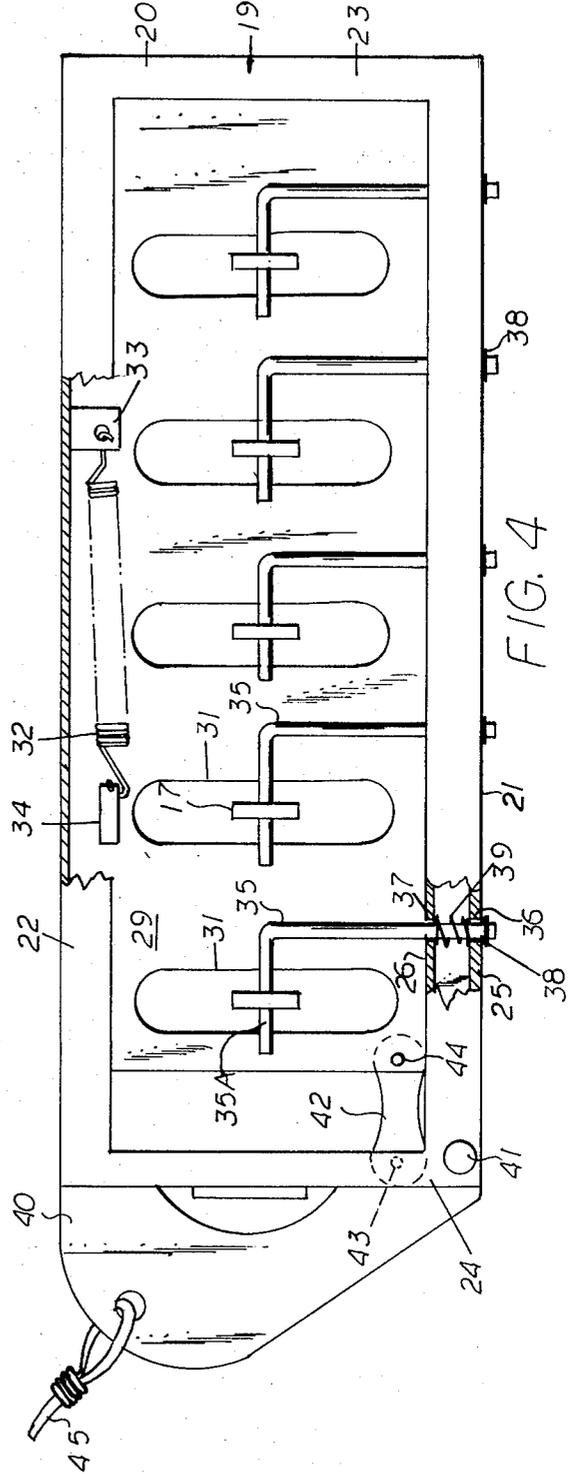
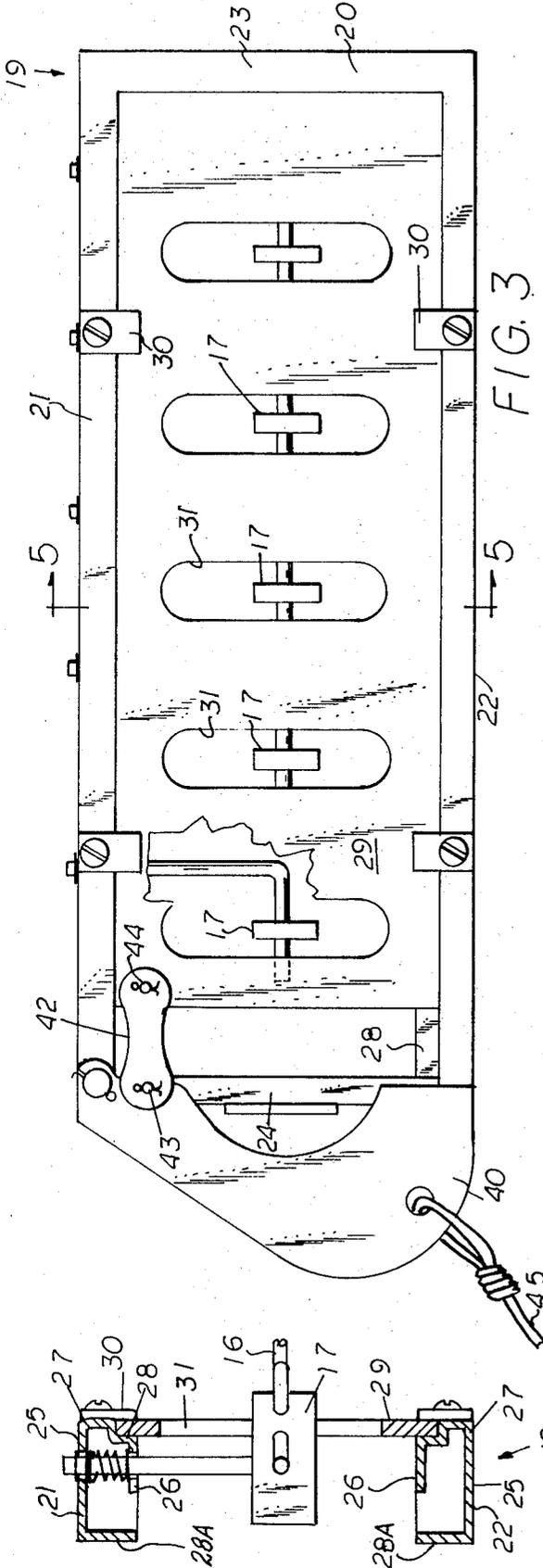


