

[54] **TWO COMPARTMENT UNITARY BAG  
HAVING SHELF**

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206/526, 206/806, 229/55, 229/56

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B65d 85/54

[58] Field of Search ..... 206/45.34, 46 R, 46 H,  
206/47 R, 78 R, DIG. 8; 229/55, 56, 72

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*Primary Examiner*—William I. Price

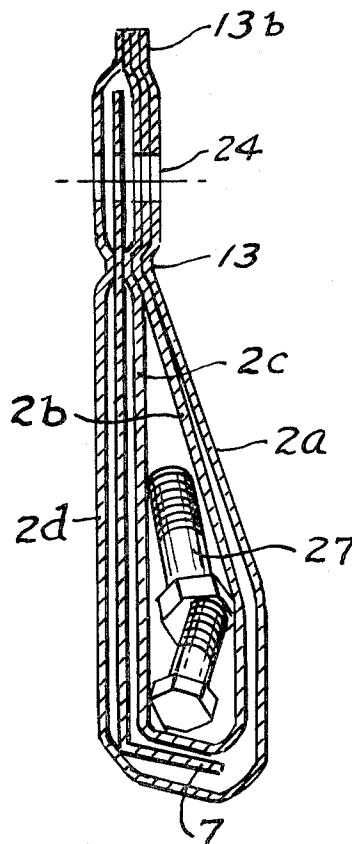
*Assistant Examiner*—Steven E. Lipman

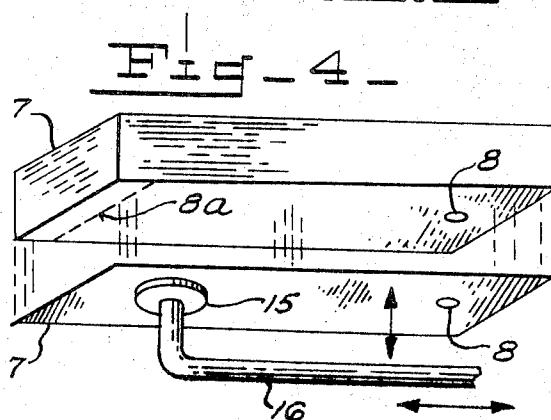
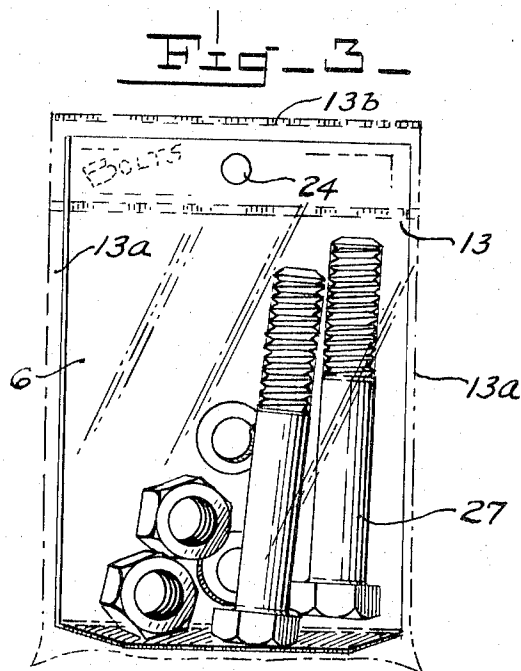
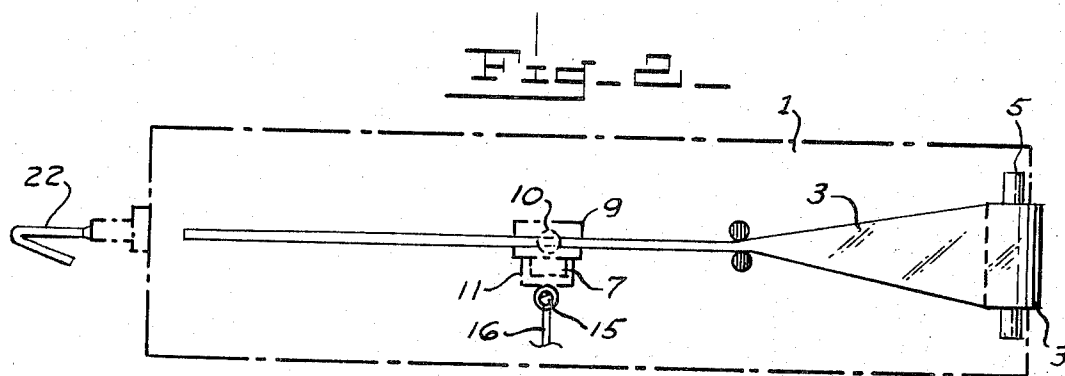
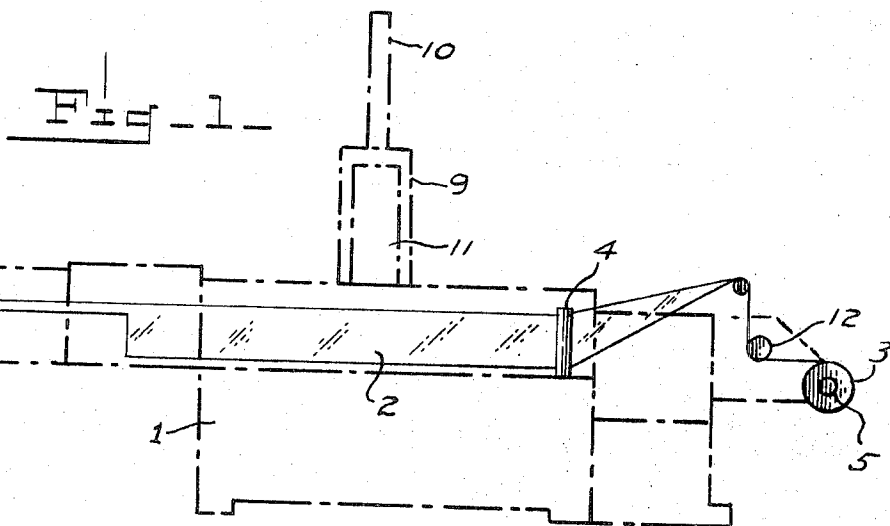
[57] **ABSTRACT**

