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(54) **PROTECTIVE GARMENT FOR WEIGHTLIFTING**

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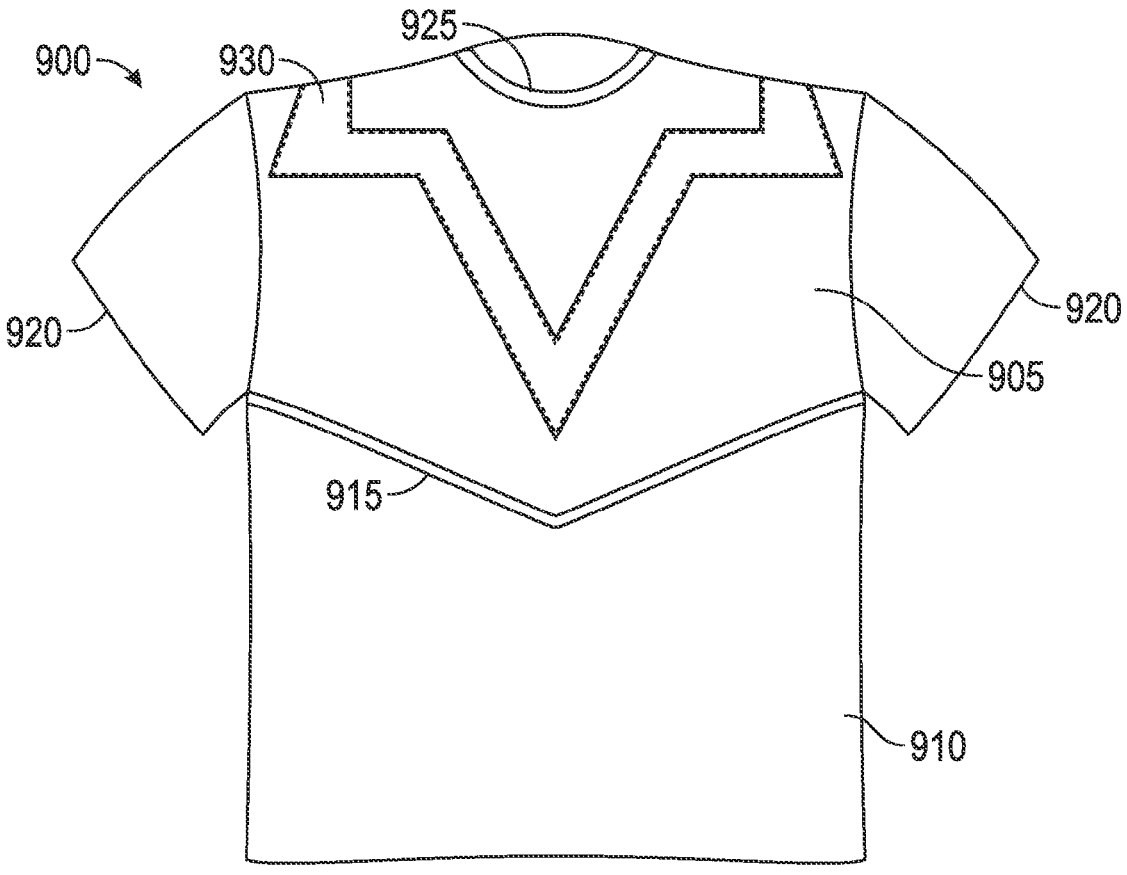
(57) **ABSTRACT**

A garment for protection of a weightlifter from impact from or contact with a weight bar or barbell is provided. The garment may include one or more padding strip members on the anterior, dorsal, and/or top surfaces and positioned over those areas of a wearer's body contacted by a weight bar or barbell when performing certain lifts. A padding strip member may comprise a hollow member into which is placed a cushioning member configured to absorb or dissipate an impact. The outer surface of a padding strip member may be configured to prevent slippage while the bar or barbell is held in contact with the outer surface. The garment may be manufactured from one or more stretchable materials such that the garment fits snuggly against a wearer's body, and the one or more padding strip members are configured to allow for unimpeded movement while performing weightlifting or other exercise activities.



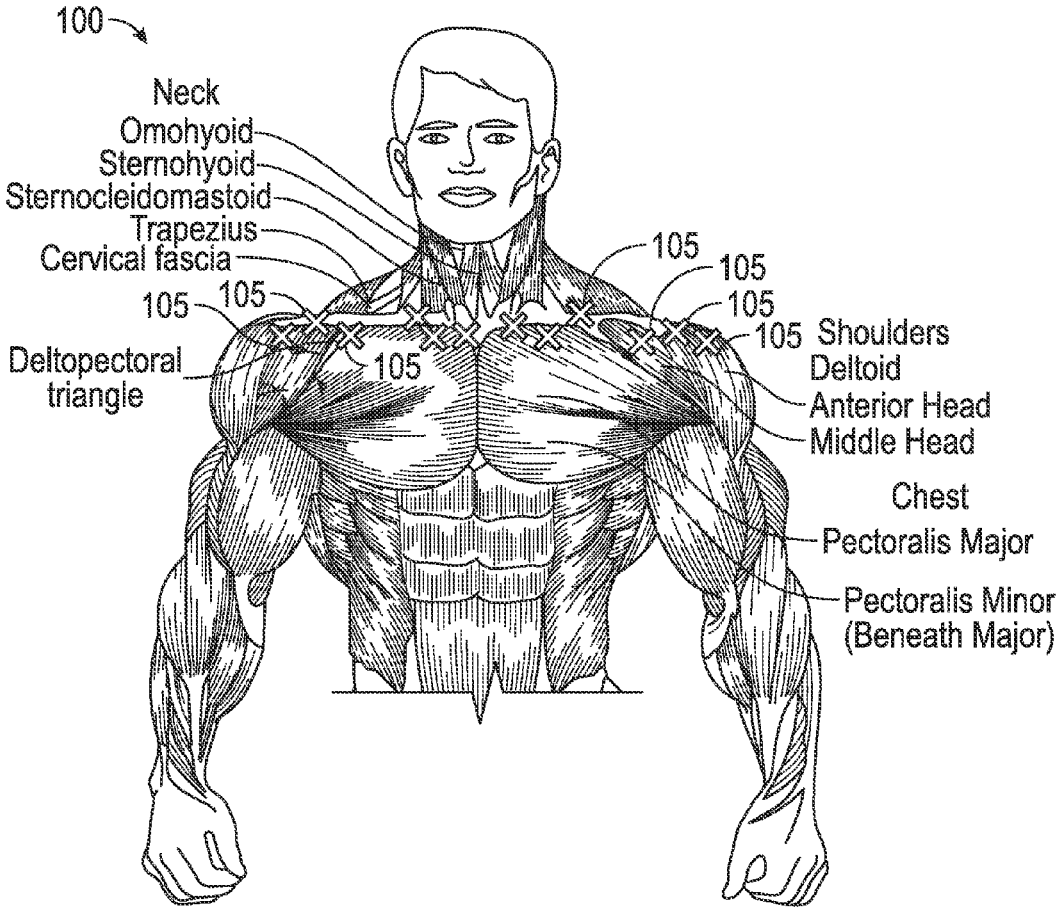

100
Neck
Omohyoid
Sternohyoid
Sternocleidomastoid
Trapezius
Cervical fascia
105
105
105
105
105
105
105
Deltopectoral triangle
Shoulders
Deltoid
Anterior Head
Middle Head
Chest
Pectoralis Major
Pectoralis Minor (Beneath Major)

FIG. 1

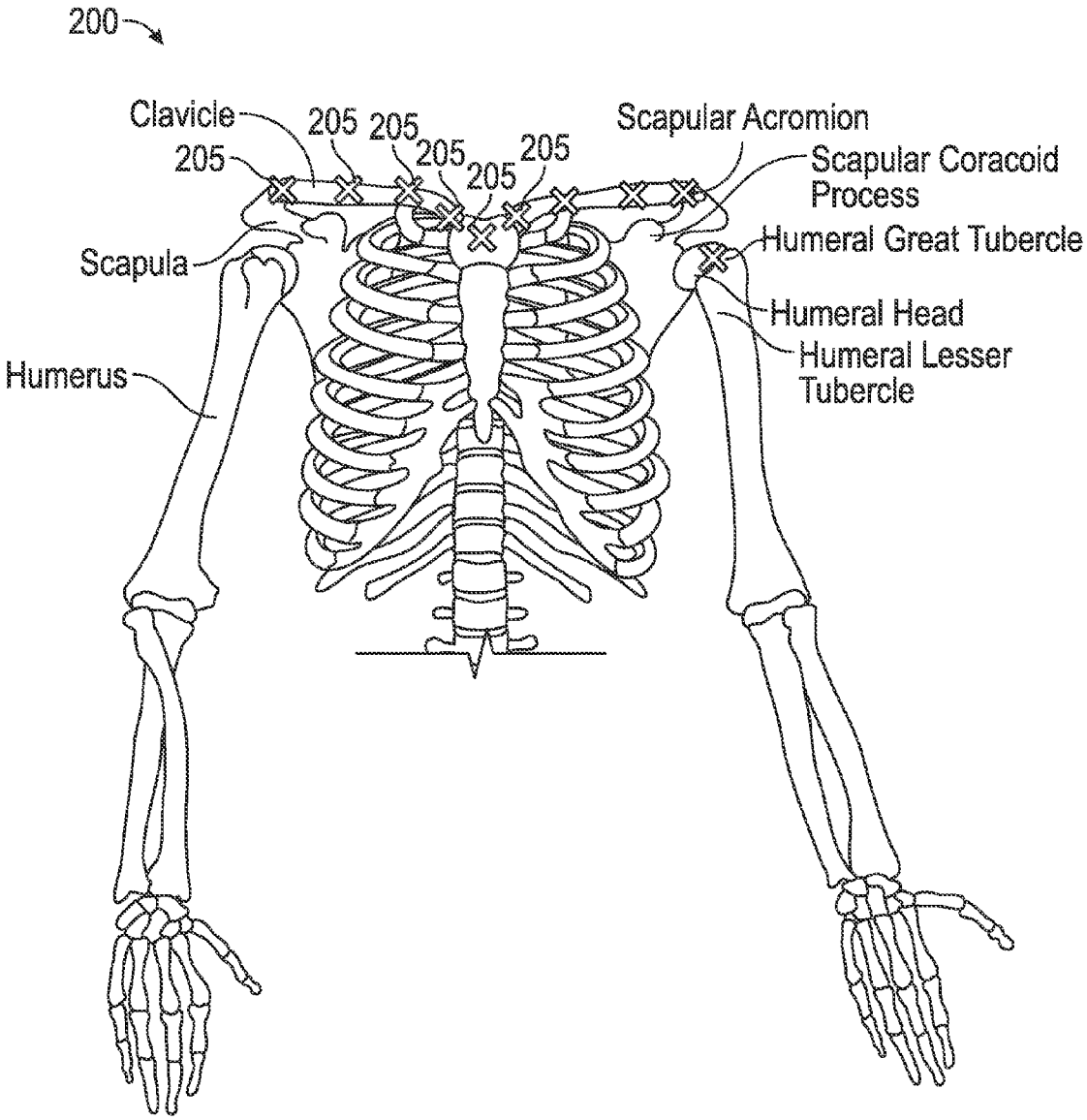

200
Clavicle
205
205
205
205
205
205
Scapular Acromion
Scapular Coracoid Process
Humeral Great Tubercle
Scapula
Humeral Head
Humeral Lesser Tubercle
Humerus

