

Oct. 12, 1965

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3,211,193

PORTABLE HYDRAULIC WOOL SACKER

Filed May 3, 1963

3 Sheets-Sheet 1

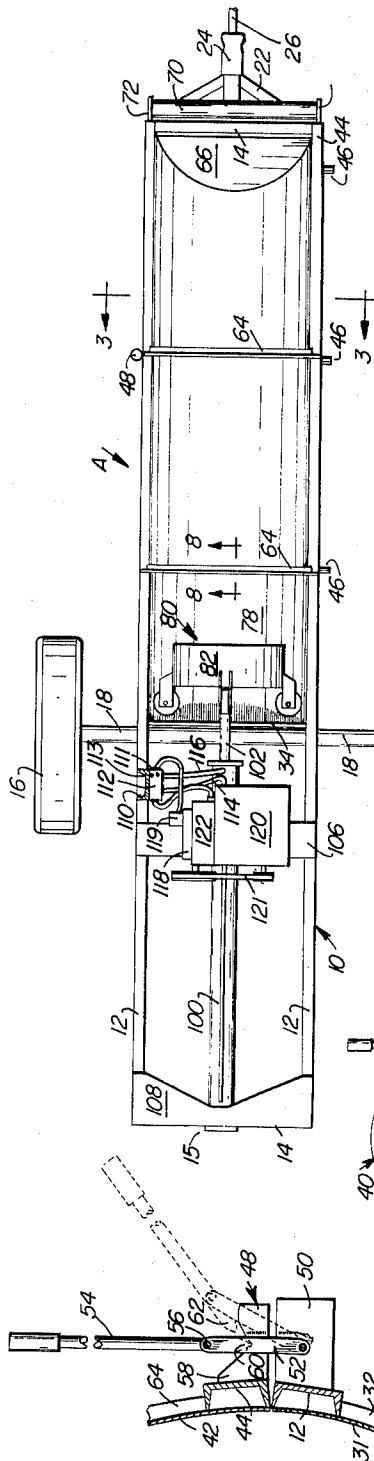


FIG. 1

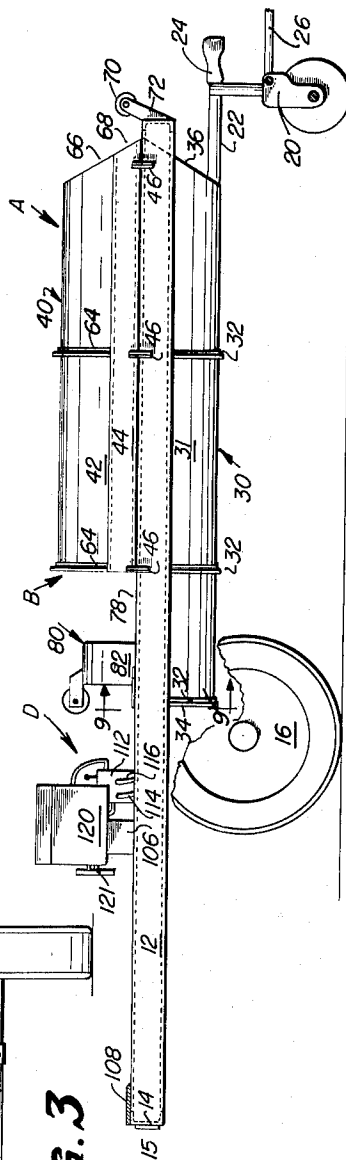


FIG. 2

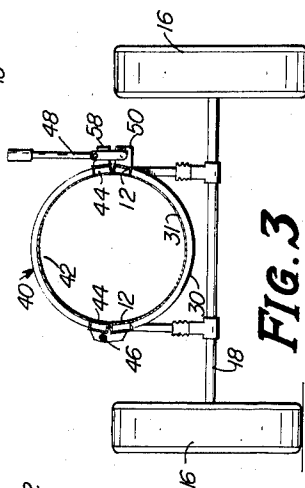


FIG. 3

FIG. 4

