

(No Model.)

C. D. ROGERS.
SCREW EYE.

No. 464,465.

Patented Dec. 1, 1891.

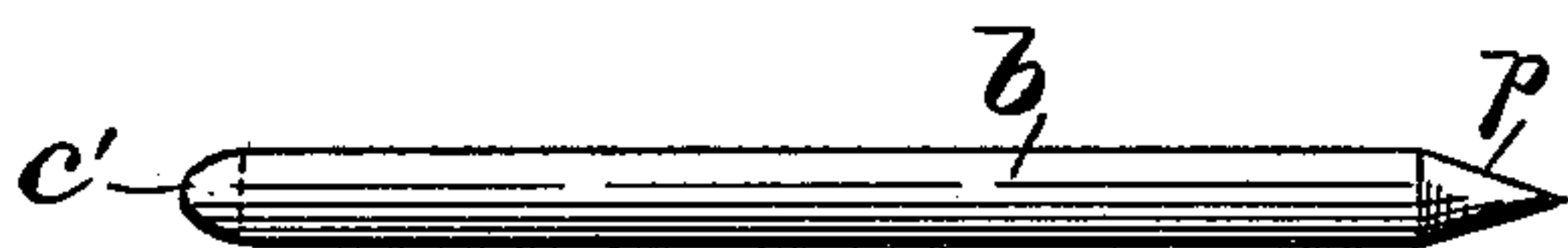


FIG. 1.

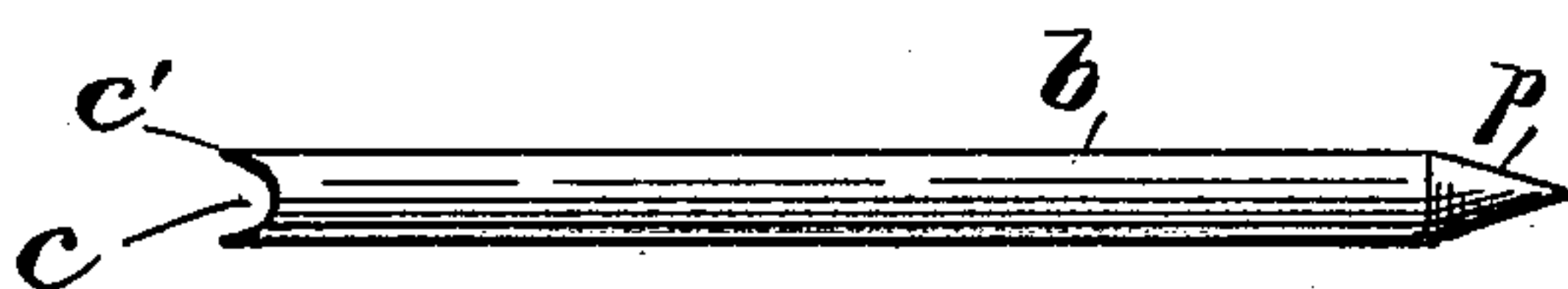


FIG. 2.