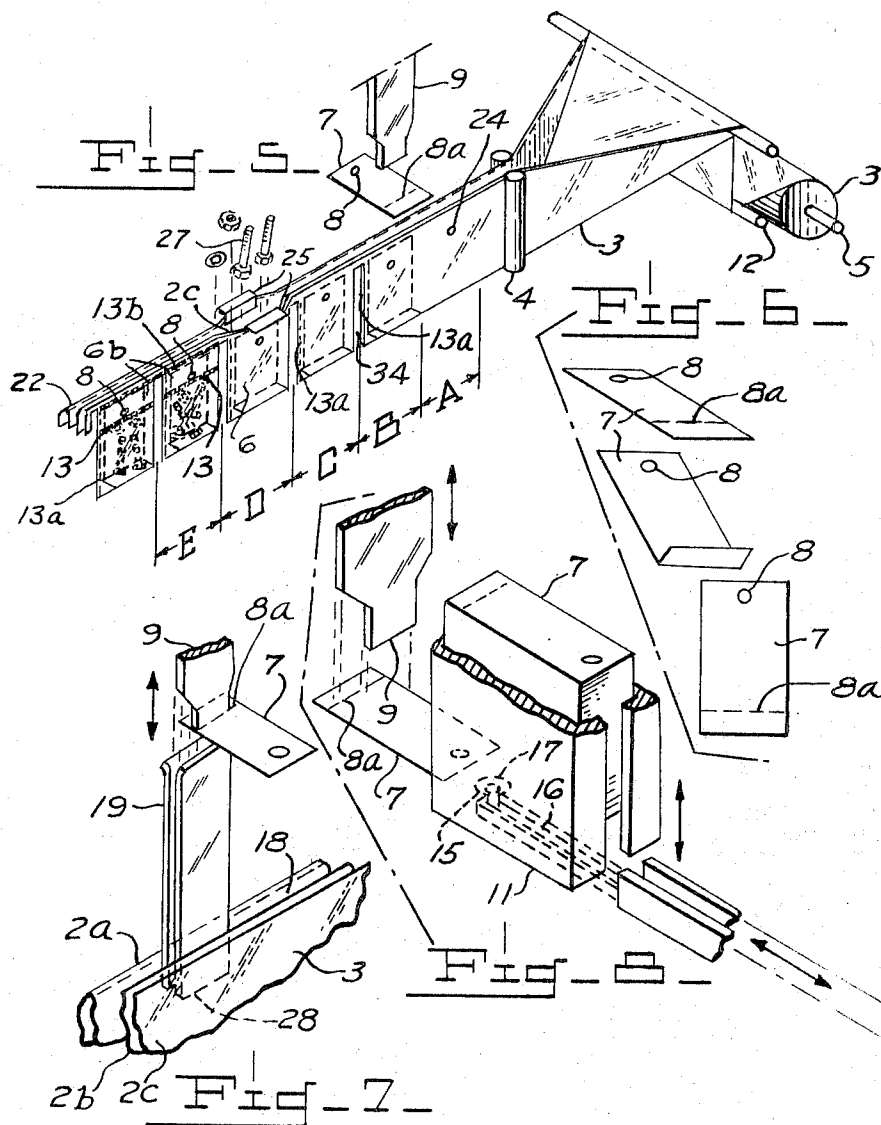
A bag is formed having a double fold of transparent material so that there are two separate compartments. A firm support member upon which indicia may be printed is inserted between two of the layers and the material may be inserted between the double layers and a single layer or this procedure may be reversed as desired.