FIG. 2

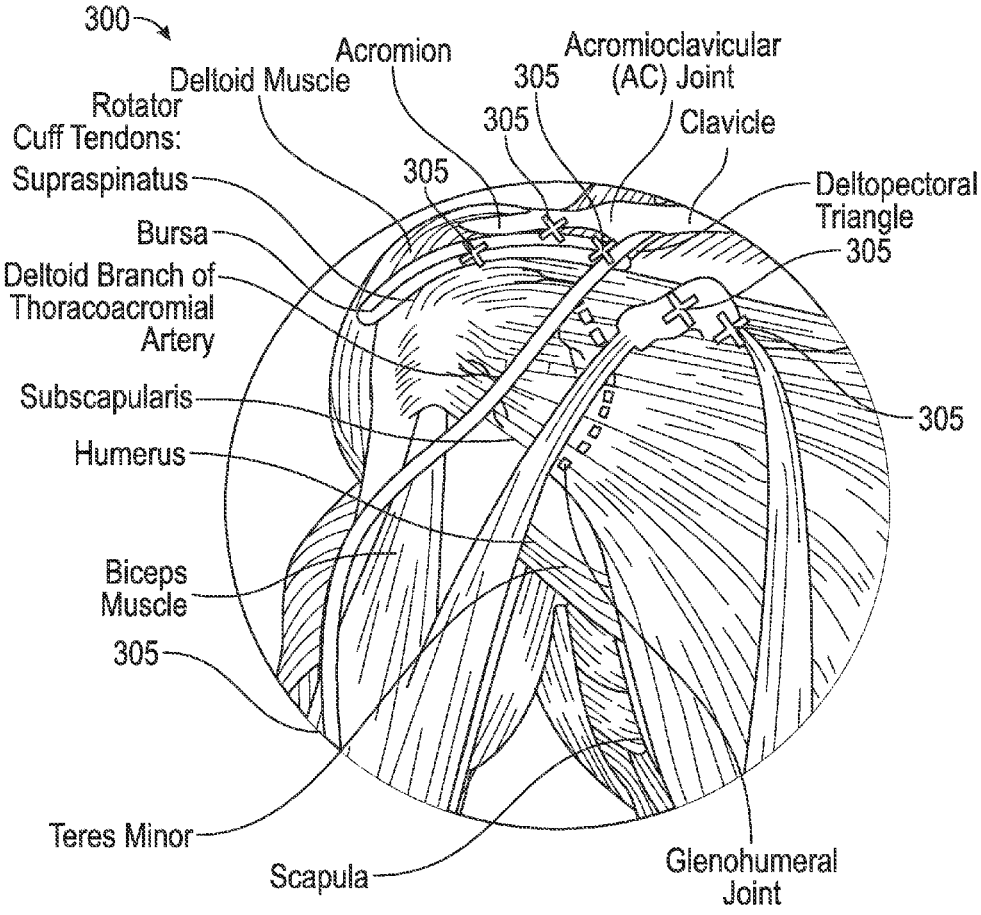

300
Acromion
Deltoid Muscle
Acromioclavicular (AC) Joint
305
305
Clavicle
Rotator Cuff Tendons:
Supraspinatus
305
Deltopectoral Triangle
Bursa
305
Deltoid Branch of Thoracoacromial Artery
Subscapularis
305
Humerus
Biceps Muscle
305
Teres Minor
Scapula
Glenohumeral Joint

FIG. 3

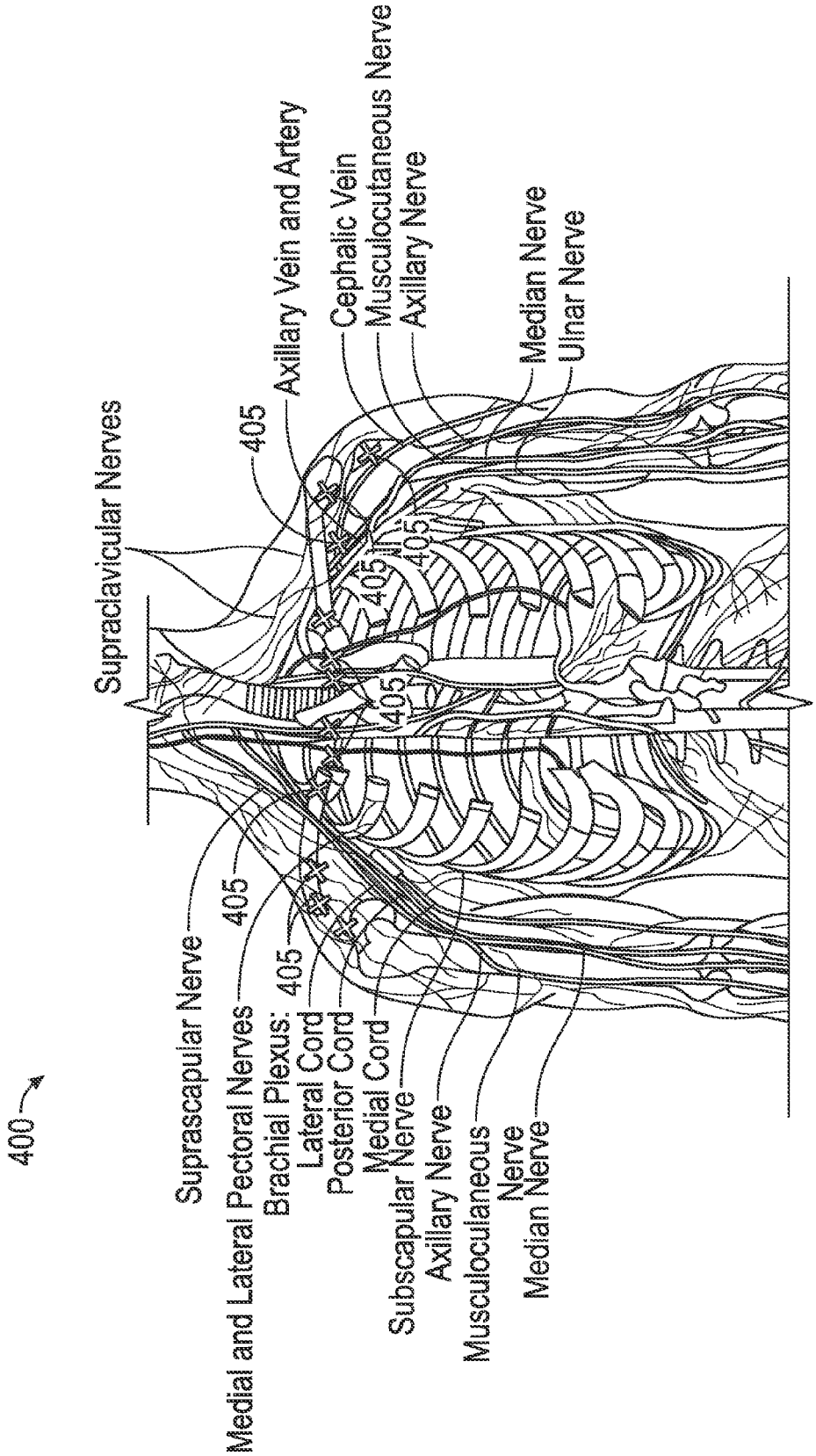

400
Suprascapular Nerve
Medial and Lateral Pectoral Nerves
Brachial Plexus:
Lateral Cord
Posterior Cord
Medial Cord
Subscapular Nerve
Axillary Nerve
Musculocutaneous Nerve
Median Nerve
405
Axillary Vein and Artery
Cephalic Vein
Musculocutaneous Nerve
Axillary Nerve
Median Nerve
Ulnar Nerve

