March 14, 1967 J. P. MASTERS 3,308,601

BAGGING DEVICE

Filed July 30, 1963 2 Sheets-Sheet 1

FIG. 1

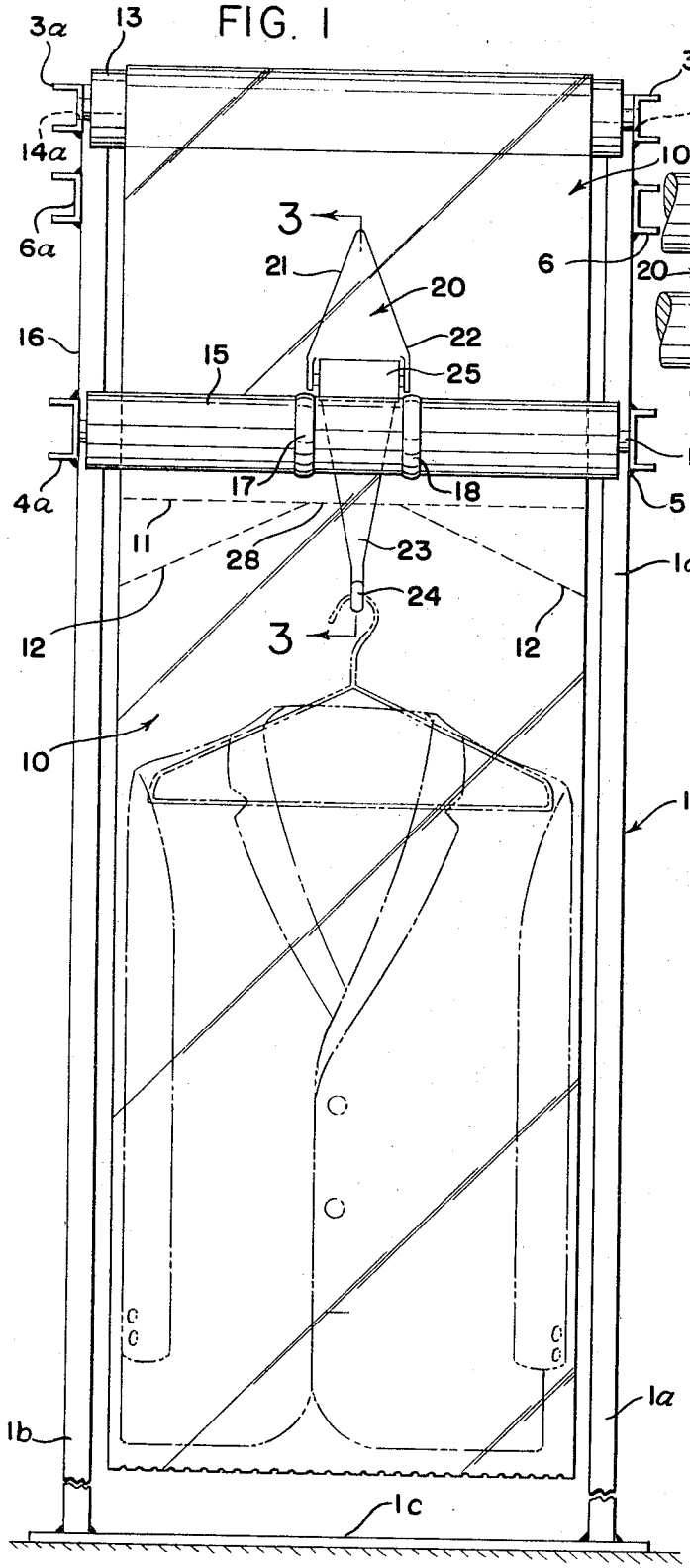
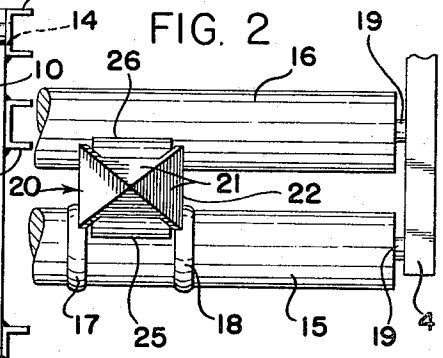


