April 28, 1953 S. TANABE 2,636,656

SACKING DEVICE WITH OPEN-ENDED BODY HAVING SACK GRIPPING DEVICES THEREON

Filed April 8, 1952

2 SHEETS--SHEET 1

FIG. 1.

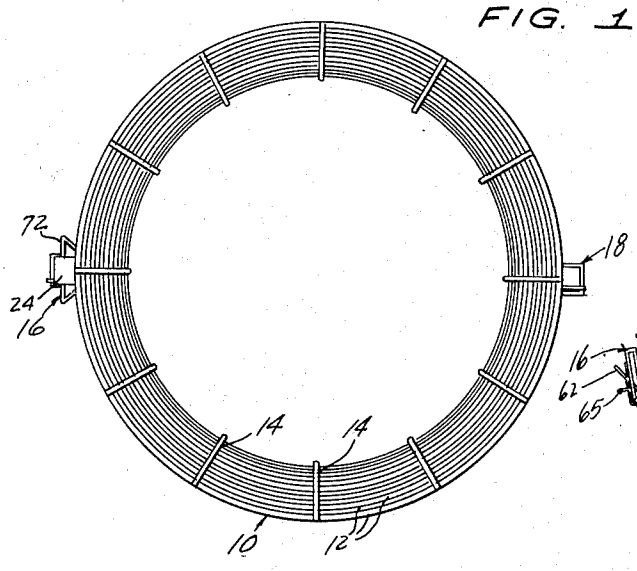


FIG. 3.

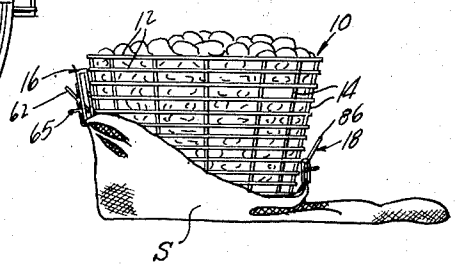


FIG. 2.

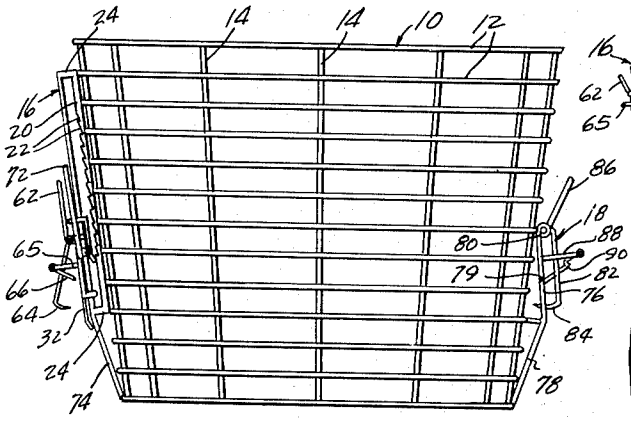
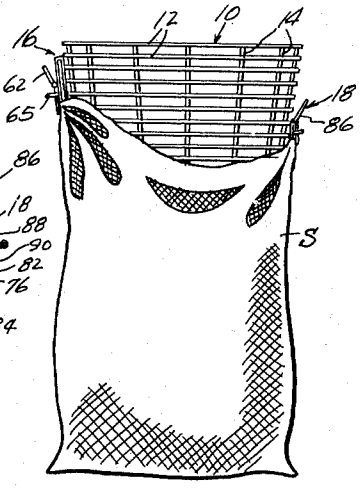


FIG. 4.



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2 SHEETS—SHEET 2

FIG. 5.