FIG. 5

## BAG CLOSURE

## PROBLEM AND PRIOR ART

In certain industries, e.g., the laundry industry, and/or in parts washing and cleaning industries, a load is frequently transported to and from various operations in loading bags or containers traveling on overhead rails. Such bags or containers are formed with readily opened bottoms through which the load can be discharged when and where desired. Heretofore various types of end closures were provided to gather the open bottom of such bags or containers for supporting and carrying the load therein. The known closures generally consisted of draw strings or the like which required an operator to pull and secure. Other means comprise relatively complex mechanisms which were required to be integrally formed with the loading bag or container. Evidence of such closures include those disclosed in U.S. Pat. Nos. 1,360,109; 1,932,527; 2,152,413; and 3,018,880.

## OBJECTS

An object of this invention is to provide an improved bag closure to facilitate the gathering and closing of the bottom open end of a load carrying bag or the like.

Another object of this invention is to provide a bag closure wherein the gathered end of the bag is simultaneously released.

Another object of this invention is to provide a bag closure which is relatively simple in construction, can be readily manufactured and which is positive in operation.

Another object of this invention is to provide an improved bag closure in which the gathered end portion of the bag can be readily released so as to effect a discharge of the contents carried by the bag through the bottom open end thereof.

## BRIEF SUMMARY OF THE INVENTION

The foregoing objects and other features and advantages of this invention are obtained by a bag closure which is adapted for use with a load carrying bag having an open bottom end portion through which the contents thereof can be readily released or unloaded. A plurality of holding rings are circumferentially spaced about the periphery of the bag adjacent the open end thereof. The closure means is connected to the bag and is rendered operative for gathering and releasably securing the respective holding rings so as to close the open end of the bag for retaining the contents therein until the release or unloading of the contents is required. The closure means comprises a frame which has a slide member slidably mounted thereon. The slide member has formed therein a plurality of openings for receiving the respective holding rings in the gathered position of the bag. Operatively connected to the frame members are a plurality of latching pins which have an end portion adapted to extend transversely of the openings formed in the slide plate. The arrangement is such that the individual holding rings in the gathered or closed position of the bag are arranged to be inserted in through the appropriate openings of the slide plate whereupon the latch pins automatically engage the holding rings to secure the holding rings to the closure in a gathered, bag closing position until released.

