

No. 761,890

PATENTED JUNE 7, 1904.

I. F. KEPLER.
PROCESS OF MAKING RUBBER BAG BODIES.

APPLICATION FILED AUG. 31, 1903.

NO MODEL.

FIG. 3.

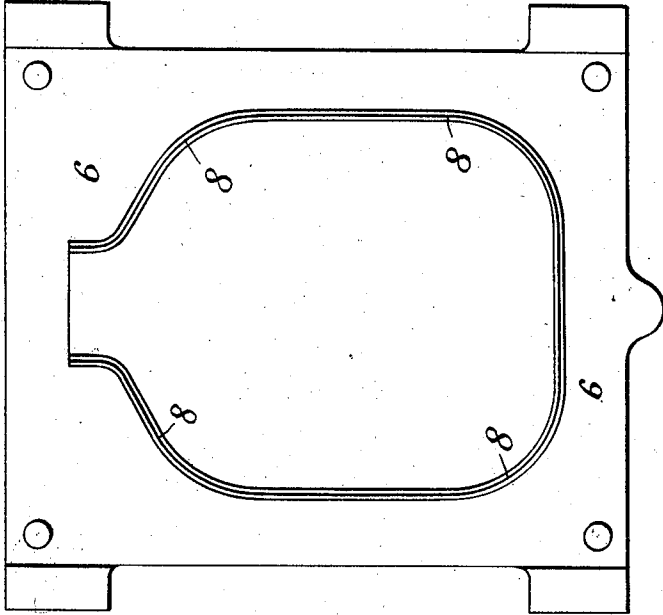
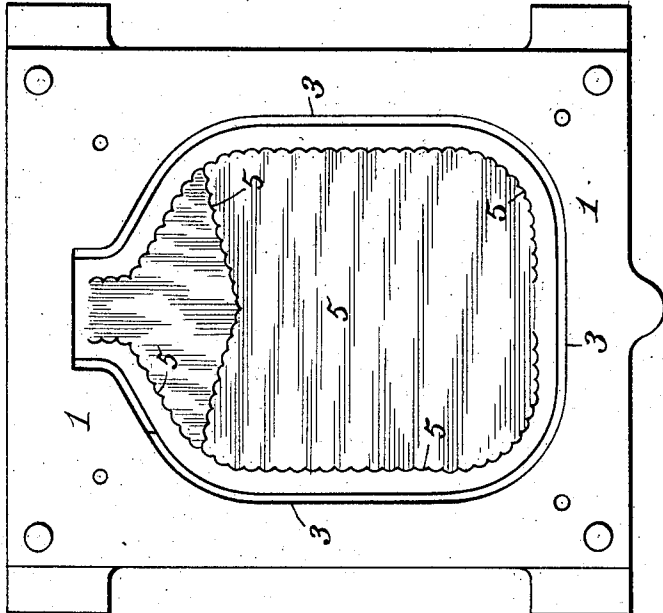


FIG. 1.



WITNESSES:

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FIG. 4.

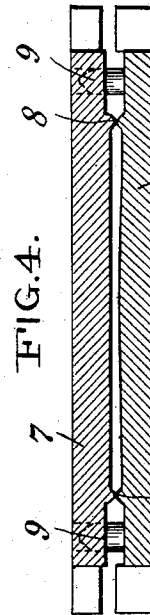


FIG. 2.



FIG. 6.

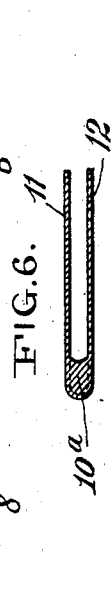
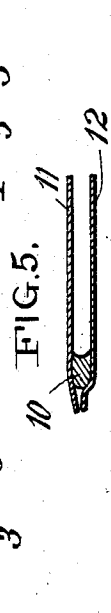


FIG. 5.



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PROCESS OF MAKING RUBBER BAG-BODIES.

SPECIFICATION forming part of Letters Patent No. 761,890, dated June 7, 1904.

Application filed August 31, 1903. Serial No. 171,381. (No specimens.)

To all whom it may concern:

Be it known that I, IRWIN FLOYD KEPLER, a citizen of the United States of America, and a resident of the city of Akron, county of Summit and State of Ohio, have invented certain new and useful Improvements in Processes of Making Rubber Bag-Bodies, of which the following is a specification.

