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3,247,520

PNEUMATIC BOXING GLOVE

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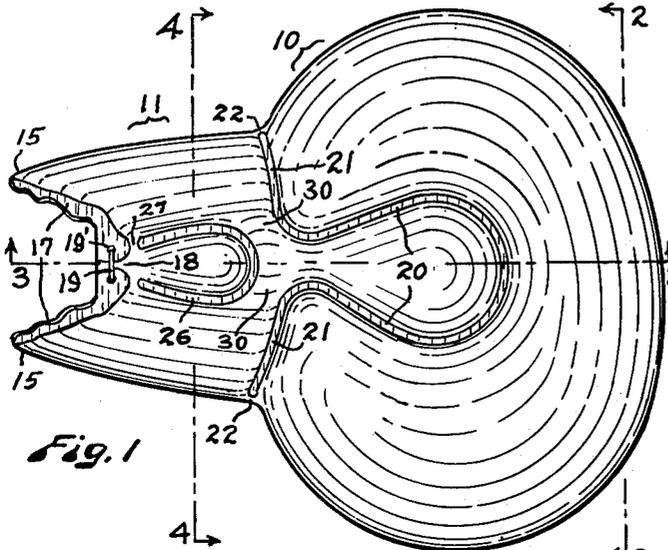


Fig. 1

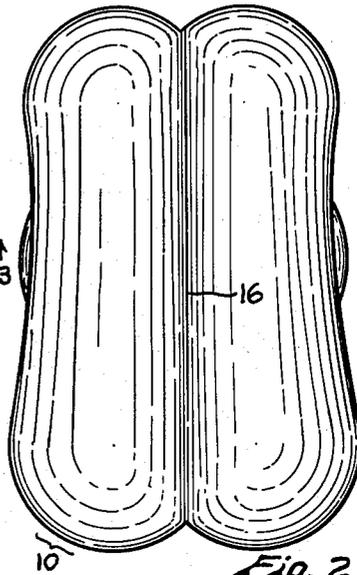


Fig. 2

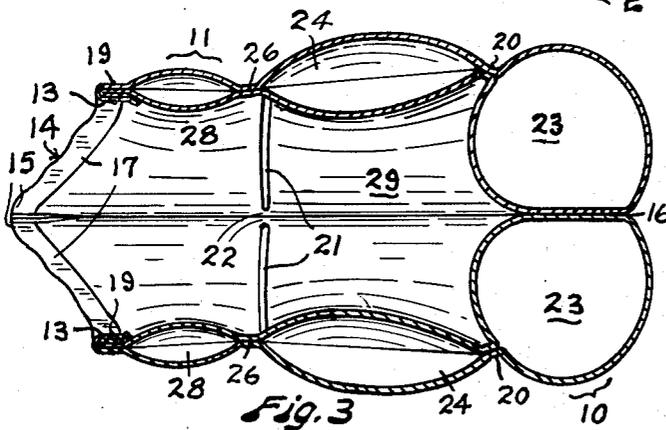


Fig. 3

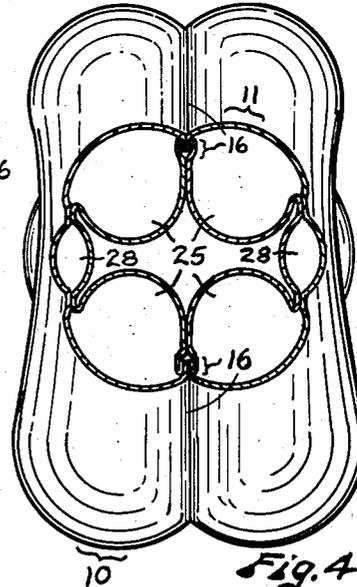


Fig. 4

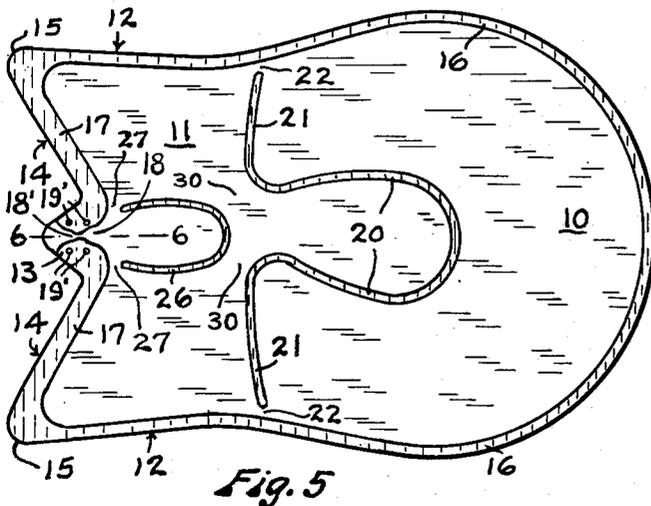


Fig. 5

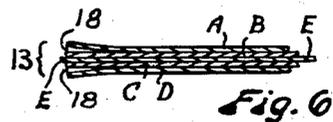


Fig. 6

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PNEUMATIC BOXING GLOVE

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7 Claims. (Cl. 2-18)

My invention relates to a pneumatic boxing glove and is in the nature of an improvement on a pneumatic boxing glove of the type disclosed in my prior Patent No. 2,653,319, and in Patent No. 2,135,853, wherein I am a joint inventor.

An object of my present invention is to improve boxing gloves of this type and render them more durable and more reliable and less expensive to manufacture.

Another object is to provide a pneumatic boxing glove comprising two oblong, air tight bags or receptacles of pliable material positioned side by side and marginally attached together except across the outer end of the wrist, each bag having a forward or striking end portion which receives the impact of blows and having medial portions of the opposed sides thereof adhered together by a narrow web or seam of distinctive configuration having the appearance of the Greek letter omega and herein termed an omega-shaped seam, each said web or seam forming in the air bag a partition dividing the air bag into a wrist or cuff portion and a forward or striking portion, the partition formed by each omega-shaped seam greatly restricting but not entirely shutting off the flow of air between the forward or striking portion and the wrist portion of the glove and each omega-shaped seam forming, in the side walls of the striking portion of the bag an oval or pear shaped air pocket which