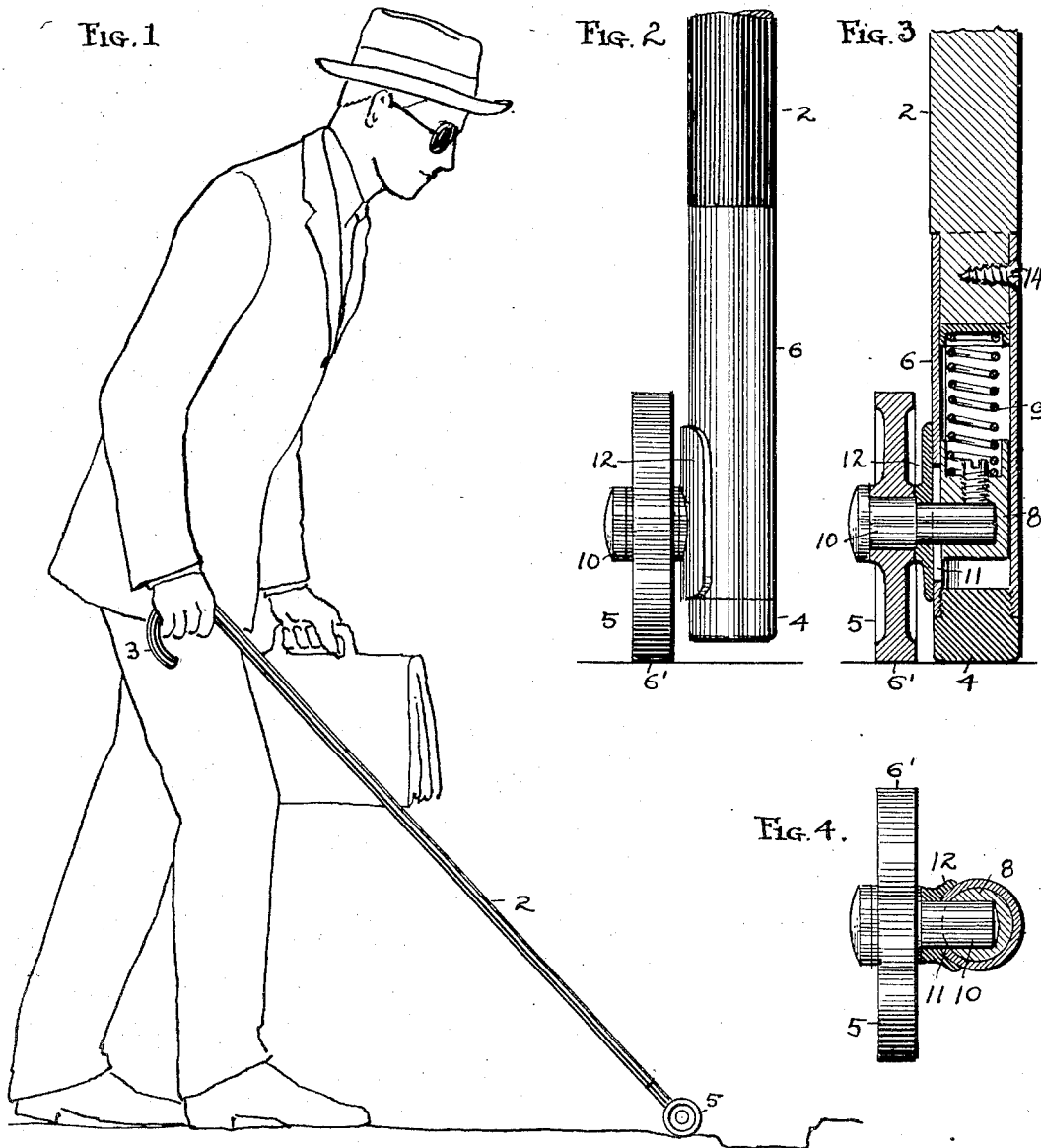


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G. J. VAUGHAN ET AL
SUPPORTING AND GUIDING CANE

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SUPPORTING AND GUIDING CANE.

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To all whom it may concern:

Be it known that we, GEORGE J. VAUGHAN and MICHAEL E. HUNT, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in a Supporting and Guiding Cane, of which the following is a specification.

Our invention relates to an improvement in a supporting and guiding cane for the blind, the general object being to provide a cane wherewith a blind person may maintain uninterruptedly a delicate and sensitive touch with the surface over which he must travel and also avoid wearisome effort or strain in handling the cane. In addition our object is to provide a dependable support for the user, that is, provide a rigid cane adapted to steady or uphold a blind person in mounting stairs or steps or in walking upon a slippery pavement or icy sidewalk.

