B. ROTHSCHILD.

LOCKING DETACHABLE JOINT.

APPLICATION FILED JUNE 24, 1908.

925,654. **Patented June 22, 1909.**

Fig. 1.

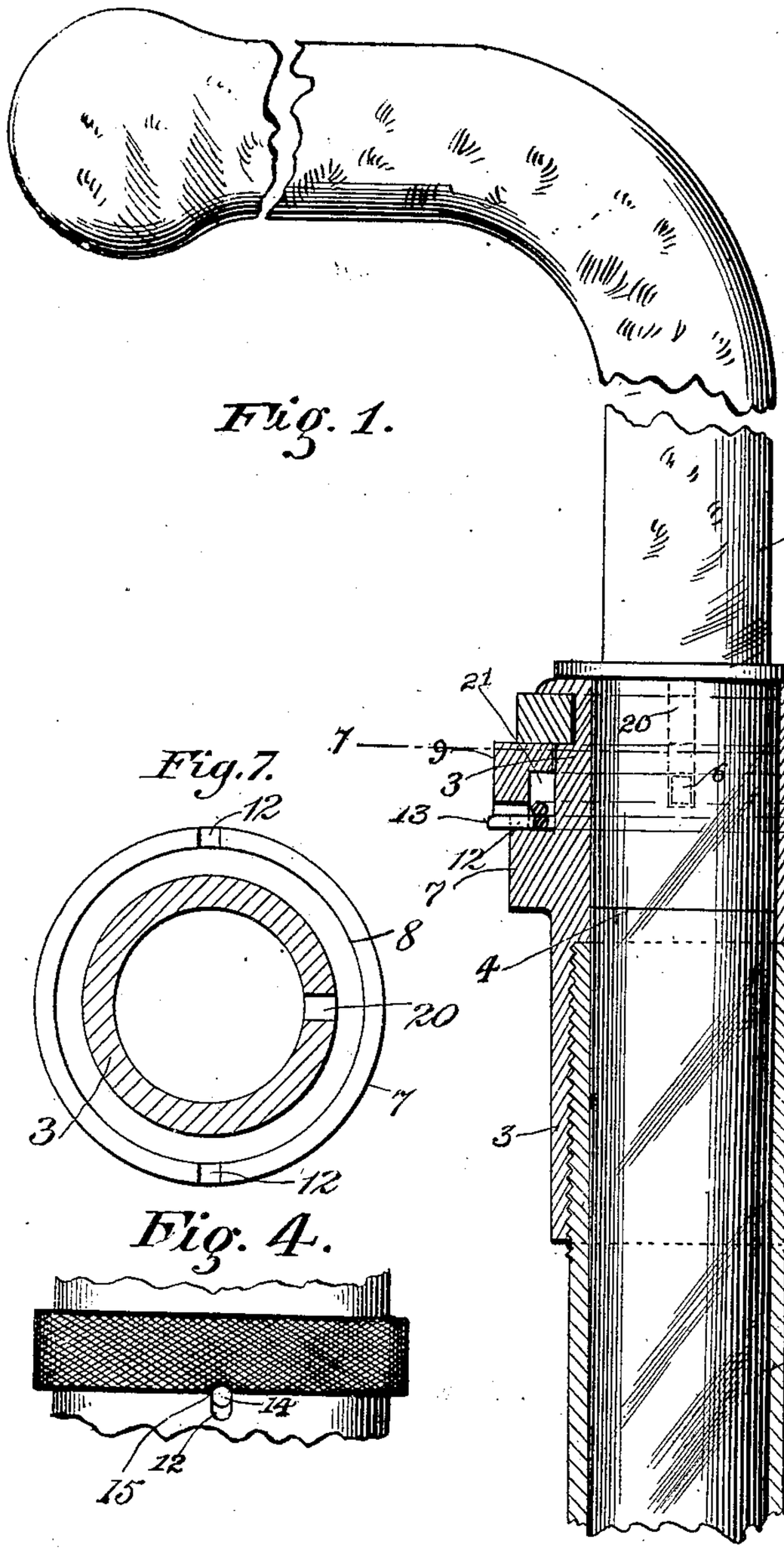


Fig. 2.

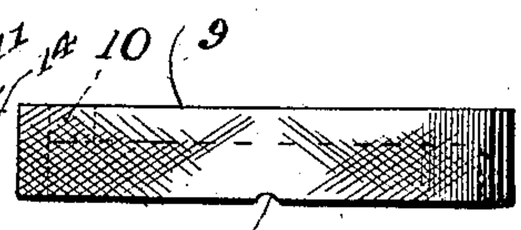


Fig. 7.

Fig. 3.

