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M. M. HARRIS  
TIP FOR UMBRELLAS AND MEANS FOR ATTACHING  
THE COVERS OF UMBRELLAS THERETO  
Filed Aug. 18, 1950

2,628,581

Fig. 1.

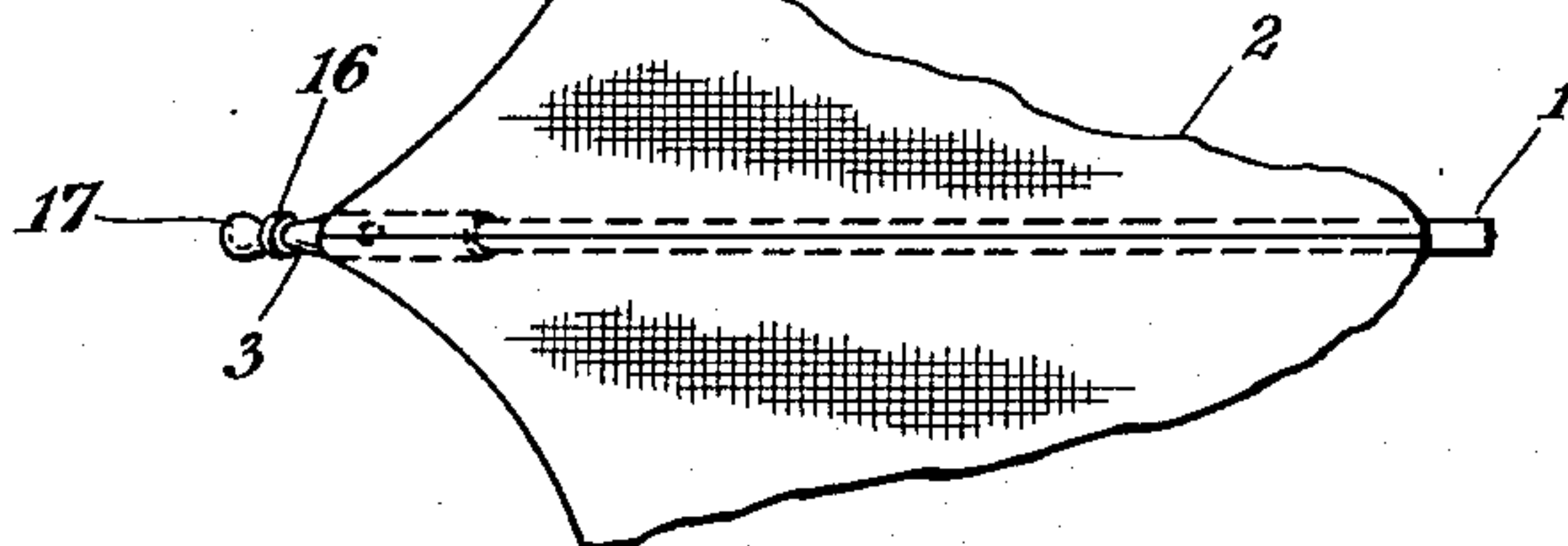


Fig. 2.