FIG. 4

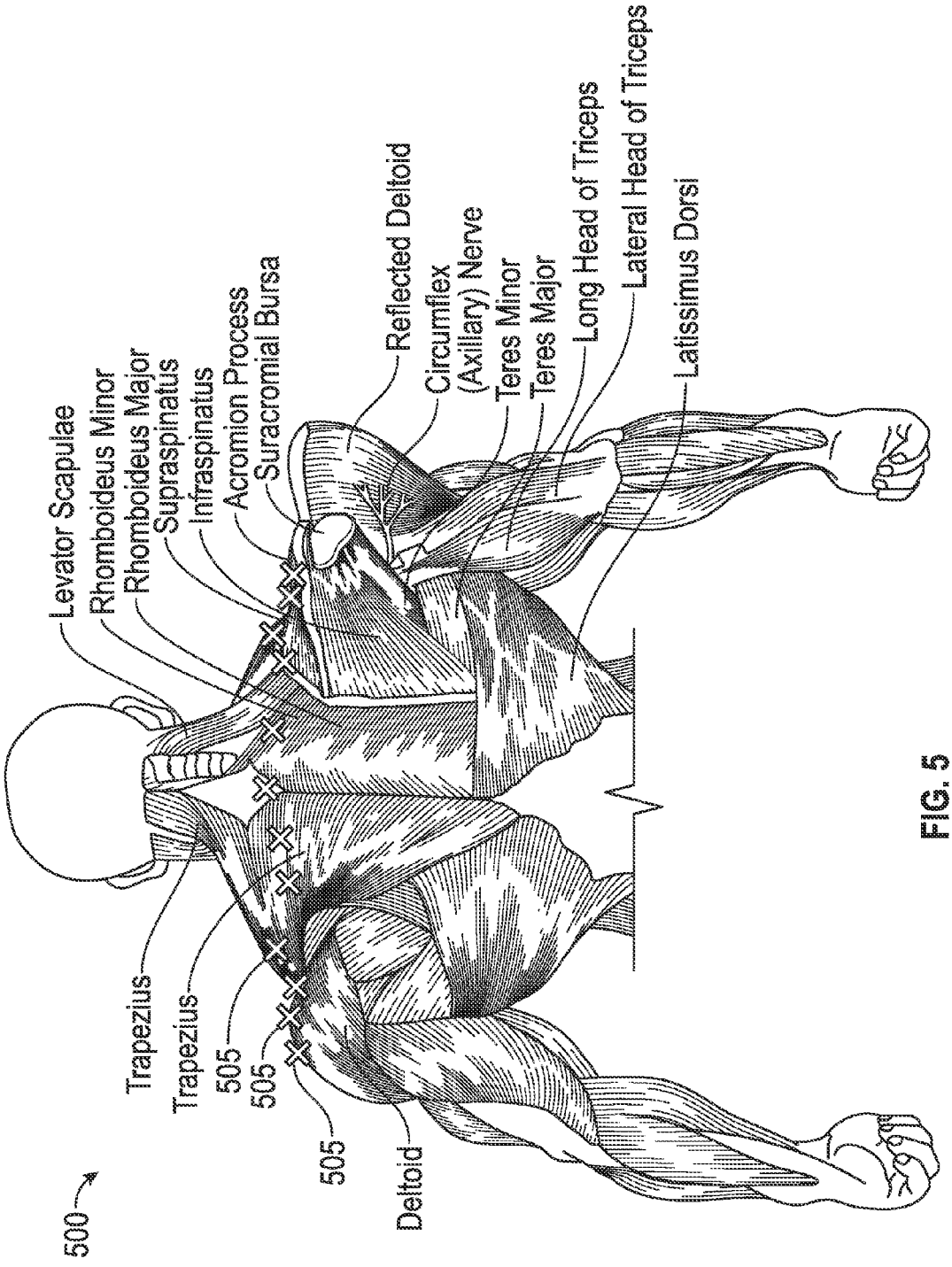

500
Levator Scapulae
Rhomboideus Minor
Rhomboideus Major
Supraspinatus
Infraspinatus
Acromion Process
Suracromial Bursa
Reflected Deltoid
Circumflex (Axillary) Nerve
Teres Minor
Teres Major
Long Head of Triceps
Lateral Head of Triceps
Latissimus Dorsi
Trapezius
Trapezius
505
505
505
Deltoid

FIG. 5

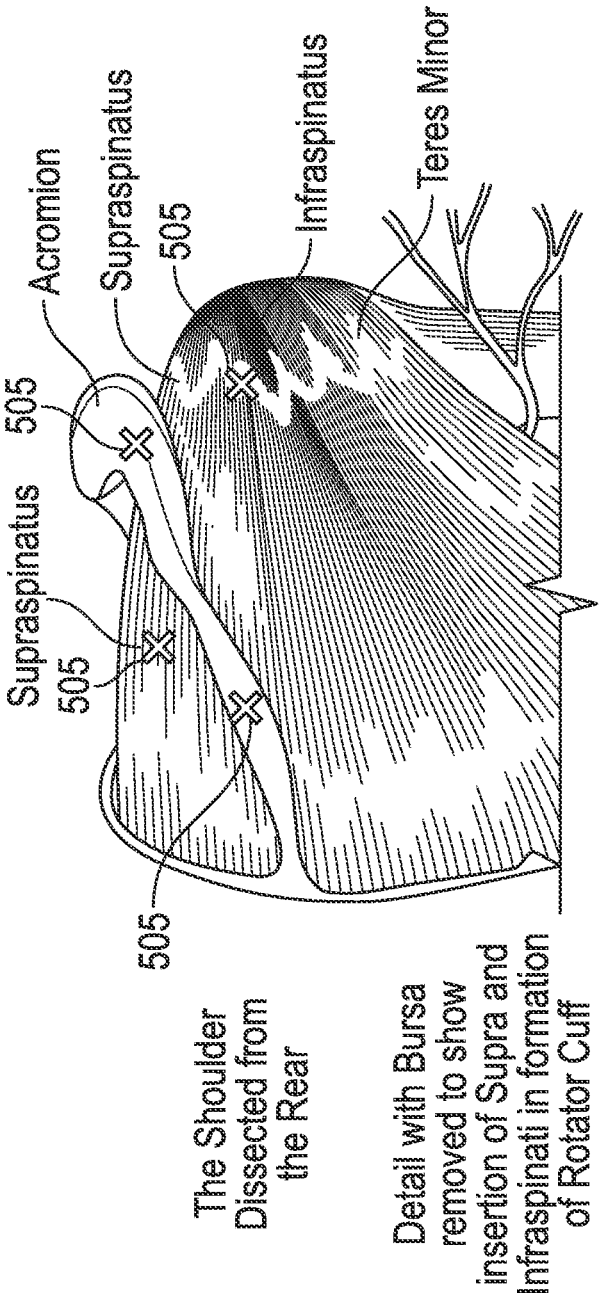

Acromion
Supraspinatus
505
Infraspinatus
Teres Minor
505
Supraspinatus
505
505
The Shoulder Dissected from the Rear
Detail with Bursa removed to show insertion of Supra and Infraspinati in formation of Rotator Cuff

FIG. 5A

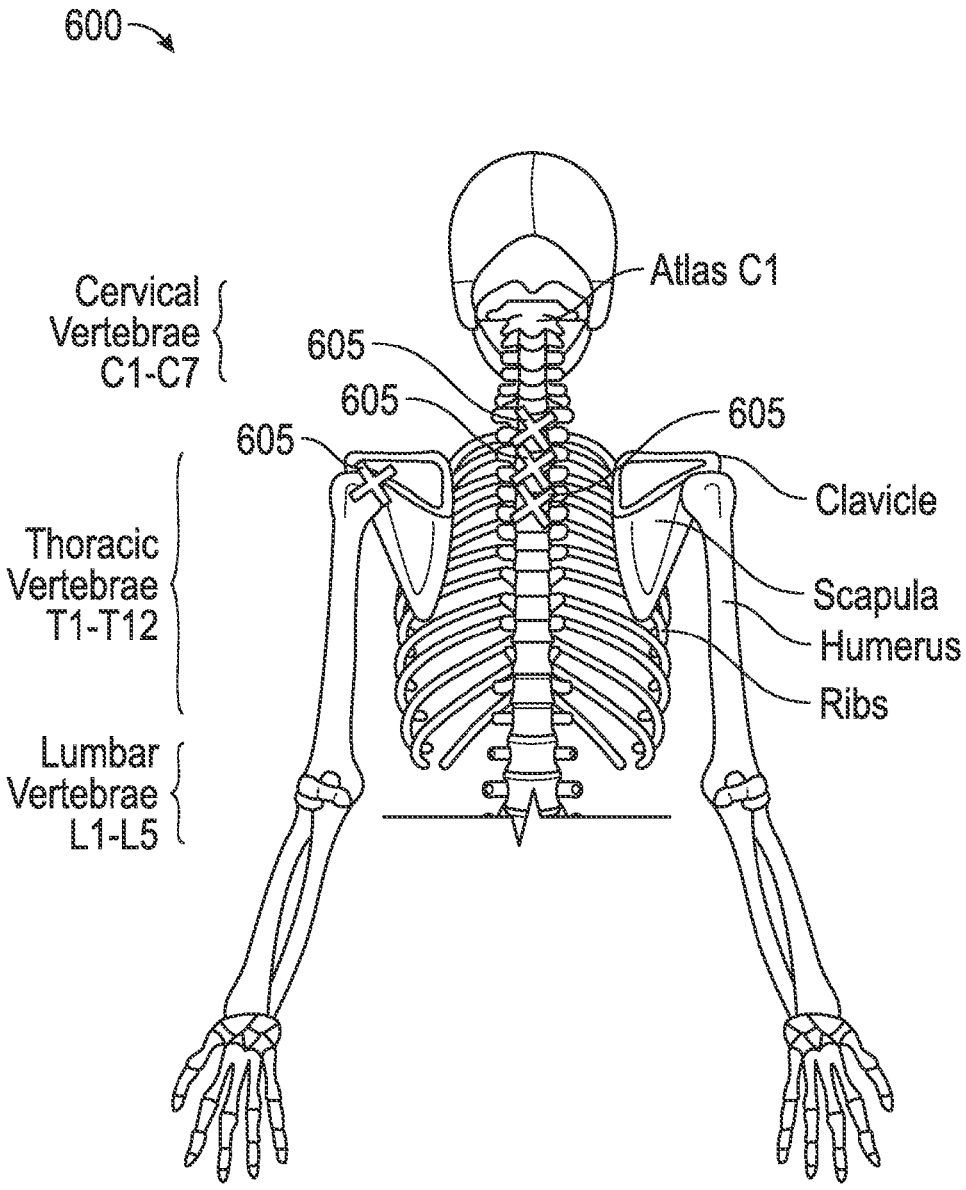

600
Cervical Vertebrae C1-C7
Thoracic Vertebrae T1-T12
Lumbar Vertebrae L1-L5
Atlas C1
605
605
605
605
Clavicle
Scapula
Humerus
Ribs

