

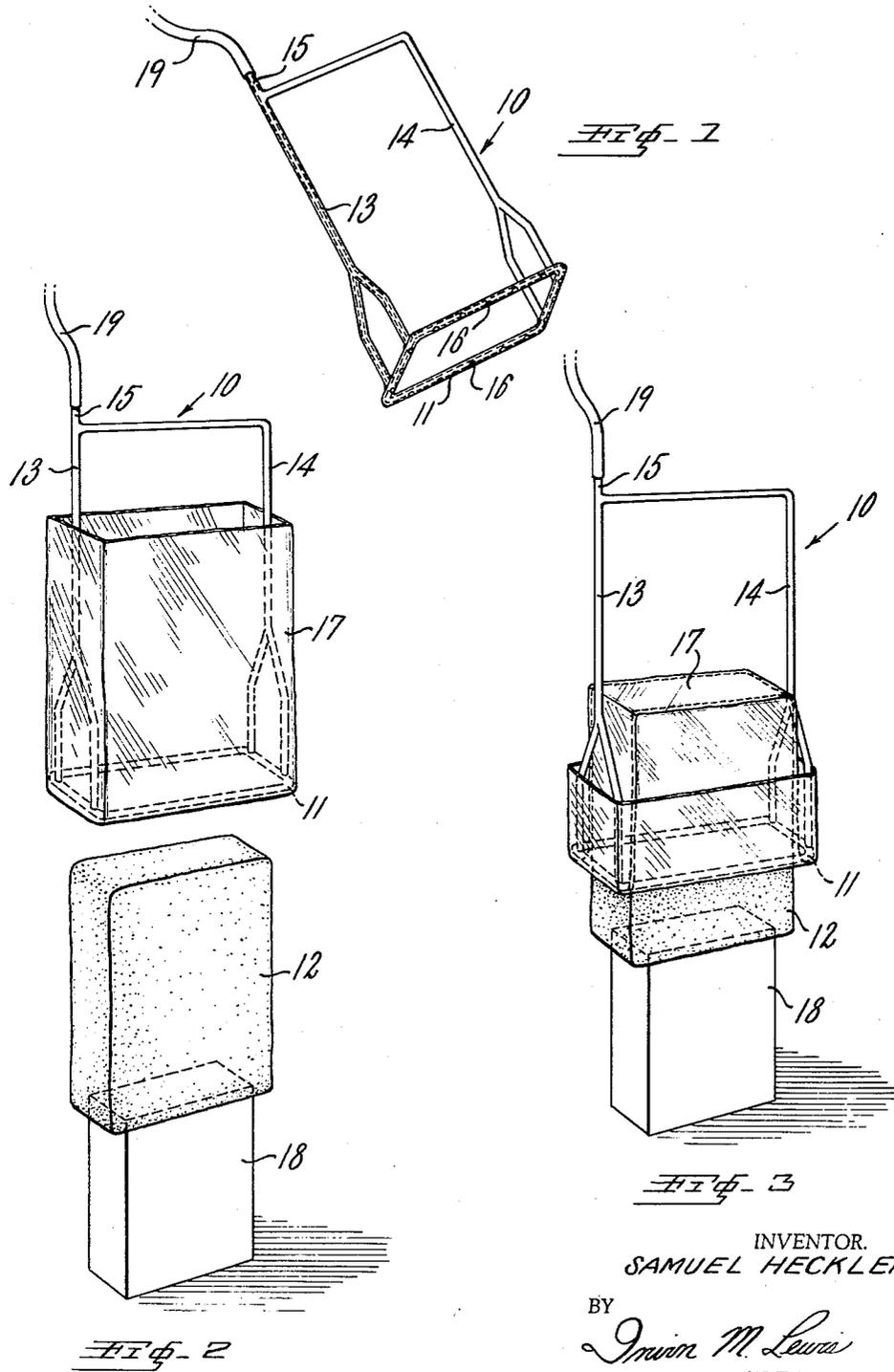
June 7, 1960

S. HECKLER
WRAPPING DEVICE

2,939,259

Filed May 6, 1958

2 Sheets-Sheet 1



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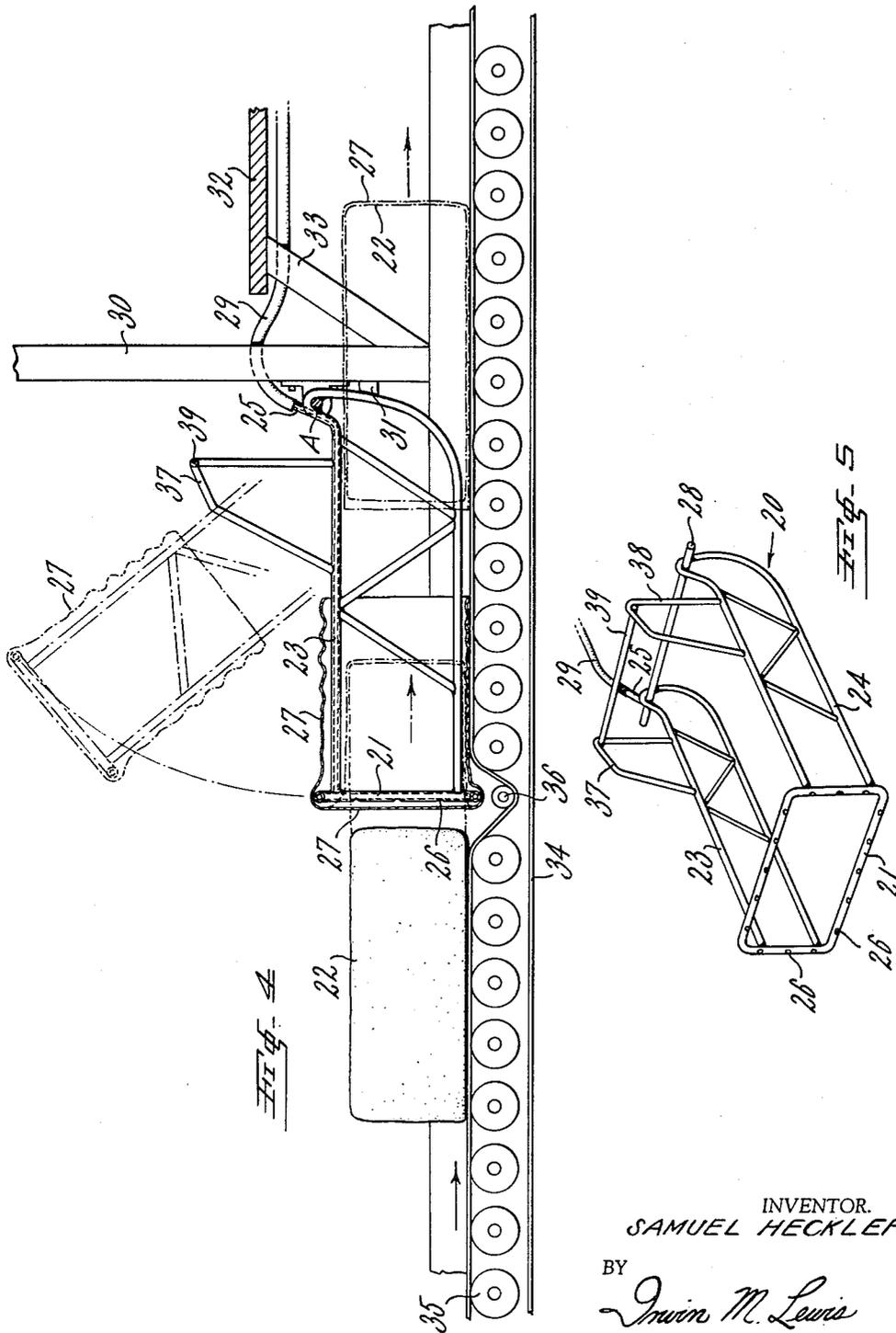
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1

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WRAPPING DEVICE

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1 Claim. (Cl. 53-259)

This invention relates to a method and apparatus for wrapping bulky objects, and more particularly to a method and apparatus for wrapping such objects in essentially gas impervious, flexible bags.