communicates with the wrist portion of the bag and has one inwardly protruding bulbous wall portion shaped and positioned to fit against the clenched fist and stabilize the glove on the hand when the glove is in use and an outwardly protruding bulbous wall portion which cooperates in forming a protective cushion at the side of the hand, said omega shaped seam serving to divide the bag into two sections, one being the forward or striking portion which absorbs the blows and the other being the wrist or cuff portion which supports the wrist of the user and communicates with the air compartment formed in the omega-shaped seam at the side of the hand receiving part of the glove.

Another object is to improve the wrist portion of a pneumatic boxing glove composed of two air bags marginally adhered together by a continuous seam extending along the back and around the forward end and along the front or palm of the glove by shaping said wrist portion so as to form two opposed, integral wrist supporting extensions positioned at the front and back respectively in protruding or overhanging relation to the wrist portion, said extensions being convergently tapered, outwardly considered, so that a fairly deep V-shaped notch is provided at each lateral side of the glove wrist between the extensions, said extensions being in contact with and affording needed support to the front and back of the user's wrist when the glove is in use, the V-shaped notches between the extensions providing suitable recesses wherein fold-over valve tabs can be conveniently provided and the irregular or notched shape of the terminal edge of the wrist portion of the glove minimizing the strain to which this terminal edge of the glove wrist will be subjected in putting on and taking off the glove, thereby reducing the danger of tearing, particularly at the location

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where the marginal seams which secure the two air bags together terminate.