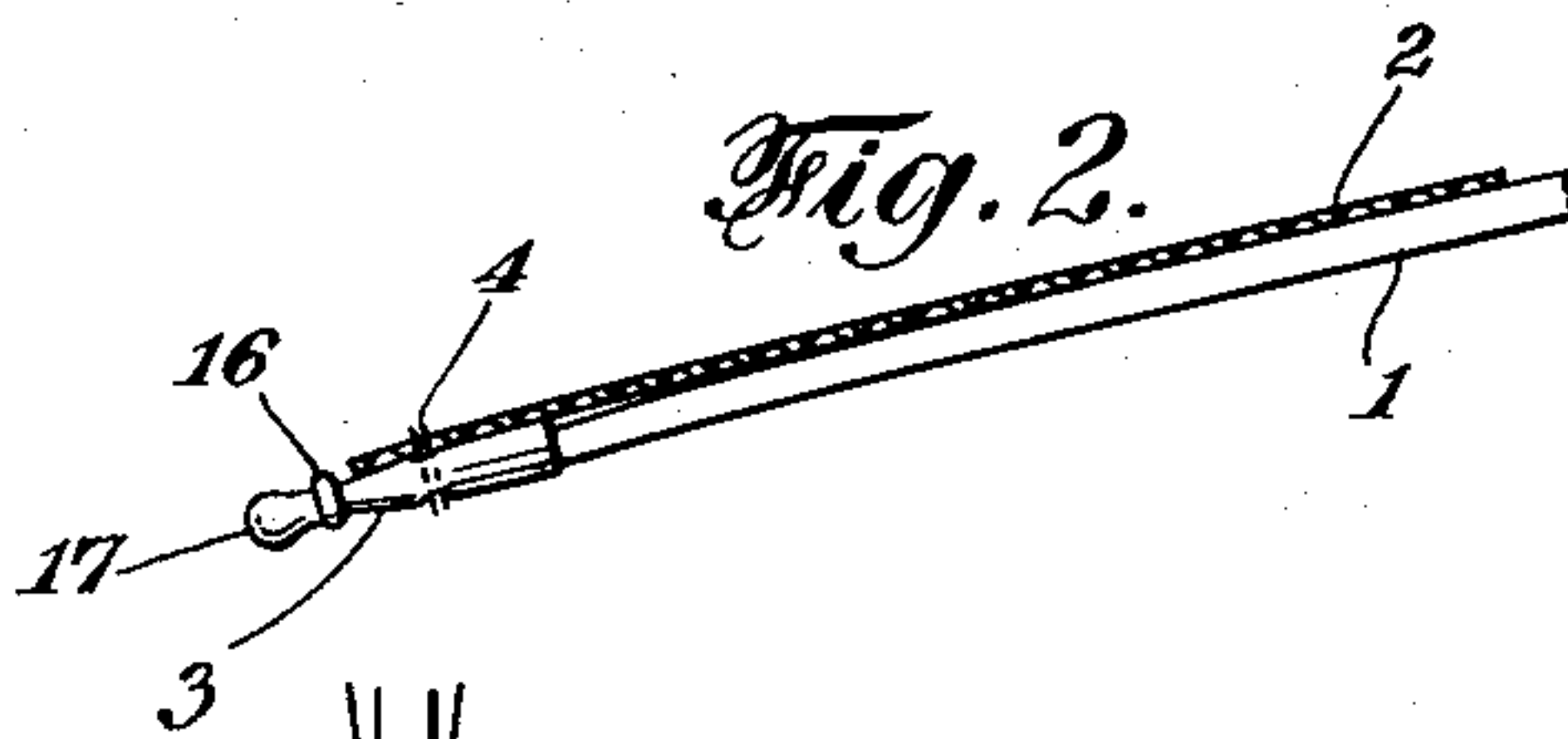


Fig. 3.