FIG. 6

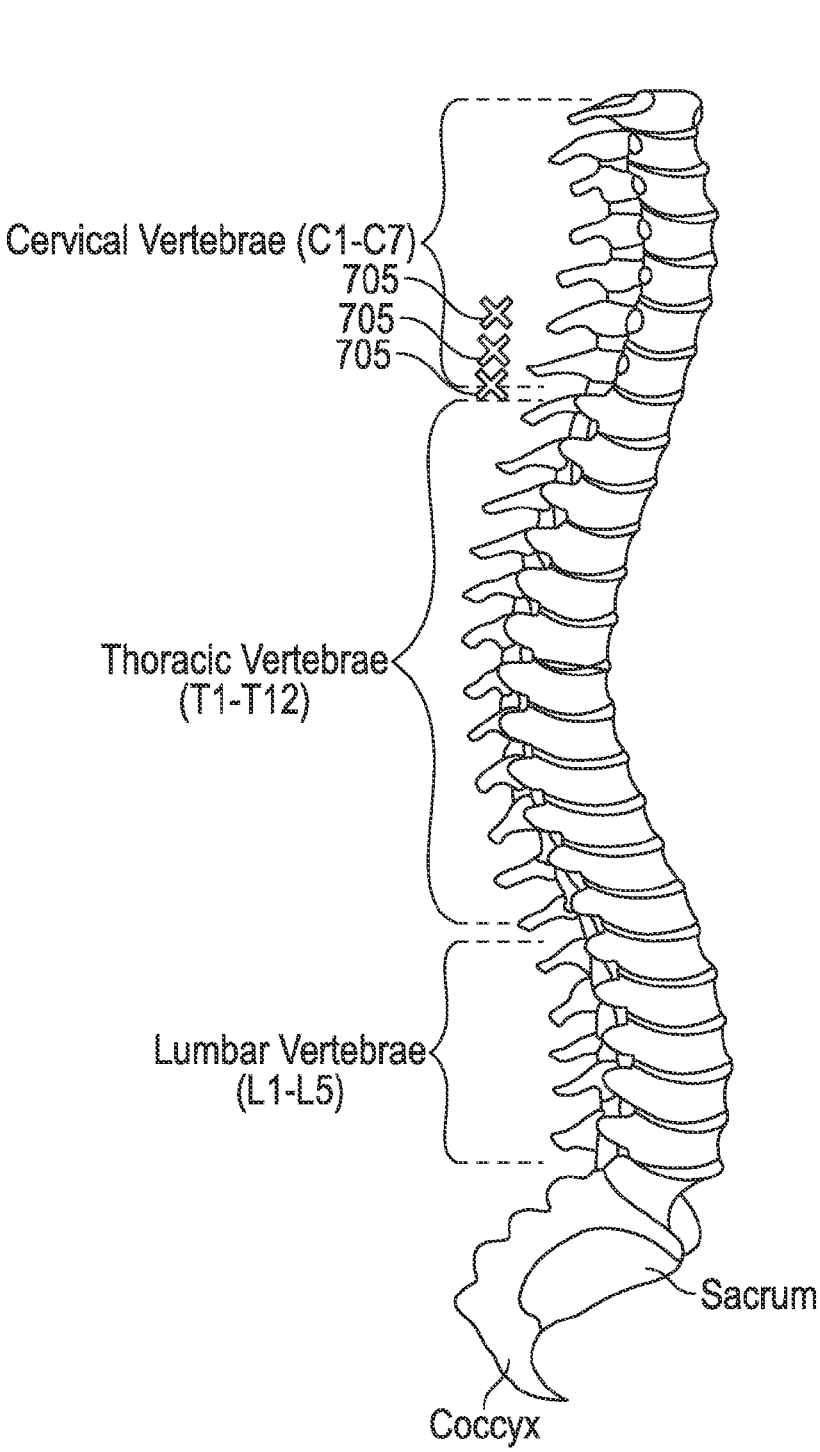

700
Cervical Vertebrae (C1-C7)
705
705
705
Thoracic Vertebrae
(T1-T12)
Lumbar Vertebrae
(L1-L5)
Sacrum
Coccyx

FIG. 7

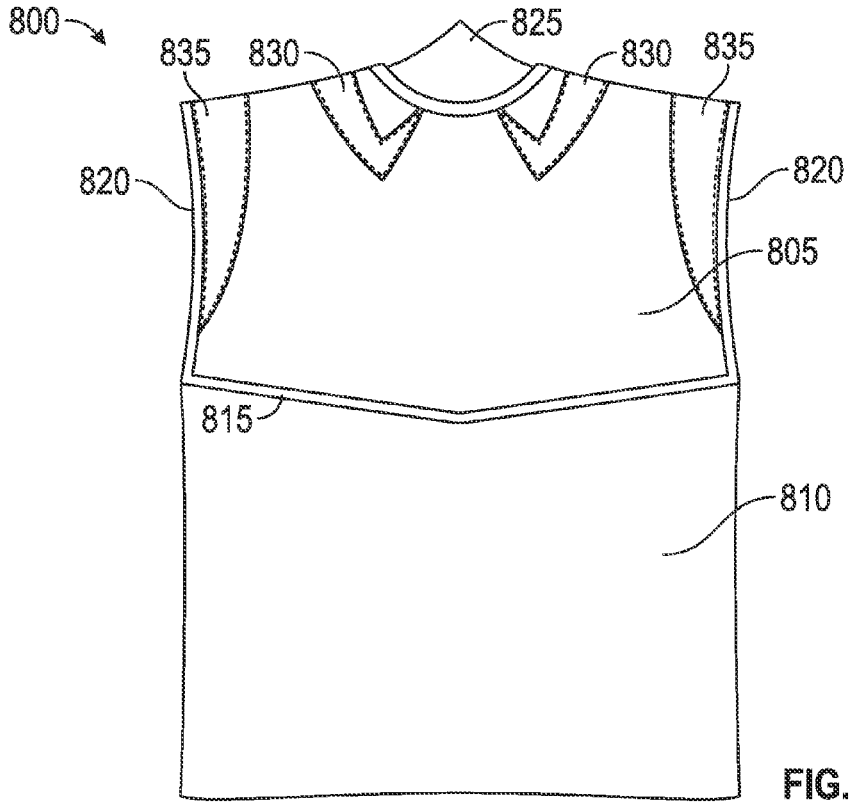

800
835
830
825
830
835
820
820
805
815
810

FIG. 8

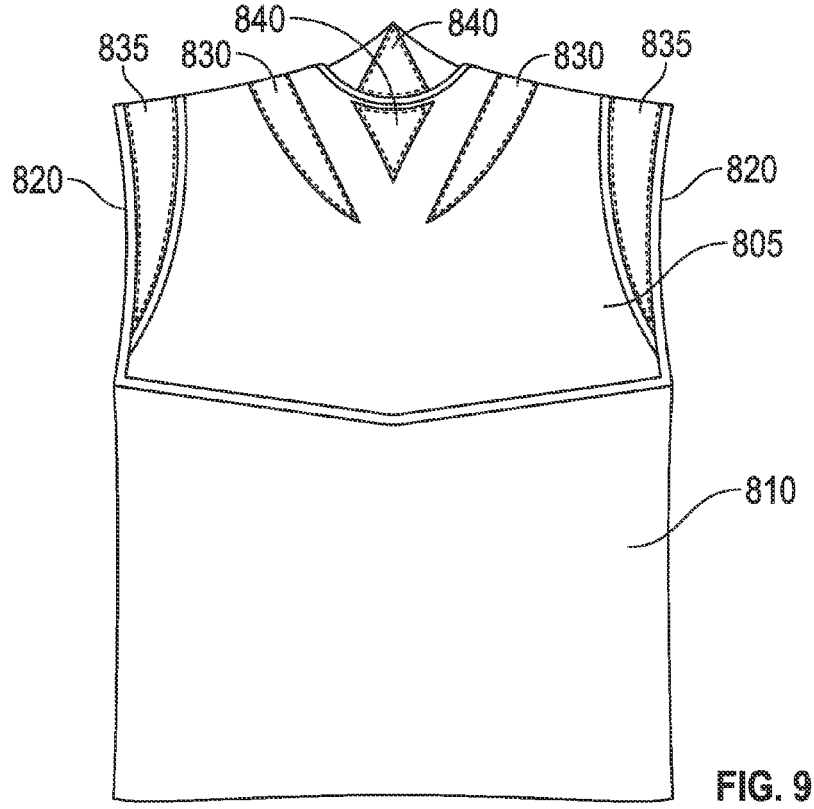

840
840
835
830
830
835
820
820
805
810

FIG. 9

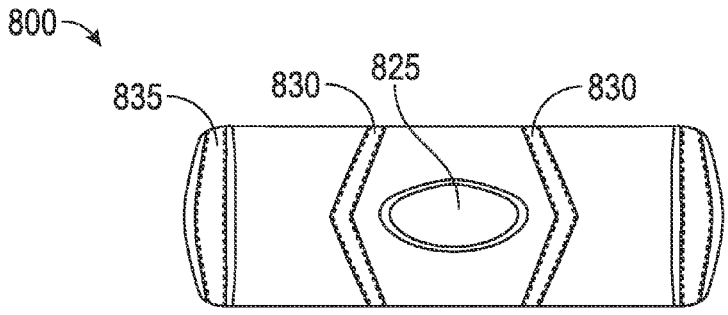


FIG. 10

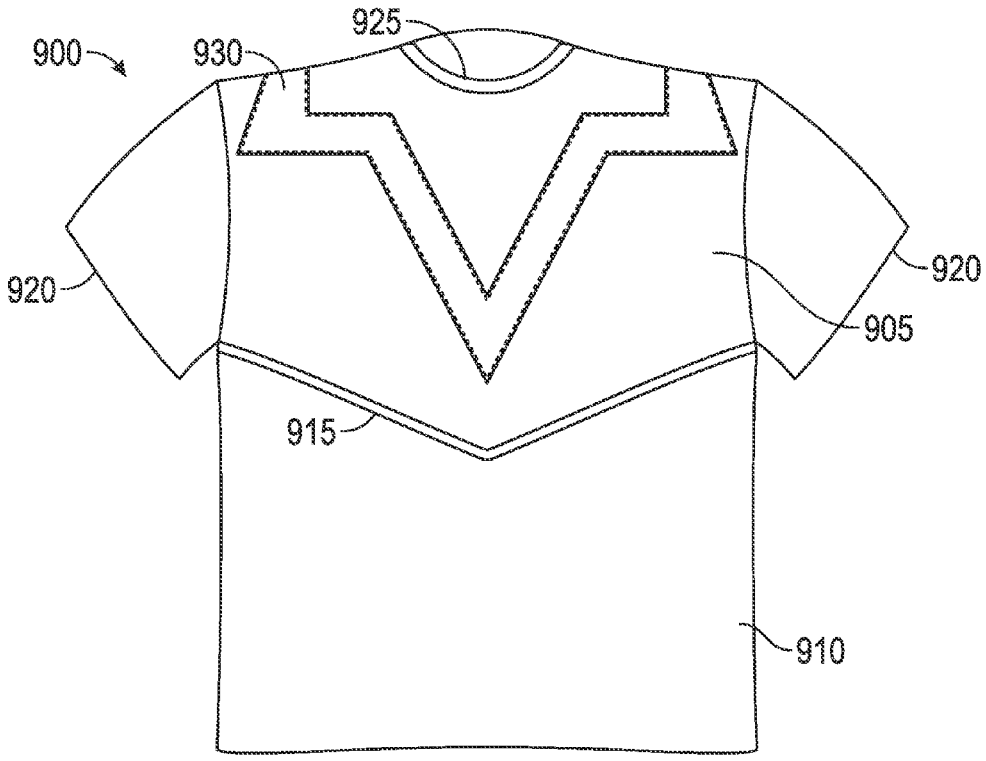


FIG. 11

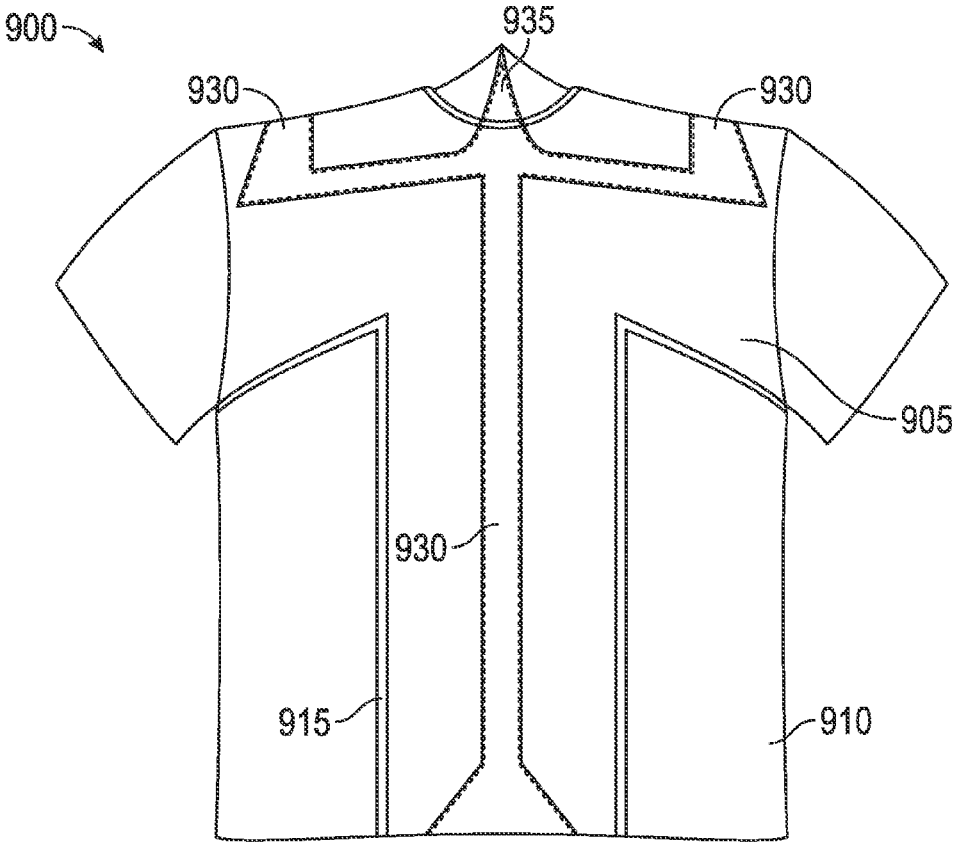


FIG. 12

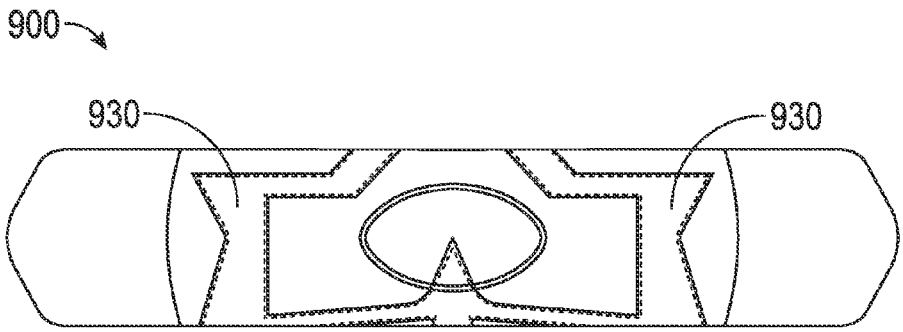


FIG. 13

PROTECTIVE GARMENT FOR WEIGHTLIFTING

FIELD

[0001] The invention relates generally to a protective garment for weightlifting activities and, more particularly, to a weightlifting shirt for protecting certain areas of a wearer's body from injuries sustained from contact with a weightlifting bar or other such equipment.

BACKGROUND

[0002] Over the past several decades, weight training activities have evolved to include more and faster repetitions as well as more complex movements and lifts. While traditional weight lifting techniques and lifts are still widely performed by both amateurs and professionals, the evolution of weight training has seen the introduction of more movement, complexity, and a greater emphasis on cross-training that require lifters to exhibit a greater range of motion and flexibility than traditional techniques.

[0003] For example, in modern Olympic weightlifting, participants attempt a maximum-weight single lift of a barbell loaded with weight plates with a clean and jerk lift. Execution of a clean and jerk lift generally requires two distinct movements. First, the lifter moves a barbell from the floor to a racked position across his or her deltoids and clavicles (the "clean"). Next, the lifter lifts the weight above his or her head until the arms are straight and the bar is stationary (the "jerk"). Because Olympic weightlifting tests a lifter's ballistic limits (i.e., "explosive" strength), rather than simply testing the lifter's limit strength, it is executed at a faster pace than other strength sports, and requires more mobility and a greater range of motion.

[0004] Other modern exercise routines emphasize cross-training and may combine elements of aerobics, gymnastics, and weight training. For example, the CrossFit® program by CrossFit, Inc., is a strength and conditioning program focused on muscle strength, cardiopulmonary endurance, and flexibility and features a hybrid of aerobic exercise, gymnastics, and Olympic weightlifting. Several of the weightlifting activities include movements and lifts wherein the equipment makes contact, which at times may be frequent or severely impactful, with the participant's body, such as:

[0005] Clean lift (the barbell(s) is/are lifted from the ground to a "rack position" across the lifter's deltoids and/or clavicles);

[0006] Press lift (the barbell(s) is/are moved from the "rack position" to the overhead position. In some variants, the bar is "jumped" off the body with a dipping and diving motion);

