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H. B. GRA.

UMBRELLA.

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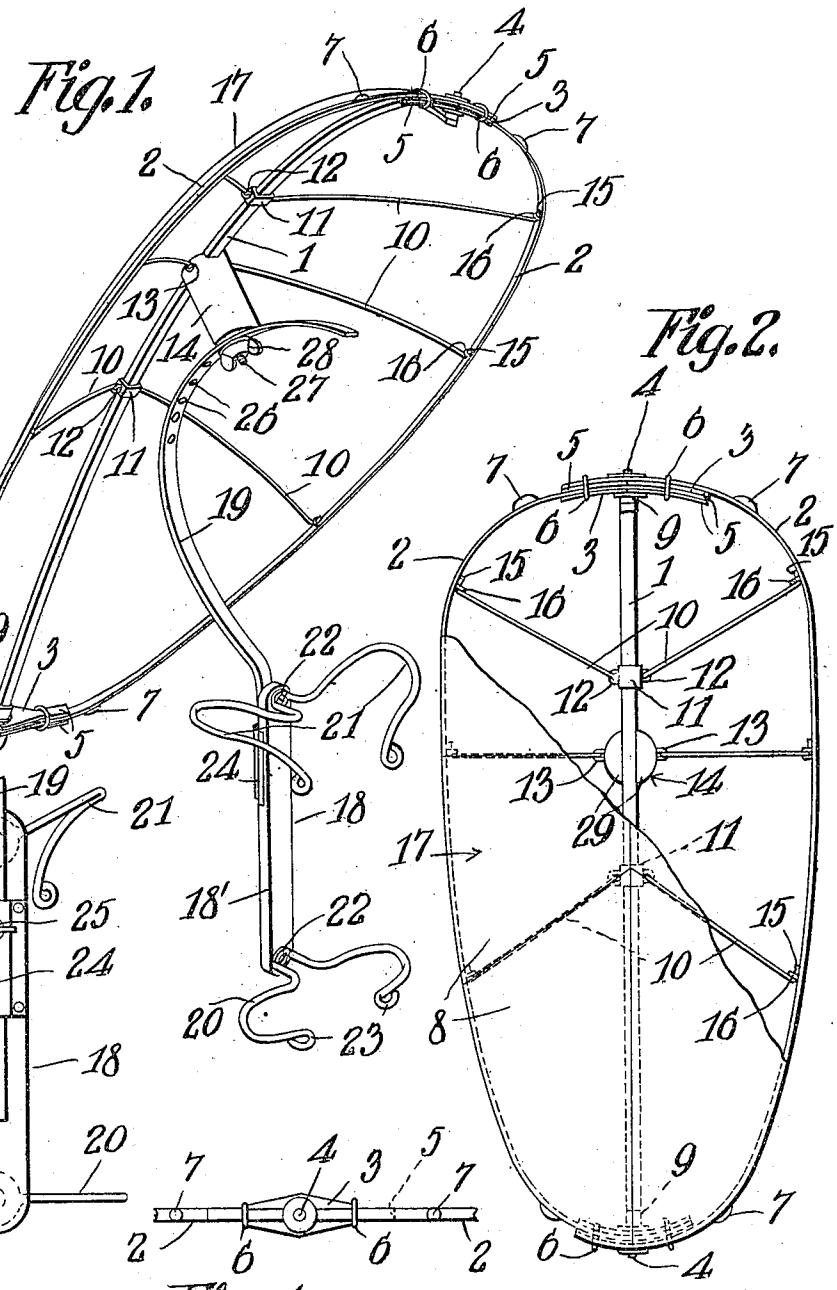


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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UMBRELLA.

No. 839,473. Specification of Letters Patent. Patented Dec. 25, 1906.

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To all whom it may concern:

Be it known that I, HERNANDO B. GRA, a citizen of the United States, residing at Columbus, in the county of Colorado and State of Texas, have invented a new and useful Umbrella, of which the following is a specification.

This invention relates to an umbrella intended to be used by workmen, farmers, and laborers to protect them from exposure to the sun or rain, and is of that type designed to be carried by the body of the person so as to leave the hands free for work.

The principal objects of the invention are to increase the utility and lightness of the device, to insure comfort to the wearer, and to improve and simplify the construction and operation generally.

A further object of the invention is to provide a foldable umbrella, so that the same can be knocked down, so as to occupy little space when not in use.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter, and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a perspective view of the umbrella. Fig. 2 is a plan view of the umbrella-top, part of the cloth covering thereof being broken away. Fig. 3 is a rear elevation of the body-frame. Fig. 4 is a fragmentary end view of the hinged ends of the umbrella rim-sections.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, 1 designates the central bow or rib of the umbrella proper. This is preferably made of wood of suitable strength and steamed and bent to the proper shape. The rim of the umbrella-top is constructed of two semi-elliptical strips of metal of suitable stiffness and preferably of flat cross-section. These strips (designated by 2) are secured, as by soldering, to overlapping elongated diamond-shaped plates 3, the plates being perforated to receive screws 4 for mounting the rims on the central rib. The ends of the diamond-shaped plates are provided with tongues 5, that are of substantially the same cross-section as the elliptical rims, and they are adapted to overlap the rims, so that suitable retaining devices, such as rings 6, may be engaged over the tongue and hold the elliptical members of the rims in extended position. Adjacent each tongue the rims are provided with stops 7 for preventing the rings from having too great a movement when they are disengaged from the tongues. The ends of the middle rib 1 are reinforced by ferrules 9, so that the driving of the screws or other retaining means for hinging the two elliptical sections together will not split or weaken the rib.