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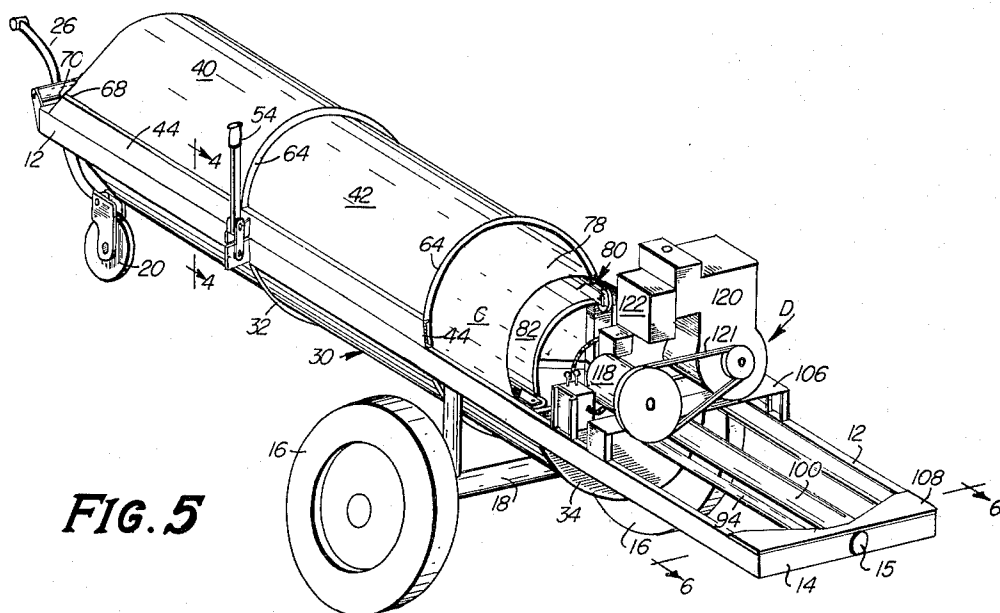


FIG. 5

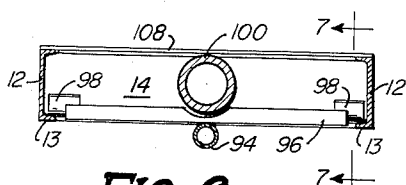


FIG. 6

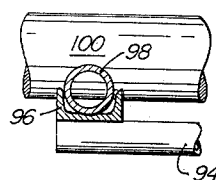


FIG. 7

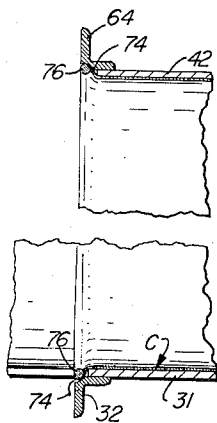


FIG. 8

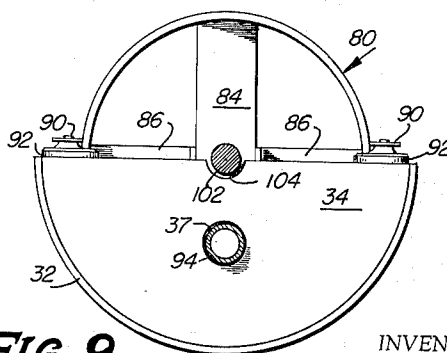


FIG. 9

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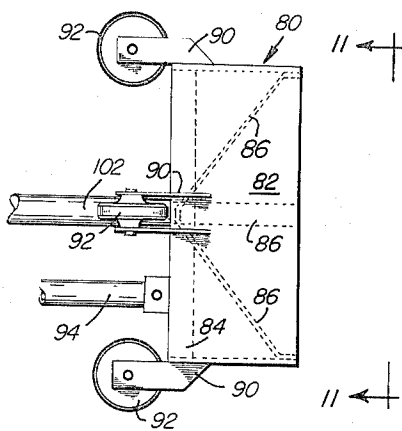