[0007] Bench Press (while lying in a horizontal position, the weight is lowered to the chest, then pushed upwards until the arms are straight);

[0008] Back Squat or Front Squat (with the barbell supported on the upper back or in rack position across the deltoids/clavicles, the lifter bends the knees until the hips are below the knees); and

[0009] Thruster (a combination of a front squat and a push press wherein the lifter begins with the barbell in the rack position, squats, then stands, driving the barbell overhead).

[0010] Other lifts with the potential for injury may include the power clean, the push (or "military") press, and the split jerk.

[0011] As the evolution of weight training introduces new and increasingly complex lifts coupled with a wide variety of other activities, the potential for injury also increases, particularly from sudden, prolonged, and/or repetitive contact with weightlifting equipment, such as bars and barbells. In addition to superficial injuries, such as abrasions, cuts, and bruises, such activities can also result in other injuries, such as nerve injuries, muscle bruises, chipped, callused, or bruised bones, and repetitive motion injuries. As the popularity of weightlifting and other exercise programs incorporating weightlifting elements increases, there is therefore a compelling need to protect participants from such injuries, as existing garments lack cushioning in the appropriate locations or, due to technological and/or design limitations, do not allow for the range of motion that modern weight training demands. For example, some participants in weight training or cross training may elect to wear "football" shirts in an attempt to protect themselves from injuries resulting from sudden, prolonged, or repeated contact with weightlifting bars/equipment. However, such garments provide inadequate coverage and are designed for use underneath football pads. Other currently available products include jackets or other such loose-fitting garments that include pads covering large portions of the chest and/or upper back. However, such garments are configured to prevent surface injuries only, and the loose-fitting nature of the product coupled with the bulkiness of the padding makes them ill-suited for modern weightlifting and cross-training activities, and may actually result in additional injuries if used in such activities. Additionally, such currently available products include gaps or other such spaces between paddings in which weight bars or barbells may become caught or lodged, thereby increasing the risk of injury.

[0012] Therefore, it is desirable to have a garment for weightlifting that not only allows the wearer to exhibit the requisite range of motion and flexibility demanded by modern weightlifting and cross-training exercises, but also provides adequate cushioning and protection as to prevent injury resulting from sudden, prolonged, and/or repeated contact with weightlifting equipment.