Another object of my invention is to improve the wrist or cuff portion of the glove by providing in each lateral side of said wrist portion an approximately U-shaped web or seam which adheres the two layers of material at the sides of the glove wrist together in such a manner as to reduce the thickness of the wrist portion at the sides while still leaving therein an air pocket and to impart at the inner and outer parts, that is to the front and back, of the glove wrist a better shape which causes the glove wrist to conform more closely to the shape of the user's wrist and to afford better support.

Other objects of my invention will be apparent from the following description and accompanying drawings.

In this description the term seam is used to describe narrow adhered together parts of the several layers or walls of pliable air impervious material used in forming the glove.

In the drawings FIGURE 1 is a view in side elevation of a pneumatic boxing glove embodying my invention as it may appear when inflated.

FIG. 2 is an end view of the same looking in the direction of broken line 2-2 of FIG. 1.

FIG. 3 is a sectional view of said glove taken substantially on broken line 3-3 of FIG. 1.

FIG. 4 is a sectional view, with parts in elevation, taken through the wrist portion of the glove, substantially on broken line 4-4 of FIG. 1.

FIG. 5 is a plan view, on a smaller scale than FIGS. 1 to 4 showing the glove in a flat condition as it appears after the parts or walls thereof have been sealed together and before the glove has been turned inside out and inflated.

FIG. 6 is a fragmentary sectional view on a larger scale than FIG. 5, taken substantially on broken line 6-6 of FIG. 5.

Like reference numerals refer to like parts throughout the several views.

This glove comprises four similar layers or walls A, B, C and D, FIG. 6, of air impervious pliable material, such as pliable sheet plastic, which in a flat and non-inflated condition, are shaped, in outline, substantially as shown in FIG. 5 and are connected together in such a manner as to form two independent air bags. Each of the four walls A, B, C and D comprises an outer rounded part 10 and a wrist part 11. The wrist part 11 is laterally bounded by approximately straight side edges 12. The terminal end of the wrist part 11 is shaped to provide medially positioned valve tabs 13. Laterally from the base of the valve tab 13 the end of each wrist portion 11 is defined by two inclined outwardly extending edges 14 which intersect the lateral edges 12 in such a manner as to form points 15. The four walls which form my glove are positioned face to face in registration with each other and are all marginally adhered together by a marginal seam 16 which extends around their rounded outer ends and along their two sides as far as the points 15. The two walls which form each air bag are adhered to each other by wider seams 17 which extend across the terminal end of the wrist portions 11 of each bag but are interrupted for a short distance at the location of the valve tabs 13 to leave an air inlet passageway at 18 through which the bag may be inflated. The seams 17 do not secure the two air bags to each other across the end of their wrist portions 11 but leave the two air bags un-

attached between points 15 so that the hand of a user can be inserted between the two air bags.

This glove is herein described as being formed of two air bags marginally adhered together, except across the inner end of the wrist, part 11, by the seam 16. In constructing the glove the walls A, B, C and D may be the walls of two separate bags or they may be four separate sheets of air impervious pliable material. If four separate sheets are used, as herein illustrated, they are placed face to face in registration, FIG. 6, and a pliable separator sheet E of material which will not seal to the two medial sheets B and C and which is shaped and sized so as to leave in contact with each other marginal portions of said two medial sheets B and C, which are to be adhered together by the seam 16, and to exclude from contact with each other the edge portions of the two medial sheets B and C which are to be adhered together by the seam 17. The seams are then formed by the application of heat along the edges to be adhered together. At the same time other seams are formed along other lines, as hereinafter described. Adhering together the walls A, B, C and D by the marginal seam 16 leaves this seam 16 on the outside of the glove where it would be objectionable. To conceal and bury this seam 16 the glove is turned inside out after the seaming process is completed.

