July 19, 1938. D. F. TURNER 2,124,158

KNEE PAD

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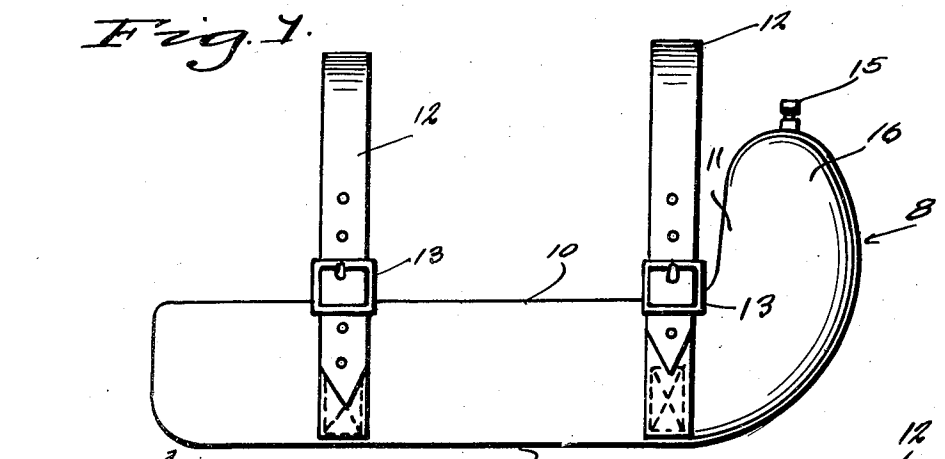
Fig. 1.



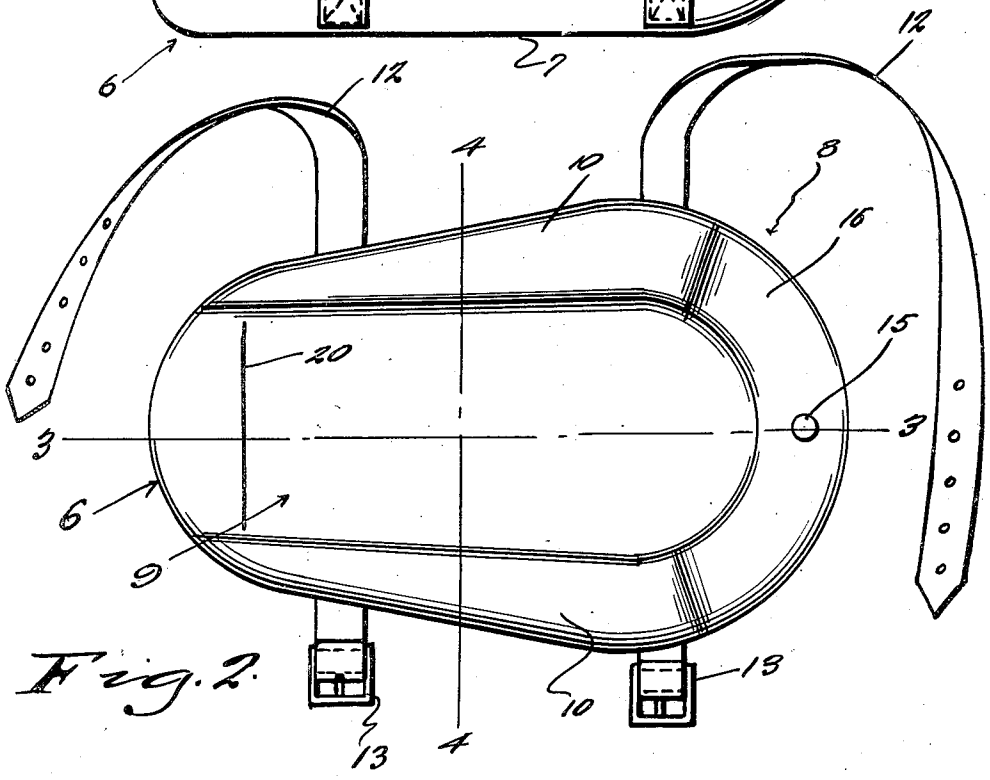


Fig. 2.

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Fig. 3.

