J. V. BAIRD.

FOLDABLE UMBRELLA.

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951,898. Patented Mar. 15, 1910.

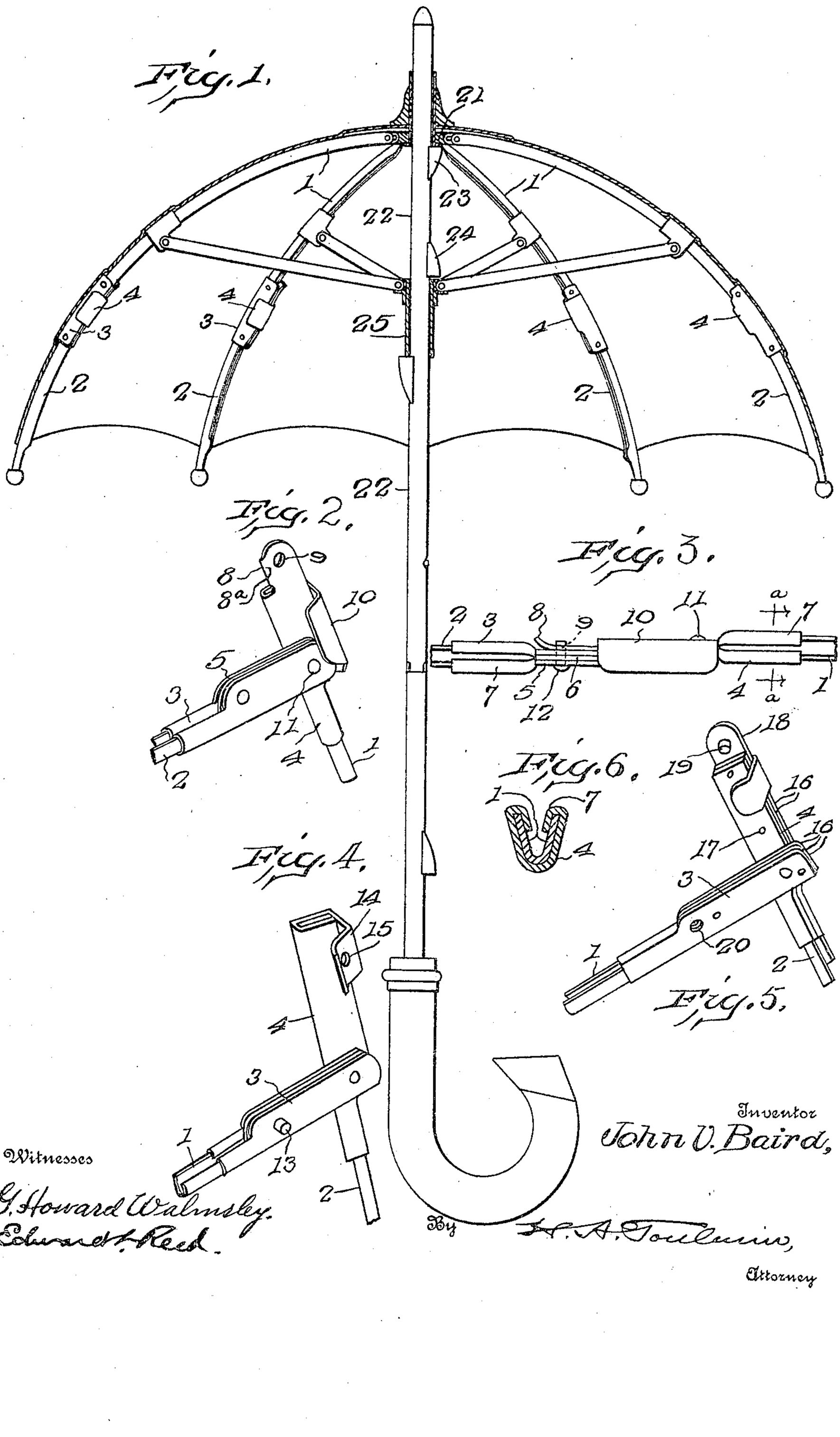

Fig. 1.

Fig. 4.

Fig. 2.

Fig. 3.

Fig. 6.

Fig. 5.

Witnesses

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FOLDABLE UMBRELLA.

951,898. Specification of Letters Patent. Patented Mar. 15, 1910.