FIG. 10

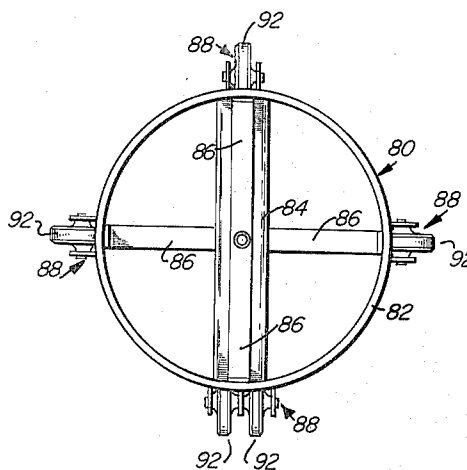


FIG. 11

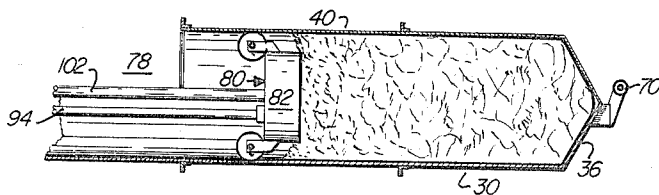


FIG. 12

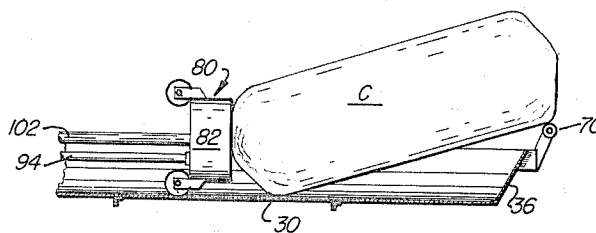


FIG. 13

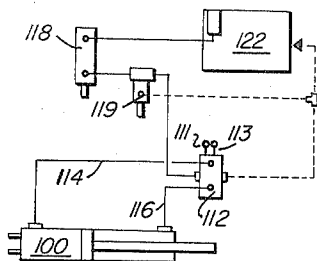


FIG. 14

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PORTABLE HYDRAULIC WOOL SACKER
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Filed May 3, 1963, Ser. No. 277,825
3 Claims. (Cl. 141-73)

This invention relates to an improved wool sacking apparatus and more particularly to improved apparatus to facilitate the bagging of wool with a minimum of effort and without damaging or tearing apart the individual wool fleeces.

Prior art devices for packing wool into sacks generally employ vertically arranged apparatus for holding the sack while the individual fleeces are loaded thereinto. One of the disadvantages of such devices is that it is necessary to carry the wool to a rather high level in order to load the sacks; generally it has been required to lift the fleeces (the whole of the wool shorn from a sheep at one time) by hand to a height of eight feet or more in order to load the sacks. This often necessitated heaving of the fleeces which tends to pull them apart even though they are tied together. Moreover, the prior art devices have been characterized by rather heavy cumbersome structural features making them difficult, if not impossible, to move from one place to another.

It is, therefore, an important object of this invention to overcome the above disadvantages and limitations by providing a portable wool sacking apparatus that permits the loading of wool into a sack from a low level horizontal position to permit the handling of fleeces without danger of breaking them up during the sacking process and which also facilitates the easy removal of filled bags therefrom onto a truck or other loading surface.

Another broad object of this invention is to provide new and improved wool sacking apparatus designed to decrease the amount of labor required to fill sacks with wool fleeces, increase the density of the wool packed into each sack, efficiently tamp the wool into the sack for greater neatness of fleece in the sack, decrease the storage space required for shipping a given amount of wool and reduce the shrinkage in storage during shipping through more efficient and controlled packing of the wool in the sack.

A further object of this invention is to provide in a portable wool sacker, novel and improved chamber means for holding a sack during the filling thereof, the said chamber means including novel and improved structural features designed to aid in the removal of the filled sack therefrom by operation of a plunger mechanism.

A still further object of this invention is the provision in a portable wool sacker of new and improved hydraulically actuated plunger means and associated novel guide means for tamping wool into a sack under carefully controlled conditions.

Yet another object of this invention is to provide a portable wool sacker that can be manufactured of ordinary materials with a minimum of cost, is reliable and efficient in operation, extremely rugged in design and adapted for towing behind a vehicle or pulled by hand to the site of operation.

