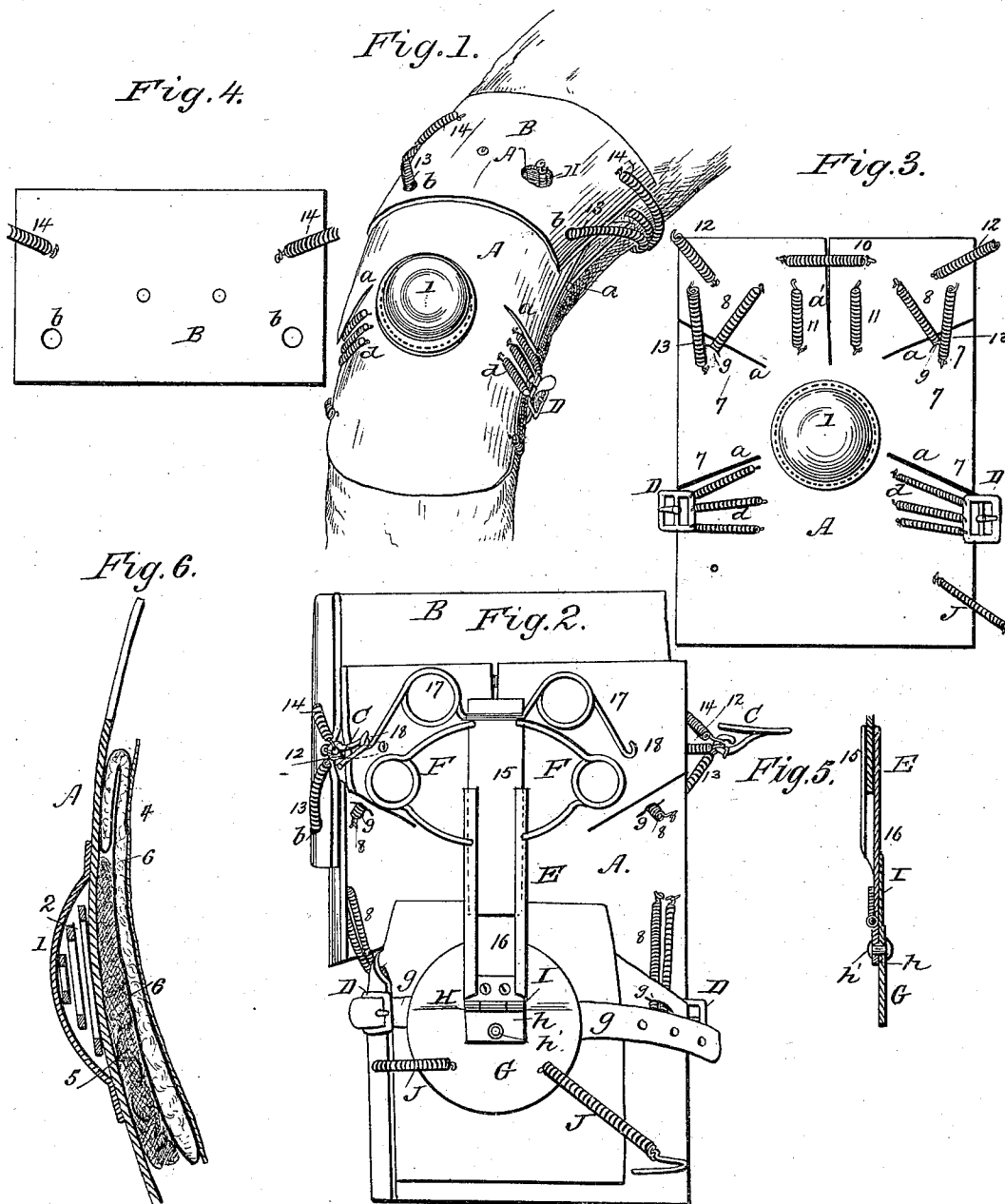


(No Model.)

A. G. RIDGILL.  
KNEE PAD AND PROTECTOR.

No. 363,170.

Patented May 17, 1887.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ANGUS G. RIDGILL, OF EDDY, TEXAS.

## KNEE PAD AND PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 363,170, dated May 17, 1887.

Application filed February 11, 1887. Serial No. 227,321. (No model.)

*To all whom it may concern:*

Be it known that I, ANGUS G. RIDGILL, a citizen of the United States, residing in Eddy, McLennan county, Texas, have invented a new and useful Knee Pad and Protector, of which the following is a specification.