As hereinbefore pointed out the seams 17 do not extend continuously all of the way across the end of the wrist portion of each air bag but are left unsealed at locations 18 to provide air inlet passageways between the two walls of the air bags at the location of the valve tabs 13. Each air inlet passageway 18 is preferably of hour glass shape, being wider at its outer end or mouth and converging to a narrow width at a location 18' and then expanding. This makes it easier to insert a needle type tubular fitting for inflation purposes, minimizes friction between the fitting and the surrounding air bag material, and reduces danger of air leaking around the fitting during inflation to a minimum.

Before the glove is turned inside out preparatory to inflation the valve tabs 13 protrude but after inflation these tabs 13 are folded double to seal the passageways 18 and said tabs 13 are tied in their folded over positions by tie members 19 which are passed through perforations 19' adjacent the passageway 18 and in the sealed parts of the valve tabs 13.

To properly shape the two air bags so that the glove will fit the clenched fist of a user and so that the glove will have the best external shape and striking characteristics and the best safeguards for both the user and his opponent, I seal or adhere together at predetermined locations, and along lines and by seams now to be described the two walls or sheets of pliable air impervious material used in forming each air bag. Preferably this is done at the time the seams 16 and 17 are formed. It consists in providing in the walls of each air bag, forwardly of the wrist portion thereof, an omega-shaped seam 20, 21 and in providing in the wrist portion 11 of each air bag a U-shaped seam 26.

Each omega-shaped seam comprises a pear-shaped part 20 and two oppositely extending transverse parts 21. The parts 21 extend across the glove at approximately the location where the outer or striking portion of the glove joins the wrist portion. At least one and preferably both of these transverse seam parts 21 terminates close to but short of the adjacent marginal seam 16. The parts 20 and 21 of the omega-shaped seam cooperate to form in each air bag a partition between the wrist portion 11 and the striking end portion 10 of the air bag. Preferably at two locations indicated by numerals 22, this partition has air passageways of restricted area which permit air to pass slowly but prevent a rush of air between air compartments 23 in the outer or striking end portion of the air bag and compartments 25 in the wrist portion of the same. The air compartment 23 is of fairly large size and extends entirely around the outer end portion of the

glove from one transversely extending seam part to the other of said transversely extending seam parts 21. The pear-shaped seam part 20 encloses an air compartment 24 which communicates with the air compartments 25 in the wrist portion of the air bag. When the glove is inflated both walls of the air compartment 24 are distended and of bulbous shape. The pear-shaped seam loop 20 and the inner wall of the large air compartment 23 and the inner bulbous wall of the air compartment 24 provide a shape which conforms, in a general way, to the shape of the side of the clenched fist against which they seat and this helps in stabilizing the glove on the hand when the glove is in use.

The bulbous outer wall of the air compartment 24 forms a resilient pad at the side of the glove which protects the hand of the user and protects any person hit with the side of the glove. The only way air can escape from the larger air compartments 23 is through the restricted passageways 22. The area of these passageways 22 is lessened at the instant the forward end portion of the glove receives the impact of a blow because, at this instant, the forward end portion of the glove is pushed back and there is some wrinkling or folding of the glove material at the locations of the passageways 22. This has a constricting effect on these passageways and the wrinkling or doubling over of the glove material at this location may substantially close these passageways 22 so that little or no air passes from the striking end portion of the glove into the wrist compartments 25 and the side compartments 24, which communicate with said wrist compartments 25. For this reason the pressure in the forward end portion of the glove builds up faster at the instant of impact than it would if the blow did not have this tendency to close the restricted passageways 22.

The walls forming the air chambers 25 at both front and back of the wrist portion 11 taper convergently toward the points 15. This provides good wrist support and provides a construction in which the edges of the tapered wrist parts lie close to the wrist and it avoids leaving any protrusions jutting out from these wrist parts to form obstructions and catch on objects they come in contact with.

The U-shaped seam 26 in the wrist portion of each air bag is positioned midway between the later edges 12 and has its major dimension extending lengthwise of the glove with its open end close to the valve tab 13 and registering with the air inlet passageway 18 and terminating short of the seam 17. The closed or rounded end of the U-shaped seam 26 is positioned close to the open end of the loop 20 of the omega-shaped seam.