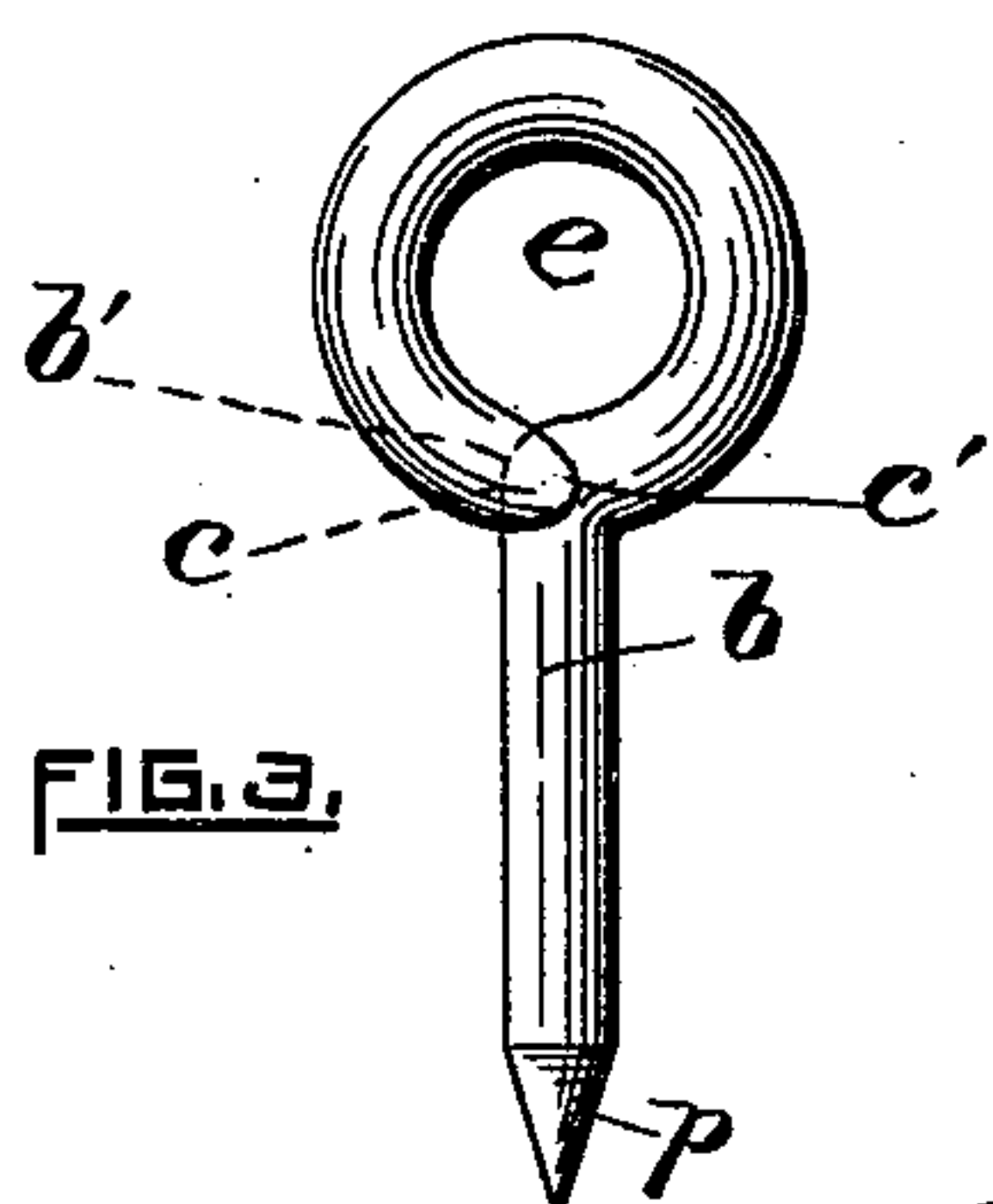


FIG. 3.