FIG. 2



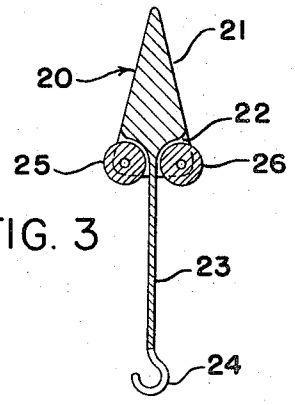


FIG. 3

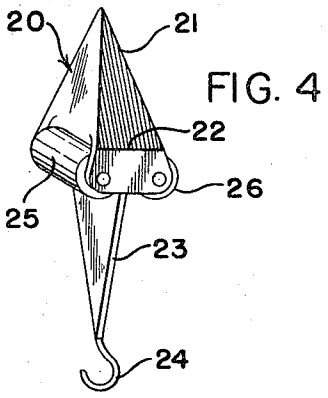


FIG. 4

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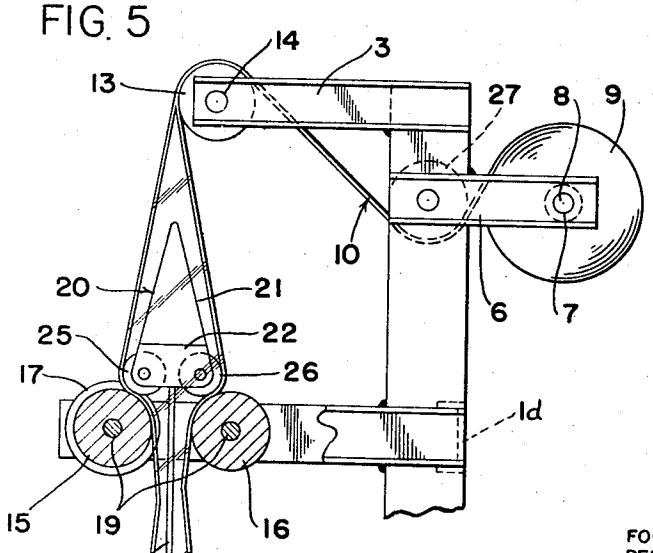
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BAGGING DEVICE