This invention relates to an improved process of making bag-bodies from sheet-rubber stock, such bodies, for instance, as are used for hot-water bottles or similar rubber products.

The invention has for its object to provide for making a stronger, more durable, and less expensive bag-body and bag than has heretofore been produced.

The usual method of making bag-bodies of this class has been to lap-join by handwork the two uncured sheet-rubber sides or walls of the body and lay a thin sheet-rubber reinforcing-strip across the lapped edge, applying cement where the parts overlap each other. These cemented marginal joints then are hand-pressed prior to applying the screw-neck and funnel and carrying and hanging straps and finally vulcanizing the bag. This prior method of forming bag-bodies requires considerable time, and therefore is quite expensive, and there is not the desired certainty of intimate union of the sheet-rubber stock at the cemented lap-joints of the body, which too often prove to be leaky, thus increasing the percentage of loss or waste and necessarily increasing the cost of perfect finished bags.

In accordance with the preferred manner of carrying out my invention the opposite side walls of the bag-body are first marginally shaped from uncured sheet-rubber stock by cutting-dies, which at the same time give the outside face of said walls any desired surface ornamentation. A reinforcing rubber-compound strip is next interposed between marginal portions of the bag-body side walls, which then, with this strip between them, are subjected to pressure, preferably the pressure of finishing-dies, which at a single operation intimately or homogeneously unite said walls

and marginal strip and at the same time marginally trim the bag-body and leave it ready for attaching the screw-neck and funnel and hanging-straps prior to vulcanization.

Reference is made to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the lower bag-wall-cutting and surface-ornamenting die-section, and Fig. 2 is a transverse section through both lower and upper portions of the cutting-die. Fig. 3 is a plan view of the lower finishing die-section, and Fig. 4 is a transverse section through the complete finishing-die. Fig. 5 is a detail sectional view through portions of the opposite side walls of a bag-body and the reinforcing-strip introduced marginally between them prior to subjecting these parts to pressure of the preferred finishing-dies, and Fig. 6 is a detail sectional view illustrating a marginal portion of the bag after the parts of Fig. 5 have been intimately or homogeneously united by pressure.

The cutting-die which I preferably use to shape the bag-body sides or walls from uncured sheet-rubber stock comprises a bed or female die-section 1 and a plunger or male die-section 2, both shown in Fig. 2 of the drawings and having edges 3, which cooperate in cutting out the side walls of the bag-body. These die-sections have the usual pin-and-socket guides at 4, assuring perfect register of their cutting edges. One of these die-sections, preferably the bed die-section 1, (shown separately in Fig. 1 of the drawings,) has face indentations or serrations 5, which give any preferred surface ornamentation to the outer face of the bag-body side wall by final regulated movement of the male die 2 after said wall has been marginally shaped by the die cutting edges 3.

The finishing-die (shown in Fig. 4 of the drawings) comprises two opposing sections 6, 7, which may be substantially alike, each with a raised pressing or cutting edge 8, corresponding with the marginal contour of the bag-body and having the usual pin-and-socket guides 9, assuring perfect register of these

cutting or finishing edges. The lower die-section 6 is shown separately in Fig. 3 of the drawings. The center of the upper die-section 7 may be raised a little, as shown in Fig. 4 of the drawings, in order to have the resulting slope of the die-face from its center toward its cutting edges 8 assist in preventing inward displacement of the edge reinforcing-strip 10 after it is placed between the two side walls 11 12 of the bag-body and when the latter is under pressure of the finishing-die.

After the two opposite walls 11 12 of the bag-body are separately cut out marginally and preferably face-ornamented by the dies 1 2 the rubber reinforcing-strip 10, which preferably has considerable thickness or body, is laid between said walls all around their margin except at the place where the open mouth of the bag is to be formed. Any method of interposing this reinforcing-strip 10 may be adopted. One preferred plan is to lay one side wall, 12, of the bag-body upon the lower die-section 6 in proper relation to the die pressing edge 8, which may be felt through the wall 12, to serve as a guide in properly laying the strip upon said wall, whereupon the other bag-body side wall, 11, is laid upon the wall 12 and the marginal reinforcing-strip 10, and the three parts 11 10 12 then are relatively disposed about as shown in Fig. 5 of the drawings. The upper die-section 7 now is brought down upon the body-wall 11 and presses the parts 11 10 12 together, thereby intimately and homogeneously uniting them and at the same time trimming off any possible surplus sheet-rubber material at the extreme marginal edge of the bag-body. When removed from this finishing-die, the bag-body has marginal portions. (Shown in Fig. 6 of the drawings, wherein the part 10^a, now in intimate union with the two body-walls 11 12, represents the former separately-applied reinforcing-strip 10 of Fig. 6 of the drawings.) The bag-body now is ready for attachment of the usual screw-neck and funnel and suspension-straps prior to vulcanization of the whole bag, which may be effected in any usual or approved manner.