The bag that is formed is a two compartment bag. The bag is especially designed for use with heavy hardware items such as large bolts that have great mass and the like. The stiff support member upon which the advertising media is imprinted is located between two layers of the bag material and has a supporting shelf at the bottom thereof beneath the bag proper where the heavy items are located. The stiffener support member acts as a shelf to help support the weight of the bolts and the like which are within the bag.

**7 Claims, 15 Drawing Figures**







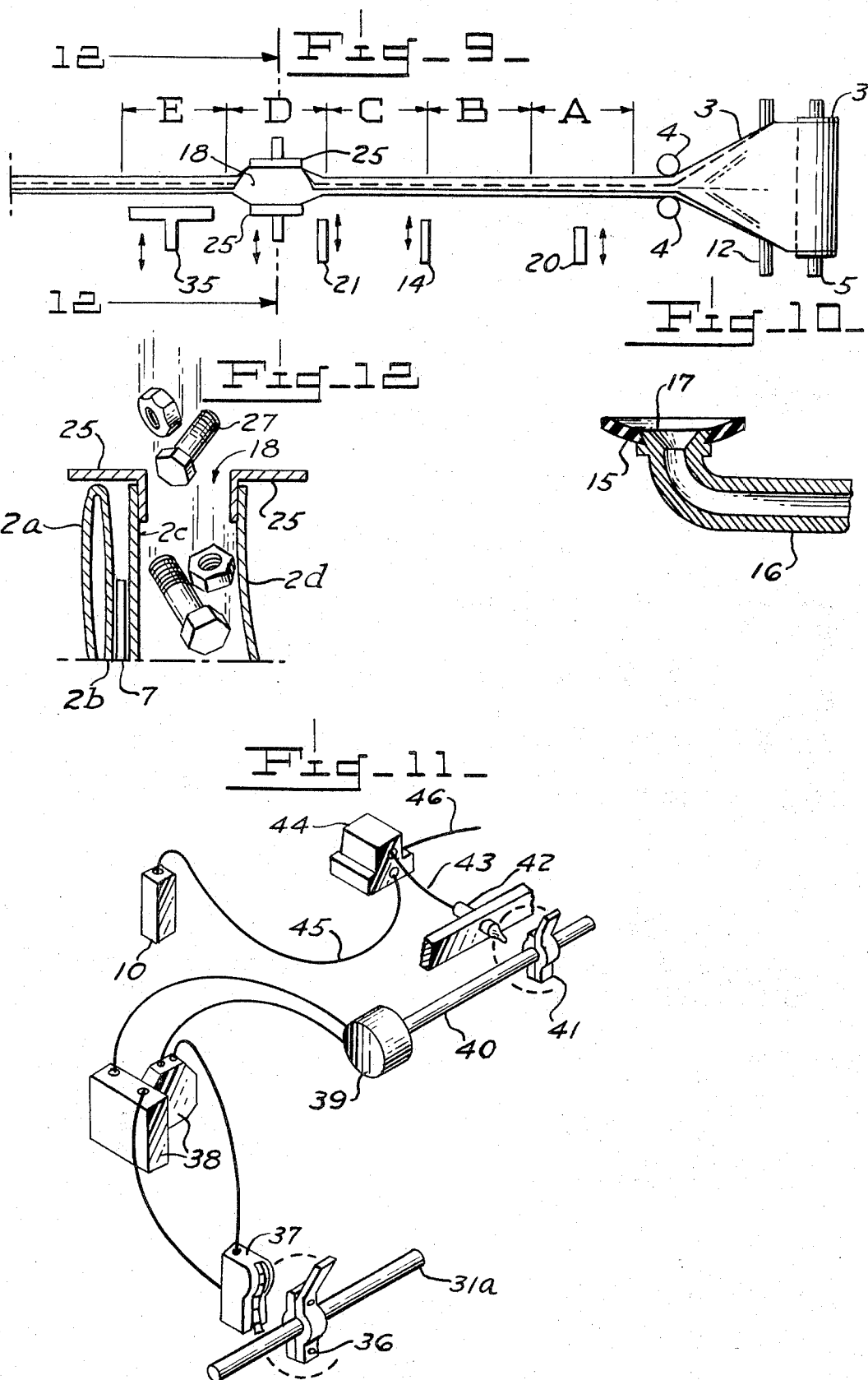


Fig-13-

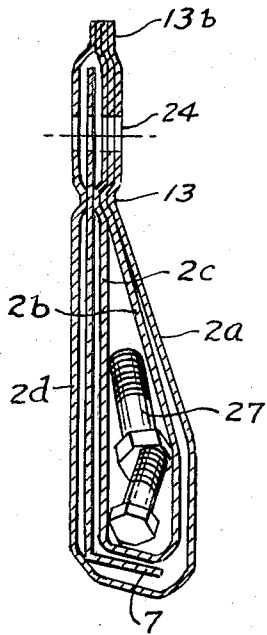


Fig-14-

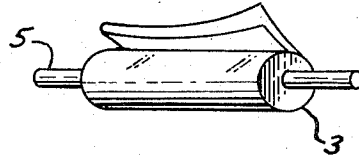
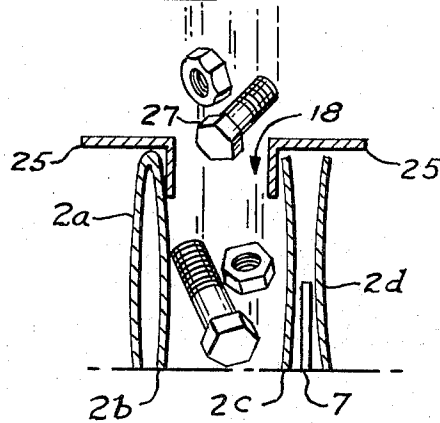


Fig-15-



## TWO COMPARTMENT UNITARY BAG HAVING SHELF

The within invention is an improvement of a patent issued to the inventors herein, U.S. Pat. No. 3,638,784, which had an issue date of Feb. 1, 1972.

The aforesaid patent was entitled "Two Compartment Unitary Bag".

This invention is concerned with the idea of making a two compartment bag that has sufficient strength to support items with heavy weight and mass. In the original bag which is disclosed in the aforesaid patent, U.S. Pat. No. 3,638,784, the bag was designed for lightweight objects. The stiffener or support member did not have any function other than to keep the bag firm and support the bag in fastening the bag to a display rack. The stiffener did not assist in the supporting of the material which was placed in the bag.