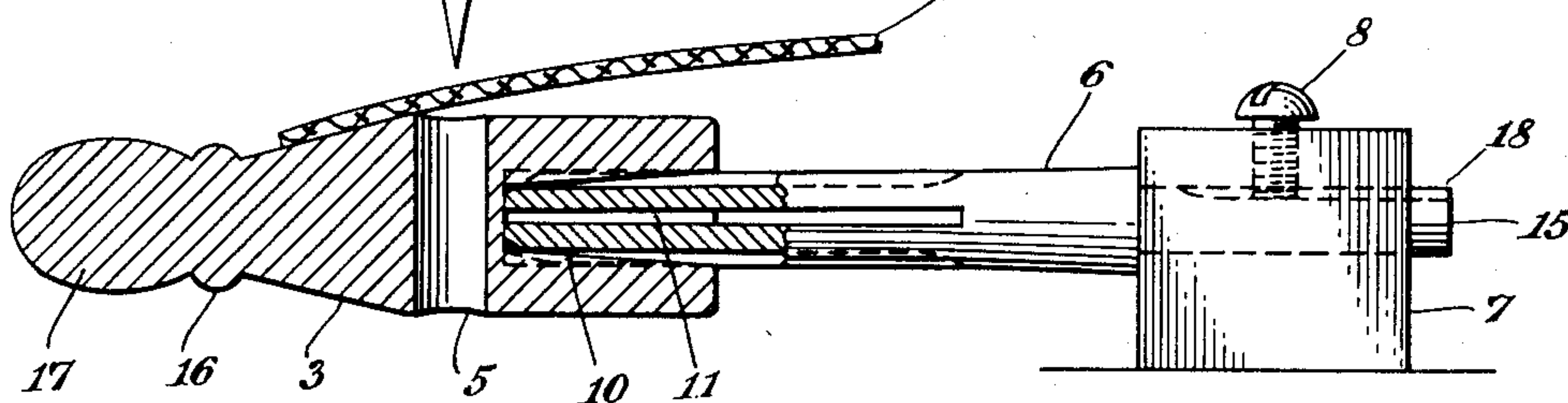


Fig. 4.

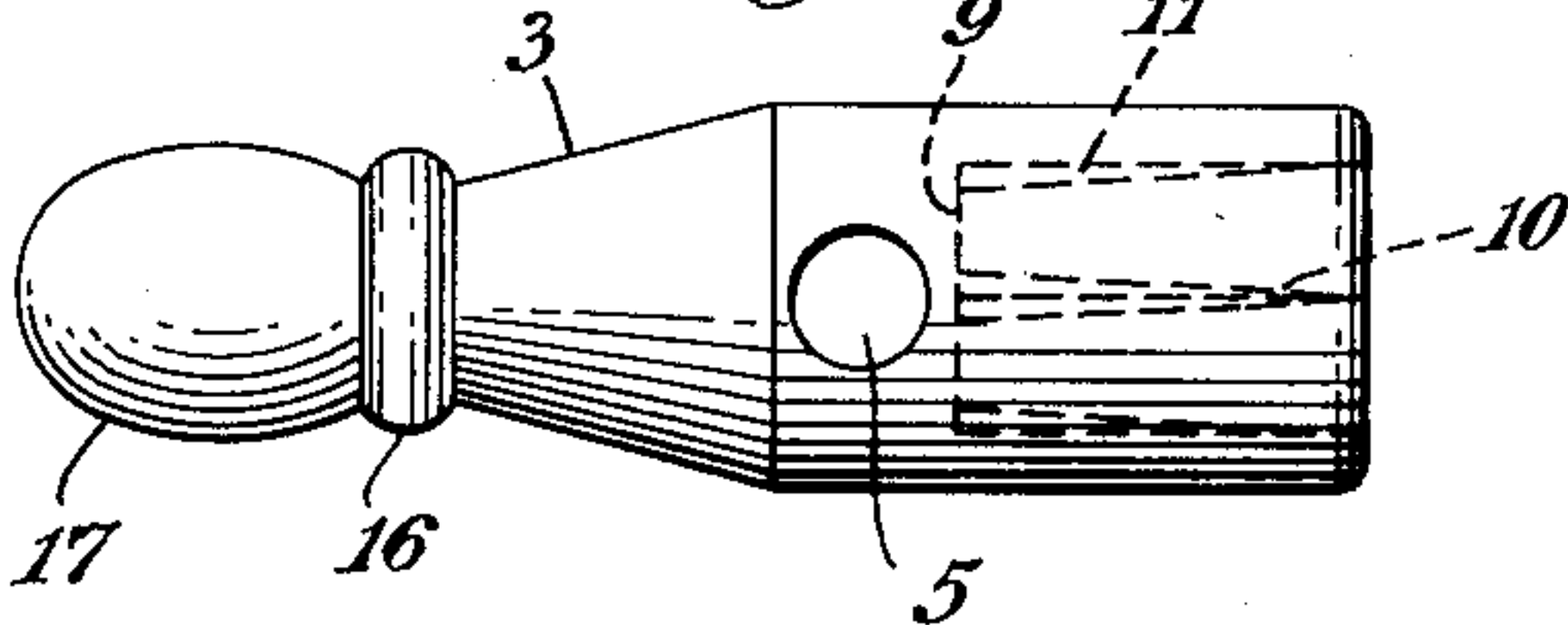


Fig. 5.