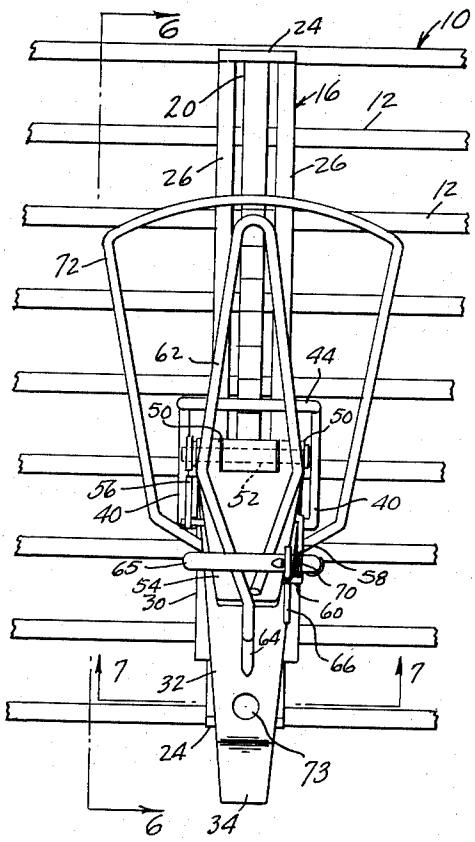


FIG. 6.

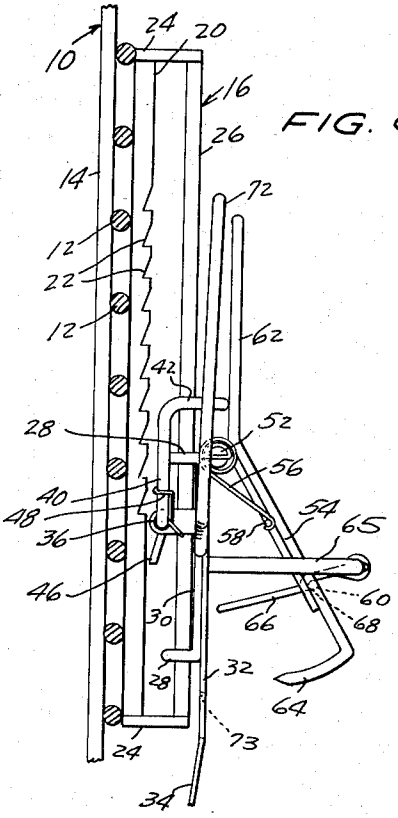
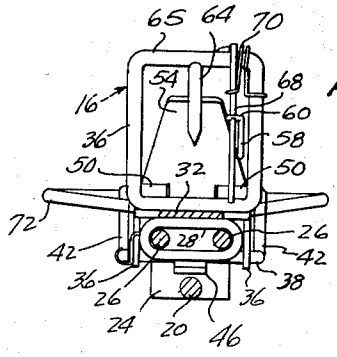


FIG. 7.



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SACKING DEVICE WITH OPEN-ENDED BODY HAVING SACK GRIPPING DEVICES THEREON

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5 Claims. (Cl. 226—59)

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This invention relates to sacking devices, and more particularly, has reference to a device of the character referred to that can be applied to the open end of a conventional onion sack, potato sack, or the like, so as to facilitate the filling of the sack.

The difficulty and inconvenience attendant upon the filling of sacks of the character referred to are well known among those continuously engaged in this type of work, and accordingly, there have heretofore been devised structures intended to make this task more easy. However, most usually, sacks are still filled by emptying the onions, potatoes, or like products into the mouth of the sack, from the top of a tilted basket, hamper, or similar container.

In view of the above, it is the main object of the present invention to provide a device capable of being readily attached to the open end of a sack, and adapted when so attached to permit the sack to be filled swifty, and with a minimum amount of difficulty.

Another important object is to provide a device as stated which will be in the form of an open ended, tapered, basket-like body having means disposed at substantially diametrically opposite locations thereupon that are adapted to engage the open end of the sack and hold said open end in position about the body, thus to permit the objects with which the sack is to be filled to pass directly through said body into the sack.

Another important object is to provide a device of the character referred to wherein the means employed thereon for engaging the sack will be relatively adjustable, in a manner to cause the open end of the sack to be tensioned about the body.

Yet another object of importance is to provide a device as stated wherein the adjustable means will be so formed as to be retained automatically in selected positions to which the means is adjusted, with disengagement of said means from the sack being adapted to effect an automatic release of said means from the selected position to which it was previously adjusted.

