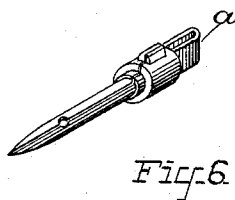
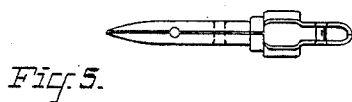
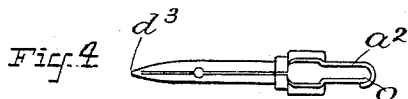
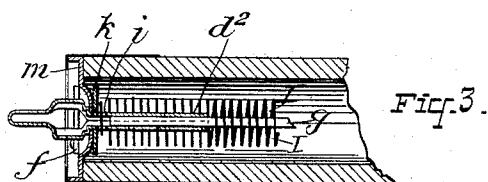
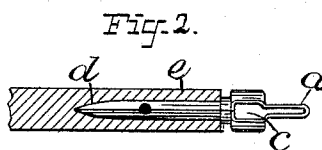
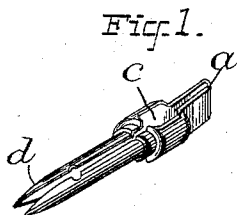


(No Model.)

J. C. PERKINS & L. E. LEIGH.  
SPINDLE TIP FOR SPRING SHADE ROLLERS.

No. 482,563.

Patented Sept. 13, 1892.



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# UNITED STATES PATENT OFFICE.

JUDSON C. PERKINS AND LEWIS E. LEIGH, OF MERIDEN, CONNECTICUT,  
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PLACE.

## SPINDLE-TIP FOR SPRING SHADE-ROLLERS.

SPECIFICATION forming part of Letters Patent No. 482,563, dated September 13, 1892.

Application filed January 13, 1892. Serial No. 417,918. (No model.)

*To all whom it may concern:*

Be it known that we, JUDSON C. PERKINS and LEWIS E. LEIGH, of Meriden, in the county of New Haven, State of Connecticut, have jointly invented certain new and useful Improvements in Spring Shade-Rollers; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that portion or device of a spring-shade-roller fixture or contrivance which is usually denominated the "spindle-tip." Prior to our invention such spindle-tip has usually been made of cast metal and of such form as to comprise three integral members—*i. e.*, first, an outer end portion of polygonal shape in cross-section, adapted to engage with the slot-like receptacle of one of the brackets by which shade-rollers are usually supported; second, a middle or body portion of substantially a cylindrical shape and formed with two opposite longitudinal depressions with which the pawls on the end plate of the roller engaged, and, third, an inner spindle-like portion adapted to be inserted in a cavity designed to receive it in the outer end of the (usually) wooden spindle of the fixture, though sometimes other and somewhat differently-made devices have been used to serve the purposes of such usually or most extensively employed cast-metal spindle-tips.

In the manufacture and use of spindle-tips made, as they have usually heretofore been made, of cast metal some serious objections and difficulties have existed, which it is the main object of our invention to overcome.

Among the practical disadvantages of a cast-metal spindle-tip may be mentioned the liability of breakage, which often occurs by letting the roller fall, so that the projecting or outer end of the spindle-tip will receive the force of the blow, the necessity for an inspection of all the tips manufactured by the maker, in order to have them all alike, and the difficulty in having such small castings, made in large numbers, all exactly alike, and the expense consequent to the manufacture, while among the disadvantages of all spindle-

tips heretofore made with recesses or depressions for the accommodation of the engaging ends of the pawls (of positive-stop spring-rollers) is the very serious one of a great liability of the depressions becoming eventually so partially filled up or clogged with dust and dirt as to seriously impair the designed actions of the pawl and render the pawl-and-ratchet device of the roller uncertain in its operation, to the great annoyance of persons using the shade-roller. We propose by our invention to overcome all these practical objections in the manufacture and use of spindle-tips and to provide for use a better device, which will cost less and be more durable than the usually-made or any prior-known form of spindle-tip; and to these main ends and objects our invention may be said to consist, primarily, of a spindle-tip composed of sheet metal bent and shaped into suitable form, and, secondarily, in a spindle-tip composed of sheet metal and possessing certain novel features of form, all as will be hereinafter more fully explained, and as will be more particularly pointed out in the several claims of this specification.