These and other objects and advantages of the invention will become more fully apparent from a consideration of the following detailed description taken in conjunction with the accompanying drawings, in which a preferred embodiment of the invention is shown by way of illustration only.

In the drawings:

FIGURE 1 is a top view of the invention;

FIGURE 2 is a side view of the invention;

FIGURE 3 is an elevational view, partially in section, taken on the line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary view, with dotted lines indicating certain parts in a different position, taken on the line 4—4 of FIGURE 5;

FIGURE 5 is a perspective view of the invention;

FIGURE 6 is an enlarged view, partially in section, taken on the line 6—6 of FIGURE 5;

FIGURE 7 is an enlarged fragmentary view, partially in section, taken on the line 7—7 of FIGURE 6;

FIGURE 8 is an enlarged fragmentary view, partially in section, taken on the line 8—8 of FIGURE 1;

FIGURE 9 is an enlarged fragmentary view, partially in section, taken on the line 9—9 of FIGURE 2;

FIGURE 10 is an enlarged fragmentary side view of the plunger forming part of the invention;

FIGURE 11 is a view taken on the line 11—11 of FIGURE 10;

FIGURE 12 is a longitudinal section through a part of the invention illustrating the plunger within the wool sacking chamber;

FIGURE 13 is a view similar to FIGURE 11 showing the plunger pushing the filled wool sack from the opened wool sacking chamber; and

FIGURE 14 is a schematic representation of the hydraulic circuit forming part of the invention.

Generally speaking, according to the principles of this invention, I provide a portable wool sacking machine that can be towed from place to place for the use of shearing crews. My wool sacker may be loaded at a comparatively low level (the natural working level of an operator) because of its horizontal position. This means that wool fleeces need not be lifted or heaved above the head of the operator thereby avoiding damage to or separation of the individual fleeces during the sacking operation.

Referring now more particularly to the drawings, the invention, designated in its entirety by the reference character A, includes a longitudinal horizontal frame 10 made up of channel member side rails 12 and lateral end members 14. A pair of wheels 16 are mounted to frame 10 between the middle and rear end thereof by means of carriage assembly 18 and a swivel-mounted caster wheel assembly 20 is attached to frame 10 at its forward end 22. Hitch means 24 are provided at the forward end 22 of frame 10 for towing the device behind an automobile or truck while a hand operated towing bar 26 may be secured to caster wheel assembly 20, if desired, to enable the device to be moved into position more readily.

A lower upwardly open troughlike casing 30, secured to and depending from within side rails 12 of frame 10, extends rearwardly from the forward end 22 of frame 10 to a position slightly forward of the axle supporting wheels 16. Casing 30 is characterized by a longitudinally extending transversely arcuate body 31 provided with longitudinally spaced semi-circular outer supports 32. Casing 30 terminates at its rear in a vertical semi-circular wall 34 perpendicular to the length of casing 30 and frame 10 while the forward end of casing 30 has a flat forwardly and upwardly inclined ramp section 36 which extends from the bottom of casing 30 to the top of frame 10 adjacent its forward end 22.

A cover member 40 is hingedly secured to frame 10 to overlie the forward portion of casing 30 and form therewith a hollow generally cylindrical wool sack holding chamber B of lesser longitudinal extent than casing 30. Cover member 40 is characterized by a longitudinally extending transversely arcuate body sheet 42 supported exteriorly along its lower edges by means of channel members 44 which rest upon frame 10 when cover 40 is closed. Suitable hinge members 46 fastened to rail 12 and channel member 44 on one side of cover member 40 permit the opening and closing of cover member 40 while a