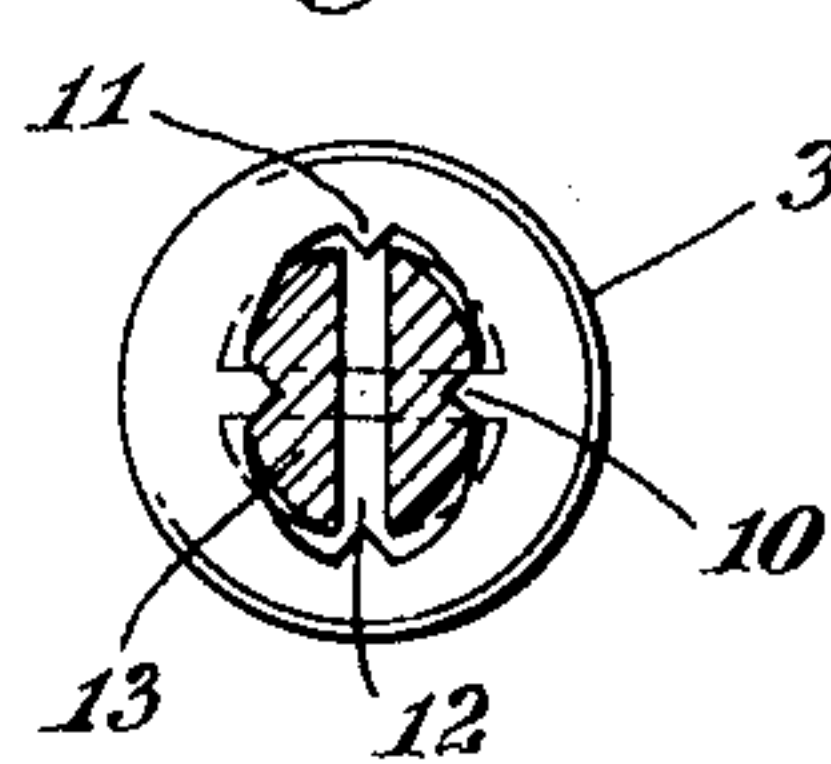


Fig. 7.