SUMMARY

[0013] According to an exemplary embodiment of the present invention, a garment is provided for protection of a weightlifter from sudden, prolonged, or repetitive contact with a weight bar or barbell while performing certain lifts, which may include a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, a thruster, a back squat, a back push press, and a back split jerk, or other such lifts. The garment may include one or more padding strip members on the anterior, dorsal, and/or top surfaces of the garment positioned as to cover the areas of a wearer's body that may be contacted by a weight bar or barbell when performing the aforementioned lifts, or other such lifts. A padding strip member may be a hollow member that includes a cushioning member placed inside thereof. The cushioning member may include a foam, a gel, a rubber, or any other such material configured to absorb or otherwise dissipate an impact. The outer surface of the padding strip member may be a material selected to create sufficient friction upon contact with a weight bar or barbell to prevent slippage or other such movement when the bar or barbell is held in contact with the

padding strip member. The garment may be made of one or more stretchable materials to allow for a snug fit against a wearer's body, and the width and thickness of each of the one or more padding strip members may be selected as to allow for unimpeded movement while the wearer is performing weightlifting, aerobic, gymnastic, cross-training, or other such activities.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. **1** is an anterior view of the human muscular system showing points of impact of a weight bar when performing certain weightlifting lifts.

[0015] FIG. **2** is an anterior abdominal view of the human skeletal system showing points of impact of a weight bar when performing certain weightlifting lifts.

[0016] FIG. **3** is an anterior view of a human shoulder joint showing points of impact of a weight bar when performing certain weightlifting lifts.

[0017] FIG. **4** is an anterior abdominal view of certain portions of the human nervous and circulatory systems showing points of impact of a weight bar when performing certain weightlifting lifts.

[0018] FIGS. **5** and **5***a* are dorsal views of the human muscular system and a human shoulder joint, respectively, showing points of impact of a weight bar when performing certain weightlifting lifts.

[0019] FIG. **6** is a dorsal view of the human skeletal system showing points of impact of a weight bar when performing certain weightlifting lifts.

[0020] FIG. **7** is a side view of the human spinal column showing points of impact of a weight bar when performing certain weightlifting lifts.

[0021] FIG. **8** is an anterior view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

[0022] FIG. **9** is a dorsal view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

[0023] FIG. **10** is a top view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

[0024] FIG. **11** is an anterior view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

[0025] FIG. **12** is a dorsal view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

[0026] FIG. **13** is a top view of a protective garment for weightlifting according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION

[0027] A protective garment for weightlifting is provided that protects a wearer from injuries resulting from contact with a weight bar or barbell while the wearer is performing weightlifting lifts. The garment may provide the desired protection without affecting the range of motion of the wearer required by modern weightlifting and cross training routines. Also, the garment may be configured to prevent slippage or other such movement of a weight bar or barbell when held in contact with the garment when the wearer is performing weightlifting lifts or other exercise activities.

[0028] Referring now to the drawings, and in particular to FIG. **1**, there is shown an anterior view of the human muscular system **100** showing impact areas **105** where a weight bar or barbell may impact a weightlifter while performing certain lifts, which may include a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, and a thruster. In addition to superficial injuries, such as cuts, abrasions, and bruises, sudden, prolonged, and/or repetitive impacts by a weight bar or barbell at impact areas **105** may result in muscle bruises in the impact areas **105**. Even if certain lifts are not particularly impactful, such as a front squat, they may nevertheless may result in muscle bruising due to the pressure of the weight bar or barbell on impact areas **105**. Muscle bruises may negatively affect muscle growth therefore increasing the likelihood of muscle tears. As illustrated in FIG. **1**, impact areas **105** may impact the following muscles: the trapezius, the cervical fascia, the sternocleidomastoid, the pectoralis major (sternal head), the pectoralis major (clavicular head), the deltoid, and the deltopectoral triangle.

[0029] FIG. **2** shows an anterior abdominal view of the human skeletal system **200** showing impact areas **205** where a weight bar or barbell may impact a weightlifter while performing certain lifts, which may include a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, a thruster, and other similar lifts. Sudden, prolonged, and/or repetitive impacts by a weight bar or barbell at impact areas **205** may result in chipped, callused, bruised, or fractured bones. As illustrated in FIG. **2**, impact areas **205** may affect the following bones: the clavicle, the coracoid, and the humeral head. Certain lifts, such as a bench press, may affect the sternum and surrounding areas. Even lower impact lifts, such as the front squat, may cause excessive pressure to the bones of impact areas **205**.

[0030] FIG. **3** shows an anterior view of a human shoulder joint **300** showing impact areas **305** where a weight bar or barbell may impact a weightlifter while performing certain lifts, which may include a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, a thruster, and other similar lifts. As illustrated in FIG. **3**, sudden, prolonged, and/or repetitive impacts by a weight bar or barbell at impact areas **305** may result in injury to the following structures: the acromion, the acromioclavicular joint, the clavicle, the bursa, the deltopectoral triangle, the deltoid muscle, and the deltoid branch of the thoracoacromial artery. A power clean lift may present a particular risk of damage to the acromioclavicular joint and the bursa.

[0031] FIG. **4** shows an anterior abdominal view of certain portions of the human nervous and circulatory systems **400** showing impact areas **405** where a weight bar or barbell may impact a weightlifter while performing certain lifts, which may include a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, a thruster, and other similar lifts. As illustrate in FIG. **4**, sudden, prolonged, and/or repetitive impacts by a weight bar or barbell at impact areas **405** may result in injury to the following structures: the cephalic vein, the axillary vein and artery, the supraclavicular nerves, the suprascapular nerve, the medial and lateral pectoral nerves, the lateral, posterior, and the medial cords of the brachial plexus. During certain lifts, such as the front squat, the additional pressure from the weight bar or barbell to the impact areas **405** can potentially damage the aforementioned structures.

[0032] FIGS. **5** and **5***a* are dorsal views of the human muscular system and a dorsal view of a human shoulder joint, respectively, showing points of impact **505** of a weight bar when performing certain weightlifting lifts behind the neck, which may include a back squat, a back push press, a back split jerk, and other similar lifts. While, certain lifts, such as a back squat, are not as impactful as other lifts, the prolonged weight of the bar resting on impact areas **505** puts a great amount of pressure upon the underlying anatomical structures, and may result in injury. In addition to superficial injuries, such as cuts, abrasions, and bruises, sudden, prolonged, and/or repetitive impacts by a weight bar or barbell at impact areas **505** may result in muscle bruises in the impact areas **505**. Muscle bruises may affect muscle growth therefore increasing the likelihood of muscle tears. As illustrated in FIG. **5**, impact areas **505** may impact the following muscles: the trapezius, the posterior head, the levator scapulae, the rhomboideus minor, the rhomboideus major, the supraspinatus, and portions of the deltoid muscles. Further, as illustrated in FIGS. **5** and **5***a*, impact areas **505** may further affect the acromion, the subacromial bursa, and the circumflex nerve.

[0033] FIG. **6** is a dorsal view of the human skeletal system showing points of impact **605** while performing certain weightlifting lifts, which may include a back squat, a back push press, a back split jerk, and other similar lifts. As illustrated in FIG. **6**, sudden or prolonged impact to areas **605** may result in injuries, such as chips, bruises, and fractures, to the underlying skeletal structures, which may include the clavicle, the scapula, portions of the cervical vertebrae, and portions of the thoracic vertebrae. Sudden or prolonged impact to areas **605** may further result in injuries to the acromion (visible in FIG. **2**).

[0034] FIG. **7** is a side view of the human spinal column showing points of impact **705** while performing certain weightlifting lifts, which may include a back squat, a back push press, a back split jerk, and other similar lifts. As illustrated in FIG. **7**, sudden or prolonged impact to areas **705** may result in injuries, such as chips, bruises, fractures, and vertebral disc damage, to the underlying spinal structures, which may include portions of the cervical vertebrae and portions of the thoracic vertebrae.

[0035] FIG. **8** illustrates an anterior view of a protective garment **800** for weightlifting, according to an exemplary embodiment of the present invention. In certain embodiments, garment **800** may include an upper portion **805** and a lower portion **810** joined together at seam **815**, while certain other embodiments of garment **800** may be formed of a single seamless portion. In some embodiments, upper portion **805** may be constructed from nylon, spandex, or any other such tight-fitting, stretchable fabric, while lower portion **810** may be constructed from tempra-fiber, merino, polyester, bamboo fiber, or any other such material or combination thereof for facilitating the extraction of heat from the wearer's body to regulate body temperature. Garment **800** may further include one or more padding strip members **830** positioned on the surface of garment **800** such that padding strip members **830** protect a wearer from injury while performing certain weightlifting lifts. According to certain exemplary embodiments of the present invention, one or more padding strip members **830** may be positioned on an anterior surface of garment **800** such that padding strip members **830** and are positioned over one or more of impact areas **105**, **205**, **305**, and **405** as illustrated in FIGS. **1**, **2**, **3**, and **4**, respectively. Garment **800** may be further configured to fit snuggly against a wearer's body such that wearer is unimpeded when performing weightlifting, cross-training, aerobics, gymnastics, or other such activities.

[0036] According to an exemplary embodiment of the present invention, a padding strip member may include a hollow member configured to receive a cushioning material within the space defined by the inner surface of the hollow member. The cushioning material may include a foam—such as a closed cell foam, a rebond foam, and a polyurethane foam—a gel—such as a neoprene gel and a polyurethane gel—a rubber—such as a lycra rubber—or any other such material or combination thereof such that the padding strip member is configured to absorb an impact, such as from a weight bar, such that the impact is distributed throughout at least a portion of the volume of the padding strip member and the cushioning material therein, thereby protecting the underlying area from some or all of the force of the impact. The width of a padding strip member may be selected such as to provide sufficient width to accommodate the full width of a barbell or a weight bar, while remaining narrow enough such that a wearer's movement is unimpeded while performing weightlifting, cross-training, aerobics, gymnastics, or other such activities. In certain embodiments of the present invention, the width of a padding strip member may be from about 2 cm to about 17 cm, while in other embodiments the width of a padding strip member may be selected according to the size, needs, or desires of the wearer. Similarly, the thickness of a padding strip member may be selected to provide sufficient cushioning without garment **800** becoming cumbersome or otherwise impeding the movements of a wearer. In certain embodiments of the present invention, the thickness of a padding strip member may be from about 0.5 cm to about 6.0 cm.