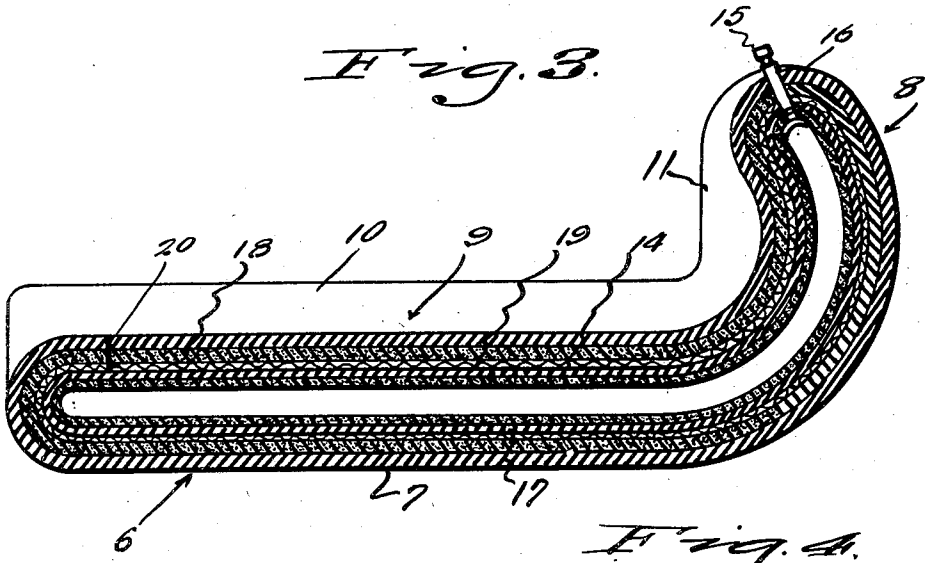
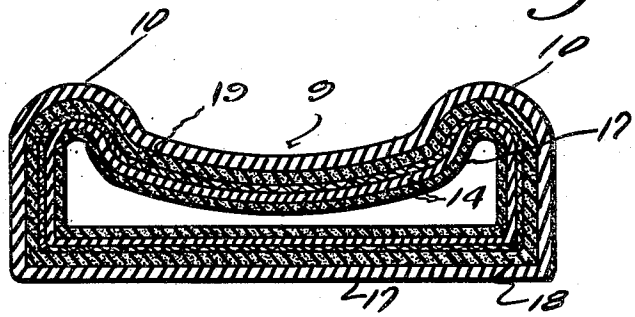


Fig. 4.



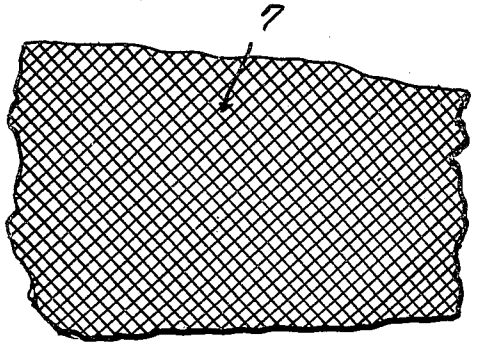


Fig. 5

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UNITED STATES PATENT OFFICE

2,124,158

KNEE PAD

Douglas Fredrick Turner, Detroit, Mich.

Application November 30, 1937, Serial No. 177,341

3 Claims. (Cl. 2—24)

This invention relates to a structurally novel and appreciably new knee pad, and has reference to that particular style or form characterized by a pneumatic cushioning unit.

As the preceding introductory statement implies, I am aware that the field of invention with which we are here concerned embodies varying structural forms of pads to promote comfort to the wearer when kneeling. The present invention, therefore, offers a specifically distinct contribution to this same line of endeavor, and in reducing the preferred embodiment to practice, I have had in mind the provision of an appropriately shaped and aptly fitted contrivance possessed of distinguishable merit and especially comforting for use by laboring persons requiring yieldable supporting protection while kneeling.

By comparison with analogous prior art and marketed knee cushions it will be observed that the present form of the invention is essentially distinguishable in that it is characterized by a flat bottom anti-slipping shoe, forming the base proper, and an upstandng frontal riser forming an abutment and shielding protector for the portion of the leg just above the knee joint.

Reviewed from another standpoint, I have found it expedient and practicable to adopt a pad having practical styling, the same being substantially horseshoe-shaped in bottom plan view and the limb accommodation portions thereof being substantially channel shaped in cross sectional form to provide a form fitting seat with longitudinal rolled edging or guards to guard against accidental lateral displacement.

Other and more specific features and advantages of the invention will become more readily apparent from the following description and drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a side elevational view of a knee protector pad constructed in accordance with the principles of the present invention, showing the same in readiness for use.

Figure 2 is a top plan view of the structure seen in Figure 1, the straps being opened.

Figure 3 is a longitudinal sectional view taken approximately on the plane of the line 3—3 of Figure 2.