The primary object of the invention is the provision of a novel, simple and efficient method and machine to wrap bulky objects in plastic bags such as the polyethylene film bags in common use today.

Plastic bags of the polyethylene film type are used for wrapping wide varieties of products today. When such bags are used to wrap large, bulky or sticky objects, the placing of the bag over the object becomes a difficult task. This is so because the bag has a tendency to remain closed. A bulky object will catch within the folds of the bag, and a sticky object will adhere to the insides of the bag making what should be a simple task a time-consuming one.

My invention contemplates rolling the bag over the object to be wrapped as distinguished from sliding the object into the bag. To this end I have devised a hollow, tubular frame so adapted that the object to be wrapped can be passed through the frame. Small diameter holes are provided at spaced intervals along the frame, so that air under pressure can be supplied from these holes. Such compressed air is useful both to help the plastic bags slide onto the frame and to facilitate the inversion or turning of the bag inside out during the wrapping process itself. The foregoing objects and advantages as well as the details of operation will be apparent from the following description and from the accompanying drawings.

Fig. 1 is a perspective view of one form of my wrapping device preparatory to the placing of a plastic or otherwise gas impervious and flexible bag thereon;

Fig. 2 is a perspective view showing the device of Fig. 1 with the bag placed thereon, the object to be wrapped and a supporting block, preparatory to the actual wrapping operation;

Fig. 3 is a perspective view similar to that of Fig. 2 but showing the object partly wrapped;

Fig. 4 is an elevational view showing a modification of my device adapted for use with a conveyor belt, the position of the device preparatory to the actual wrapping operation and also the position of the finally wrapped object being shown in dot-dash lines; and

Fig. 5 is a perspective view of the device of Fig. 4 removed from the conveyor belt system.

Referring to Figs. 1, 2 and 3, the hand embodiment of my invention, generally designated by the reference numeral 10, includes a frame 11, conveniently of lightweight hollow tubular construction, having an opening slightly larger in width and depth than the object 12 to be wrapped. Frame 11 is adapted to be supported by two rigid arms 13 and 14 which are longer than the object 12 to be wrapped, and are attached to the frame 11 in such a manner that the object 12 can be entirely passed through the frame 11. Arm 13 is hollow and is connected at its terminal end 15 to a source (not shown)

2

of low pressure air, so that air under pressure can be supplied to the interior of frame 11 with which arm 13 communicates. Frame 11 has a plurality of small diameter holes 16 drilled in it so that this air under pressure can be emitted through them.

At the commencement of the hand wrapping operation, a plastic bag 17 is drawn over the frame 11 and down the arms 13 and 14 as shown in Fig. 2. Low pressure air may be emitted through the holes 16 to open the bag 17 and facilitate its placement on the device 10. The object 12 to be wrapped is placed on a block 18 or other similar elevated support and is then pushed through the frame 11, drawing the plastic bag 17 over itself. The plastic bag 17 is thus inverted or turned inside out as it is wrapped about the object 12, all as indicated in Figs. 1-3. The compressed air is also used to facilitate this inversion of the plastic bag 17, both in preventing the sticking of the bag 17 to the frame 11 and in facilitating the rolling of the bag 17 over the object 12.

Compressed air is conveniently supplied to the terminal end 15 of arm 13 through a flexible tube 19 from a suitable source (not shown). A suitable control (also not shown) for regulating the supply of compressed air may be provided.

The device is particularly well suited for the wrapping of bales of rubber in polyethylene film bags. However, many other objects can be similarly wrapped. Metal parts, bars of soap, poultry, meats, large or small stationary machines, motors, etc., are some examples.