[0037] In certain embodiments, the outer surface of the hollow member of a padding strip member may be manufactured from or coated with a material configured to create sufficient friction with a weight bar or barbell in contact with the outer surface such that the bar or barbell does not easily slip or otherwise suddenly alter position when held against a padding strip member **830**. Such materials may include a polyvinyl chloride coated fabric, an anti-slip rubber treated fabric, a silicon gel dotted fabric, a rubber patched fabric, and other such materials. According to an exemplary embodiment of the present invention, a padding strip member **830** may be attached to an outer surface of garment **800** via stitching, adhesive, or any other such method or material suitable of permanently attaching the padding strip member **830**, and/or the hollow member thereof, to garment **800**. Further, in certain embodiments the padding strip member **830** is completely formed, that is, the cushioning member is placed within the hollow member, prior to attachment of padding strip member **830** to garment **800** such that the cushioning member is permanently sealed within the hollow member.

[0038] According to an exemplary embodiment of the present invention as illustrated in FIG. **8**, garment **800** may have one or more padding strip members positioned about neck opening **825** to protect the upper chest area of a wearer while performing such weightlifting lifts as a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, a thruster, or any other such lift that would cause a weight bar or barbell to impact or otherwise contact impact areas **105**, **205**, **305**, and **405**, thereby risking injury to the wearer's upper chest and underlying muscles, bones, nerves, and vascular structures, as indicated in FIGS. **1** to **4**. Garment **800** may further include one or more additional padding strip

members **835** positioned about the outer edges of arm openings **820** such that the padding strip member **835** is positioned over such impact areas **105**, **205**, **305**, and **405** as relating to the bones, muscles, nerves, and other areas of a wearer's shoulder, as indicated in FIGS. **1** to **4**.

[0039] FIG. **9** is a dorsal view of a garment **800** for weightlifting according to an exemplary embodiment of the present invention. In some embodiments, padding strip member **830** may extend from the anterior surface of garment **800** onto the dorsal surface of garment **800** to either side of neck opening **825** to protect the upper back, neck, and shoulder areas of a wearer while performing such weightlifting lifts as a back squat or any other such lift that would cause a weight bar or barbell to impact or otherwise contact impact areas **505** and **605**, thereby risking injury to the wearer's upper back and the underlying muscles, bones, nerves, and vascular structures as indicated in FIGS. **5** and **6**. Garment **800** may further include one or more additional padding strip members **840** positioned adjacent to the central dorsal edge of neck opening **825** such that the padding strip member **840** is positioned over such impact areas **605** and **705** as relating to portions of a wearer's cervical and thoracic vertebrae, as illustrated in FIGS. **6** and **7**. In some embodiments, padding strip member **840** may have an upper portion and a lower portion wherein the lower portion may be attached to the dorsal surface of garment **800** adjacent to neck opening **825** and centered about the centerline of neck opening **825**. In such embodiments, the upper portion of padding strip member **840** may, when in use, be folded up above the edge of neck hole **825** to offer additional protection for a wearer, particularly to the cervical and/or thoracic vertebrae. When not in use, an upper portion of padding strip member **840** may be folded down either inside or outside of neck opening **825**. According to certain embodiments of the present invention, the width of padding strip member **830**, **835**, or **840** need not be a uniform width, but may vary along the width of the padding strip member **830**, **835**, or **840** as necessary to protect the underlying anatomical structures or to conform with the contours of a wearer's body to provide comfort and unimpeded motion as the wearer performs weightlifting, cross-training, aerobic, gymnastic, or other such activities.

[0040] FIG. **10** shows a top view of a garment **800** according to an exemplary embodiment of the present invention. In certain embodiments of the present invention, each of padding strip members **830** may be a continuous strip that extends from the anterior surface of garment **800** to the dorsal surface of garment **800** such that each of padding strip members **830** passes over the top of a wearer's upper shoulders and/or neck area. Similarly, in certain embodiments each of padding strip members **835** may be a continuous strip that extends from the anterior surface of garment **800** to the dorsal surface of garment **800** about the upper circumference of arm openings **825** such that padding strip members **835** passes over the top of a wearers shoulders. Thus, certain embodiments of the present invention may be configured to protect a wearer's upper shoulders, upper back, and neck area and the underlying anatomical structures, from injuries caused by sudden or prolonged impact or other contact with a weight bar or barbell. In other embodiments, each of padding strip members **830** on the anterior surface of garment **800** may be separate and distinct from each of padding strip members **830** on the dorsal surface of garment **800**.

[0041] FIG. **11** shows an anterior view of a protective garment **900** for weightlifting according to an alternative exemplary embodiment of the present invention. In certain embodiments, garment **900** may include an upper portion **905** and a lower portion **910** joined together at seam **915**, while certain other embodiments of garment **900** may be formed of a single seamless portion. In some embodiments, upper portion **905** may be constructed from a 2-way stretch fabric, a 4-way stretch fabric, nylon, spandex, or any other such tight-fitting, stretchable fabric, while lower portion **910** may be constructed from tempra-fiber, merino, polyester, bamboo fiber, a synthetic fiber having a high permeability and/or having at least one moisture wicking component, or any other such material or combination thereof for facilitating the extraction of heat from the wearer's body to regulate body temperature. Garment **900** may further include one or more padding strip members **930** positioned on the surface of garment **900** such that padding strip members **930** protect a wearer from injury while performing certain weightlifting lifts. According to certain exemplary embodiments of the present invention, one or more padding strip members **930** may be positioned on an anterior surface of garment **900** such that padding strip member **930** is positioned over one or more of impact areas **105**, **205**, **305**, and **405** as illustrated in FIGS. **1**, **2**, **3**, and **4**, respectively. In some embodiments, the one or more padding strip members **930** may be positioned over a portion of a wearer's sternum in order to provide protection when performing certain lifts, such as a bench press. Garment **900** may be further configured to fit snuggly against a wearer's body such that wearer is unimpeded when performing weightlifting, cross-training, aerobics, gymnastics, or other such activities.

[0042] FIG. **12** is a dorsal view of a garment **900** for weightlifting according to an exemplary embodiment of the present invention. In some embodiments, one or more padding strip members **930** may extend from the anterior surface of garment **900** onto the dorsal surface of garment **900** to either side of neck opening **925** to protect the upper back, shoulders, and neck areas of a wearer while performing such weightlifting lifts as a back squat or any other such lift that would cause a weight bar or barbell to impact or otherwise contact impact areas **505** and **605**, thereby risking injury to the wearer's upper back and the underlying muscles, bones, nerves, and vascular structures as indicated in FIGS. **5** and **6**. Garment **900** may further include one or more additional padding strip members **935** positioned adjacent to the central dorsal edge of neck opening **925** such that the padding strip member **935** is positioned over such impact areas **605** and **705** as relating to portions of a wearer's cervical and thoracic vertebrae, as illustrated in FIGS. **6** and **7**. In some embodiments, padding strip member **935** may, when in use, be folded up above the edge of neck hole **925** to offer additional protection for a wearer, particularly to the cervical and/or thoracic vertebrae. When not in use, padding strip member **935** may be folded down either inside or outside of neck opening **925**. According to certain embodiments of the present invention, the width of padding strip member **930**, or **935** need not be a uniform width, but may vary along the width of the padding strip member **930** or **935** as necessary to protect the underlying anatomical structures or to conform with the contours of a wearer's body to provide comfort and unimpeded motion as the wearer performs weightlifting, cross-training, aerobic, gymnastic, or other such activities. Further, embodiments of the present invention need not be limited to protecting impact areas **105**, **205**, **305**, **405**, **505**, **605**, and **705** as illustrated in FIGS. **1** to **7**, respectively, but may be configured such that

one or more padding strip member is positioned to protect any desired area of a wearer's body. For example, as illustrated in FIG. **12**, padding strip member **930** is configured to protect the majority of a wearer's spinal column, extending down over the user's lumbar vertebrae.

[0043] FIG. **13** shows a top view of a garment **900** according to an exemplary embodiment of the present invention. In certain embodiments of the present invention, padding strip member **930** may be a continuous strip that extends from the anterior surface of garment **900** to the dorsal surface of garment **900** such that padding strip member **930** passes over the top of a wearer's upper shoulders and/or neck area. Thus, certain embodiments of the present invention may be configured to protect a wearer's upper shoulders, upper back, and neck area and the underlying anatomical structures, from injuries caused by sudden or prolonged impact or other contact with a weight bar or barbell. In other embodiments, padding strip member **930** on the anterior surface of garment **900** may be separate and distinct from padding strip member **930** on the dorsal surface of garment **900**.

[0044] The protective garment for weightlifting presented herein as well as its attendant advantages will be understood from the foregoing description. It will be apparent that various changes may be made in the form, construction and arrangement of the parts thereof without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the forms described herein being merely example embodiments of the invention. For example, certain embodiments of the present invention may include sleeves, while others may be sleeveless. Further, in some embodiments the one or more padding strip members may be permanently attached to a surface of the garment, while in other embodiments the padding strip members, or the cushioning members contained therein, may be configured to be removable, such as to allow for easier cleaning of the garment. Additionally, embodiments of the present invention may be configured for users of differing skills and/or levels of experience. For example, certain embodiments of the present invention, such as those illustrated in FIGS. **11** to **13**, may include additional padding strip members to accommodate novice users requiring extra protection due to lack of experience, lack of form, etc. Other embodiments of the present invention, such as those illustrated in FIGS. **8** to **10**, may feature reduced padding strip members while still protecting a more experienced user from injury.

1. A garment, comprising:
- a shirt member having an anterior surface, a dorsal surface, a neck opening, a first arm opening, and a second arm opening; and
- a first padding strip member having a first width, a first thickness, and a first volume, wherein the first padding strip member is configured to absorb a first impact having a first force such that the first force is distributed throughout at least a portion of the first volume,
- wherein the first padding strip member is attached to the shirt member such that it covers an area of the anterior surface,
- wherein the garment is configured to fit snuggly against a user's body such that no loose portion thereof impedes the user's motion.