Still another object of importance is to provide a sacking device which can be manufactured at relatively low cost, and will be rugged and durable in use.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a top plan view of a sacking device

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formed in accordance with the present invention;

Figure 2 is a side elevational view;

Figure 3 is a side elevational view on a reduced scale, showing the device as it appears during a first step in the operation of filling a sack;

Figure 4 is a view similar to Figure 3 showing the device and sack as they appear during a later step in the sack filling operation;

Figure 5 is a front elevational view, on a greatly enlarged scale, of the adjustable sack gripping assembly of the device, the basket-like body on which said assembly is mounted being illustrated only fragmentarily;

Figure 6 is a sectional view taken on line 6—6 of Figure 5; and

Figure 7 is a sectional view taken on line 7—7 of Figure 5.

The sacking device formed in accordance with the present invention includes an open ended, basket-like body designated generally by the reference numeral 10. As shown in Figure 2, the body tapers from end to end thereof, and it will be understood that the body can be formed of any suitable material. As an example of one type of construction which can advantageously be used, I have illustrated the body as comprising a series of vertically spaced, concentric rings 12 of wire material, said rings being increased progressively in diameter from the smaller to the larger end of the body and being fixedly secured in spaced relation by a plurality of longitudinal braces 14 spaced circumferentially of the rings and arranged longitudinally of the body. The support braces 14, like the rings 12, can be formed of a stout wire or rod material.

Mounted upon the outer surface of the body 10, at diametrically opposite locations thereon, are sack gripping assemblies designated generally by the reference numerals 16 and 18 respectively. The assembly 16 can be conveniently termed an adjustable assembly, while the assembly 18, for purposes of clarity, will be termed the stationary assembly.

The adjustable sack gripping assembly 16 will be described first, this assembly being illustrated to advantage in Figures 5 to 7 inclusive. As will be noted, the assembly 16 includes an elongated ratchet bar 20 having a longitudinal series of notches 22. The bar 20 is arranged longitudinally and centrally of the assembly 16, and is rigidly secured in any suitable manner, at its opposite ends, to a pair of end pltaes 24, that are secured fixedly to selected rings 12 of the body 10.

The end plates 24 project laterally and out-

wardly from the body, and are rigid, at their outer edges, with the opposite ends of parallel, spaced, longitudinal support rods 26. The rods 26 are disposed at opposite sides of the ratchet bar 20, and are spaced outwardly of the body 10 therefrom.

The ratchet bar, end plates, and support rods all cooperate to define a rigidly assembled, elongated, support frame arranged longitudinally of the body 10.

Circumposed about the support rods 26 (Figure 7) and slidable longitudinally of said rods, are wire loops 28, said loops being rigidly connected to the opposite ends of a base plate 30. The base plate 30 is thus mounted for slidable adjustment upon and longitudinally of the support frame.

Secured fixedly to and overlying the base plate 30 is a support plate 32, one end of which projects beyond the base plate and is inclined as at 34, to facilitate extension into the open end of a sack S to be filled.

Integral or otherwise made rigid with the support plate 32, intermediate the opposite ends of said support plate, are ears 36, said ears extending toward the body 10, exteriorly of the support rods 26 (Figure 7). The ears 36 are formed with registering bearing openings, receiving a pivot pin 38 arranged transversely of the support rods 26. The pivot pin 38 is integral, at its opposite ends, with arms 40 that are arranged longitudinally of the support rods, said arms being merged into angular extensions 42 (Figure 6). The angular extensions 42, in turn, are rigid with the opposite ends of a bight 44 that straddles and extends transversely of the support rods 26 (Figure 5).

It will thus be noted that the pivot pin 38, arms 40, extensions 42, and bight 44 can all be formed as a closed loop of stout wire or rod material, said loop being so formed as to cause the portion 44 thereof to be swingable in an arcuate path about an axis disposed transversely of the support frame.

Rigid with the pin 38, intermediate the opposite ends of said pin, is a pawl 46, and a spring 48 is engaged with one of the arms 40, and the adjacent ear 36, so as to normally bias the pawl 46 in the direction of the ratchet bar 20.

