

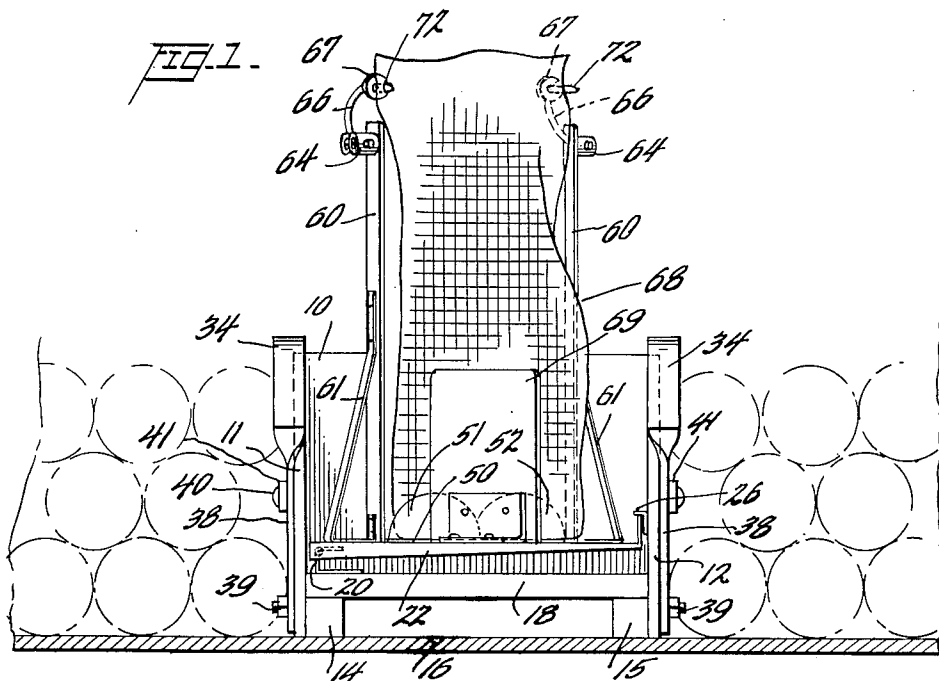
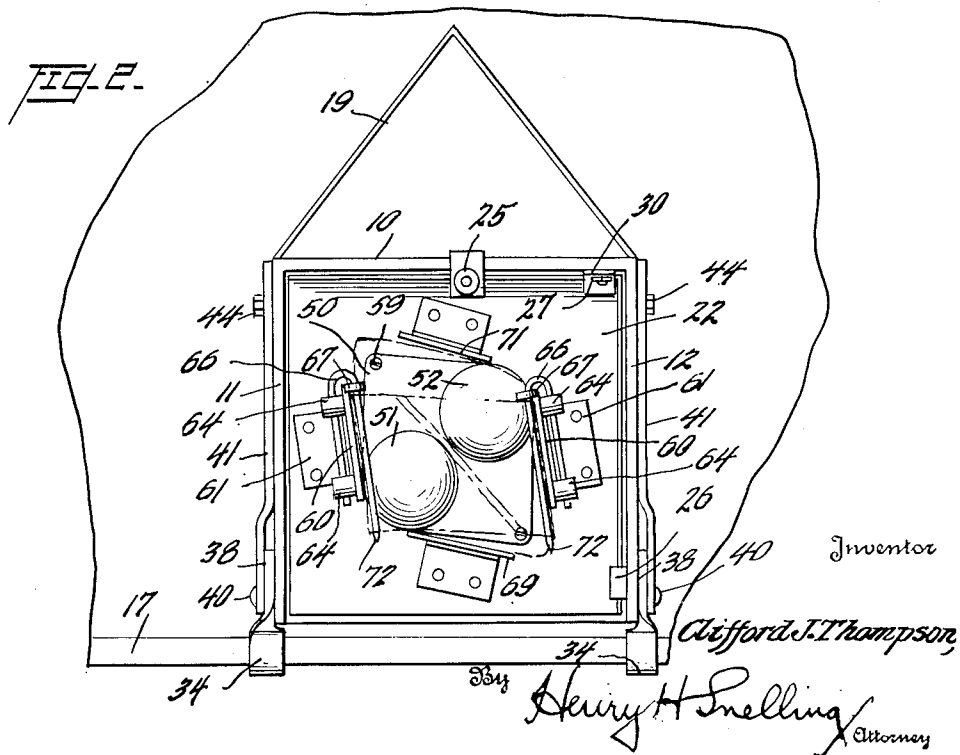
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C. J. THOMPSON
BAG FILLING DEVICE

