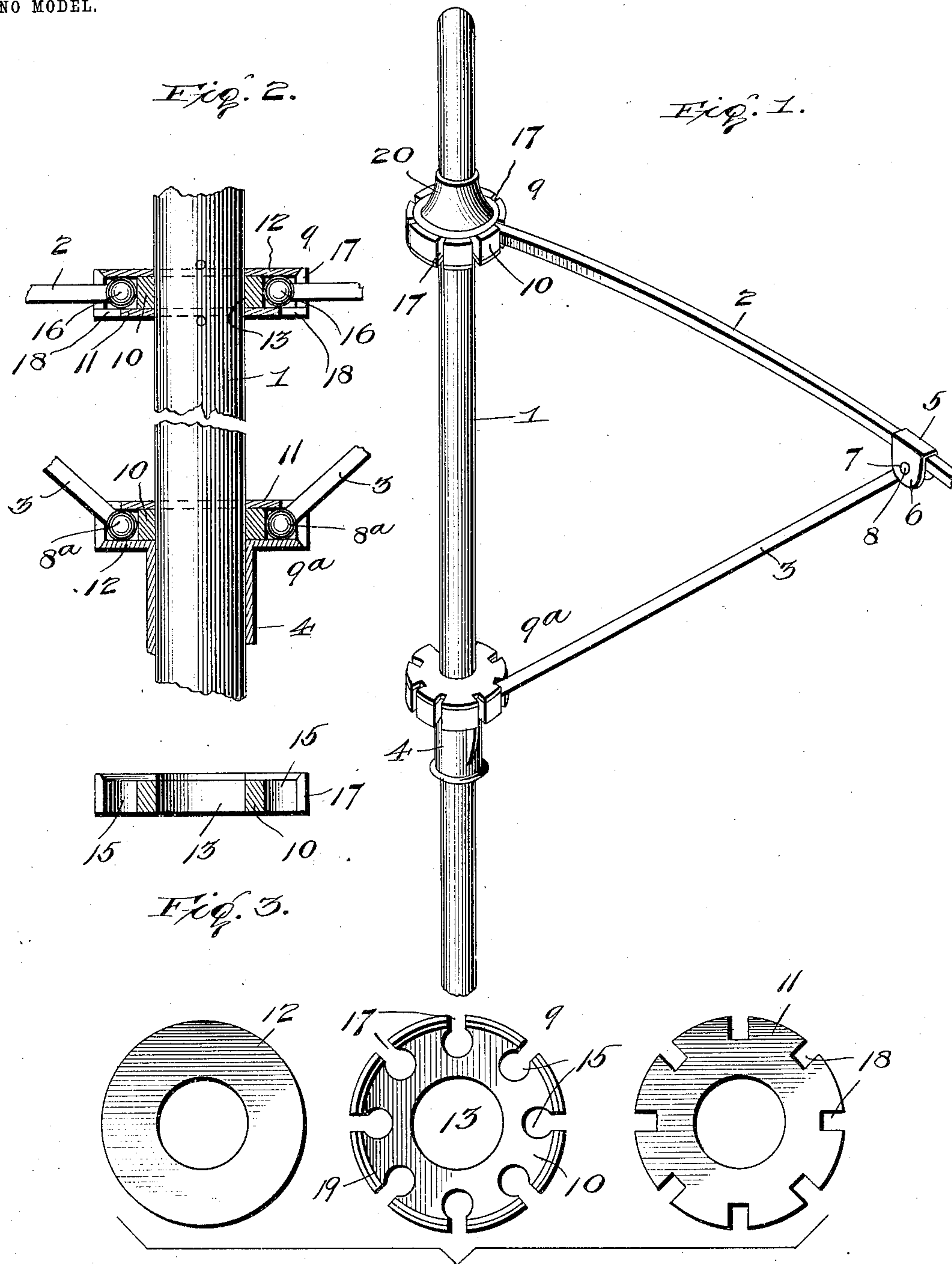


No. 770,704.

PATENTED SEPT. 20, 1904.

G. B. VOGEL.
UMBRELLA FRAME JOINT.
APPLICATION FILED DEC. 12, 1903.

NO MODEL.



WITNESSES:

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Fig. 4.

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GEORGE BISHOP VOGEL, OF ROANOKE, VIRGINIA.

UMBRELLA-FRAME JOINT.

SPECIFICATION forming part of Letters Patent No. 770,704, dated September 20, 1904.