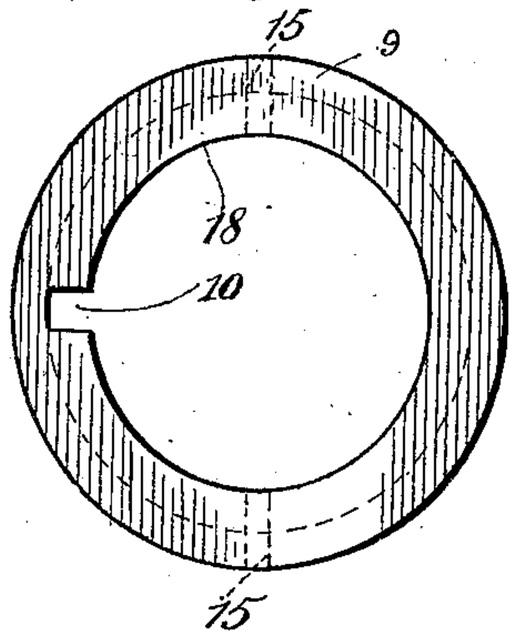


Fig. 4.

Fig. 5.

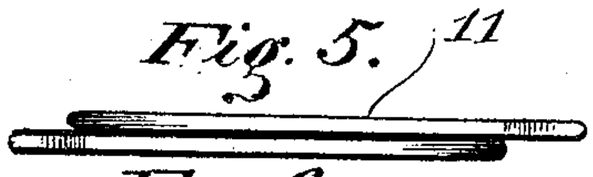
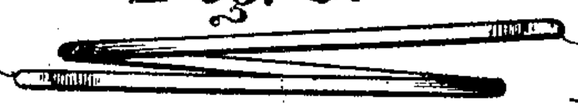


Fig. 6.



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BENJAMIN ROTHSCHILD, OF BALTIMORE, MARYLAND.

LOCKING DETACHABLE JOINT.

No. 925,654. Specification of Letters Patent. Patented June 22, 1909.

Application filed June 24, 1908. Serial No. 440,201.

To all whom it may concern:

Be it known that I, BENJAMIN ROTHSCHILD, citizen of the United States of America, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Locking Detachable Joints, of which the following is a specification.

To remove the handle of an umbrella frequently becomes desirable for the purpose of reducing its length for packing and to render it less attractive to thieves when left in a public place.

To this end, the present invention provides a device for attaching the umbrella handle to the main rod or staff so that it may be easily and conveniently detached and replaced. This device is a joint by means of which the handle and staff, or any two rods, may be secured to each other at their ends and maintained in alinement, and, at the same time, held against relative rotation. Although this joint is particularly adapted for use in securing the handle of an umbrella to the staff, or supporting rod, it may be variously applied, as in making the umbrella point removable, or in the manufacture of fishing rods, canes, etc.

In its preferred embodiment, my invention consists of a rod terminating at one end in a tube, a second rod shaped at one end to enter the tube and fit the aperture therein, a key projecting from the entering portion of the rod, the tube being slotted longitudinally to receive the key, a locking ring mounted on the tube to rotate relatively thereto and slotted to permit the key to pass, and a latch by means of which the locking ring may, at the will of the operator, be held in registration with the slot of the tube to permit the keyed extremity of the rod to be freely inserted and withdrawn from the tube. The latch is also adapted to hold the locking ring in position with its slot remote from the slot of the tube, so that the passage of the key is obstructed and the two rods are rigidly joined.

The accompanying drawings illustrate my invention:

Figure 1 is a central longitudinal section of the joint. Fig. 2 is an elevation of the locking ring. Fig. 3 is a plan of the same. Fig. 4 is a detail of the positioning device or latch. Fig. 5 is an elevation of the positioning spring compressed. Fig. 6 is an elevation of the same expanded.

Fig. 1 shows two rods attached at their extremities by means of the joint of my invention. Either member of the joint may be mounted on either rod. The upper rod 1 in the figure will be termed the handle, or handle rod, and the lower rod 2 the staff, or umbrella rod. The upper end of the umbrella rod is threaded and inserted in the tube or ferrule 3, and secured by a cooperating thread. The ferrule extends beyond the rod 2, as shown. The lower extremity 4 of the handle rod 1 is adapted to be inserted in the tube and shaped to fit the same. The handle rod is provided at a suitable distance from its extremity with a collar 5 to limit the extent to which it may enter the ferrule. The portion 4 of the handle rod 1 below the collar, which will hereinafter be termed an "insert", is provided with a key 6 projecting laterally therefrom, and the tube 3 is slotted longitudinally from its upper extremity at 20 to admit the key. The ferrule is provided with an external collar 7 encircling the same, and the outer circumference of the collar is provided with an upright circular rim 8 spaced a slight distance from the outer surface of the ferrule. A locking ring 9 encircles the ferrule, bearing against the upper surface of the rim 8. This locking rim is of greater outside diameter than the collar 7, and roughened. It is of inverted L shaped cross-section, the horizontal arm of the L being an inwardly disposed flange which bears against the circumference of the ferrule. The flange is slotted at 10 to permit the passage of the key 6. The inside diameter of the ring below the flange is substantially equal to the inside diameter of the upright rim 8, and the ring forms, with this rim, an annular chamber 21. A coil spring 11, having its extremities turned out radially, shown as consisting of but one and one-half helices, is placed in the chamber 21 with its extremities projecting through suitable vertical slots 12 placed to receive these extremities in the upright rim 8. The extremities of the spring are shown as separated by an arc of 180°, but may be otherwise placed.