In the accompanying drawing, Fig. 1 is a side view of our improved cane as it is held and handled by a blind person in guiding or directing his movements. Fig. 2 is a front view of the lower part of the cane on a somewhat larger scale. Fig. 3 is a sectional view, enlarged, of the lower end of the cane, showing the roller or wheel in its shifted position as occurs when pressure is brought to bear downwardly upon the cane so that the ferrule is directly engaged with the ground and a solid support provided for the user. Fig. 4 is a cross sectional view of the sleeve and plunger. Fig. 5 is a sectional view of a modification of the invention.

Canes, as commonly used by the blind are mere walking sticks provided with metal ferrules at their lower ends, and such canes or sticks are used to tap the pavement periodically and to permit the blind to feel their way. The cane is held at an inclination in advance of the user, which strains the wrist and tires the arm, and the constant tapping is also wearisome if long continued. The repeated raising and lowering movements of the ferrule end of the cane may either cause a blind person to skip an opening or a projection in his path or produce a slip or a sudden shock or jar by encountering such an opening or projection. To overcome the objections noted, our invention comprises a cane or stick 2 of any suitable form or shape, but preferably

formed with a lateral hand grip or handle 3 at its upper end and a metal ferrule 4 at its lower end. In carrying this cane a blind person will ordinarily take hold of the hand grip so that the body of the cane is uppermost and the hand grip points downwardly toward his person, thereby permitting the cane to be freely turned or twisted axially when extended forwardly for directing or guiding purposes. Thus, if the ferrule end of the cane is supported by a small wheel or roller 5 mounted at one side of the body of the cane the weight of the cane tends to turn the cane in a slight measure within the hand which is of advantage because the user may without effort permit the solid ferrule 4 to strike the ground by gravity, the turning movement proceeding from the rim of wheel 5 where riding upon the ground. This wheel is preferably about two inches in diameter and mounted relatively near the end of the cane so that the extremity of ferrule 4 will be retired inwardly of the circumference of the wheel and the ferrule normally raised above the ground when the wheel is held squarely at rest thereon or riding on its rim with the axis of the wheel horizontally parallel with the supporting surface. The wheel is also solid and preferably heavy enough to hold the cane to a true course and in constant riding engagement with the ground, and a flat relatively wide tread 6 is preferred for stability and to avoid dropping or wedging of the wheel into narrow cracks or openings. The ferrule at the side of the wheel comes very close to the surface when the wheel is used as a riding support for the cane, and thus the ferrule and wheel also operate together to prevent the cane from dropping into small crevices or cracks, such as found in sidewalk grids or gratings. The wheel also permits the cane to ride over such gratings or any relatively low ridges or protruding obstructions in the path of the ferrule, by lifting the extremity of the ferrule out of the way thereof so that no sudden stoppage and shock will be transmitted to the blind holder of the cane while he is moving forwardly. He is also in constant sensitive touch with the conditions he must meet because this roller is in constant contact with the surface in advance of his steps. Moreover, if an abrupt declivity is reached the roller will ride over it and drop until the

cane itself rests on the edge, while if an obstruction is met with too high for the roller to ride up and thereover the cane will be arrested in its forward movement and signal the condition to the blind holder of the cane.

To cushion any sudden stoppage of the cane, and for other reasons hereinafter stated, we prefer to mount the roller or wheel in a yielding position upon the cane or its ferrule. Thus, in one form of our invention we provide a hollow metal sleeve 6 adapted to receive the reduced end of the stick or rod 2 which may be made either of wood or metal or the entire body of the cane may be hollow. Ferrule 4 is preferably a separate steel piece inserted and fastened within the lower end of sleeve 6 in any suitable way, and this ferrule may be a removable part to permit its replacement by a similar piece, inasmuch as such ferrules are subject to wear by repeated contact with stone pavements, etc. Within hollow sleeve 6 is a movable plunger 8 backed by a coiled spring 9, and a lateral projection, stud or shaft 10 extends from plunger 8 through a longitudinal slot 11 in the side wall of sleeve 6. Wheel 5 is carried by plunger 8 by means of stud or projection 10 and any suitable means may be used to secure the roller or wheel rotatably in place thereon at the side of sleeve 6. A sliding cover or plate 12 conforming to the shape of sleeve 6 completely encloses slot 11 so that dirt will be excluded from the hollow interior and the plunger may operate freely. The sleeve may be round, square, hexagonal or of other shape in cross section, and a screw 14 or other suitable means may be used to fasten the sleeve in place upon body 2. When the cane is held upright or in a substantially perpendicular position with roller 5 resting on the ground, spring 9 within sleeve 6 presses the plunger downwardly to its limit and yieldingly supports the cane and its ferrule in a slightly elevated position above and apart from the ground or surface. However, if the user of the cane applies pressure or places his weight upon the cane the resistance of spring 9 is immediately counteracted and the ferrule will rest solidly on the ground to sustain and support the user of the cane. As soon as the pressure or weight is removed from the cane the spring asserts itself and places the roller in its normal guiding position. In this way, the cane may be used safely and instantly by a blind person, either as a rolling guide, or as a stabilizing support, without setting or adjusting any device or manipulating any part of the cane other than the bare handle thereof which is constantly in his grip.