An operating lever is pivotally connected to the frame and operatively connected to the slide to effect relative movement therebetween whenever the operating lever is actuated. Actuation of the operating lever results in the holding rings being displaced to free them of the latching pins and thereby effect a release of the load. A biasing means is provided for maintaining the slide toward operative bag closing position so that upon the release of the actuating lever, the slide will normally assume its operative position in readiness to receive the holding rings for a subsequent closing of the bag.

## FEATURES

A feature of this invention resides in the provision of an improved bag closure means in which the holding rings of the bag are releasably secured to the closure in an efficient and positive manner.

Another feature of this invention resides in the provision wherein an operator can readily effect the gathering of the open end of the bag and maintain the same in a closed position until a release thereof is required.

Other features and advantages will become more readily apparent when considered in view of the drawings and specification in which:

FIG. 1 illustrates the utilization of the closure means as applied to a load carrying bag wherein the bag is illustrated in an open, discharging position.

FIG. 2 is a fragmentary view similar to that of FIG. 1, but illustrating the closure in an operative bag closing position.

FIG. 3 is a top plan view of the bag closure device having portions thereof broken away.

FIG. 4 is a bottom view of the bag closure device of FIG. 3.

FIG. 5 is a sectional view taken through line 5—5 on FIG. 3.

FIG. 6 is a top plan view similar to that of FIG. 3 illustrating the component parts thereof in the released position.

Referring to the drawings, there is shown in FIGS. 1 and 2 a load carrying bag or container 10 by which work may be transported from operating station to operating station. In the illustrated form of the invention, the bag 10 is of the type which is adapted for use in commercial laundries for carrying a load of wash from station to station. Generally such bags 10 comprise of a tubular canvas body 10A having an upper open end 11 by which such bags can be charged with a load of wash. The bottom of the bag is also provided with a full open end 12 which, in operation, is closed by gathering of the edge portion and maintaining the bottom opening 12 in a gathered position until such time that it is desired to release the load contained therein. Such bags are also provided with a hanging strap 13 by which the bag may be suitably transported from station to station by overhead trolley 14 riding on overhead rails 15.

As best seen in FIGS. 1 and 2 a plurality of openings or holes 15 are formed in the peripheral portion of the bag adjacent the bottom opening 12. Secured in each of the openings 12 is a releasable or latching pin 16 which has connected thereto a holding means 17 in the form of a ring or plate having a hole formed therein.

Connected to one of the latching pins 16 is a closure device 19. As best seen in FIGS. 3-4 the closure device 19 comprises a frame member 20. In the illustrated

form of the invention the frame member 20 is defined by rectangularly disposed structural members comprising of a pair of opposed longitudinally extending side members 21, 22 interconnected by opposed end members 23, 24. As best seen in FIG. 5, the longitudinal side members 21, 22 may be defined by an extruded piece having opposed, spaced apart, inner and outer wall portions 25, 26 interconnected by an interconnecting top wall portion 27. The outer wall 24 may be provided with a laterally bent flange to define a bottom wall 28A of the longitudinal side members. As shown, the inner portion of the top wall member 27 is recessed or depressed as at 28 to provide a slideway upon which a slide member 29 is supported for relative movement with respect to the frame member 20.

The slide member 29 comprises a flat plate member which is retained between the slideways 28 for relative sliding movement with respect to frame 20. Suitable retaining means, e.g., lugs or plates 30 are secured to the raised portion of the top wall 27 for maintaining the slide 29 in sliding relationship to the opposed frame members 21, 22. As best seen in FIGS. 3 and 4, the length of the slide member 29 is less than the length of the frame 20 so as to provide for limited displacement between the slide member 29 and the frame 20. The slide member is also provided with a plurality of transversely extending openings 31 which extend through the slide member 29. It will be noted that the number of openings 31 formed in the slide member 29 is intended to correspond to the number of holding rings 17 required to gather the open end 12 of the bag 10 to a closed position as viewed in FIG. 2.