From the description provided above, it will be seen that in any position to which the support plate is adjusted longitudinally of the support frame of the adjustable assembly 16, the pawl 46 will be urged into engagement with a selected notch 22 of the ratchet bar, with movement of the pawl into engagement with said bar being accompanied by a movement of the bight 44 in a direction away from the body 10.

At its other end, the support plate 32 is formed with spaced hinge sleeves 50, receiving a hinge pin 52, that extends through a hinge sleeve formed upon one end of a hinge leaf 54, the hinge leaf 54 being thus mounted for swinging movement toward and away from the support plate 32.

A spring 56 is coiled about the hinge pin 52, said spring having one end engaging the support plate 32, and having its other end in engagement with one end of an angular latch member 58. The spring, in this connection, is tensioned so as to normally urge the hinge leaf 54 in the direction of the body 10.

The member 58 is formed to an L-shape, one leg of said member being extended transversely of the hinge leaf 54 and being rigidly secured to the underside of said hinge leaf, said leg having one end projecting beyond one side edge of the hinge leaf and attached to the spring 56.

The other leg of the member 58 extends longitudinally of the hinge leaf 54, adjacent the other side edge thereof, and is formed at its free end with an inturned finger 60.

Secured fixedly to the outer surface of the hinge leaf 54, so as to pivot therewith upon the hinge pin 52, is a sack engaging hook, that can be formed from a single length of stout wire material folded upon itself as best shown in Figure 5, to provide a handle 62 at one end of said hook. At the other end of the hook, the length of wire from which the hook is formed is bent inwardly beyond the adjacent end of the hinge leaf 54 (Figure 6) to provide a sack engaging prong 64.

Fixedly secured to the support plate 32, intermediate the opposite ends of the plate, is a yoke 65 of inverted U-shape, said yoke having its respective side legs affixed to the opposite side edges of the support plate, the bight of the yoke overlying the hook described above. Swingably mounted on said bight is a latch 66, having an offset 68 intermediate its opposite ends, said offset being adapted to receive the finger 60 of the member 58, when the hook is swung to the position thereof illustrated in Figure 6, this being an inoperative position of the hook in which it is shifted away from the body 10.

A spring 70 is coiled about the bight of the yoke 65, and is engaged at its opposite ends with said yoke and the latch member 66 respectively, said spring being so tensioned as to normally urge the latch member into engagement with the finger 60.

For the purpose of bodily adjusting the movable assembly 16 longitudinally of its associated support frame, I provide a bail or loop-like handle 72, which can be formed from a single length of wire material having its respective ends pivotally supported upon the base plate 30.

From the construction which has so far been illustrated and described, it will be apparent that the prong 64 will be normally urged in the direction of the body 10, so as to grip the sack S when the body 10 is positioned in the mouth of the sack in the manner illustrated in Figure 3. It will be further noted that when the prong 64 is shifted into engagement with the sack, the pawl 46 will be biased by its associated spring 48 into engagement with a selected notch 22 of the ratchet bar. Thus, when the body 10 is positioned within the mouth of the sack, with the latch member 66 holding the hook out of engagement with the sack, the first step would be to trip the latch member 66, thus to cause the prong 64 to be swung forcibly into engagement with the sack. Thereafter, the user grasps the bail or handle 72, and pulls upwardly thereupon, so as to shift the entire adjustable assembly toward the larger end of the body 10. After the assembly has been moved to a desired extent, the handle 72 is released, and the pawl 46 will be engaged in a selected notch 22 of the ratchet bar.

To assure the retention of the prong 64 in engagement with the sack S, the support plate 32 is formed with an aperture 73, into which the prong 64 will move when the prong swings to its operative, sack engaging position.

At such time as the sack is to be released, the user depresses the handle 62 of the hook, swinging the prong 64 out of engagement with the sack. The depression of the handle, at the same time, causes said handle to come into engagement with the bight 44, as a result of which the

pawl 46 is swung out of engagement with its associated notch 22.

For the purpose of reinforcing the fixed connection of the support frame to the body 10, and also for the purpose of guiding the end of the sack onto the tongue 34 of the support plate 32, angularly disposed braces 74 are provided, that are secured to the lower end plate 24, and extend to the lower end of the body 10.