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FIG. 5



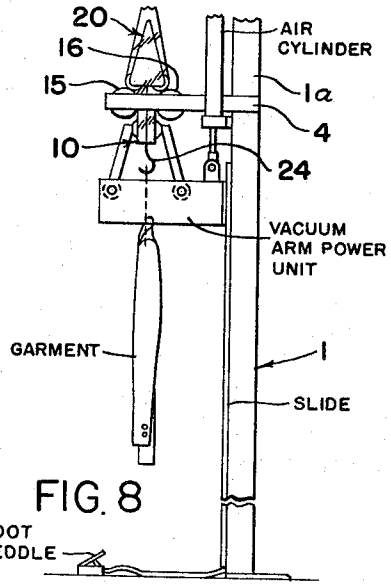


FIG. 8

FIG. 6

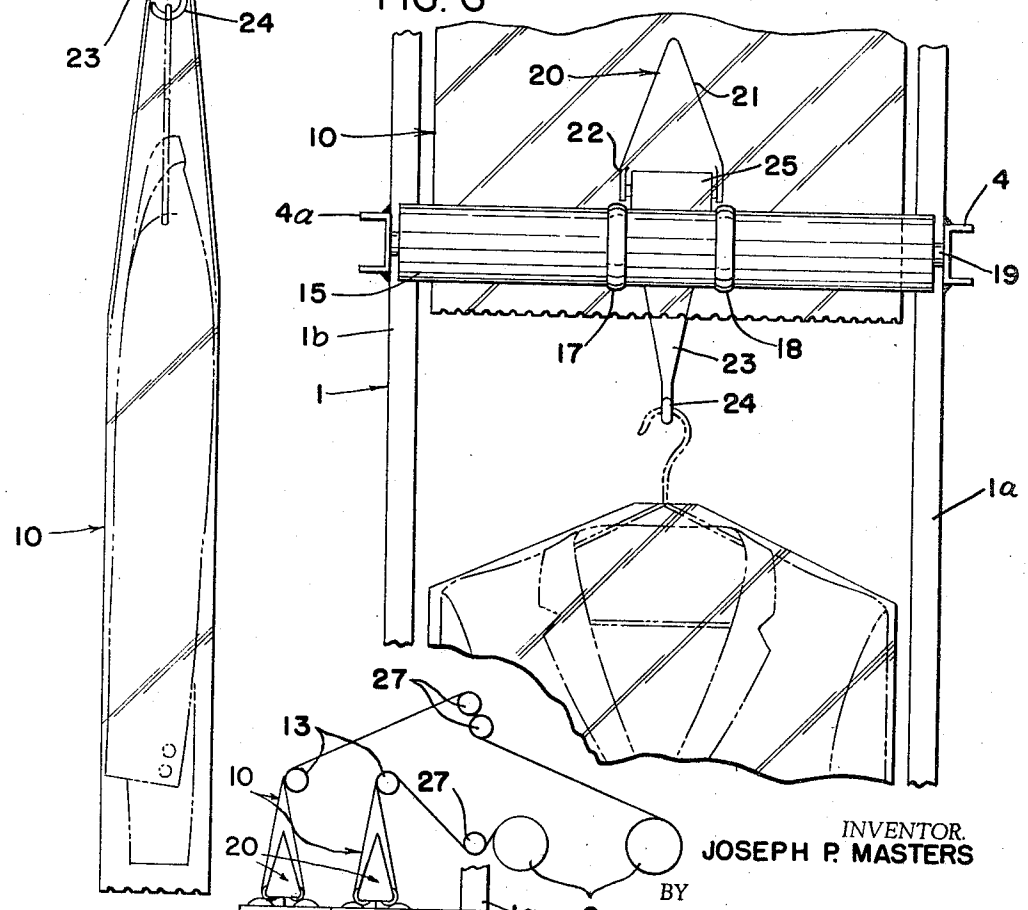


FIG. 7

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BAGGING DEVICE

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Filed July 30, 1963, Ser. No. 298,684
1 Claim. (Cl. 53—256)

This invention concerns a bagging device for dispensing undivided bags from a continuous supply of tubular bagging material. It is particularly adapted to be used in the dry cleaning and garment industries for bagging garments or the like mounted on hangers.

Broadly, the invention contemplates a bagging device which includes a support means, a supply means for dispensing a continuous tubular bagging material having spaced transverse tear lines and form lines intersecting said tear lines at spaced points to define individual bags, and means rotationally mounting the supply means on the support means. Suitable guide means in association with a floating head spread open the tubular bagging material and amplify the force resisting its withdrawal from the supply means to permit severance of the leading bag along a tear line to provide an individual bag around a garment hanger or the like. The various means are suitably arranged for guiding a thin bagging material through the apparatus.

The floating head is an elongated member having a smooth tapered upper portion and an enlarged intermediate portion extending above the guide means and a lower portion extending between and below the guide means so that the hanger may be hung therefrom. The supply means and the guide means are spaced relative to each other such that the tubular bagging material may be pulled from the supply means around the floating head and between the guide means to spread the material and provide a sufficient clamping force between the material and the guide means to permit severance of the leading bag as it is pulled into position over the hanger and garment.

The bagging device is especially designed so that there is no need to lift the bags over a hanger support or lower the hanger support in order to remove the bagged garment from the apparatus. This is accomplished by means of an apparatus which is inexpensive and mobile and of light construction such that it may be moved around easily and does not require a large amount of space or installation cost making it practical for use even in the smallest dry cleaning establishments.

It is also important to the invention that although a power feed may be used there is no requirement of a motor or a power source of the type which in the known prior art devices has caused the thin bagging material currently commercially used for bagging the garments to wrinkle or jam in the power operated feed means. The device of the instant invention will not wrinkle or jam the material even if a power feed is used because the feed movement is created by a tensional force applied on the leading edge of the tubular bagging material.