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To all whom it may concern:

Be it known that I, JOHN V. BAIRD, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Foldable Umbrellas, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to foldable umbrellas, and the object of the same is to provide an umbrella of this charcter with a two part rib having its parts connected one to the other by a hinge which will automatically lock the rib in its extended position when it has been moved into that position; which may be easily manipulated to release the same to permit the rib to be folded; and which will be of a simple construction, having no parts easily disarranged or liable to be rendered inoperative.

A further object of the invention is to provide such an umbrella with means whereby the outer or folded portion of each rib may be placed back of the inner portion of the rib, that is, between that portion of the rib and the umbrella rod, thus folding the cover into a compact space and surrounding the same by the ribs. And a further object of the invention is to provide the umbrella with a two part handle, the two parts of which can be readily connected and disconnected one from the other.

With these objects in view my invention consists in certain novel features and in combinations and arrangements of parts to be hereinafter described, and then more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view of an umbrella embodying my invention; Fig. 2 is a side elevation of one form of the hinge; Fig. 3 is a top plan view of that form of hinge shown in Fig. 2; Fig. 4 is a side elevation of a modified form of the hinge; Fig. 5 is a side elevation of a further modified form of the hinge; and Fig. 6 is a transverse sectional view, taken on the line *a a* of Fig. 3 and looking in the direction of the arrows.

In carrying out my invention I have formed each of the ribs of the umbrella in two parts, the inner portion, 1, of the rib, which is connected to the top notch of the umbrella being pivotally connected to the outer portion 2 thereof, which outer portion is adapted to fold upon the inner portion of the rib. This pivotal connection between the two parts of the rib is preferably formed by means of a hinge comprising two members 3 and 4 connected to the adjacent ends of the members 1 and 2, respectively, of the rib and provided with coöperating locking devices adapted to secure the rib in its extended position when it has been moved into that position. This hinge may be constructed in any suitable manner, but I prefer to form each member thereof of a single piece of metal bent upon itself to form the body portion of the hinge, as shown at 5 in Fig. 3. If desirable, a stiffening strip 6 may be inserted between the side members 5 of the body portion of the hinge member to give the same greater rigidity. Each hinge member is, in the present instance, secured to the rib by bending the upper edges of a portion of the body of the hinge member over the edges of the U-shaped rib, as shown at 7 in Fig. 6, thus forming a strong, durable connection which is easily made. One of the members of the hinge is provided with an extension 8 which is preferably of resilient material and is provided with a recess, such as the aperture 9, near the outer end thereof. In the form of the device shown in Figs. 2 and 3, this extension is a continuation of the inner wall of the body portion of the member 4. This member of the hinge is also provided with a guard 10, which is, in the present instance, formed by providing the upper edge of the outer wall with an extension which is bent inwardly and downwardly, as shown. The term "inner wall," as used herein, refers to that wall of one member of the hinge which is adjacent to the other member of the hinge, while the "outer wall" is the wall farthest removed from the other member of the hinge. The member 3 of the hinge is formed in substantially the same manner as is the member 4, but without the extensions thereto. This member is pivotally connected near its outer end to the member 4 at a point removed from the end of that member, as shown at 11, and is provided with a stop 12 adapted to engage the aperture 9 in the extension 8 of said member 4 and lock the hinge, and the rib to which its members are secured, in an extended position. By gripping the

outer portion of the rib in the hand and pressing upon the inner portion thereof with the thumb, the two parts of the hinge can be sprung apart and the outer portion of the rib folded upon the inner portion thereof. When the rib is moved into its extended position, as by the raising of the umbrella, the apertured extension 8 will be automatically moved into engagement with the stop 12, the edge of the extension 8 being provided with an inclined or beveled edge 8[a] to permit the same to ride over the projection 12.

The hinge is capable of many modifications, and, by way of illustrating these modifications, I have shown in Figs. 4 and 5 two different forms of the hinge. In Fig. 4 the construction of the hinge members is substantially the same as that shown in Figs. 2 and 3, but the member 3 of the hinge has a stop 13 arranged on the outer side thereof and a guard 14 carried by the member 4 is provided with an aperture 15 adapted to engage the stop 13 and lock the hinge in its extended position. In Fig. 5, the general construction is similar to that shown in Figs. 2 and 3, but, instead of forming the two members 3 and 4 of the hinge each of a single piece of metal bent upon itself, I have, in this instance, shown these members as formed of separate strips of material 16, secured together by suitable rivets 17. In this form of the device I have also shown the outer side wall of the member 4 as provided with an extension 18 which carries a stop 19 adapted to engage a suitable recess, such as the aperture 20 formed in the body portion of the member 3 of the hinge.