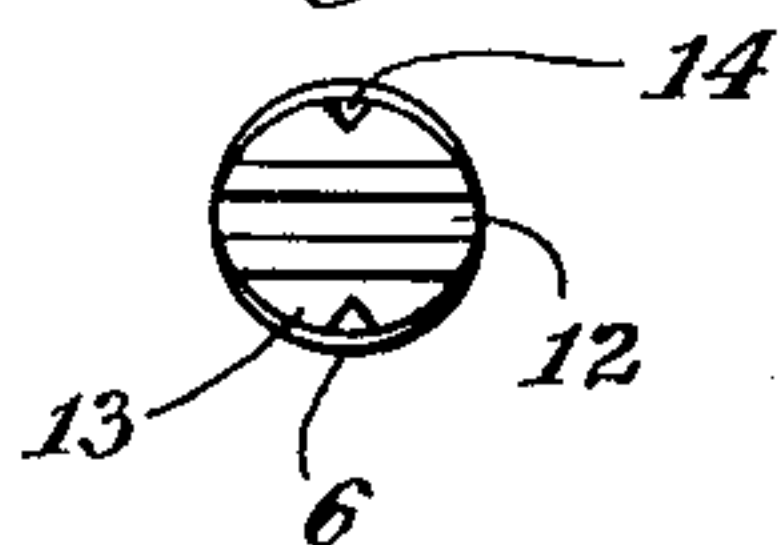
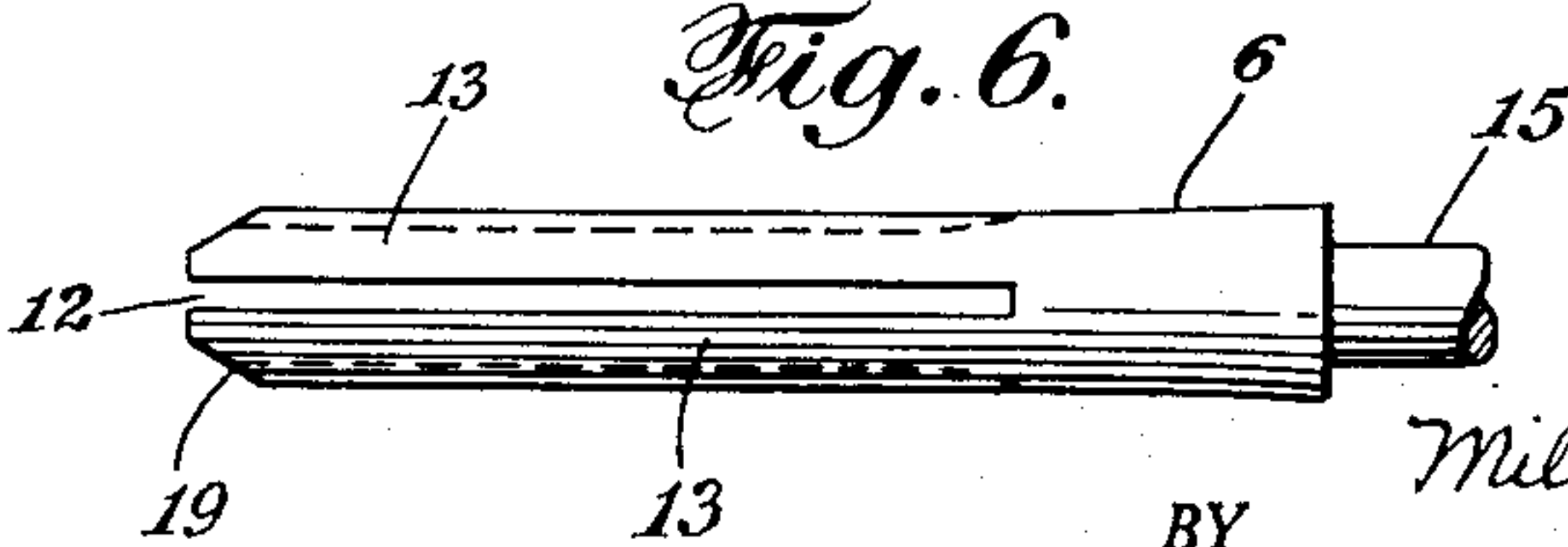


Fig. 6.



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## UNITED STATES PATENT OFFICE

2,628,581

## TIP FOR UMBRELLAS AND MEANS FOR ATTACHING THE COVERS OF UMBRELLAS THERETO

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1 Claim. (Cl. 112—114)

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My invention is an improved tip for rods, such as the flexible ribs of umbrellas, and means for mounting the tip on said rib and securing to the tip the cloth cover of the umbrella.

An important object of the invention is to provide apparatus which will engage and hold the tip in correct position to guide the operator who sews the cover in place.

The drawings fully illustrate the invention, which is described in the specification that follows and the novel features are pointed out in the appended claim:

Figure 1 is a top view of part of an umbrella cover secured upon a rib with the tip of my invention.

Figure 2 is a side view of such parts.

Figure 3 is a sectional view showing a tip and a device for correctly mounting it to enable the cover to be stitched thereon.

Figure 4 is a top view of the tip enlarged.

Figure 5 is a view of the tip with the mandrel in place as seen from the inner end.

Figure 6 is a side view showing a member such as a rod or mandrel that supports the tip when the cover is attached to the ribs; and

Figure 7 is an end view of said rod or mandrel.

Part of the rib of an umbrella is indicated at 1, with a portion of the cover 2 over it. The tip 3 is of metal such as aluminum or plastic material and its inner end is hollow to receive the end of the rib 1. The cover is secured to each tip on the ribs by stitches 4, which are worked in through holes 5 in the tips.