Referring now to the stationary assembly 18, essentially, the construction thereof is the same as that of the adjustable assembly 16, with the exception that the ratchet and pawl means is omitted, and with the further exception that the assembly is not adjustable in the direction of the opposite ends of the body. Thus, a stationary support frame is provided, that includes angular braces 78 which, like the braces 74, serve to guide the sack to its proper position, said braces 78 being rigid with support rods 79, said support rods being fixedly secured to the body 10.

At the upper ends of the support rods 79, hinge sleeves are provided, receiving a hinge pin 80, to provide a pivotal mounting for a hinge leaf 82 that constitutes a pivoted hook, by reason of the provision of an inturned, sack engaging prong 84 at the free end thereof.

A handle 86 is included as part of said hook and is rigid with the hinge leaf 82. Thus, depression of the handle 86 will effect disengagement of the prong 84 from the sack S. However, release of the handle 86 will cause the prong 84 to swing into engagement with the sack, it being understood that a suitable spring will be provided, arranged like the spring 56 of the assembly 16.

Rigid with the support rods 79 is a yoke 88 to the bight of which is pivotally connected a swinging latch 90 having an offset intermediate its opposite ends adapted to engage a suitable projection provided on the hinge leaf 82.

It will be noted from Figure 2 that the stationary assembly 18 is disposed adjacent the lower end of the body 10.

In use, the entire device would be positioned in the open end of a sack S, and the prong 84 will be shifted into engagement with the sack. The adjustable assembly 16, meanwhile, will have been adjusted toward the lower end of the support frame, and the prong 64 is swung into engagement with the sack, at a location diametrically opposite that at which the sack is engaged by the prong 84.

As a next step, the bail 72 is grasped, and pulled upwardly, as a result of which the open end of the sack, at one side thereof, will be pulled upwardly. It is to be noted, in this regard, that the upward movement of the prong 64 will cause the open end of the sack to be tensioned about the body 10. This is due to the fact that the movement of the adjustable assembly 16 will cause said assembly to move away from the stationary assembly 18, not only longitudinally of the body, but also, due to the tapered formation of the body, diametrically of the body.

The tensioning of the sack S is thus effected, since the sack is drawn upwardly at one side thereof along a tapered, progressively widened body.

After the open end of the sack has been tensioned about the body 10 in the manner discussed above, the body is filled with onions, potatoes, or any other article with which the sack is to be filled (Figure 3).

The user then need merely lift the body 10 upwardly, as a result of which the articles contained therewithin will empty into the sack S. It is to be noted that in lifting the body 10, the worker does not lift any appreciable weight, since the articles contained within the device will be continually deposited within the sack, simultaneously with the lifting action.

When the device has been fully emptied, as in Figure 4, the worker depresses the handles 62, 86 respectively, causing the prongs 64, 84 to be disengaged from the sack. The disengagement of the prong 64 from the sack is accompanied by a simultaneous disengagement of the pawl 46 from its selected notch 22, permitting the entire slidable portion of the adjustable assembly to gravitate to its normal, lower position. Gravitation of said portion to its low position is provided for automatically, because depression of the handle 62 will cause the latch 66 to engage automatically with the finger 60.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In a sacking device, an open-ended body adapted for positioning one end thereof in the open end of a sack to be filled; a sack-gripping hook assembly mounted on the side wall of said body and including a hook pivotally mounted thereon spring loaded to normally urge the hook into engagement with said sack; a second sack-gripping assembly mounted on the side wall of the body at a location substantially diametrically opposite that of the first assembly, and including a pivoted, spring loaded, sack-engaging hook, said second assembly being mounted for slidable adjustment longitudinally of the body and being adapted, when so adjusted, to tension said end of the sack about the body; a ratchet bar secured to and arranged longitudinally of the side wall; and a pawl carried by said second assembly arranged for releasably retaining the same in engagement with said bar, in selected positions to which the second assembly is shifted upon the body.