The two U-shaped seams 26 divide the wrist portion 11 of the glove into the four similar air compartments 25 which are fairly long and extend from the seam parts 21 back to the points 15 of the glove wrist, thus providing fairly long wrist supports at both the front and back of the wrist. Also each U-shaped seam 26 forms, within its outline, a small air compartment 28 which communicates through restricted passageways at locations 27 with the larger wrist compartments 25. The rounded ends of the U-shaped seams 26, being continuous, are not liable to be ripped loose by rough usage. The U-shaped seams reduce thickness at the sides of the glove wrist and help to impart a somewhat rectangular shape to the wrist opening, as will be apparent from an inspection of FIG. 4. The rounded ends of the U-shaped seams 26 are close enough to the omega-shaped seams 20, 21 at locations 30 so that the flow of air is substantially restricted between the wrist compartments 25 and the air compartments 24.

Dividing the air bags into a number of air compartments or chambers connected with each other by passageways of restricted area provides a construction in which air can pass to all of these compartments at the time the glove is inflated, but which greatly restricts sudden displacement of air from one compartment to another and results in a pressure build up and increased cushioning effects in the chambers subjected to impact.

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When the two air bags are inflated to about the same pressure the air expands the glove to about the shape shown in FIGS. 1 to 4. Under these inflated conditions the parts of the inside walls B and C which cooperate in forming the air compartments 23 press against each other, as best shown in FIG. 3, and broaden and flatten the exterior of the outer or forward end of the glove. This pressure of the inner walls of the air compartments 23 against each other also tends to provide within the glove a fist receptacle 29 of suitable size and shape to fit the hand snugly but not tight enough to be uncomfortable to the user. The valve members 13, being folded over parts of the glove material, are inexpensive to make, are efficient in holding air at the pressures used in the glove, are soft and flat and not objectionable in any way and are positioned in the bottoms of the notches in the sides of the glove wrist where they are out of the way.

The foregoing description and accompanying drawings clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that changes may be made within the scope of the following claims.

I claim:

1. A pneumatic boxing glove comprising two oblong bags each having inner and outer walls of pliable air impervious material, said bags being positioned side by side in adjoining relation, each bag having a rounded forward end portion and a wrist portion, the marginal portions of the inner walls of said two air bags being adhered together joining the two air bags around the rounded forward end portion and along the lateral edges of the wrist portion leaving the bags disconnected across the terminal end of the wrist portion in providing a wrist opening; and an omega-shaped seam adhering together the inner and outer walls of each bag, said omega-shaped seam consisting of a loop extending from the wrist portion of the glove forwardly, the rear end of said loop being open and terminating in two transversely extending seam portions which terminate in close proximity to said marginal seams providing at the juncture of the rounded end portion and the wrist portion of the bag a normally open restricted passageway adapted to be closed momentarily by the wrinkling of the bag walls at the location of said passageway in response to impact on the outer end portion of said glove.

2. A pneumatic boxing glove comprising two oblong air bags each having inner and outer walls of pliable air impervious material, said bags being positioned side by side in adjoining relation, each bag having a rounded forward end portion and terminating at its rear end in a wrist portion; a continuous seam adhering together the marginal portions of the inner walls of said two air bags joining the two air bags around the rounded forward end portion and along both lateral edges of the wrist portion leaving the two bags disconnected across the terminal end of the wrist portion; and an omega-shaped seam adhering together the medial portions of the inner and outer walls of each bag, said omega-shaped seam consisting of a pear-shaped loop extending from the wrist portion of the glove forwardly and having an open end facing toward the wrist portion of the glove, said open end of said loop terminating in transverse seam portions which extend in opposite directions into close proximity to said marginal seam, providing at the juncture of the rounded end portion and the wrist portion of the bag a normally open restricted passageway adapted to be closed momentarily by the wrinkling of the bag walls at the location of said passageway in response to impact on the forward end portion of the air bag, said omega-shaped seam forming an air restricting partition between the forward end portion and the wrist portion of each air bag.