In the within invention, the bag has been designed and invented for the purpose of creating strength in its use.

The within invention contains all the features of the aforesaid patent, U.S. Pat. No. 3,638,784 but in addition thereto, provides for a stronger bag designed for heavy use.

Among the advantages of the within bag are the ability to print on the stiffener without having to print on the web material.

There is also the additional advantage to provide a bag that is completely covered to the extent that the header or the advertising indicia which is located on the stiffener support member is within the bag. This prevents anyone from becoming injured or cut on the corners of the indicia carrying support member.

The great advantage and object of the within invention is to provide the support member which is a stiffener card that not only supports the package because it is fastened to the display rack directly through an opening in the card, but also because the card acts as a support member member for the material within the bag since it has at its bottom portion thereof a shelf.

In order to comprehend the within invention, it is necessary as it was in U.S. Pat. No. 3,638,784 that a complete understanding be had of U.S. Pat. No. 2,877,609. In the latter patent a continuous web is folded and sealed so that a pouch is formed. Special cuts are made near the top of the pouch. The ingredients, or items that are to be inserted in the bag, are then placed therein, and the bag is sealed along a horizontal surface, and the cuts are completed along the vertical edges. The machine in U.S. Pat. No. 2,877,609 folds a single sheet of web. In the within invention, the web is a folded double sheet as hereinafter explained.

For a more detailed description of the within invention, reference is made to the accompanying drawings in which:

FIG. 1 is a side elevational view of a schematic diagram of the machine showing the folding and forming of the web passing through the machine.

FIG. 2 is a view looking down on the view of FIG. 1.

FIG. 3 is a front elevational view of a typical package that has been produced by the said machine.

FIG. 4 is a perspective view with emphasis upon the bottom of the card (header) magazine showing the stack of the unfolded cards including the suction cup removing the lowermost card.

FIG. 5 is a diagrammatic type of perspective view of the double folded web, showing the various operations to the web by the machine at the various stations until the finished two compartment bag is produced from the web by the machine.

FIG. 6 is a diagrammatic view showing the forming of the header label as it is fed, folded and inserted into its finished position at the rear of the folded web.

FIG. 7 is a perspective view showing how a card or header is folded and prepared for entry into the web guides prior to insertion within the rear compartment of the double folded web.

FIG. 8 is an exploded view in perspective of the header stack, suction cup and folder.

FIG. 9 is a diagrammatic view looking down on the view of FIG. 5 showing the various stations of operations taking place along the double folded web and its path through the machine.

FIG. 10 is a cross-sectional view of the suction cup assembly as shown in FIG. 4.

FIG. 11 is an exploded perspective view of the tripping and actuating mechanism for controlling the motion of the header.

FIG. 12 is an exploded cross section view of the bag pouch, upper portion, during the filling operation of the material or contents in the bag, wherein the bag has a single layer over the subject matter therein and a double layer over the header label.

FIG. 13 is an exploded view in cross section of the completed package showing the support member between two layers of the bag and running down the entire length of the bag having a shelf at the bottom thereof beneath the subject matter which is inserted in the bag within two layers of the bag on the outside and one layer between it and the support member.

FIG. 14 is a perspective view of the double folded roll of web material on the supply shaft of the machine.

FIG. 15 is an exploded view in cross section of the upper portion of the completed package having a single layer of material over the header and having a double layer of material over the contents of the package.

The concept of U.S. Pat. No. 2,877,609 to take a web that is on a roll and fold the web in half as it goes through the machine, then seal up sections of the web vertically and horizontally and then cut the web remains the basic idea of this invention.

However, the web is a double web in that it is folded at the time it comes off of the supply roll 3.

Reference is made to FIG. 5 wherein the roll of the continuous web is indicated as the film supply roll 3. The web 3 is mounted on the support shaft 5. The web dancing bar 12 controls the unwinding of the supply reel for web 3. The vertical guide rolls 4 are mounted just forward of the web supply roll 3. They control and assist in the folding of the web 3. Just forward of the vertical guide rolls 4 is the station in which the card folding frame 9 is located. Between the folder 9 and the rolls 4 is the station which permits the cutting of the hole or punch 24 in the web 3. A mechanical punch (not shown) is employed to make the hole 24 at position a in FIG. 5.