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hand operated locking assembly 48 secures cover member 40 in a closed position. As shown in FIGURES 3 and 4, the latter includes a fixed bracket 50 secured to rail 12 of frame 10, an intermediate link 52 pivotally attached at its lower end to bracket 50, and a handle 54 secured near its lower end, as at 56, to the upper end of link 52. A second fixed bracket 58 secured to one of the channel members 44 of cover member 40 is equipped with an upwardly open notch 60 adapted to lockingly receive the lower end 62 of handle 54 to permit the positive securing of cover member 40 in a closed position. External supports 64 are provided for cover member 40 intermediate its length and its forward end is provided with a downwardly and forwardly flat inclined section 66 that mates with upwardly inclined ramp section 36 of casing 30 when cover member 40 is closed to create a generally tapered closed end 68 for chamber B. Further provided is a freely rotatable lateral roller 70 that is mounted upon a pair of brackets 72 on frame 10 forwardly of chamber B. Roller 70 is positioned above and in front of lower casing 30 so that the plane of inclined ramp surface 36 of lower casing 30 is substantially tangent to its circumference. As shown in FIGURE 8, the open end of chamber B has an internal circular recess or groove 74 which removably accommodates a circular wire hoop 76 designed to hold the sack C open during the filling operation.

From the foregoing, it is apparent that a wool sack holding chamber B is provided, the said chamber B being characterized by a lower casing 30 and a hinged cover member 40 overlying a substantial part thereof. That part of casing 30 extending rearwardly beyond chamber B, designated generally by the reference character 78, provides an upwardly open generally horizontal loading trough adjacent chamber B for receiving wool that is to be tamped into the sack C, which is held within chamber B in the manner set forth above.

Carried within casing 30 and mounted for reciprocal longitudinal movements within chamber B is a plunger 80. Plunger 80 consists of a sleeve-like body 82 of lesser diametral extent than the internal diameter of chamber B. The rear of sleeve-like body 82 is provided with a vertical frame member 84 connecting its upper and lower diametral portions. Forwardly and radially outwardly inclined wool fleece engaging strut members 86 connects the center of frame member 84 and the vertical and horizontal circumferential quarter points of the forward edge of sleeve-like body 82, as illustrated in FIGURE 11. Mounted exteriorly on body 82, at its horizontal and vertical circumferential quarter points, are four wheeled guide elements 88, each consisting of rearwardly extending supporting brackets 90 and guide wheels 92 which rotate freely behind body 82. The guide wheels 92 have axes of rotation in the horizontal and vertical planes according to their position upon member 82 and are equidistantly spaced from the center of member 82 so as to enter chamber B with a slight amount of radial clearance. The lower brackets 90 on member 82 carry a pair of guide wheels 92 as the weight of plunger 80 is largely placed thereupon. Thus, guide wheels 92 provide plunger 80 with rolling contact upon area 78 of casing 30 as well as within chamber B. Wheels 92 are preferably made of rubber to prevent damage to sack C held within chamber B. Further guide means for plunger 80 takes the form of an elongated lower guide 94 that is secured at its forward end to the rear of frame member 84 below the center thereof and at its rear end to a lateral strut 96 having short rigid pipe like ends 98 adapted to slidably rest upon the lower flanges 13 of side rails 12, as shown in FIGURES 6 and 7. Rear wall 34 of casing 30 is bored, as at 37, to permit the longitudinal movement of lower guide 94 therethrough as plunger 80 is advanced and retracted during the wool sacking operation.

Plunger 80 is longitudinally advanced from area 78 of casing 30 into chamber B and retracted therefrom by hydraulically operated means D. This means includes

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a double acting hydraulic cylinder 100, the piston of which has its rod 102 extending through an opening 104 in wall 34 of casing 30 and connected to the central portion of frame member 84. The rear end of cylinder 100 is secured to end member 14 and upper plate member 108 of frame 10. Its forward end is supported beneath a lateral support brace 106, which also serves as a mounting bracket for the hydraulic elements. As shown in FIGURE 14, cylinder 100 is in an hydraulic circuit and under the control of an operator control means which includes a double acting valve 112, control handles 111, 113 and hydraulic lines 114, 116. A pump 118 and pressure regulator 119 are provided to supply fluid under a selected pressure range to the system. A light-weight gasoline motor 120 is connected by means of belt 121 to drive pump 118 and a filter system 122 is connected in the circuit to the suction side of pump 118.