An additional advantage to the device is that its simple structure makes it easily adjusted for various bag sizes, and in one embodiment of the invention it is easy to provide a plurality of separate supply means so that an operator may use the device to bag garments with any one of a plurality of bag sizes.

The prior art devices, particularly the motor driven type, have presented the problem that they have been overly automated to a point which has raised cost beyond that which the small dry cleaning establishment can afford to pay for labor-saving devices.

In the less complex prior art devices there has been a problem of having to lift the bag over a hanger support or to drop and raise a hanger support in removing the bagged garment from the device. The novel structure of this device, utilizing a floating head and a tensional force on the leading bag for feeding and spreading the tubular bagging material, has substantially eliminated these prior art problems.

With the problems of the prior art devices in mind it is a general object to provide a bagging device which is fast and convenient to use while being inexpensive and uncomplex.

It is another object of this invention to provide a bagging device which requires no power source and is accordingly inexpensive and relatively fool-proof to operate such that no wrinkling or jamming of the thin bagging material will hamper the efficient bagging of garments.

It is still another object of the invention to provide a garment bagging device which utilizes a floating head in cooperation with guide means in a particular manner such that tensional forces applied on the bagging material provide quick and efficient bagging of garments and severing of the bag unit from the tubular bagging stock.

Other and more specific objects of the invention will be apparent from the detailed description to follow.

In the drawings:

FIG. 1 is a front view of the bagging device in operation just prior to the severance of the leading bag unit from the tubular bagging stock.

FIG. 2 is a fragmentary top view of the floating head and guide means.

FIG. 3 is a cross-sectional view of one form of floating head taken on line 3—3 of FIG. 1.

FIG. 4 is a perspective view of the floating head illustrated in FIGS. 1–3.

FIG. 5 is a fragmentary side elevation partially in cross section of the device of FIG. 1.

FIG. 6 is a fragmentary view of the device illustrating a bagged garment ready to be removed from the device.

FIG. 7 is a schematic view of a modification showing additional supply means and floating heads therefor.

FIG. 8 is a schematic view of a modification showing automatic dispensing means.

In the embodiment illustrated, a frame means **1** constructed of light weight structural members such as tubular, angle, or channeled metal stock is provided with vertically upstanding members **1***a* and **1***b* which are suitably provided with a base **1***c* for resting on the floor. The frame means **1** is preferably a framework of the two upstanding members **1***a* and **1***b* with a suitable cross brace **1***d* to hold the members in parallel and vertical alignment.

Horizontally extending from near the top of the vertical frame means **1** are two pairs of parallel support members. The top pair includes upper members **3** and **3***a*; the bottom pair includes members **4** and **4***a*. The support members are suitably connected by welding as at **5** or other suitable means to the vertical support frame members **1***a* and **1***b*. The pairs of support members are in spaced relation to each other such that members **3** and **3***a* are superimposed over members **4** and **4***a*. Extending in the opposite direction from the vertical framing members **1***a* and **1***b* and connected intermediate the members **3**, **3***a* and **4**, **4***a* is a third pair of horizontally extending support members **6**, **6***a* each having a hole or notch **7** therein to receive a support pin **8** of a supply roll **9** of tubular bagging material.

The tubular bagging material **10** has spaced transverse tear lines **11** and form lines **12** which intersect the tear lines **11** at spaced points to define the individual bags. The tubular bagging material **10** is conventionally made of thin transparent plastic but may be made of other suitable material if the operator so desires.

On the ends of the upper support arms 3 and 3*a* is mounted a suitable roll 13 in bearing holes 14 and 14*a*. Directly below one lateral extreme of the roll 13, or substantially as close thereto as possible, a pair of guide rollers 15 and 16, respectively, are mounted in substantially horizontal and parallel relationship by means of pins 19 and holes in the support members 4 and 4*a*. The space between the rollers 15 and 16 is substantially directly below the outer extremity of the roll 13, such that when the bagging material 10 is fed from the supply roll 9 over the roll 13 and directly downwardly from the roll 13, it will pass between the rolls 15 and 16. Intermediate the ends of the rolls 15 and 16 are two ridges 17 and 18 which define a central bearing portion for a floating head 20 which rides on top of the rollers 15 and 16.