As best seen in FIG. 4, a coil spring 32 is provided to normally maintain the slide 29 in a normal operative position. As shown, one end of the coil spring 32 is suitably anchored in an anchor plate 33 secured to the longitudinal side member 22 or frame 20 and the other end of the spring 32 is suitably secured in a bracket 34 connected to the slide 29. The spring 32 thus tends to maintain the slide plate 29 normally biased to the right as viewed in FIGS. 3 and 4.

As best seen in FIGS. 3-5, a plurality of latch pins 35 are rotatably journaled to one of the longitudinal side members, e.g., member 21. As noted in FIGS. 4 and 5, the inner and outer wall 25, 26 of at least one longitudinal end member, e.g., 21, is provided with aligned apertures 36, 37 for rotatably receiving one end of the respective latching pin 35. It will be understood that suitable locking means 38, e.g., pin, lock washer or the like, may be provided for rotatably retaining the respective latching pins 35 to the longitudinal side member 21. The latching pin is provided with an extended end portion 35A which is laterally bent to extend transversely of an associated opening 31 of the slide plate. As noted in FIGS. 3 and 4, the latch pin 35 is secured to the frame side member so that the free end 35A thereof is located beneath the slide plate 29 when the closure device 10 is disposed in the operative position as seen in FIG. 2. A coil spring 39 is operatively associated with each of the respective latching pins 35 to normally bias the free end 35A of the pin against or toward the under surface of the slide plate 29. In the normal operating position the latch pins 35 are thus urged against the under surface of the slide plate, but free to be rotated away or downwardly relative to the plate 29.

An operating lever or actuating means 40 is pivotally connected to the frame about pivot pin 41.

Interconnecting the operating lever 40 to the slide plate 29 is an interconnecting link 42. One end of the link 42 is pivotally connected to the operating lever 40 at an intermediate point thereof about a pivot point 43 and the other end is pivoted to the slide plate 29 about pivot pin 44. If desired, a suitable pull cord 45 is operatively connected to the free end of the operating lever 40 whereby an operator can effect actuation of the operating lever.

In operation, to effect a gathering and a closing of the bottom open end 12 of the bag 10 of FIG. 1, an operator, before the bag is loaded, inserts the respective holding rings 17 into the respective slots or holes 31 of the slide plate 29 whereby the laterally bent portions 35A of the associated latch pins is displaced downward against the bias of spring 39 to effect the latching of the holding ring 17 to the extended end 35A of the latch pin 35. With each of the holding rings 17 inserted through the respective openings 31 of the slide plate as shown in FIG. 2, the holding rings 17 effect a gathering of the bag and a securing of the open end of the bag so that a load may be supported therein.

To effect the release of the load, when desired, the operator need only to pull the pull cord 45 to pivot the operating lever 40 clockwise about pivot 41 as viewed in FIG. 3, to the position indicated in FIG. 6. In so doing the slide is displaced to the left as indicated in FIG. 6. Displacement of the slide plate 29, as indicated in FIG. 6, causes each of the respective holding rings 17 to be shifted laterally an amount sufficient to effect the release of the holding rings from the free end 35A of the latch pins 35 whereby the weight of the contents forces the bag to open and release. The arrangement is such that each of the holding rings 17 is simultaneously released upon the actuation of the operating lever 40, whereupon the load within the bag is free to drop by gravity. Upon release of the pull cord 45, the spring 32 acting on the slide plate 29 will cause the slide plate 29 to return to its normal operative position, as seen in FIG. 3, whereupon an operator can readily effect a subsequent gathering and closing of the bag, as hereinbefore described in preparation for receiving another load.

From the foregoing description it will be readily apparent that a relatively simple and effective closure device 10 is effected whereby the holding rings 17 circumscribing the open bottom end 12 of a bag can be readily gathered and releasably secured in a positive and effective manner, and whereby a minimum of force is required to effect either the closing and/or the release of the bag. It will be understood that the closure device 10 may be formed of suitable metallic material and/or from sturdy plastic components so as to provide a durable and trouble-free closure.