My invention is an improvement in knee pads and protectors; and it consists in certain features of construction and novel combinations of parts, as will be described and claimed.

In the drawings, Figure 1 is a perspective view of my invention in position for use. Fig. 2 is an inner face view of my protector. Fig. 3 is a detail view of the body or cap-piece; Fig. 4, a similar view of the extension. Fig. 5 is a detail sectional view of the rear support, and Fig. 6 is a sectional view of the body or cap-piece.

In the construction shown my protector is formed in two sections, a main or body portion, A, which may also be termed the "cap-piece," and an extension, B, extended above said main portion and connected therewith in the manner presently described, such parts A and B forming the front of the protector.

The cap or body A is by preference formed of heavy rubber cloth, and may be slitted at *a*, as shown, or be lasted, molded, or otherwise suitably formed to fit the knee. By preference, however, the cap is slitted, as thereby it may conform to the bend of the knee when kneeling, and may straighten out when standing or walking.

On the outer side of the cap-piece I secure a re-enforcing pad, 1, usually of leather, secured at its edges to the cap proper and supported centrally by a spring, 2, bearing between it and the cap proper. This re-enforce forms a yielding bearing for the knee, and when the leather becomes worn it may be conveniently replaced, the spring usually serving a long time and outwearing a number of pads 1.

A cushion is arranged within the cap-piece or body. This cushion is formed, by preference, of a layer of sponge, 5, arranged next the cap-piece, a layer, 6, of cotton or canvass having a wadding of raw cotton placed on the sponge, and a layer of oil-cloth placed on the layer 6. This oil-cloth 4 protects the cushion from becoming moistened by the perspiration of the wearer, and thereby avoids the matting

of such cushion which would likely result from its getting wet.

The sponge cushion is regarded as especially valuable, for the reason that it retains its elasticity and cushioning qualities for a long period.

The slits *a* form the cap proper into a main portion and a number of flaps, 7, which flaps are joined by spring-connections 8 with the main portion of the cap proper. In the construction shown those connections are springs secured each at one end to its respective flap, extending thence through openings 9 in the main portion, and secured at the opposite end on the inner side of the main portion. This arrangement of the connections secures the edge of the flaps 7 close to the main portion of the cap, as will be seen. It is also usual to form a slit, *a'*, at the top of the body or cap-piece, and to connect the portions of the said piece on opposite sides of said slit by a spring, 10, to hold the said slit closed.

The extension B has near its opposite sides openings *b*, and is joined to the body or cap-piece by spring-connections 11. By preference two springs 11 are used, and they connect with the cap-piece near the inner end and on opposite sides of the slit *a'*.

Springs 12 12 and 13 13 are secured at one end to the main portion or cap-piece, the springs 12 passing directly outward, while the other passes through openings *b*. Springs 14 are secured to the extension B, above the openings *b*, and have their outer ends connected with the outer ends of springs 12 and 13, and hooks C are connected with such springs 12, 13, and 14 at their juncture, such hooks and springs forming connections for uniting the protector proper with the rear support.

Buckles D are united by spring-connections *d* with the body or cap-piece at the opposite sides of the latter.

The rear support, E, is formed in sections 15 16, the lower one of which is connected with the lower portion of the protector and the other of which is united with the upper part of the protector. These sections are movable along each other, the lower one being, by preference, provided with edge guides or keepers to receive the upper section, springs

F being provided to normally extend or distend the support E, so that it may, under pressure, contract in the direction of its length. These springs are usually formed of wires having their ends connected with the said sections 15 and 16, and suitably formed between their ends to give the latter the desired tension apart. This is preferred, because by it the springs may be formed to provide a broad bearing for the inner side of the leg above the knee.

The hooks C are connected with the upper section, preferably, through the intervention of springs 17 17, which are secured at their inner ends to the upper section of support F, and have at their outer ends eyes 18 for engagement by the hooks C. Those springs 17, together with the sliding or longitudinal adjustment of the rear support, relieve in large part the tension on the springs connecting hook C with the upper part of the protector.

The rear support is preferably connected with the lower part of the protector through the intervention of what, for convenience of reference, I term the "brace-plate," G, formed of thick leather and having tabs *g* for the connection with the buckles D.