It is obvious that by the above-described process of manufacture I produce a sheet-rubber bag-body having a heavily beaded or reinforced edge which is homogeneous or practically jointless, and therefore the bag formed with such a body has much greater strength and durability than bags having a body formed by marginal overlapping thin sheet-rubber stock in the usual manner first above mentioned. Furthermore, by my improved process of homogeneously incorporating a marginal reinforcing-strip between and with opposite side walls of the bag-body by pressure, preferably die-pressure, such intimate union of the parts is effected that reliance always may be placed upon the practical perfection

of each and every bag having a body so made, whereby waste due to imperfections arising from the lap-joint method of production is practically eliminated. Finally, the actual saving of time in making the stronger and more durable bag-bodies by my improved process largely reduces the first cost of much more desirable finished bags as compared with the expense of producing inferior lap-joined bags.

I claim as my invention—

1. The improved process of making rubber bag-bodies, which consists in interposing a reinforcing marginal strip of rubber compound between the two side walls of the bag-body, then intimately or homogeneously uniting said body-walls and interposed marginal reinforcing-strip by pressure, and then vulcanizing the bag-body, substantially as described.

2. The improved process of making rubber bag-bodies, which consists in interposing a reinforcing marginal strip of rubber compound between the two side walls of the bag-body, then intimately or homogeneously uniting said body-walls and interposed marginal reinforcing-strip by die-pressure, and then vulcanizing the bag-body, substantially as described.

3. The improved process of making rubber bag-bodies, which consists in interposing a reinforcing marginal strip of rubber compound between the two side walls of the bag-body, then uniting said body-walls and interposed marginal reinforcing-strip and simultaneously trimming off surplus edge material, and then vulcanizing the bag-body, substantially as described.

4. The improved process of making rubber bag-bodies, which consists in interposing a reinforcing marginal strip of rubber compound between the two side walls of the bag-body, then intimately or homogeneously uniting said body-walls and interposed marginal reinforcing-strip and simultaneously trimming off surplus edge material by pressure, and then vulcanizing the bag-body, substantially as described.

5. The improved process of making rubber bag-bodies, which consists in interposing a reinforcing marginal strip of rubber compound between the two side walls of the bag-body, then intimately or homogeneously uniting said body-walls and interposed marginal reinforcing-strip and simultaneously trimming off surplus edge material by die-pressure, and then vulcanizing the bag-body, substantially as described.

6. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and in-

terposed marginal reinforcing-strip by pressure, and then vulcanizing the bag-body, substantially as described.

7. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and interposed marginal reinforcing-strip by die-pressure, and then vulcanizing the bag-body, substantially as described.

8. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and interposed marginal reinforcing-strip and simultaneously trimming off surplus edge material by die-pressure, and then vulcanizing the bag-body, substantially as described.

9. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies and simultaneously applying surface ornamentation to said body-walls by said cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and

interposed marginal reinforcing-strip by pressure, and then vulcanizing the bag-body, substantially as described.

10. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies and simultaneously applying surface ornamentation to said body-walls by said cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and interposed marginal reinforcing-strip by die-pressure, and then vulcanizing the bag-body, substantially as described.

11. The improved process of making rubber bag-bodies, which consists in marginally shaping the side walls of the body by cutting-dies and simultaneously applying surface ornamentation to said body-walls by said cutting-dies, then interposing a reinforcing marginal strip of rubber compound between the two die-cut side walls of the body, then intimately or homogeneously uniting the body-walls and interposed marginal strip and simultaneously trimming off surplus edge material by die-pressure, and then vulcanizing the bag-body, substantially as described.

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