Floating head 20 is a substantially elongated body having a smooth tapered upper portion 21 and an enlarged intermediate portion 22 extending above the guide rollers or guide means 15 and 16. The enlarged intermediate portion has lower surfaces which turn abruptly substantially inwardly with respect to the lateral extremities to form with said portion 21 a substantially triangular cross section as shown in FIG. 4. A lower portion 23, which may be a rod or other suitable member rigidly attached to the floating head 20, extends between the guide means 15 and 16 and below the same. An article holding means in the form of a hook or eyelet 24 is located on the portion 23 such that a coat hanger or other suitable garment holding device or the like may be suspended therefrom. It is important to note that the floating head 20 is free floating in that nothing restrains its upward vertical movement with respect to the rolls 15 and 16.

It will be obvious to those skilled in the art that the floating head 20 may assume many different forms.

The form of the floating head 20 illustrated in the drawings includes, in the enlarged intermediate portion 22, antifriction rollers 25 and 26 to permit smooth feeding of the plastic material 10 between the floating head 20 and the guide rollers 15 and 16. It will be obvious that instead of the rollers 25 and 26 any smooth surface could be utilized and in a similar manner instead the guide means 15 and 16 being rollers, they could be nonmovable smooth surfaced members rigidly mounted on the support means. This, of course, would also be true of the roller 13 and any auxiliary rollers such as roller 26 which could be rigid guide means over which the material 10 could be drawn.

The head 20, may in addition to the described shape, be of different proportions and dimensions with the upper portion 21 having a general tapered configuration which flows smoothly into the enlarged intermediate portion 22 which, of course, should be sufficient to reach the distance between the guide means 15 and 16. In a similar manner the lower portion 23 should be such that it will fit between the rollers 15 and 16 and preferably the article hanging means 24 on the end of the portion 23 will be such that it is removably attached from the portion 23 for upward removal of the floating head for disassembly and loading of the device or it will be integral as shown and capable of being turned in a direction parallel to the rollers 15 and 16 so that it may merely be lifted out of and lowered into position past these rollers.

In addition to these modifications it will be important to notice that means other than the ridges 17 and 18 on the rollers 15 and 16 can be employed for holding the floating head intermediate the ends of the guide means with which it co-operates to form the partial clamping action on the material 10. Certain tapers may be given to the respective parts toward the center if desired, although it has been found that the illustrated arrangement is quite effective and efficient for its purpose.

It will be further noted upon fully understanding applicant's invention that additional guide rollers or rigid guide means such as illustrated at 27 in FIG. 5 may be provided where desired to permit the smooth and easy flow of the tubular bagging material 10 from the supply roll 9 to the floating head 20 and guide means 15 and 16 associated therewith.

Describing now the basic operation and use of the bagging device, it will be seen that the roll 9 of continuous tubular bagging material 10 having transverse tear lines 11 and form lines 12 intersecting same is mounted on the support means 1 for rotation by means of pins 8. The leading edge of the material 10 is then manually fed from the roll 9 over or under any intermediate rolls such as roll 27 which is deemed desirable and thence to the roller 13 or its rigid equivalent located above the floating head. The material is then fed down over the floating heat so that the head is internal to the bag and bag is extending between and below the guide rollers 15 and 16, as shown in FIG. 6 for example, with the hook 24 for hanging garments exposed. A garment or fabric article is then placed on the hook or eyelet 24 by means of a hanger upon which it is suspended and the bagging operation is ready to begin. The operator opens the bag bottom, grasps both outer edges of the bag so that the fingers hold the inside of the bag and the thumbs hold the outside of the bag. He pulls the bag slowly which is allowed by the rollers and guide means to pass over the garment enclosing the garment. When an increase in tension from the pulling becomes apparent to the operator, it will be noted that the nose or forwardmost point of the tapered portion 21 of the floating head 20 will enter and slightly stretch the approximately 1½ inch spaced opening in the transverse tear line 11 lying between the points of intersection of the form lines 12 with the tear line 11 thus allowing the leading end 21 of the floating head to enter the next bag of the continuous roll. Since the enlarged intermediate portion 22 of the floating head 20 is slightly larger than the free state of the opening 28 of the material 10, the opening 28 stretches or enlarges and allows the head 20 to enter the next bag. The clamping action between the head 20 and the rolls 15 and 16 retards the withdrawal of material from the supply roll 9 such that a rapidly applied tensional force or snapping action with both hands by the operator causes the bag to separate along the perforated tear line 11 and pulls the leading individual bag thus separated firmly onto the garment on the floating head hook 24. This leaves the next bag of the tubular material 10 in the position substantially as illustrated in FIG. 6 so that the hook 24 is exposed for removal of the bagged garment and hanging of the next garment to be bagged. The operator then places another garment on the hook and the leading edge of the material 10 extending below the guide rollers 15 and 16 is then grasped for a repetition of the steps and a bagging of the next garment.