Referring to Figs. 4 and 5 there is shown an embodiment of my invention which incorporates a conveyor belt system for moving the object to be wrapped. This embodiment includes a wrapping device 20 shown in perspective in Fig. 5 removed from the conveyor. As in the case of the hand embodiment of the invention, the device 20 includes a hollow tubular frame 21 having an opening slightly larger in width and depth than the object 22 to be wrapped. Frame 21 has two rigid side portions or arms 23 and 24 which are preferably longer than the object 22 to be wrapped. The arm 23 is hollow so as to be able to provide compressed air to the frame 21. Such compressed air is introduced to the arm 23 at an opening 25, and flows through a plurality of small diameter holes 26 drilled in the frame 21. This compressed air is supplied to the device 20 by means of a flexible tube 29 from a source which is not shown. Means for starting and stopping the supply of compressed air may also be provided.

The device 20 is supported on a rod 28 which is pivotable about an axis through point A as shown in Fig. 4, or it may be supported by attachment to the conveyor frame. The device 20 may be rotated into or out of position by manipulating brackets 37 and 38, which are attached to the upper portion of arms 23 and 24, respectively, and connected by tie rod 39, or the device may be rotated into or out of position by a motor device (not shown).

At the commencement of each cycle of the operation, the operator, who is sitting on the seat 32 supported by strut 33 on framework 30, rotates the device 20 upwardly about the axis through point A by means of pressure applied to the tie rod 39. The plastic bag 27 is drawn down onto the device 20, compressed air supplied via holes 26 being used to facilitate such placement if necessary. The device 20 is then lowered so as to rest against stops 31, the apparatus then being ready for the actual wrapping operation.

The object 22 to be wrapped is conveyed along by the belt 34 which in turn is supported and moved by rollers 35. Special roller 36 is provided so as to depress the conveyor belt 34 in the region of the frame

3

21. This permits the frame 21 to be placed lower than the actual object 22 to be wrapped, thus facilitating the passage of the object 22 through the frame 21.

The object 22 to be wrapped is moved along by the belt 34 until contact is made with the bag 27. The force of the belting 34 pushes the object 22 through the frame 21, thus drawing the bag 27 over itself. Compressed air as needed is supplied through the holes 26 to facilitate this inversion of the plastic bag 27.

As the object 22 completes its passage through the frame 21, the bag 27 is completely inverted and wrapped around the object 22, which object 22 continues its passage by means of the belt 34 out through the back of my device 20. The object 22 is then completely enveloped in the plastic bag 27 and is ready for further processing. At this point it should be noted that the rod 28 is placed such that it will not interfere with the passage of the object 22 through the device 20.

I have thus disclosed a method and apparatus for wrapping bulky, large or sticky objects in essentially gas impervious, flexible bags by rolling the bag over the object to be wrapped as opposed to sliding or putting the object into the bag. Compressed air supplied through holes drilled in a lightweight hollow frame facilitates both the placement of the bag on the frame and its subsequent inversion during the actual wrapping operation.

It should be understood that the forms of my invention herewith shown and described are to be taken as preferred embodiments of the same, and that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the following claim.

4

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

An apparatus for wrapping an object in a gas impervious, flexible bag comprising a hollow tubular frame over which a bag may be placed, said frame having a central opening through which the object may pass whereby the bag will be pulled through said opening with the object, thereby to invert the bag and enclose the object therein; supporting members attached to said frame, at least one of said supporting members being hollow and itself attached to a source of compressed air; said frame having a plurality of spaced holes around the peripheral edge thereof, through which holes compressed air from said one supporting member may be emitted to prevent binding of the bag on said frame as the bag is inverted; a conveyor belt substantially perpendicular to the plane of said frame for moving the object relative to said frame to pass the object completely through said frame, said conveyor belt being depressed in the region of said frame to provide clearance for the object as it passes through said frame.

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