Figure 4 is a view at right angles, the section being on the line 4—4 of Figure 2.

Figure 5 is simply a fragmentary perspective showing a portion of the filler fabric.

As indicated in the preceding remarks, the structure as a cushioning unit, irrespective of its internal formation, is believed to be possessed of configuration and form possessing requisite utility and adaptability. That is to say, the horseshoe-shaped major or body portion is denoted by the numeral 6. Assuming that this is a padded cushion, it will be observed that it is longitudinally elongated and somewhat horseshoe-shaped in either top or bottom plan view. It embodies a flat bottom 7 preferably of rubber to render it waterproof and anti-slipping. There is a riser 8 at the front end of the shoe or base 6 and this forms an adapter abutment and conforms to and embraces that portion of the limb just above the knee-cap or joint. The top or knee receptive side of the pad is formed with a receptacle or seat 9 for the shin portion of the leg. This part, as well as the riser 8 may be said to be channel-shaped in form, the channel being defined by the spaced parallel upstanding walls or beads 10 and 11. Thus, the device is form fitting and lends itself admirably well to accommodate the knee of the wearer. Incidentally, the straps 12 are stitched on one side and are engageable with buckles 13 on complemental straps stitched on the opposite side. This forms a firm anchorage for the straps and the straps themselves are so placed as to comfortably surround the leg and maintain the device securely in place.

The substantially L-shaped unit thus far described may be interpreted as a cushion with the features ascribed thereto. More specifically, however, the entire unit composed of the features 6 and 7 is essentially in the form of a rubber casing of substantially rigid yet yieldable rubber. Thus, it is charged with an internal laminated or sectional core means forming a suitable filler. By preference the filler is composed of a plurality of companion parts. Essentially, the pneumatic inflation tube 14 is an outstanding feature and this is at the center of the core. While this might be called a pneumatic tube, it is more in the nature of a substantially flat bladder and it takes the form of the surrounding outer casing unit. That end provided with the conventional tire valve 15 extends well up into the extension or abutment 8. In fact, the valve extends through the rounded crown portion 16 where it is ever present and easily available for access in inflating or adjusting the air pressure. In practice, the air pressure is generally regulated according to the weight of the user. Surrounding and jacketing the inner tube or bladder is a protective sheet of what may be called solid rubber as indicated at 17. Surrounding the latter part

and contained within the main casing is a sponge rubber envelope 18 and interposed between the two envelopes 17 and 18 I provide reinforcing fabric, that is, rubberized fabric 19 which promotes longevity and at the same time affords requisite features of flexibility. In practice, the sponge rubber envelope may constitute a lining for the interior of the outer casing. The fabric jacket and the rubber envelope 18 may be considered as complemental or companion features with the tube or bladder and these parts, as a unit, are inserted and removed by way of a transverse slit or slot 20 formed in the main outer casing. Consequently, the parts are removable for repair or replacement as the case may be.

The improved shoe-like knee pad may of course be used in various ways. It has been found especially useful as a comforting accessory by cement finishers, block layers, carpenters, miners, brick pavers and the like.

It is thought that the description taken in connection with the drawings will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

1. A knee pad of the class described comprising a substantially solid and comparatively hard rubber casing channel-shaped in cross sectional form, said casing being provided at one end with an opening, a sponge rubber lining for the casing, a pneumatic bladder in said casing and enveloping means for the bladder including a fabric jacket.

2. A pneumatic type knee pad of the class described substantially L-shaped in side elevational view and horse-shoe shaped in top plan view comprising a yieldable casing including horizontal and vertical portions channel shaped in cross sectional form to provide a base portion and an upstanding knee abutment and retention portion, a sponge rubber lining for the interior of the casing, and a valve equipped pneumatic bladder confined within the limits of said lining, said bladder being removable from the casing.

3. A knee pad of the class described comprising a semi-rigid flexible casing substantially L-shaped and horseshoe-shaped in side and plan views, the horizontally elongated portion constituting the main pad, and the upstanding vertical frontal portion constituting a knee abutment, said abutment and companion horizontal portion being substantially channel shaped in cross sectional form, the top wall of said pad having a slit therein forming an aperture for insertion and removal of a pneumatic bladder, and a pneumatic bladder in said casing said bladder being of proportions substantially commensurate with the surrounding casing to constitute a filler for the main pad as well as said abutment, and said bladder having at one end an inflation valve, said valve being exposed through the crown portion of said abutment.

DOUGLAS FREDRICK TURNER.