The folder 9 is a flat piece of metal having a diagonal truncated bottom portion as shown in FIG. 5. It is also shown clearly in the exploded view of FIG. 8. Adjacent to the folder 9 is the supply of stiffener support members 7. The members 7 will have printing or cut outs as the situation requires, namely the advertising media or

instruction information for the items that are to be ultimately packaged. There is also located at the opposite end from the holes 8 of the member 7 a perforated means 8a so that the folder 9 folds the member 7 with ease as will be hereinafter explained. The members 7 are located within a magazine which has the sides 11 as shown in the view of FIG. 8. The magazine is square shaped in cross section and rectangular along its outer surfaces, thus permitting a stack of stiffener support members 7 to be located therein and to be controlled through the opening as can be seen just forward of the suction cup 15.

The suction cup 15 has a suction cup mouth 17. There is a vacuum supply line 16 which enables the suction or drawing of the air causing a vacuum effect to take place through the mouth 17 in the suction cup 15. The vacuum or drawing of the air effect controls the positioning of the member 7. The header guide 19 consists of two flat members having separated concave surfaces at its upper end portion proximate to the position of the folder 9. This arrangement can be seen in the view of FIG. 7. As can be seen in the view of FIG. 7, part of the header guide 19 is located within the web at 28. The folded film web 2 is surrounding the lower portion of the header guide 19. A mouth 18 of the folded web 2 can be clearly seen in the view of FIG. 7.

As stated there is, in the member 7, a hole or slot punch 8. This can take various shapes depending upon the requirements.

The bag is pulled along the stations in the machine and the bag is formed with the top at the top. Reference is made to the view of FIG. 5; it can be seen along the further stations at b that the member 7 has been inserted in the rear compartment of the bag between sheets 2c and 2d as the bag is formed after sealing and cutting. See FIGS. 13 and 15.

As stated this insertion is different from U.S. Pat. No. 2,877,609 in that the web 2 comprises of a folded sheet 2a, a middle sheet 2b and a front sheet 2c, all of which are formed by folding a folded web.

In FIG. 5 the areas a, b, c, d and e indicate the various positions of the web as the bag is formed. Area A is the first station where the double film web 3 is folded. At station A, a hole punch is made as indicated by the numeral 24. At the next station B which is the second position of the double folded web 3, the insertion of the stiffener support member 7 is made between the films 2c and 2d. When this operation is completed, the web 3 moves to the next station C.

At station C, the stiffener support member 7 is already located within the rear compartment of the double folded web between film 2c and 2d. The vertical sealers then come into action. These are the same type of sealers that are in U.S. Pat. Nos. 2,877,609 and 3,319,538. Vertical seals 13a are then made and the slots 34 are simultaneously cut. While the sealing and cutting is necessary, it is not claimed to be the new and novel feature of this invention and therefore, the sealers and the cutters are not described in detail. Reference may be had to U.S. Pat. No. 2,877,609 for a further explanation. The controlling mechanism for bringing the sealers into position at station C is similar to that of the patent aforementioned. At station D the web is opened by the bag mouth openers 25, details of which are described in the aforementioned patent. Contents 27, which in this instance are heavy duty

bolts, are then dropped into the pouch opening 18 between film sheets 2b and 2c forward of the member 7 for delivery of the web 3 to the last station E.

While still at station D (as is described in the aforementioned patent) the sealers operate and make the seals shown by the numerals 13, 13a and 13b. See FIGS. 3, 5, and 13. The horizontal seal 13b which is shown at station E is started at station D. There are three functions at station D, the filling of the contents and the sealing of the top of the bag at 13b and at 13. The web 3 then moves to the next station at E; the sealers then release the bag at 13b at this station, and the final cut is made at the top of the bag.