Application filed December 12, 1903. Serial No. 184,923. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BISHOP VOGEL, a citizen of the United States of America, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Joints for Umbrella-Frames, of which the following is a specification.

This invention relates to an improvement in umbrellas, and has special reference to an improvement in the construction of a runner and notch which provides for the pivotal connection of the ribs and stretchers with the umbrella stick or rod.

To this end the invention contemplates a simple and practical construction of the runner and notch embodying a ball-bearing pivotal connection for the inner ends of the ribs and stretchers whereby the umbrella-frame can be opened and closed with a minimum amount of friction, while at the same time obviating the possibility of the parts getting out of order or becoming separated through wear, as very commonly occurs with the ordinary umbrella or parasol frame.

Another object of the invention is to provide a permanent type of umbrella-frame which may be readily re-covered from time to time and the joints of which are so constructed as to positively obviate the possibility of the cover being torn or perforated, as is often the case with the ordinary types of frames, involving the use of a fastening or pivot wire for holding the ends of the ribs and stretchers in place, which wires quickly rust, besides working loose and tearing rents in the cover.

A general object of the invention is to provide a runner and notch which are the equivalent one of the other, having the same functions, engaging a ball-ended rib or a ball-ended stretcher, and a claim for the one will be the full equivalent of a claim for the other.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts which will be hereinafter more fully described, illustrated, and claimed.

The essential feature of the invention in-

volved in the specific construction of the runner and notch is necessarily susceptible to some modification without departing from the scope thereof; but a preferred embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a skeleton perspective view of a portion of an umbrella-frame embodying the runner and notch constructed in accordance with the present invention. Fig. 2 is a sectional view of the same construction. Fig. 3 is an enlarged detail sectional view of the runner or notch. Fig. 4 is a plan view of one of the runners or notches, showing the several elements thereof separated.

Like reference-numerals designate corresponding parts throughout the several figures of the drawings.

In carrying out the invention no special change is involved in the general arrangement of parts nor in the usual instrumentalities forming the umbrella-frame, so for illustrative purposes a frame of the general type is shown in the drawings.

Referring particularly to the drawings, the numeral 1 designates the stick or rod of the umbrella with which are associated the ribs 2, the stretchers 3, and the slidable sleeve 4, movable upon the stick and carrying the runner, to which the inner ends of the stretchers 3 are pivotally connected in the manner to be presently explained.

The connection between the stretchers 3 and the ribs 2 is preferably of the ball-and-socket type to carry out the general purpose of the invention to provide ball-and-socket joints at all of the pivotal points. A simple form of ball-and-socket pivotal joint connection between the ribs 2 and the stretchers 3 is shown in the drawings and consists in fitting to each of the ribs 2 at a point intermediate the ends thereof a bearing-clip 5, essentially consisting of a sheet-metal plate folded over the rib and permanently shrunk or fastened thereon in any suitable manner. The said clip by reason of being bent or folded over the rib is provided with the parallel ear members 6, in which are formed the socket openings or holes 7, receiving the side portions of a joint-ball 8, provided at the outer end of the stretcher 3,

associated therewith, thus completing a form of ball-and-socket joint connection between the ribs and the stretchers, which involves an entire absence of rivets, and consequently being of a permanent nature.

The ball-and-socket pivotal joint connection between the inner ends of the ribs 2 and the stick or rod 1 is effected through the medium of a notch (designated in its entirety by the numeral 9) and occupying the usual location of the common notch of the ordinary umbrella-frame. The said notch 9 consists of three elements assembled in compact relation, but which may be readily separated for purposes of repair or adjustment. The said elements constituting the said ring or notch 9 are an intermediate socket-washer 10 and the oppositely-disposed retaining-plates 11 and 12, arranged, respectively, upon opposite sides of the washer 10 and forming members of the joint for the ribs 2. The said intermediate socket-washer consists of a single disk having a central opening 13, receiving the stick 1, and also provided with a peripheral series of circular bearing-holes 15, open at top and bottom and constituting circular sockets, receiving therein the joint-balls 16, provided at the inner ends of the ribs 2, it being of course understood that there are the same number of bearing-holes 15 as there are ribs 2 in the umbrella-frame.