3. A pneumatic boxing glove comprising two oblong air bags each having inner and outer walls of pliable air impervious material, said bags being positioned side by side in adjoining relation, each bag having a rounded for-

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ward end portion and terminating at its rear end in a wrist portion, the marginal portions of the inner walls of said two bags being adhered together joining the two air bags around the forward end portion and along both lateral edges of the wrist portion leaving the bags disconnected across the terminal end of the wrist portion; and a seam adhering together the medial portions of the inner and outer walls of each bag, said seam consisting of a pear-shaped loop and two transverse seam portions which extend in opposite directions from the loop substantially to the lateral edges of the air bag, said loop and said transverse seam portions forming a partition between the wrist portion and the rounded forward end portion of the air bag, said transverse seam portions having at least one short interruption therein providing at the juncture of the rounded forward end portion and the wrist portion an air passageway of restricted area between the wrist portion and the forward end portion of the air bag, said air passageway being adapted to be closed by the wrinkling of the bag walls at the location of the passageway in response to impact on the forward end portion of the bag, said loop extending from the wrist portion of the air bag forwardly and forming in the rounded forward end portion of the air bag external to said loop a relatively large air chamber extending around said loop and back to said transverse seam portions and forming within said loop an air chamber of substantial size positioned approximately medially of the rounded forward end portion of the air bag and having bulbous inner and outer walls.

4. The pneumatic boxing glove as claimed in claim 3 in which the inner and outer walls forming the wrist portion of each air bag are adhered together by a narrow seam having approximately the configuration of a letter U, said U-shaped seam being positioned longitudinally of the wrist portion and substantially mid way between the lateral edges of said wrist portion.

5. A pneumatic boxing glove comprising two oblong air bags each having inner and outer walls of pliable air impervious material, said bags being positioned side by side in adjoining relation, each bag having a rounded forward end portion and terminating at its rear end in a wrist portion, the marginal portions of the inner walls of said two air bags being adhered together joining the two air bags around the rounded forward end portion and along both lateral edges of the wrist portion leaving the two air bags disconnected across the end of the wrist portion; and two opposed inflated wrist supporting extensions integral with said wrist portions and protruding outwardly farther than the other parts of said wrist portions forming wrist supports, said extensions being of substantial width but extending less than half way around the wrist portion at the locations where they merge with the wrist portions and tapering convergently toward their terminal ends, thereby providing two laterally positioned outwardly divergent notches between said extensions, the re-entrant shape imparted to the terminal end of said wrist portion by said extensions and notches facilitating donning the glove and minimizing strain on the terminal parts of said wrist portion.

6. The pneumatic boxing glove as claimed in claim 5 in which a fold over valve tab having an air inlet opening therein extending from the edge portion of the valve tab to the interior of the air bag is provided on the edge of each wrist portion at the bottom of each of said notches.

7. A pneumatic boxing glove comprising two oblong air bags each having inner and outer walls of pliable air impervious material, said bags being positioned side by side in adjoining relation, each air bag having a rounded forward end portion providing therein a relatively large forward air compartment and each air bag terminating at its rear end in a wrist portion having therein a smaller air compartment, the marginal portions of the inner walls of said two air bags being adhered together joining the two air bags around the rounded forward end portion and along both lateral edges of the wrist portion leaving the two air bags disconnected across the end of the wrist por-

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tion, the air compartment in the wrist portion of each air bag extending in a longitudinal direction from the relatively large forward air compartment to the end of said wrist portion and extending in a transverse direction from one marginally adhered together lateral edge of the wrist portion to the other; and means adhering together parts of the inner and outer walls of the wrist portion of each air bag forming in said wrist portion of each air bag a number of compartments communicatively connected with each other.

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