The elliptical strips 2 are braced at a number of points by steel-wire ribs 10. The end ribs are attached to the middle rib by means of thimbles 11, having eyes 12, and the middle wire ribs are secured to eyes 13 on the coupling 14. The outer ends of the wire ribs are turned at right angles, so as to form hooks 15, that loosely engage in eyes 16, provided on the inner surface of the elliptical strips 2. This construction permits the steel ribs to be unhooked for folding the elliptical strips together. The cover 17 may be made of any suitable material and is preferably composed of segments 8, that follow the general disposition of the wire ribs. These segments are stitched together. The edge of the resulting cover is sewed around its edges to the rim-strips 2 and is tacked down the center to the middle rib 1. When the wire ribs are extended and hooked to the rim, the covering is maintained stretched.

The umbrella is supported on the body of the wearer by means of a body gear or frame 18 and a standard 19 adjustable on the body-frame and adjustably carrying the umbrella. The body-frame comprises an upright strip of wood 18', having waist-embracing arms 20 and shoulder-embracing arms 21. These arms are preferably made of suitably-stiff metal rods having a straight central portion and perforated to receive an attaching-screw 22 or equivalent means. The arms of the waist-embracing portion of the body-frame are curved outwardly in opposite directions in a horizontal plane, and the forward ends thereof are turned into eyes 23 to receive straps having buckles whereby the body-gear can be securely fastened to the body. The top arms are curved into loops that are disposed to incline oppositely at a slight angle to a horizontal plane, so as to adapt the arms to rest on the body of the wearer

just opposite the lower cervical vertebra and extend around and lightly clasp the base of the neck in order that the weight be brought to bear entirely on the muscles and not in contact with the bony portions of the body. This adds materially to the comfort of the user and avoids one of the most important objections to the body-frames heretofore proposed. On the rear of the upright member 18′ of the body-frame is a socket 24, which receives the lower end of the standard 19. The socket is provided with a clamping-screw 25, that engages the standard and permits the latter to be raised or lowered to any desired height.

The standard 19 is preferably made of wood of suitable toughness and has its upper end curved on a relatively large radius. This curved portion is formed by steaming the wood and bending it while steamed, as will be readily understood. The curved end is provided with a plurality of spaced apertures 26 for the reception of a bolt 27 on the coupling member 14. By means of the spaced apertures the umbrella can be adjusted to a high or low position on the curved portion of the standard and at the same time tilted to a greater or less angle, according to the desire of the wearer. The umbrella is held on the standard by means of a thumb-nut 28, screwing on the bolt 27. The coupling member 14 is bifurcated at its upper end so as to receive between the bifurcations 29 thereof the middle rib 1. The coupling member and rib are rigidly secured together in any approved manner. The coupling member is also preferably constructed of wood. The object of employing wood for the various parts, as described, is to obtain the requisite lightness with strength. In practice I have found that an umbrella constructed on the ideas above set forth has weighed less than a pound and a half complete, the cover of the umbrella being forty-four inches in length and thirty-four inches in width and adapted for the use intended.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily appreciated by those skilled in the art to which the invention appertains. The construction of the device, while being extremely light, is rigid and substantial, so as to easily stand the effects of ordinary winds and rain. It will be seen that the device can be adjusted in an easy and simple manner to suit the requirements of each individual case.

I have described the principle of operation of the invention, together with the apparatus, which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made, when desired, as are within the scope of the invention.

The shoulder-embracing arms 21 and waist-embracing arms 20 being secured, respectively, to the standard 18 at one point only, are free to swing vertically to permit the free and unrestricted movement of the body of the wearer and without displacing the body-gear, thus avoiding all binding, rubbing, or friction. Thus when one shoulder goes up the other shoulder goes down, the pivotal connection of the members 20 21 upon their screws 22 permitting this motion and without displacing the umbrella-frame.

What is claimed is—

1. In a device of the class described, the combination of a central main rib, rim members arranged in overlapping relation at their ends, means for hinging the rims on the rib, supplemental ribs extending from the main rib to the members rings arranged to engage the overlapping ends of the rim members to hold the latter in open position and stops on the members for limiting the movement of the rings.

2. In a device of the class described, the combination of a central rib, a coupling rigidly attached thereto at a point intermediate the ends, a pair of curved rim members arranged with their ends overlapping and each comprising a single piece of wire of flat cross-section, a pivot on each extremity of the rib for attaching the overlapping ends of the rib members thereto, rings on the overlapping portions of the said members, auxiliary ribs extending from the main rib to the rim members for bracing the latter, a covering secured to the main rib and rim members, a standard having a curved portion, and an adjustable connection between the coupling and the curved portion of the standard.

3. In a device of the class described, the combination of an umbrella having a central rib, a coupling member bifurcated at its upper end to embrace the rib, a perforated standard, a bolt on the coupling member adjustable in the perforations of the standard, and a body-frame to which the standard is adjustably connected.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HERNANDO B. GRA.

Witnesses:
JOS. V. FRUKA,
CHAS. J. G. LEESEMANN.