To enable those skilled in the art to which our invention relates to make and use spindle-tips embracing, either in part or wholly, the several novel features or parts of our invention, we will now proceed to more fully describe the latter, referring by letters to the accompanying drawings, which form part of this specification, and in which we have shown the several and in a measure separable features of our invention carried into effect in those precise forms in which we have so far practiced our invention, though with reference to some parts of our invention many modifications may be made without changing the principles of construction and modes of operation peculiar thereto.

Figure 1 is a perspective view of one form of our improved sheet-metal spindle-tip. Fig. 2 is a longitudinal section of the same driven into the end of an ordinary wooden spindle in the manner that the old-fashioned cast spindle-tip is usually combined with such spindle. Fig. 3 is a partial central longitudinal section of a spring-roller, showing the ar-

rangement therewith of one of our improved spindle-tips, and also illustrating another modification of the device. Fig. 4 is a perspective view, enlarged scale, of another form of our improved spindle-tip. Fig. 5 shows in perspective, same scale, another modification in the form of the new device. Fig. 6 shows in perspective, same scale, still another form of our improved metal spindle-tip.

Wherever in the several figures the same part occurs it will be found always designated by the same letter.

By reference now to Fig. 1 it will be seen that we sometimes make our improved spindle-tip of substantially the general exterior shape and size of the old-fashioned cast article, but form it of a sheet-metal blank, the halves of which (supposing the blank to be divided by an imaginary line at its middle lengthwise) are first struck up or swaged into the proper shapes and the blank then folded on itself at the middle, so as to form, first, an outer member  $a$ , which is of the proper shape and size to engage, non-rotatively, with that one of the usual shade-roller brackets which is slotted; second, a middle member, which is substantially cylindrical in shape exteriorly, but has the diametrically-arranged opening  $c$ , into the opposite ends of which fall the engaging ends of the usually-employed pawls, and, third, an inner end member  $d$ , that in its normal condition is composed of two nearly semi-tubular parts slightly separated by the natural spring of the bent-up blank, but which parts are forced and held together when the spindle-tip is driven into the spindle, as clearly shown at Fig. 2. The said duplex member  $d$ , having the extremities of its two parts shaped after the fashion, nearly, of halves of hollow cones, so that in use in the spindle  $e$ , as seen at Fig. 2, the external shape or pattern of our improved sheet-metal spindle-tip is substantially identical with that of the old-fashioned cast spindle-tip, except that instead of the two depressions of the cast device our spindle-tip has the aperture  $c$ . This apertured form of the device involves an important feature of our invention, for by reason of the presence of this aperture  $c$  the device is rendered wholly incapable of collecting or retaining any dust or dirt in the receptacles with which the usual pawls  $f$  (see Fig. 3) of a ratchet-and-pawl shade-roller engage. This feature of our invention is, however, separable from and may be used, it will be seen, independently of any specific form of the spindle-tip with reference to its other members.

By reference now particularly to Fig. 3 it will be seen that the spindle-tip may be made (as therein shown) with an inner end member  $d^2$ , perfectly tubular, (and circular in cross-section,) adapted to form the housing or socket for the outer end of a metallic spindle  $g$  in that species of spring shade-roller in which a spindle  $g$  is stepped at its outer end in the inner end of the spindle-tip. In the use of our invention in this form or