2. A garment according to claim **1**, wherein the first padding strip member comprises:
- a first hollow member having an outer surface and an inner surface defining a space; and
- a first cushioning material,
- wherein the first cushioning material is at least one of: a first foam, a first gel, and a first rubber, and
- wherein the first hollow member is configured to receive the first cushioning material within the space defined by the inner surface of the first hollow member.

3. A garment according to claim **2**, wherein the first foam is at least one of a closed cell foam, a rebond foam, and a polyurethane foam,
- wherein the first gel is at least one of a neoprene gel and a polyurethane gel, and
- wherein the first rubber is a lycra rubber.

4. A garment according to claim **3**, wherein the first width is from about 2 cm to about 17 cm.

5. A garment according to claim **4**, wherein the first thickness is from about 0.5 cm to about 6.0 cm.

6. A garment according to claim **5**, wherein the first padding strip member is configured such that when the garment is worn by the user, the first padding strip member is positioned over a portion of at least one of: the user's left trapezius muscle, the user's left cervical fascia muscle, the user's left sternocleidomastoid muscle, the user's left pectoralis major (sternal head) muscle, the user's left pectoralis major (clavicular head) muscle, the user's left clavicle, the user's left coracoid, the user's left cephalic vein, the user's left brusa, the deltoid branch of the user's left thoracoacromial artery, the user's left supraclavicular nerves, the user's left deltopectoral triangle, the user's right trapezius muscle, the user's right cervical fascia muscle, the user's right sternocleidomastoid muscle, the user's right pectoralis major (sternal head) muscle, the user's right pectoralis major (clavicular head) muscle, the user's right clavicle, the user's right coracoid, the user's right cephalic vein, the user's right brusa, the deltoid branch of the user's right thoracoacromial artery, the user's right supraclavicular nerves and the user's right deltopectoral triangle.

7. A garment according to claim **5**, wherein the first padding strip member is attached to the shirt member such that it covers an area of the dorsal surface.

8. A garment according to claim **7**, wherein the first padding strip member is configured such that when the garment is worn by the user, the first padding strip member is positioned over a portion of at least one of: the user's cervical vertebrae at at least one of levels C4 to C7, the user's occipital vertebrae at at least one of levels C2 to C7, and the user's thoracic vertebrae at at least one of levels T1 to T3.

9. A garment according to claim **7**, wherein the first padding strip member is attached to an edge of the neck opening such that the padding strip member may be folded up against the user's neck when in use, and down underneath the dorsal surface of the garment when not in use.

10. A garment according to claim **5**, further comprising:
- a second padding strip member having a second width, a second thickness, and a second volume,
- wherein the second padding strip member is attached to the shirt member such that it covers a second area of the anterior surface.

11. A garment according to claim **10**, wherein the second padding strip member comprises:
- a second hollow member having an outer surface and an inner surface defining a space; and
- a cushioning material,
- wherein the second cushioning material is at least one of: a second foam, a second gel, and a second rubber, and

wherein the second hollow member is configured to receive the second cushioning material within the space defined by the inner surface of the second hollow member.

12. A garment according to claim **11**, wherein the second foam is at least one of a closed cell foam, a rebond foam, and a polyurethane foam,

wherein the second gel is at least one of a neoprene gel and a polyurethane gel, and

wherein the second rubber is a lycra rubber.

13. A garment according to claim **12**, wherein the second width is from about 2 cm to about 7 cm.

14. A garment according to claim **13**, wherein the second thickness is from about 0.5 cm to about 6.0 cm.

15. A garment according to claim **14**, wherein the first padding strip member is configured such that when the shirt member is worn by the user, the first padding strip member is positioned over a portion of at least one of: the user's left trapezius muscle, the user's left cervical fascia muscle, the user's left sternocleidomastoid muscle, the user's left pectoralis major (sternal head) muscle, the user's left pectoralis major (clavicular head) muscle, the user's left clavicle, the user's left coracoid, the user's left cephalic vein, the user's left brusa, the deltoid branch of the user's left thoracoacromial artery, the user's left supraclavicular nerves, and the user's left deltopectoral triangle, and

wherein the second padding strip member is configured such that when the shirt member is worn by the user, the second padding strip member is positioned over a portion of at least one of: the user's right trapezius muscle, the user's right cervical fascia muscle, the user's right sternocleidomastoid muscle, the user's right pectoralis major (sternal head) muscle, the user's right pectoralis major (clavicular head) muscle, the user's right clavicle, the user's right coracoid, the user's right cephalic vein, the user's right brusa, the deltoid branch of the user's right thoracoacromial artery, the user's right supraclavicular nerves and the user's right deltopectoral triangle.

16. A garment according to claim **15**, wherein the first padding strip member is attached to the shirt member such that it covers a first area of the anterior surface and a first area of the dorsal surface,

wherein the first padding strip the first padding strip member is further configured such that when the shirt member is worn by a user, the first padding strip member is further positioned over a portion of at least one of: the user's left supraspinatus muscle, the user's left deltoid muscle, the user's left trapezius muscle, the user's left acromion, the user's left scapula, the user's cervical vertebrae at at least one the C4 to C7 levels, the user's occipital thoracic vertebrae at at least one of the T1 to T12 levels, the user's lumbar vertebrae at at least one of the L1 to L5 levels, the user's spine, and the user's left clavicle, and

wherein the second padding strip member is further configured such that when the shirt member is worn by a user, the second padding strip member is further positioned over a portion of at least on of: the user's right supraspinatus muscle, the user's right deltoid muscle, the user's right trapezius muscle, the user's right acromion, the user's right scapula, the user's cervical vertebrae at at least one the C4 to C7 levels, the user's occipital thoracic vertebrae at at least one of the T1 to T12 levels, the user's lumbar vertebrae at at least one of the L1 to L5 levels, the user's spine, and the user's right clavicle.

17. A garment according to claim **14**, wherein the first padding strip member is attached to an edge of the first arm opening such that it covers an area of the anterior surface and an area of the dorsal surface about the top of the first arm opening,

wherein the second padding strip member is attached an edge of the second arm opening such that it covers an area of the anterior surface and an area of the dorsal surface about the top of the second arm opening, and

wherein the first padding strip member is configured such that when the shirt member is worn by a user, the first padding strip member is positioned over a portion of at least one of: the user's left deltoid muscle, the user's left humeral head, the user's left acromion, the user's left coracoid, the user's left cephalic vein, the user's left brusa, the deltoid branch of the user's left thoracoacromial artery, the user's left axillary nerve, the user's left supraspinatus muscle, the user's left infraspinatus muscle, the user's left teres minor muscle, the user's left teres major muscle, and the user's left supraclavicular nerves,

wherein the second padding strip member is configured such that when the shirt member is worn by the user, the second padding strip member is positioned over a portion of at least one of: the user's right deltoid muscle, the user's right humeral head, the user's right acromion, the user's right coracoid, the user's right cephalic vein, the user's right brusa, the deltoid branch of the user's right thoracoacromial artery, the user's right axillary nerve, the user's right supraspinatus muscle, the user's right infraspinatus muscle, the user's right teres minor muscle, the user's right teres major muscle, and the user's right supraclavicular nerves.

18. A garment, comprising:

a shirt member having an anterior surface, a dorsal surface, a neck opening, a first arm opening, and a second arm opening; and

a padding strip member having a width, a thickness, and a volume,

wherein the padding strip member is configured to absorb an impact having a force such that the force is distributed throughout at least a portion of the volume,

wherein the padding strip member is attached to the shirt member such that it covers an area of the anterior surface,

wherein the padding strip member is configured such that when the garment is worn by a user, the first padding strip member is positioned to absorb an impact from a barbell as the user performs at least one of: a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, and a thruster, and

wherein the garment is configured to fit snuggly against the user's body such that no loose portion thereof impedes the user's motion.

19. A garment according to claim **18**, wherein the padding strip member comprises:

a hollow member having an outer surface and an inner surface defining a space; and

a cushioning material,

wherein the cushioning material is at least one of: a foam, a gel, and a rubber, and

wherein the hollow member is configured to receive the cushioning material within the space defined by the inner surface.

20. A garment according to claim **19**, wherein the foam is at least one of a closed cell foam, a rebond foam, and a polyurethane foam,

wherein the gel is at least one of a neoprene gel and a polyurethane gel, and

wherein the rubber is a lycra rubber.

21. A garment according to claim **20**, wherein the width is from about 2 cm to about 17 cm.

22. A garment according to claim **21**, wherein the thickness is from about 0.5 cm to about 6 cm.

23. A garment according to claim **22**, wherein the padding strip member is attached to the shirt member such that it covers an area of the dorsal surface, and

wherein the padding strip member is configured such that when the garment is worn by the user, the padding strip member is positioned to absorb an impact from a barbell as the user performs at least one of: a back squat, a back push press, and a back split jerk.

24. A garment according to claim **22**, further comprising:

an upper portion; and

a lower portion,

wherein the upper portion and the lower portion are joined together by a seam such that, when worn by the user, the seam is located around the mid-section of the user's upper body.

25. A garment according to claim **24**, wherein the upper portion is made from at least one of: a 2-way stretch fabric and a 4-way stretch fabric, and

wherein the lower portion is made from at least one of: tempra-fiber, merino, polyester, bamboo fiber, and a synthetic fiber having at least one moisture wicking component.

26. A garment, comprising:

a shirt member having an anterior surface and a dorsal surface,

a hollow member, and

a cushioning material,

wherein the hollow member is configured to receive the cushioning material,

wherein the garment is skin-tight when worn by a user,

wherein the hollow member is attached to the anterior surface such that the cushioning material absorbs an impact from a barbell as the user performs at least one of: a power clean lift, a front squat, a front push press, a bench press, a split jerk, a press lift, and a thruster.

27. A garment according to claim **26**, wherein the hollow member is attached to the dorsal surface such that the cushioning material absorbs an impact from a barbell as the user performs at least one of: a back squat, a back push press, and a back split jerk.

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