The hinged ribs may be applied to an umbrella of ordinary construction and the outer ends of the ribs and the cover of the umbrella folded upon the inner portions of the ribs, but it is desirable, in some instances, to fold the outer portions of the rib and the cover within the inner portions of the rib, that is, between the same and the umbrella rod. To this end, I have shown the upper collar or "top notch" 21 as slidably mounted upon the upper portion 22 of the umbrella rod and normally retained in its uppermost position by a spring catch 23, of ordinary construction. The stop 24, which limits the upper movement of the runner 25 is also in the form of a spring catch to permit the top notch 21 to pass downwardly over the same. When it is desired to fold the umbrella, the top notch is moved downwardly along the rod 22 to a point near the lower end of the upper portion thereof and the outer portions of the ribs folded inwardly upon the inner portions thereof, which inner portions are secured to the top notch, and in this manner folded between the inner portions of the rib and the rod. Thus, the inner portions of the ribs will compress the outer portions of the ribs and the cover carried thereby into a compact body and will also protect the same against injury.

The operation of the device will be readily understood from the foregoing description, and it will be apparent that I have provided a foldable umbrella having two part ribs, the two parts of each rib being connected by a hinge of such a construction that when the rib is extended, it will be automatically locked in its extended position and which can be readily manipulated with one hand to release the locking devices and permit the rib to be folded upon itself; and further, that this hinge is of a very simple construction not liable to become disarranged or to be rendered inoperative, and is capable of being produced at a low cost. It will further be apparent that I have so constructed the umbrella as to permit the outer ends of the ribs to be folded within the inner ends of the ribs, that is, between the inner ends and the umbrella rod, thus placing the inner portions of the ribs on the outside of the cover and compressing the same into a compact bundle and affording a considerable protection for the same.

I wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character described, the combination, with a rib divided into two parts, of a hinge comprising two members pivotally connected one to the other and rigidly connected to the adjacent ends of the two parts of said rib, one of said members having a part provided with a recess arranged transversely to the length of the rib and the other of said members having a stop adapted to enter said recess and lock the two members of the hinge against movement relatively one to the other.

2. In a device of the character described, the combination, with a rib divided into two parts, of a hinge comprising two members pivotally connected one to the other and rigidly connected to the adjacent ends of the two parts of said rib, one of said members having a resilient portion provided with a recess arranged transversely to the length of the rib and the other of said members having a stop adapted to engage said recess and lock the two members of the hinge against movement relative one to the other.

3. In a device of the character described, the combination, with a two part rib, of a hinge comprising two members each having one end rigidly secured to one part of said rib, one of said members being pivotally connected at its end to the other of said

members at a point removed from the end thereof, one of said members having an extension provided with a recess arranged transversely to the length of the rib, and a projection carried by the other member and adapted to engage said recess to positively lock the two members of said hinge against movement relative one to the other.

4. In a device of the character described, a hinge comprising two members, one of said members being pivotally connected to the other of said members at a point removed from the end thereof, one of said members having a recess arranged transversely to the length thereof and the other of said members having a stop adapted to enter said recess, and a guard extending outwardly from the edge of one of said members.

5. In a device of the character described, a hinge comprising two members, each consisting of a single piece of metal bent upon itself to form the body of said member, one of said members being pivotally connected to the other of said members at a point removed from the end thereof, the last-mentioned member having an extension formed integral therewith and provided with a recess and a projection carried by the first-mentioned member and adapted to engage said recess, said last-mentioned member having a part extending above and beyond said first-mentioned member to form a guard.

6. In a device of the character described, a hinge comprising two members pivotally connected one to the other, each of said members consisting of a single piece of metal bent upon itself to form the body portion of said member, a strengthening plate secured between the bent-over portions of said member and coöperating locking devices carried by said members.

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

JOHN V. BAIRD.

Witnesses:
ELZA F. MCKEE,
EDWARD L. REED.