The body of the socket washer or disk 10 is of a thickness equaling the diameter of the joint-balls 16 at the inner ends of the ribs 2, whereby said balls 16 may be completely housed within the bearing-holes 15, and at this point it is to be observed that leading off from the circular holes 15 the washer or disk 10 is provided in its periphery with the radial slots 17 of less width than the diameter of the holes 15, so that the balls 16 cannot pass therethrough, while at the same time admitting of the movement therein of the rib-shanks.

In the notch 9 the retaining-plate 11 is arranged at the under side of the socket washer or disk 10 and consists of a disk-body of the same diameter as the washer 10 and provided in the periphery thereof with a series of radially-disposed shank-receiving notches 18, which are adapted to register with the notches 17 of the washer 10, whereby the shanks of the ribs may freely move therein in the opening and closing of the umbrella. At the same time the notches 18 being of less width than the bearing-holes 15 the plate 11 constitutes a lower guard or cover for the sockets in which the joint-balls turn. A similar function is performed by the retaining-plate 12, arranged at the opposite side of the socket washer or disk 10, and in the notch the said plate 12 is located at the upper side of the washer 10. In order to provide a very compact and secure relation of parts, it is preferable to form the washer or disk-body 10 at one side thereof with a countersink or recess 19, in which is

seated flush the plate 12. The latter plate aside from its central aperture is of an imperforate form and may be of less diameter than the washer or disk 10. By reason of having an imperforate periphery completely overlapping one of the open sides of the bearing-holes 15 the plate 12 constitutes a limiting-guard to prevent the ribs turning to positions beyond the outer side of the notch, thus checking the umbrella-frame from turning inside out in high winds.

The runner employed in connection with and suitably fitted to the slidable sleeve 4 is designated in its entirety by the reference-numeral 9^a and is of the same construction as the notch 9, just described. The circular bearing-holes 15 of the runner 9^a are designed to receive and house therein the joint-balls 8^a at the inner ends of the stretchers 3, and it will be observed that by reason of the upward and inward movement of the stretchers 3 in the closing of the umbrella it is necessary to invert or reverse the position of the runner, whereby the retaining-plate 11 will be disposed at the upper side thereof and the retaining-plate 12 at the lower side, but which plates still perform precisely the functions of the corresponding plates in the notch 9.

The cover may be applied to the frame in any suitable manner and usually has associated therewith the conical cap 20, fitting over the top of the stick at the upper or outer side of the notch 9.

From the foregoing it is thought that the construction, action, and many advantages of the herein-described improvement will be readily apparent without further description, and it will be also understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In an umbrella, the combination with the stick, of a washer having a central opening through which the stick passes, said washer being furthermore provided with a peripheral series of sockets extending entirely there-through and having contracted slots that open through the peripheral edge of said washer, frame members having enlargements that are located in the sockets, the portions of said members adjacent to the enlargements being movable in the said contracted slots, and separate retaining-caps secured over the opposite side faces of the washer, said caps extending over the opposite ends of the sockets and constituting means for securing the said enlargements therein.

2. In an umbrella, the combination with the stick, of a washer having a central opening through which the stick passes, said washer being furthermore provided with a peripheral

series of sockets extending entirely there-
through and having contracted slots that open
through the peripheral edge of said washer,
frame members having enlargements that are
5 located in the sockets, the portions of said
members adjacent to the enlargements being
movable in the said contracted slots, and sepa-
rate retaining-caps secured over the opposite
side faces of the washer, one of said caps ex-
10 tending over the adjacent ends of the sockets,
closing the same and constituting a stop to
limit the movements of the frame members in
one direction, the other cap having slots that
align with the peripheral slots of the washer
15 and permit the entry of the adjacent portions
of the frame members

3. In an umbrella, the combination with the
stick, of a washer having an opening that re-
ceives the stick, said washer having an annu-
20 lar series of sockets therethrough that are of

substantially the same diameter throughout
their lengths and having contracted slots open-
ing through the edge of the washer, said washer
being furthermore provided in one face with
a countersink, a plurality of frame members 25
having ball enlargements that are engaged in
the sockets, a retaining-plate fitted in the
countersink and covering the adjacent ends of
the sockets, said plate constituting a stop
against which the frame members abut, and 30
another retaining-plate secured over the op-
posite face of the washer and extending over
the adjacent ends of the sockets.

In testimony whereof I affix my signature in
presence of two witnesses.

GEORGE BISHOP VOGEL.

Witnesses:

W. J. CAMPER,

BENJ. M. TURNER.