2,635,798

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2 SHEETS—SHEET 1



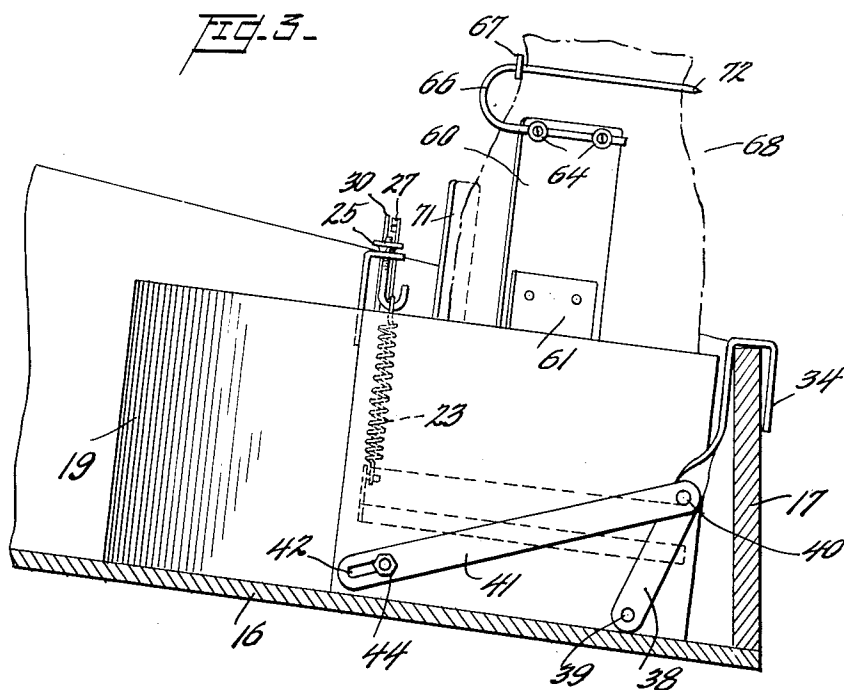
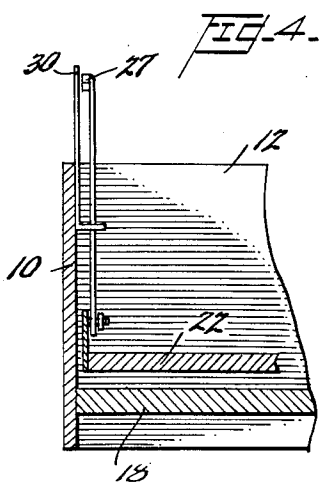
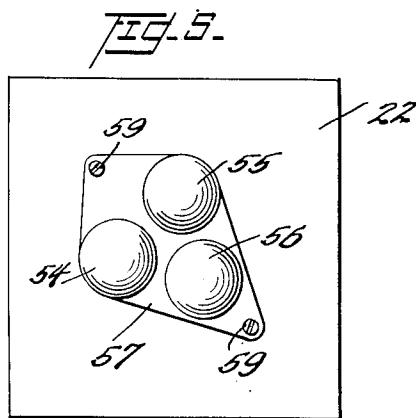
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2 SHEETS—SHEET 2



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BAG FILLING DEVICE

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10 Claims. (Cl. 226—14)

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This invention relates to bag filling and has for its particular object the provision of a device which will enable an operator to increase greatly the speed of the filling of a bag with articles of the general nature of oranges or apples.

A further object of the invention is to provide a bag holder in convenient position for filling in a sloping loading bin of oranges and having means whereby the first two oranges are correctly spaced so that the stack will alternate right and left in the desired manner.

A still further object of the invention is to provide side retaining and guiding devices coupled with a bag holder in such a way that the guides offer practically no obstruction to the removal of a bag without the necessity of lifting it entirely out from all of the guides.

At the present time, although there are many devices for hooking up a bag so that oranges may be placed in it, none are perfectly satisfactory and the operators who pack the oranges are found to prefer holding the bag in one hand rather than going through the steps of hooking the bag into place for filling.

Other devices are objectionable in that the oranges have to be moved over a considerable distance to reach the bag, and such movement tires the operator when she has to reach more than a dozen or so inches from either side. The present invention contemplates a bag holder and stacker in which the operator may use both hands and lift the oranges over the two sides of the bag loading device, through a reasonably short distance with the full knowledge that whether she is packing large oranges or small ones they will be stacked in vertical tiers in a chosen and approved manner from bottom to top of the bag which when filled may be quickly disengaged from its holding means with the least effort on her part.

In the drawings:

Figure 1 is a front elevation looking into the device from inside the bin.

Figure 2 is a top plan view.

Figure 3 is a side elevation.

Figure 4 is a detail.

Figure 5 is a plan view of a modified form of deflector.