2. In a sacking device, an open-ended body tapering from end to end thereof and having a smaller end adapted for positioning in the open end of a sack to be filled; a sack-gripping hook assembly mounted on the side wall of said body adjacent said smaller end and including a hook pivotally mounted thereon spring loaded so as to be normally urged into engagement with said sack; a second sack-gripping assembly mounted on the side wall of the body at a location substantially diametrically opposite that of the first assembly, and including a pivoted, spring loaded, sack-engaging hook, said second assembly being mounted for slidable adjustment longitudinally of the body and being adapted, when adjusted toward the larger end of the body in a direction away from the first assembly, to tension said end of the sack about the body; a ratchet bar secured to and arranged longitudinally of the side wall; and a pawl carried by said second assembly ar-

ranged for releasably retaining the same in engagement with said bar, in selected positions to which the second assembly is slidably adjusted upon the body.

3. In a sacking device, a body tapering from end to end thereof and having a smaller end adapted to be extended into the open end of a sack to be filled; a sack-gripping hook assembly mounted on the side wall of the body adjacent said smaller end and including a hook pivotally mounted thereon spring loaded so as to be normally urged into engagement with said end of the sack; an elongated support frame secured to said side wall at a location substantially diametrically opposite that of said assembly, said frame being arranged longitudinally of the body and including a ratchet bar; a support plate sliding on said frame and including a pawl releasably engageable with said bar for retention of the plate in selected positions to which it is slidably adjusted on the frame; and a second hook pivotally mounted on the plate and spring loaded so as to be normally urged into engagement with said end of the sack, slidable adjustment of the support plate and its associated hook toward the larger end of the body being effective to increase the distance between said hooks both diametrically and longitudinally of the body, thereby to tension said end of the sack about the body.

4. In a sacking device, a body tapering from end to end thereof and having a smaller end adapted to be extended into the open end of a sack to be filled; a sack-gripping hook assembly mounted on the side wall of the body adjacent said smaller end thereof and including a hook pivotally mounted thereon spring loaded so as to be normally urged into engagement with said end of the sack; an elongated support frame secured to said side wall at a location substantially diametrically opposite that of said assembly, said frame being arranged longitudinally of the body and including a ratchet bar; a support plate sliding on said frame; a pawl releasably engageable with said bar for retention of the plate in selected positions to which it is slidably adjustable on the frame, said pawl being pivotally mounted on the plate and being spring loaded so as to be normally urged into engagement with the bar; and a second hook pivotally mounted on the plate for movement toward and away from the body and spring loaded so as to be normally urged toward the body into engagement with said end of the sack, slidable adjustment of the support plate and its associated hook toward the larger end of the body being effective to increase the distance between said hooks both diametrically and longitudinally of the body, thereby to tension said end of the sack about the body, said second hook including a handle engaging the pawl and swinging the same out of engagement with the bar on movement of the second hook away from the body.

5. In a sacking device, a body tapering from end to end thereof and having a smaller end adapted to be extended into the open end of a sack to be filled; a sack-gripping hook assembly mounted on the side wall of the body adjacent said smaller end thereof and including a hook pivotally mounted for movement toward and away from said side wall and spring loaded so as to be normally urged toward the side wall into engagement with said end of the sack, said assembly further including a pivoted latch adapted to releasably engage said hook on movement thereof away from the side wall; an elongated support frame secured to said side wall at a location substantially diametrically opposite that of said assembly, said frame being arranged longitudinally of the body and including a ratchet bar; a support plate sliding on said frame; a pawl releasably engageable with said bar for retention of the support plate in selected positions to which it is slidably adjusted on the frame, said pawl being pivotally mounted on the plate and being spring loaded so as to be normally urged into engagement with the bar; a second hook pivotally mounted on the plate for movement toward and away from the body and spring loaded so as to be normally urged toward the body into engagement with said end of the sack, slidable adjustment of the support plate and its associated hook toward the larger end of the body being effective to increase the distance between said hooks both diametrically and longitudinally of the body, thereby to tension said end of the sack about the body, said second hook including a handle engaging the pawl and swinging the same out of engagement with the bar on movement of the second hook away from the body; and a latch pivotally supported on the support plate and arranged to releasably engage the second hook on movement thereof away from the side wall out of engagement with the sack.

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