The lower section of the support E is hinged or pivoted at H to the brace-plate, and such plate extends upward above the hinge-connection, such extension being a thin flexible leather flap, I, which in use protects the under portion of the leg against direct contact with the lower sliding section at its connection with the hinge.

When the brace-plate is used, as is preferred, it is manifest that it forms a connection between the rear support and the front portion, and in effecting the pivot or hinge H in the construction shown a strap, *h*, is pivotally connected at *h'* with the brace-plate and has the lower section of the upright support hinged to it, as shown.

Springs J J connect the brace-plate with the lower portion of the cap-piece, one of said springs being secured to both of said parts, while the other is fixed at one end to the brace-plate and has its opposite end provided with a hook for engaging the cap-piece or protector.

It is preferred to make the sliding sections of the rear support of strong galvanized tin or iron to avoid damage to the clothing of the wearer from rust and the like, and it is also intended to nickel or otherwise suitably plate the several spring-wires for the same reason.

In operation my protector is applied to the wearer in the manner shown in Fig. 1. When the wearer stands erect or otherwise straightens his leg, the rear support holds the upper part of the protector up and prevents it from falling, and yet such support is contracted properly when the leg is bent, its springs being depressed so they will operate to extend the support on again straightening the knee.

I claim—

1. The combination, in a knee-protector,

substantially as described, of a main portion or cap-piece adapted to the bend or cap of the knee, an extension, and a spring or elastic connections joining said extension with the main portion, substantially as set forth.

2. In a knee-protector, the combination of a body or main portion, padding contained therein, a re-enforcing piece secured to the said main portion, and a spring interposed and bearing between said main portion and re-enforcing piece, substantially as set forth.

3. A cap-piece for knee-protectors slitted from its opposite edges at *a*, forming flaps 7, combined with connections for securing said flaps to the body of the cap-piece, substantially as set forth.

4. In a knee-protector, the combination of the cap-piece, slitted from its opposite edges to form flaps and having openings 9, of the connections joined at one end to the flaps and extended at their other ends through openings 9, and secured substantially as set forth.

5. In a knee-protector, substantially as described, a rear support formed in sections and adjustable upon each other or extensible, substantially as set forth.

6. A knee-protector having a rear support formed in sections adjustable one upon the other and provided with springs for distending said sections, substantially as set forth.

7. In a knee-protector, a body or main portion and a rear support connected therewith and adjustable or extensible in the direction of its length, substantially as set forth.

8. The combination of the main or cap piece, the brace-plate, and the support connected with such brace-plate and formed in sections adjustable upon each other, substantially as set forth.

9. The combination of the main or cap piece, the brace-plate connected therewith, the rear support connected with the brace-plate, and the springs J J, substantially as set forth.

10. The combination, in a knee-protector, of the body or main portion of the protector, having buckles D, the brace-plate having tabs *g* at its opposite side edges, and the rear support, substantially as set forth.

11. The combination, in a knee-protector, of the brace-plate G, the rear support connected with said brace-plate, the latter being provided with a flap or extension, I, substantially as set forth.

12. In a knee-protector, a rear support formed of sections movable one upon the other and having springs connecting and adapted to distend said sections, such springs being formed of wire rods secured at their ends to the sections and bent laterally outwardly between their said ends, substantially as set forth.

13. The combination of the protector front, the rear support having upper and lower sections, the springs connecting such sections, spring-rods secured to the upper section, and connections for joining said spring-rods with the protector front, substantially as set forth.

14. The combination of the cap-piece, the upper extension having openings *b*, the rear support, and springs connected with the cap-piece, extended through openings *b* and fitted  
5 for connection with the rear support, substantially as set forth.

15. The combination of the cap-piece, the upper extension having openings *b*, the rear support, and springs 12, 13, and 14, substantially as set forth.  
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16. In a knee-protector, a rear support consisting of sections held together and movable one along the other, substantially as set forth.

17. The combination, with the protecting  
15 devices and the plate *G*, connected therewith, of the rear support and a strap, *h*, hinged to

the support and pivoted at *h'* to the plate *G*, substantially as set forth.

18. A cap-piece for knee-protectors slitted from its opposite edges to form flaps, combined  
20 with spring or elastic connections joining said flaps with the body of the cap-piece, substantially as set forth.

19. In a knee-protector, the combination, with the front or protecting portion, of the rear sup-  
25 port, the brace-plate *G*, and connections, substantially as set forth.

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Witnesses:

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