In general my device includes a box having three sides, an open front, a back 10, and two parallel sides 11 and 12. The box is preferably reinforced at the bottom by wooden bars 14 and 15 which rest upon the sloping floor 16 of the orange loading bin and these bars support a

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base 18 on which is hinged along one edge, as at 20, a tray 22. The prow-shaped shield 19 is optional but is convenient in deflecting the oranges, fed to the bin by gravity, in the usual manner, to the two sides of the box where they pile up against the front 17 of the bin near the operator.

The spring 23 is adjustable by means of the nut 25 and normally holds the tray firmly against the stop 26 at which time the indicator 27 is in line with the top of the standard 30. When the proper weight of articles is loaded onto the tray the latter turns about its hinges and the indicator descends whereupon the operator stops adding oranges or articles.

As best seen in Figure 3, the device not only rests upon the sloping floor 16 of the orange bin, but is held for movement away from the front 17 of the bin by a pair of hooks 34, which, while they might be permanently attached to the sides 11 and 12, are preferably made adjustable because the bins are not uniform in angle of slope to cause the oranges to move to the front 17. By virtue of the arrangement shown my device can be attached to any type of bin. In one form the hooks 34 are each integral with a strap 38 pivoted as at 39 and having pivoted to it as at 40 a second strap 41 which is slotted as at 42 so that the strap 38 with its hooks 34 can be held in chosen adjusted position by the nut 44.

On the hinged tray 22 is detachably secured a positioning element 50 or 57 on which is mounted two or more deflectors. In Figure 2 there are two of these, 51 and 52, preferably half-spheres of a diameter about equal to that of the oranges being bagged and permanently secured to the holding piece 50, whereas, if smaller oranges were to be packed, there would be three smaller half-spheres, 54, 55, and 56 on the base 57 as in Fig. 5, arranged in equilateral triangle form. The positioning elements 50 and 57 can very quickly be substituted one for the other by merely removing the screws 59, positioned to fit either base.

On the tray 22 there are mounted two vertical major guides 60, stiffened in any way as for example by the struts 61. At their tops these guides 60 each have means such as 64 for holding a generally U-shaped stout wire 66 which extends appreciably rearward of the holding device 64. A stop 67 limits rearward movement of the bag 68 on the wire 66. The front guide 69 is much shorter than the two major guides 60 and the rear guide 71, which is of intermediate

height. The front guide is less than $\frac{3}{4}$ and preferably from a half to a third of the height of the major guides for a reason to be explained more fully in connection with the operation of the device.

Referring particularly to the plan view, Fig. 2, it will be noted that the four guiding uprights 69, 60, 71, and 60 form a diamond, the two axes of which extend in lines from opposite corners of the box. The two wires 66 lie parallel to the major upright guides 60 on which they are carried. Thus, when the mesh bag 63 is pushed on the wires, the bag bottom lies on the tray 22 in line with the major axis of the diamond in such fashion that an orange dropped into the bag would strike the two deflectors 51 and 52 and would by them be deflected either to the upper left-hand corner of the bag (Fig. 2) or to the lower right corner and two oranges so dropped would occupy both of these corners and their tops would be considerably higher than the tops of the half spheres 51 and 52 and hence the third and fourth oranges would come to rest immediately above the deflectors 51 and 52. The four guides are well spaced apart and the bag bottom may extend along the major axis of the diamond. The perimeter of the diamond is very roughly twice the width of the bag and so these uprights limit the lateral expansion of the filled bag.

The operator takes a collapsed mesh bag from an elevated rack, not shown, and spreading it open at the top with both hands places it diagonally of the tray, catching the bag on the points 72 of each of the holding wires 66. She pushes the bag as far back as it will go until it engages the two stops 67. By spreading the fingers of each of her hands she makes quite a wide mouth of the bag. With each hand she then picks an orange, one from each side of the device and puts them, simultaneously, into the mesh bag 63 where they fall, as previously explained, into the opposite corners of the bag. The next two oranges, one from one side and the other from the other side, fall transversely of the first two oranges and are deflected by them into positions immediately above the two deflectors. With smaller oranges, the positioning element of Fig. 5 is used. Here the oranges are deflected between the three half-spheres, corresponding in diameter to the smaller oranges, and the fourth, fifth and sixth oranges come to rest above the three deflectors, 54, 55 and 56. When the chosen weight of oranges has been put in the bag, the tray 22 overcomes the spring 23 and tilts about its hinges 20. This lowers the indicator 27 below the standard 39 of contrasting color. The operator then pulls the cord closing the mouth of the bag, preferably wedging it in a handle catch. She then lifts the filled and closed bag over the short near guide 69 and installs an empty bag as above.