One of the species of the finished bag is shown in the views of FIGS. 3 and 13. The area in which the contents 27 are filled is indicated by the numeral 6. The contents 27, which are heavy duty bolts, are shown within the bag between film sheets 2b and 2c. The punch hole or opening 8 is located within the upper portion of the member 7 above the pouch 6 and seal 13 wherein the hole punch 24 in the film web 3 is also located, and wherein the slot or pouch in the member 7 is located and substantially aligned with the hole punch 24 in the film 3. The member 7 is located between film sheets 2c and 2d.

Another species of the finished bag is shown in the view of FIG. 12. The bag in FIG. 12 has one layer 2d of the web material over the subject matter, to wit, the heavy duty bolts 27.

In the view of FIG. 1 is shown the general arrangement of the machine. The numeral 1 is the outline of the machine frame which is substantially the same as that described in the U.S. Pat. No. 2,877,609. A folded endless web is indicated by the numeral 2. It has already been stated that the single folded web 3 is on a roll which is mounted on the film roll support shaft 5. Film web dancing bar roller 12 can be seen more clearly in the view of FIG. 1. There are two separate bar rollers 12; one dances in a vertical plane approximately even with the height of the roll; the other is mounted stationary above the first one so that the single folded web 3 is then passed downwardly toward the vertical guide roll 4. It has already been stated that the insertion of the member 7 takes place at station B. At station B is located the folder actuating air cylinder 10, the folder itself 9, and the header magazine 11.

Reference is made to the view of FIG. 9. The hold punch mechanism 20 is shown by the schematic diagram in FIG. 9. This is a conventional punching mechanism that is timed to move and cut out the web in a predetermined shape while the web is at position A. The details of describing how the punching mechanism is timed are not explained since the timing is done in a conventional manner.

Vertical seals are made by the side sealer in positions 14 and 21. These are indicated schematically in the view of FIG. 9. They are the same side sealers that are employed in the concept of the original machine described in U.S. Pat. No. 2,877,609.

In order to make the bag as small as possible the horizontal seal which starts sealing at station D and completes the operation at station E (as shown in FIG. 9 and indicated by the schematic diagram of the sealer 35) is located slightly beneath the upper edges of the double folded web 2. This is not similar to the sealing operation in the U.S. Pat. No. 3,319,538. Sealer 35 makes two seals, one at 13b and one at 13. As a result

of this sealing taking place below the edges of the web, a salvage material or waste material 22 is produced after the last bag has been removed or cut from station E as shown in FIG. 5.

The salvage strip 22 is removed from the machine in various ways; but since this invention is not concerned with it, it may be stated that it is waste material.

After the machine has been set up and the web has been placed in position, as shown in FIG. 5, an opening 24 is punched at station A in the double folded web 2. While the punching is taking place, a suction cup 15 is located beneath the bottom stack of stiffener members 7. A vacuum is created in the line 16 through the mouth 17 sufficiently strong to draw one member 7 from beneath the bottom of magazine 11. The motion is in the direction of the arrows. The member 7 is pulled down from beneath the stack of members 7 located in the magazine 11 and pulled in the direction of the horizontal arrows as shown on FIG. 8 to a position just below and beneath the folder 9. By this time, the web 2 with the punched opening 24 is now located at station B. Actuating device 10 then forces the folder 9 into contact with the member 7. Since the member 7 has a perforated portion as shown by the dotted lines, in the view of FIG. 5, the folder 9 causes a fold 8a to take place in the member 7 along the dotted line so that each side thereof is "wrapped around" the folder 9 as shown in the view of FIG. 7. As the folder 9 continues downwardly under the actuation of 10, the member 7 is caused to be inserted within the mouth 19 and to the bottom of the folded web 2 between 2c and 2d.