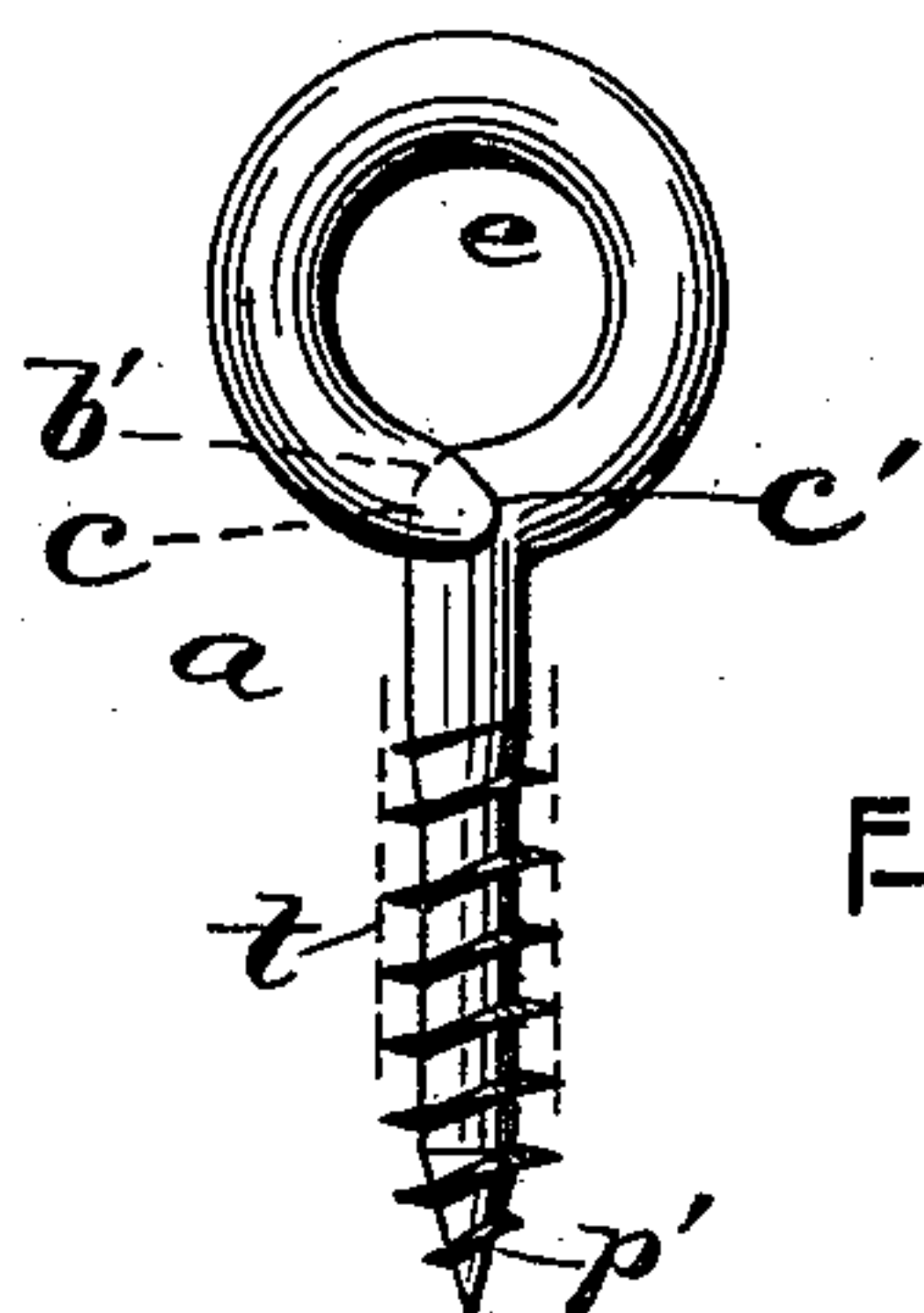


FIG. 4.