While the instant invention has been described with respect to a particular embodiment thereof, it will be readily appreciated and understood that variations and modifications may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. In combination:

a load carrying bag having an open end portion through which the contents thereof can be readily unloaded,

a plurality of holding means circumferentially spaced about the periphery of said bag adjacent said open end, and  
 a closure means for releasably securing and gathering said holding means to close the open end of said bag for retaining the contents of said bag therein,

said closure means comprising:

a frame means,  
 a slide means, said slide means and said frame being mounted for relative movement,  
 said slide means having a plurality of spaced openings formed therein, adapted to receive said holding means,  
 a latching means operatively associated with each of said openings for releasably securing said holding means received within said openings,  
 and an actuating means operatively connected to said frame means and slide means to effect relative movement thereof between an operative bag closing position and bag release position whereby said holding means are simultaneously released.

2. The invention as defined in claim 1 and including a biasing means operating on said slide means for normally maintaining said slide means in an operative bag closing position.

3. The invention as defined in claim 1 wherein said latching means includes:  
 a latch pin rotatably journaled to said frame means adjacent each of said openings and disposed to the underside of said slide means,  
 each of said pins having its free end extending transversely of the adjacent opening,  
 and spring means operating on each of said pins for normally biasing said free end thereof toward said slide means.

4. The invention as defined in claim 1 wherein said frame means includes:  
 opposed longitudinal extended side members, means connected to said side members defining a slideway,  
 said slide means being disposed in said slide way, and means for retaining said slide means in said slideway for movement relative thereto.

5. The invention as defined in claim 4 wherein said side members comprise a structural member having opposed inner and outer wall portions extending longitudinally thereof,  
 said inner and out wall portion of at least one of said members having a series of aligned openings formed therein,  
 said aligned openings providing a bearing for rotatably supporting said latch pins.

6. The invention as defined in claim 5 and including means connecting said frame means to said bag adjacent the open end thereof.

7. A bag closure comprising:

a frame means,  
 a slide means slidably disposed on said frame means for movement between an operative closed position and an inoperative released position,  
 means normally biasing said slide means to its operative closed position,  
 said slide means including a plurality of spaced openings formed therein,  
 a plurality of latching pins rotatably journaled to said frame means, adjacent each of said openings, each of said latching pins having an end portion extending transversely of its associated opening,  
 spring means operating on each of said latching pins for biasing said end portions toward said slide means,  
 an actuating means pivotally connected to said frame and to said slide means whereupon actuation of said actuating means overcomes the force of said biasing means and effects displacement of said slide means toward its release position.

8. The invention as defined in claim 7 wherein said actuating means includes:  
 an operating lever pivotally mounted to said frame means,  
 and an interconnecting link pivotally connecting said lever to said slide means.

9. The invention as defined in claim 7 wherein said frame means includes:  
 opposite longitudinal side members,  
 and one of said side members having a plurality of holes formed therein,  
 said latch pins being rotatably journaled in said holes.

10. A bag closure adapted to gather and close an open end of a load carrying bag having a plurality of holding rings circumferentially spaced about the periphery of said open end, and comprising:  
 a frame means,  
 a slide means mounted on said frame for relative movement thereto between an operative holding position and a release position,  
 said slide means having a plurality of openings formed thereon adapted to receive one of said holding rings,  
 latch means operatively associated with each of said openings adapted for latching and securing said holding ring received in said opening, and  
 an actuating means operatively connected to said slide means to effect relative movement between said slide means and frame means whereupon said movement effects simultaneous release of said holding rings from said latch means.

11. The invention as defined in claim 10 including means for normally biasing said slide means toward its operative holding position; and  
 spring means acting on each of said latch means for biasing said latch means toward said slide means.

\* \* \* \* \*