Having described my invention, what I claim is:

1. In a device for filling a flexible mesh bag with oranges of roughly uniform size and of a diameter less than half the width of the unfilled bag, a base, a series of spaced uprights rising therefrom and defining a diamond shaped enclosure of a perimeter very roughly equalling twice the width of the bag and open at the four corners of the diamond so that the bottom of an empty collapsed bag may extend in the direction of the major axis and project at both of its ends beyond the enclosure, means slidably receiving the flexible mesh bag with its mouth open in a substantially horizontal plane and its bottom

edge about in line with the base and extending in the direction of said major axis, and two hemispheres rising from the base on opposite sides of the empty bag and with their centers along the minor axis of said diamond, whereby to direct two oranges dropped into the mouth of the bag into opposite corners of the bag, said two oranges then forming projections directing two additional oranges into position resting upon the two hemispheres.

2. The device of claim 1, in which the base has a hinged support at one side, and a stop on the opposite side and is spring supported to hold the base substantially horizontal and against the stop whereby a tipping of the base about its hinge and away from the stop indicates that a chosen weight of oranges has been placed in the bag.

3. The device of claim 1 in which the base is open at one side and is surrounded on the other three sides with upright walls, whereby the base may be placed on the sloping floor of a loading bin, with the open side proximate the wall of the loading bin and the three upright walls will prevent oranges from rolling onto the base while allowing the oranges to pile up to the tops of the three upright walls and against the wall of the loading bin for convenient access for filling the bag.

4. In a device for holding a bag for filling: a pair of upright major guides spaced apart less than the width of the bag to be filled, a pair of U-shaped wires pointed at one end, spaced means for pivotally mounting one arm of each wire on each upright, to turn about the axis of said arm whereby the free pointed ends may be moved closer or further from each other to impale bags of different sizes, and a stop on each wire located rearwardly of the spaced means and the two uprights, to limit movement of the bag to a position suitable for filling and so the two guides will limit side expansion of the bag as it is being filled.

5. In combination, a tray, hook means for supporting the tray on a fruit loading inclined bin, four spaced uprights rising from said tray defining a diamond shaped enclosure, open at at least one corner, means for supporting a bag in said enclosure, and extending thru said open corner, two of the uprights being about the height of the bag, and the upright nearest the hook means and adjacent the bin being of a height not greater than $\frac{3}{4}$ of said two uprights.

6. The device of claim 5 in which the upright nearest the hook means is very roughly $\frac{1}{2}$ of the height of said two uprights and said fourth upright is intermediate in height between the short upright and said two uprights.

7. In a device for filling a bag with spheres of a diameter very roughly one-third of the length of the bag bottom, means for holding a flexible mesh bag with its top margin opened to form a mouth, means including a pair of semi-spheres positioned with their flat sides down and so that the line connecting their centers will be normal to the bottom of the bag, said semi-spheres having the same radius as the spheres and spaced apart to receive the bag bottom extended in a straight line between them so that the bag bottom and the flat bases of the semi-spheres are all in one plane, whereby when a pair of spheres are dropped in the bag they will be deflected to opposite corners of the bag resting on said plane and in a position to deflect the next two spheres to positions directly over the two semi-spheres.

8. A device for holding a bag for filling with-

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in a sloping bottom orange loading bin having a vertical wall against which the operator stands, comprising a box, a plurality of upright vertical guide plates within the box for supporting a bag at its top and for engaging the sides of the bag for limiting its lateral expansion as it is being filled with the oranges, arms pivoted to the box and including hooks at their free ends for engaging the top of said vertical wall, and adjustable link members pivoted to the box and to the arms for holding said arms at such angle about their pivots as to position the box so it rests on the floor of said orange loading bin, whereby the angle may be varied to agree with the slope of the floor or bottom of the particular orange loading bin in which the device is to be mounted.

9. The device of claim 5 in which the tray is surrounded on three sides by walls proximate the tray to prevent fruit from rolling against the outside of the four uprights, the fourth side of the tray being open and proximate the wall of the bin on which the hook means are secured.

10. In combination, a flat base, means for holding a bag with its mouth open to receive oranges of a chosen uniform diameter, said bag being of a width less than three times said diameter and having its bottom resting upon the

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flat base, a pair of parallel upright major guides rising from the base and spaced apart less than the width of the bag to be filled and each guide making an acute angle with the bottom of the bag when held by said means, a deflector on the base located about centrally of the bottom of the bag and of a height above the base equal to half the diameter of the chosen size oranges, said deflector including three hemispheres of about the same diameter as the oranges to be bagged, one of the hemispheres is directly under the bag bottom and the other two are spaced on opposite sides of the bag, each with its flat side toward the base, whereby the first three oranges placed in the bag will serve as deflectors for the next three, the second three will serve as deflectors for the third three, etc.

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