under this modification thereof we make the perforation  $i$  of the inner end member in a diametrically-opposite direction to that seen in the first-described form of the device, shown at Figs. 1 and 2 and in use we combine with the split tubular member  $d^2$  a collar or perforated disk  $k$ , the function of which is to confine in proper relative place the parts of the member  $d^2$ , in order that the socket may be always in shape to properly receive and hold laterally the end of the spindle  $g$ , and also that the external diameter of the split tube  $d^2$  may be gaged to a perfect gage in all the fixtures made, (of a given size,) so that the end plates  $m$  (which are all made with the same-sized central aperture) will all fit and work alike on the spindle-tips in assembling the parts of the entire roller-fixture. As illustrated, the outer end of the actuating-spring  $l$  of the roller is, in the case of the use of that form of spindle-tip seen at Fig. 3, fastened to the spindle-tip only, instead of to both the latter and the wooden spindle  $e$ , as in the use of the form of sheet-metal device shown at Figs. 1 and 2.

The modification shown at Fig. 4 embodies a sheet-metal spindle-tip composed of a differently-formed blank from those used in making the tips shown in the preceding figures, the blank being folded over at the end of the inner end member  $d^3$ , its end portions forming the outer end member  $a^2$  of the spindle-tip, and the extremities of the blank overlapped, as seen at  $o$ , and so that the overlapped ends can be sprung slightly toward each other to force the teat  $o$  into the bracket's slot, from which said teat cannot thereafter escape accidentally. In making our improved device in this form the inner member is adapted either to be inserted into the end of a wooded spindle or to enter the outer end of a tubular metallic spindle designed to turn freely on its axis.

In lieu of any one of the forms seen in the figures so far described our improved device may be made of two separate parts struck up and then riveted or otherwise fastened together, as illustrated at Fig. 5, and in thus making our spindle-tip we have contemplated the shaping of the duplicate parts so that when fastened together they will produce a spindle-tip similar in external form to any one of the other forms shown; but this general form may, however, be varied by making the device, as seen at Fig. 6, with projections to engage the roller-pawls instead of the apertures, thus omitting one feature of our invention.

It will be understood that in the manufacture of spindle-tips according to our invention of sheet metal or malleable stock first cut into blanks and then struck up and bent into final form not only can they be produced with all the units more exactly alike than it is possible to make the castings, but can be made with greater precision, so that as substitutes or interchangeable duplicates

in assembling all the parts to produce the roller-fixtures complete less trouble and greater perfection in the complete shade-roller fixtures are attained to.

5 Having now so fully described our invention that those skilled in the art can make and use shade-roller fixtures embodying in one or another form either one or all of the separate parts or features thereof, what we claim as  
10 new, and desire to secure by Letters Patent, is—

1. A spindle-tip for spring-rollers, composed of sheet metal bent and shaped into form, comprising an inner end member substantially  
15 cylindrically in contour, a loop-like outer end portion, as specified, and an intermediate enlarged body portion having an opening through it diametrically to permit the engagement with said body portion of the pawl  
20 of the roller and to permit the passage of dirt through said opening, all substantially as hereinbefore set forth.

2. A spindle-tip composed of a sheet metal blank shaped and bent on itself at about its  
25 middle lengthwise to form an outer end member adapted to engage with a slotted bracket, an enlarged middle member or portion, as specified, and a hollow inner end portion com-

prising the end portions of the said blank, all substantially as and for the purposes herein- 30 before set forth.

3. The combination, with a spindle-tip composed of a sheet-metal blank shaped and bent on itself at about its middle lengthwise to form an outer end member adapted to engage 35 with a slotted bracket, an enlarged middle member or portion, as specified, and a hollow inner end portion comprising the end portions of the blank, of a washer or confining-collar  $\frac{1}{2}$ , all substantially in the manner and for the 40 purposes hereinbefore set forth.

4. A spindle-tip composed of a sheet-metal blank shaped and bent on itself lengthwise to form an outer end member adapted to engage with a slotted bracket, an enlarged middle 45 member or portion, as specified, and a hollow inner end member, all substantially as and for the purposes hereinbefore set forth.

In witness whereof we have hereunto set our hands this 29th day of December, 1891.

JUDSON C. PERKINS.  
LEWIS E. LEIGH.

In presence of—

DEXTER W. PARKER,  
ERNEST A. LEIGH.