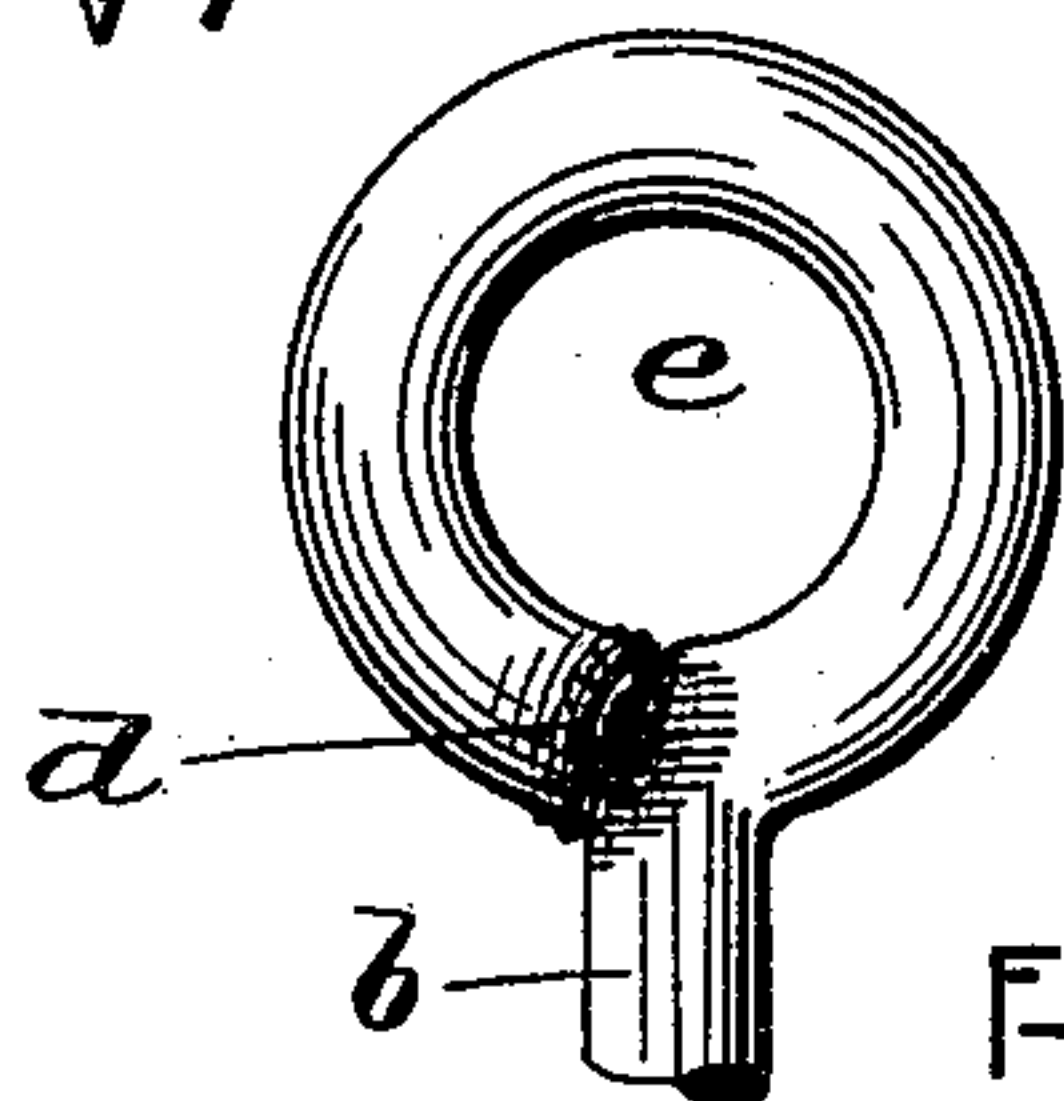


FIG. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES D. ROGERS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
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SCREW-EYE.

SPECIFICATION forming part of Letters Patent No. 464,465, dated December 1, 1891.

Application filed August 12, 1891. Serial No. 402,436. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. ROGERS, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Screw-Eyes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to "wire screw-eyes," so-called; and it consists, essentially, of a shank or stem portion having rolled or swaged screw-threads formed thereon, whose diameter exceeds that of the wire, and having the end of the opposite portion of the wire cut transversely to form a concave groove, so that when such portion of the wire is bent to an eye form the bottom of said groove will fit snugly against the shank, the adjacent lips or sides at the same time extending beyond and practically concealing the joint. There are objections to screw-eyes as usually made—as, for example, they are greatly diminished in strength, their holding power in some cases being reduced more than fifty per cent. by cutting away the stock in forming the threads. The ends are cut off practically square. In forming the eye-joint the corresponding end of the wire is pressed with such force against the shank as to upset the metal, thereby producing on each side a burr or fin, the joint thus made being rough and otherwise objectionable.