The circuit permits the introduction of pressure fluid to one of the ends of cylinder 100 while exhausting from the other end and also permits the retention of fluid in both ends of the cylinder to hold its piston and plunger structure 80 in any desired set position. Thus, through the action of hydraulic means D, plunger 80 may be advanced or retracted or held in any intermediate position, with the pressure of the stroke being adjusted by means of regulator 119.

To carry out the invention, a sack C is mounted within chamber B by means of wire hoop 76 which is held in groove 74 when cover member 40 is locked in a closed position. The wool fleeces, generally tied in separate bundles, are fed into the loading trough 78 of casing 30 and plunger 80, caused to advance by manipulation of control handle 111, tamps the fleeces into sack C. The length of each advance stroke of piston rod 102 is governed by the operator according to the quantity and density of wool in the sack C. At the end of each advance stroke of plunger structure 80, control handle 113 is actuated to cause its retraction and another charge of fleece is placed in area 78 for subsequent delivery into sack C. The pressure regulator 119 may be set to provide the correct amount of tamping pressure exerted against the fleece within sack C and may be reset to adjust for pushing sack C out of casing 30, if necessary. By selecting a uniform proper operating pressure the sack weight can be increased over that obtained by hand packing methods. In addition, accurate control of the plunger pressure against the fleece in sack C results in greater neatness of the fleece within the sack and less shrinkage during subsequent storage.

After the sack C is filled, cover member 40 is unlatched and hoop 76 is removed from the sack. The open end of the sack is then sewed shut while the sack is resting within casing 30. To deliver the filled sack (which in most cases will weigh in the neighborhood of 400#) from the machine, plunger 80 is advanced by the hydraulic means described against the rear end of the sack to push it up inclined ramp section 36 and onto roller 70, as shown in FIGURE 13 of the drawings. From roller 70 the sack may be placed upon a truck platform, trailer or other carrier for shipping to its ultimate destination.

It is believed that the invention, its mode of construction and assembly and operation, as well as its advantages should be readily understood from the foregoing without further description, and it should also be manifest that while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of the invention as defined in the appended claims.

I claim:

1. In a portable hydraulic wool sacker, a mobile longitudinally extending horizontal supporting frame, a horizontal upwardly open elongated troughlike lower casing carried by said frame, an upper cover hingedly secured to said frame and overlying a part of said lower casing

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to form therewith when closed thereagainst a longitudinal horizontally extending wool sack holding chamber having an open end and a closed end, said lower casing including a wool fleece loading trough adjacent the open end of the said chamber, means for mounting a wool sack within the said chamber, a horizontally disposed hydraulically actuated plunger reciprocally movable lengthwise of said trough, said lower casing at the closed end of the said chamber being upwardly inclined to form a wool sack delivery ramp, and roller means mounted on said frame above said ramp to facilitate the removal of a filled closed sack from the end of the said chamber when said cover is opened and said plunger is advanced into pushing contact with a filled closed sack of wool.

2. The wool sacker described in claim 1 wherein operator control means are provided for said hydraulically actuated plunger, said control means including means for adjusting the longitudinal position of the plunger and the pressure exerted thereby whereby to permit the selection of one range of pressures for tamping wool fleeces into a sack held within said chamber and another range of pressures for delivering said sack from said chamber by said plunger.

3. In a portable hydraulic wool sacker including a mobile supporting frame, the combination comprising:

- a horizontal upwardly open troughlike lower casing mounted on said frame and including an upwardly inclined wool sack delivery ramp at one end thereof,
- a wool sack discharge roller mounted on said frame above the said wool sack delivery ramp,
- said roller extending laterally of said frame and including a rotatable bearing surface disposed substantially tangent to the plane of the said wool sack delivery ramp,

a cover hingedly secured to said frame and overlying

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a portion of said lower casing to form therewith when closed thereagainst a horizontally extending wool sack holding chamber having an open end remote from the said wool sack delivery ramp, said lower casing extending beyond the open end of the said chamber to provide adjacent thereto a horizontal wool loading trough disposed at the working level of an operator, means for mounting a wool sack in the said chamber, and a horizontal reciprocable plunger adapted to tamp wool from the said wool loading trough into an open sack held within the said chamber and to push a filled closed sack from said lower casing over the said delivery ramp onto said discharge roller.

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