Each tip is first sewn to the cloth and then mounted on the outer end of a rib 1. Each tip must be held with the axis of the hole 5 vertical to be in line with the needle of the machine used by the operator. To this end a rod or mandrel is held fast in a bearing 7 by a set screw 8. The bearing is mounted on the top of a sewing machine, and the free end of the mandrel is inserted into a cavity 9 at the inner end of the tip. The cavity 9 has the form of an ellipse in cross section with the short axis parallel to the hole 5. Inside the cavity 9 are longitudinal ribs 10 at the ends of the short axis and ribs 11 at the end of the long axis. The free end of the mandrel 6 has a slot 12 which opens through the opposite side and divides the end into upper and lower prongs 13. The plane of the slot with the mandrel properly disposed in the block 7 is horizontal and the prongs 13 each have a central longitudinal groove 14 in its outer face. These grooves 14 and the slot 12 receive the ribs

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10 and 11. The tips may have various shapes. They may bear each a collar 16 and a knob 17 at the outer ends for ornamental effect.

The mandrel 6 has a reduced end or extension 15 to enter the bore in the block 7, and this extension may have a key 18 to engage a keyway in the bore of the block, so that when the mandrel is mounted it will always be in correct position with the cross dimension of the slot 12 horizontal.

The ribs 10 and 11 taper from the inner end of the bore 9 in the tip 3 to the outer end of the bore, and their front ends are slightly separated from the outer end of the cavity 9, as Figure 4 indicates. The thickness of the mandrel 6 in the direction of the width of the slot 12 is slightly greater than the diameter of the bore 9 in the plane of the ribs 10, that is along the short axis of the cavity. This is indicated by the dashed lines on Figure 5.

Therefore, if a tip is held by the operator in the position of Figure 4, with the hole 5 horizontal, it cannot be pushed upon the rod 6. The ribs 10 will be in line with the slot 12, but the prongs 13 are too wide to enter the bore 9.

Hence the operator will see at once that the tip 3 must be turned to make hole 5 vertical, or sewing cannot be attempted. The ribs 11 will then be in the plane of the slot 12 and the prongs 13 will yield to pressure and enter the bore 9, allowing the ribs 10 to slide into the grooves 14 on the prongs. The hole 5 will then be in line with the needle 20 of the machine as illustrated in Figure 3. If desired, the ends of the prongs can be bevelled as shown at 19 to make them readily enter the bore 9.

The tip must thus be held with the hole 5 vertical to get it into position to be sewed by the needle 20; and there are only two correct positions possible. In each, the bore 5 will be vertical. In any other position of the tip, the prongs 13 will not enter the bore 9. The tip only needs to be held with the hole 5 as on Figure 3.

When the cover is sewed to all the tips, the outer ends of each of the ribs are inserted into the bore 9. The tapering ribs 10 and 11 give a wedge fit, which holds the tips on the ribs securely. The tips 3 therefore never become loose and disengaged from the ribs 1.

My invention thus embodies a very useful and practical form of tip which greatly reduces loss of time, waste of thread and other damage, and greatly increases the rate of production and finishing umbrellas in which it is used.



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Having described my invention, what I believe to be new is:

The combination of a metal tip to be secured to the cloth cover of an umbrella and fitted upon the outer end of a rib thereof, a mandrel to hold said tip, and a support to which the tip is affixed, the tip having in one end a cavity with the cross sectional outline of an ellipse, and longitudinal ribs in the cavity at the ends of the long and short axes of said ellipse, the tip also having a transverse hole between said cavity and its opposite end, the axis of the hole being parallel to said short axis, the mandrel being circular in cross section and having a slot in one end, dividing it into flexible prongs to be compressed so that the prongs can be inserted into said cavity, the width of the slot then extending in the

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direction of said long axis, said prongs having longitudinal grooves on their outer surfaces, said prongs when in said cavity receiving the ribs of the cavity in said grooves and the sides of said slot.

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The following references are of record in the file of this patent:

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