The object I have in view is to produce screw-eyes devoid of the objections just referred to. By means of my improvements screw-eyes may be made more cheaply; they are much stronger; they are true and smooth at the joint; the eye is stronger laterally because the side lips extend onto the shank, thereby partly concealing the joint, and they can be more accurately centered and more readily inserted into wood.

In the accompanying sheet of drawings, Figures 1 and 2 represent plan and side views of a piece of suitably-cut wire preparatory

to being converted into my improved screw-eye. Fig. 3 is a side view showing the wire bent to form the finished head or eye. Fig. 4 is a similar wire, showing the shank provided with an enlarged screw-thread raised from the surface of the metal; and Fig. 5 is a partial side view showing the eye-joint as commonly made.

In the drawings, *b* indicates the blank or piece of suitable wire, having one end *p* sharpened or cone-shaped and the other cut across transversely, so as to form a substantially half-round groove *c*, with upper and lower extending sides or lips *c'*, as represented in Figs. 1 and 2. The blank is next taken and the grooved end portion thereof bent by suitable tools to form a substantially round eye or head *e*, as indicated in Fig. 3. When thus bent, the bottom of the groove *c* is made to bear snugly against the corresponding side of the shank at the initial point *b'*, where the eye commences, while at the same time the said lips *c'* extend onto and partly inclose the shank, thereby forming a smooth joint and one devoid of the burrs or fins *d*, Fig. 5, commonly present in screw-eyes as heretofore made.

The blanks, headed and pointed as represented in Fig. 3, are next introduced to the action of suitably-operating swaging-dies, which latter act to raise the metal from the shank's surface in a radial direction, thereby forming screw-threads *t*, whose diameter exceeds that of the unthreaded portion, (see Fig. 4,) the dies at the same time also producing screw-threads *p'* upon the point portion, thus completing the operation, the finished screw-eye *a* being represented in Fig. 4.

I would state that dies well adapted to produce the screw-threads *t* by the cold-rolling or swaging process is clearly set forth and claimed in United States Letters Patent No. 370,354, granted to me September 20, 1887. The dies therein referred to are provided each with a "series of obliquely-arranged V-shaped grooves, presenting between them a corresponding series of bars or ribs narrow at the end where they commence to form the thread, so that they may be forced at the commencement of their action into the metal to the depth required to form the body of the screw,

and, gradually increasing in width, act later-
ally upon the metal between them and force
it into the grooves, which give it the form re-
quired for the thread." In thus rolling the
5 threads the plain shank portion *b* of the screw-
eye blank, Fig. 3, is placed vertically in the
space between a suitably-mounted pair of
said dies with their ends reversed, and as they
are moved toward each other the blank is
10 seized and rolled between them until the op-
posite ends of the dies pass each other, when
it (the now screw-threaded eye) drops from
them complete, as shown by Fig. 4, the diame-
ter of the threaded portion being greater than
15 that of the normal size of the wire or shank.
(See vertical dotted lines indicated in said
figure.)

In a companion application, Serial No.
402,437, I have described and claimed a novel
20 form of die for simultaneously cutting off and
pointing the piece of wire *b*, adapted to be
converted into my improved screw-eye *a*.

I claim as my invention—

1. As an improved article of manufacture,

a screw-eye having its shank portion provided 25
with a raised screw-thread whose diameter ex-
ceeds that of the wire or unthreaded portion.

2. The wire screw-eye substantially as here-
inbefore described, having its shank or stem
provided with a raised screw-thread whose 30
diameter is greater than that of the wire it-
self, and having the opposite end of the wire
cut to a concave form transversely and fitting
and inclosing a portion of the shank.

3. A gimlet-pointed screw-eye made of wire, 35
the shank portion having a rolled or swaged
screw-thread formed thereon and having the
end of the wire contiguous to the eye-joint
provided with side lips or extensions *c'*, in
contact with and inclosing a portion of the 40
shank, substantially as hereinbefore de-
scribed, and for the purpose set forth.

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

CHARLES D. ROGERS.

Witnesses:

CHARLES HANNIGAN,
GEO. H. REMINGTON.