The folder 9 is returned to its original position awaiting the next cycle. Guides 19 remain as shown in FIG. 7 extending somewhat into the opening of the mouth 18 of the folded web 2 between 2c and 2d. The double folded web 2 is then ready to move to the next station C. At station C, sealer position 14 and 21 make the seals and the cuts as indicated by the vertical seals 13a and the cuts 34 (as shown in the view of FIG. 5). The double folded web 2 then goes to the next position at station D. At station D, the bag mouth openers 25 come into operation and the folded web 2 which has been sealed on all sides except the top as shown in the view of FIG. 5 is spread apart; the contents, in this instance, heavy duty bolts 27, are placed therein. The sealer 34 comes into operation and seals near the top of the bag at 13b as the folded web rides from station D to station E. At station E, the final sealing and cutting (performed by the sealer 35) takes place and the bag is finished, completed, packed, and appears as shown in FIG. 3.

The sealing and cutting are done simultaneously by 35 as the web rides from station D to station E, sealing at both 13 and 13b. While each operation of the web at stations A, B, C, D and E have been described, the operation at A is going on while the operation as described is also going on at B, C, D, and E at the same time. It can readily be understood that with all of these operations taking place on the web as it rides from position to position intermittently, that time is saved, and that a great deal of packaging can be done in very little time without the use of human hands.

So far the attachment itself has been described. FIG. 11 shows how the attachment itself that operates the header mechanism is connected to the machine described in the U.S. Pat. No. 2,877,609. This is ex-

plained in U.S. Pat. No. 3,319,538, and is herein incorporated by reference.

A complete cycle of cam shaft 31a obviously controls the timing to the various stations as already described. All of the timing to the various stations are interrelated because of the cam shaft 31a. The cam shaft 40 has a direct timing relation to the shaft 31a, as stated in U.S. Pat. No. 3,319,538, and is herein incorporated by reference.

In order to re-arrange the machine so that the double layer of material is over the bolts 27 as shown in FIG. 15 rather than a single layer of material being over the bolts 27 as shown in FIG. 12, the web material is separated at station B so that the stiffener member 7 is inserted between the single edges of the web material.

In the embodiment shown in FIG. 12, the member 7 is inserted between the film 2b and 2c. The bolts 27 are beneath one layer of the film 2d.

In the view of FIG. 15, the bolts 27 are beneath two layers of the film 2a and 2b and the member 7 is between film 2c and 2d.

In order to re-arrange the machine at station B in order to insert the member 7 between film 2c and 2d, it is only necessary to re-arrange mechanically the position of the unit operating 9.

We claim:

1. A two compartment unitary package for heavy items comprising a rear compartment and a front compartment, two layers of a transparent material covering the outside of the front compartment consisting of an inside and outside layer and a single layer of said transparent material covering the face of the rear compartment, a flat and straight stiffener indicia member located in said rear compartment behind said front compartment, and having a fold at the bottom thereof for supporting the inside layer of the transparent material.

2. A two compartment unitary package as described in claim 1 wherein said front compartment is sealed to the inside layer of transparent material that divides the front compartment from the rear compartment at a location beneath the top edge of the straight portion of the said stiffener indicia card whereby said stiffener indicia card may be observed through the transparent material covering the upper portion of the front compartment.

3. A two compartment unitary package as described in claim 2 wherein the vertical edges of the package are sealed and the bottom edge if folded.

4. A two compartment unitary package as described in claim 2 wherein said inside layer of transparent material forms a bag within the outside layer for the packaged heavy items and wherein the fold in the stiffener member is L-shaped and forms a shelf beneath the inside bag between the outside and inside layer of material for supporting the weight of the heavy items within the inside bag.

5. A two compartment unitary package as described in claim 1 wherein the vertical edges of the package are sealed and the bottom edge is folded.

6. A two compartment unitary package as described in claim 5 wherein said inside layer of transparent material forms a bag within the outside layer for the packaged heavy items and wherein the fold in the stiffener member is L-shaped and forms a shelf beneath the inside bag between the outside and inside layer of mate-

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rial for supporting the weight of the heavy items within the inside bag.

7. A two compartment unitary package as described in claim 1 wherein said inside layer of transparent material forms a bag within the outside layer for the pack-  
aged heavy items and wherein the fold in the stiffener

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member is L-shaped and forms a shelf beneath the inside bag between the outside and inside layer of material for supporting the weight of the heavy items within the inside bag.

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