It is apparent that while one extremity 13 of the spring 11 rests on the bottom of its

slot 12, the other extremity 14, which will be termed a latch, is pressed upward against the lower edge of the locking ring 9. The wire of which the spring is composed is of circular cross-section and the lower edge of the locking ring is provided at 15 with two shallow notches in the form of an arc of a circle of depth less than one-half the diameter of the wire of which the spring is formed. These notches are separated by any suitable arc, in this case equal to that between the slots 12 of the ferrule. Each notch is adapted to receive the upper extremity 14 of the spring to latch the locking ring, and the shape of the notches and latch is such that the ring resists a slight tendency to rotation, but is released and may be rotated when sufficient force is applied.

It is apparent that the latch 14 engages each notch as it passes, thereby indicating the position of the locking ring. One notch 15 is so placed that when it is engaged by the latch, the slot 10 of the locking ring is in registration with the slot 6 of the ferrule, so as to allow free passage of the key. The other notch is so placed that when it is engaged by the latch 14, the slot of the locking ring is remote from the slot of the tube and the passage of the key is obstructed.

The tube or ferrule 3 is reduced in diameter above the locking ring to receive the bearing ring 16 and flanged at its upper extremity to retain the latter. This flange 17 affords a bearing surface for the collar 5 of the handle rod, and the flange and collar are so placed that when the extremity 4 of the handle rod is inserted in the tube and the locking ring rotated so that its notch 10 is out of registration with the notch of the tube, the flange 18 of the locking ring engages the key and no longitudinal play of the joint is permitted.

In the operation of my device, the extremity 4 of the handle rod 1 is inserted in the mouth of the tube 3, the key 6 entering the slot 20 of the ferrule. The ring 9 is in position with its slot 10 in registration with the slot of the ferrule. This position is indicated and maintained by the latch 14 which enters the corresponding notch 15. The rod 1 is advanced until the collar 5 rests against the flange 17. Sufficient force is applied to the ring 9 to over-come the resistance offered by the latch; the slot 10 is moved away from the slot 20, the key 6 is engaged by the flange 18 of the ring and its outward passage obstructed so that the joint is closed and locked. Rotation of the ring 9 is continued until the latch 14 engages the second notch 15. The resistance offered by the latch is sufficient to prevent accidental rotation of the ring 9, so that the joint remains locked until sufficient force is applied to rotate the ring 9. This cannot well happen except at the will of the operator.

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

1. In a joint a ferrule slotted longitudinally, an insert having a key to enter the slot, a ring having a plurality of shallow notches and slotted to pass the key mounted on the ferrule to rotate relatively thereto, an annular groove encircling the ferrule having its outer wall slotted vertically, a spring in the groove having its extremities extending through the slots so that while one rests in the bottom of its slot, the other is impelled in the opposite direction so that it engages the notches of the ring as it is rotated and latches it in a plurality of positions, in one of which the slot of the ring is in registration with the longitudinal slot of the ferrule.

2. In a device for detachably securing an umbrella handle, a slotted ferrule, an insert having a key to enter the slot, a locking member mounted on the ferrule to rotate relatively thereto, and slotted to allow the key to pass, the ferrule provided with an annular chamber, one wall of which is slotted vertically, a helical spring in the chamber having one end projecting through the slot and the other pressing against the bottom of the chamber, whereby the protruding end is pressed against the locking member, a notch in the face of the locking member adapted to register with the slot in the chamber in locking position and to receive the projecting end of the spring holding the ring in locked position.

3. In a device for detachably securing an umbrella handle, a slotted ferrule, an insert having a key to enter the slot, a locking ring mounted on the ferrule to rotate relatively thereto, and slotted to allow the key to pass, the ferrule provided with an annular groove, one wall of which is slotted vertically, covered by the locking ring to form a chamber, a spring in the chamber having one end projecting through the slot and pressing against the locking member, a notch in the face of the locking member adapted to register with the slot in the groove in locked position and receive the end of the spring holding the ring in locked position.

4. In a device for detachably securing an umbrella handle, a slotted ferule, an insert having a key to enter the slot, a locking ring mounted on the ferrule to rotate relatively thereto, and slotted to allow the key to pass, and means for locking the ring in both locked and unlocked position.

5. In a device for detachably securing an umbrella handle, a slotted ferrule, an insert having a key to enter the slot, a locking ring mounted on the ferrule to rotate relatively

thereto and slotted to allow the key to pass, the ferrule provided with an annular groove, one side of which is slotted, the groove covered by the locking ring to form a chamber, a spring in the chamber having one end protruding through the slot and pressing against the locking ring, the latter being provided with notches in its face adapted to register with the slot in the groove both in the locked and unlocked position of the ring, whereby the latter is held in both positions.

Signed by me at Baltimore, Md., this 15th day of May 1908.

BENJAMIN ROTHSCHILD.

Witnesses:
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