One or more rollers may be used, but where a single roller is employed at one side of the cane a rotative movement of the

cane will cause the ferrule to strike the ground without end movement or change of position of the plunger or wheel relatively to the ferrule. Thus a cane with a fixed roller may also be useful, but a spring-pressed roller is preferred because it permits either a turning movement or a yielding end movement in effecting a solid seating of the ferrule upon the pavement whenever the need arises. The roller may be supported in various ways, but as shown in Fig. 3 stud shaft 10 is removably secured within a transverse opening in plunger 8 by means of a set screw 19 located axially at one end of the plunger. If a pair of rollers 5 and 5' are used, as shown in Fig. 5, rollers may be placed on opposite sides of the cane and adapted to rotate independently to permit the cane to travel in different directions depending upon the election of the operator who may tilt or turn the cane axially in one direction or the other and cause the ferrule end of the cane to move diagonally across the path of the user and then back again.

The roller may be mounted in a yielding position adjacent the fixed ferrule in other ways than as shown, and therefore, we do not wish to limit ourselves to a sliding plunger and a coiled spring confined within the hollow end of a cane, but desire to include any mechanical equivalent adapted to hold the roller in a yielding position opposite the ferrule so that roller and ferrule may be used alternatively for the protection and safety of the blind user of the cane.

What we claim is:

1. A cane for the blind, having a riding member secured to its lower end in a position to permit said member and the end of the cane to be used alternately for guiding and supporting the user.

2. A cane for the blind, having a supporting ferrule at one end and a guiding roller at one side of the ferrule, said roller and ferrule being arranged to permit independent use thereof by the holder of the cane.

3. A cane for the blind, having a stable supporting end and a resilient guiding member associated with said end.

4. A cane for the blind, having a yielding device adapted to support the cane in an inclined riding position and to permit the cane to be used as a supporting staff at the option of the user.

5. A cane for the blind, having a spring pressed roller arranged at its lower end to support the cane for a cushioning riding movement.

6. A guiding and supporting cane for the blind, comprising an end ferrule and a yielding riding member mounted laterally adjacent said ferrule.

7. A guiding and supporting cane for the blind, having a metal ferrule at its lower

end, a roller projected beyond said ferrule, and means adapted to support said roller in a yielding position relatively to said ferrule.

5 8. A guiding and supporting cane for the blind, having a hollow end, a movable plunger and a spring confined within said end, and a riding member carried by said plunger.

10 9. A guiding and supporting cane for the blind, comprising a tubular end portion, and a roller having a supporting member yieldingly mounted within said tubular end portion.

15 10. A guiding and supporting cane for the blind, comprising a tubular member having a metal ferrule at its lower end, a plunger and a spring within said member, and a roller mounted upon said plunger at one side of said member.

20 11. A guiding and supporting cane for the blind, comprising an end portion having a slot, a roller having a movable support extending through said slot, and a spring pressing against said support adapted to project the roller beyond the supporting end of the cane.

25 12. A guiding and supporting cane for the blind, comprising a tubular end portion having an opening, a guiding member and a movable support therefor connected with

said end portion, and a closure member for said opening.

13. A guiding and supporting cane for the blind, comprising a hollow end portion having a removable metal ferrule, and a 35 guiding roller yieldingly supported upon said end portion opposite said ferrule.

14. A guiding and supporting cane for the blind, comprising a tubular slotted member having a coiled spring and a reciprocable plunger therein, said plunger having 40 a lateral projection extending through said slot, a roller mounted upon said projection, and a closure plate for said slot connected with said projection.

15. A guiding and supporting cane for the blind, having a pair of guiding rollers mounted upon the lower end thereof and movable back and forth relatively to the 50 bottom of the cane.

16. A guiding and supporting cane for the blind, having a pair of guiding rollers supported in a yielding position beyond the lower supporting end thereof.

In testimony whereof we affix our signatures. 55

GEO. J. VAUGHAN.
MICHAEL E. HUNT.

Witness:

LOUIS F. VAUGHAN.