It will be noticed that the unit may be automated so that the manual pull down and grasping on the leading edge is accomplished mechanically by suction cups or other means so that the unit can be activated by a remote foot or hand control means (not shown). The important thing is that in automating the device the force utilized to feed the bagging material is a pulling force applied near the leading edge of the bagging material after it is passed through and between the rollers 15 and 16, and the head 20.

In another contemplated embodiment of the invention as seen, for example, in FIG. 7 a provision is made for a plurality of sizes of bags by means of a separate supply roll for each bag and a separate floating head and guide means for each of the plurality of sizes. This is easily accomplished by merely extending the lengths of the support arms such that the additional material supply rolls and additional guide means and floating heads may be accommodated on the support means. For example, the support arms 6 and 6*a* may be extended to accommodate two or three parallel supply rolls 9 each having

different sizes of bags and each having its own set of guide rollers **27** and **13** together with a separate floating head **20** and guide means **15** and **16** in association therewith.

Another modification contemplated would be to provide the plurality of supply rolls each with its own guide means except for the means **15** and **16** and the floating head so that the same floating head could be used with the material from any one of the plurality of supply rolls. In this event, the floating head would be movable so that it could be placed any place along the support member **4** or **4***a* under the respective roll **13** of the particular size of bag desired. Such an arrangement could be done by telescoping a slightly larger channel member over the support members **4** and **4***a* and suspending the guide means rollers **15** and **16** from the telescoping channel members so that they could be moved back and forth along the support members **4** and **4***a* under the proper roll **13**'s outermost extremity. In this event, of course, suitable apertures and pins to lock the telescoping chanels in position with respect to the support members **4** and **4***a* would be provided.

For ease of description the principles of the invention have been set forth in full in connection with but a single illustrated embodiment showing a manually operated device utilizing only one size of tubular bagging material. It is not my intention that the illustrated embodiment nor the terminology empolyed in describing it be limiting inasmuch as variations in these may be made without departing from the spirit of the invention. Rather, I desire to be restricted only by the scope of the appended claim.

I claim:

A bagging device comprising:

a frame means,

a plurality of supply means mounted on said frame means for dispensing continuous thin plastic tubular bagging material having spaced transverse tear lines to define individual bags,

a plurality of floating head means,

each of said head means having a body with a smooth tapered upper portion and an enlarged intermediate portion having lower surfaces which turn abruptly substantially inwardly with respect to the lateral extremities to form with said upper portion a substantially triangular cross-section having symmetrical base portions defining parallel clamping surfaces,

said lower surfaces being defined by the surfaces of rollers mounted on opposite sides of said intermediate portions such that said rollers present antifriction surfaces at the said lateral extremities and along said clamping surfaces for smooth flow of the bagging material therealong,

a downwardly projecting lower extension portion lying entirely within and between said clamping surfaces,

a fabric article holding means disposed on said lower extension portion,

support means mounted on said frame means,

guide means for each of said floating head means mounted on said support means, said guide means comprising parallel members mounted on fixed axes, said guide means loosely holding each of said floating head means such that it may be manually raised therefrom with the fabric article hanging means disposed below and between said parallel members, said parallel members being the opposing clamping elements to the parallel clamping surfaces of said floating head means such that said floating head means and said parallel members create a partial clamping action on opposite points of said bagging material when said material is pulled from said supply means.

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