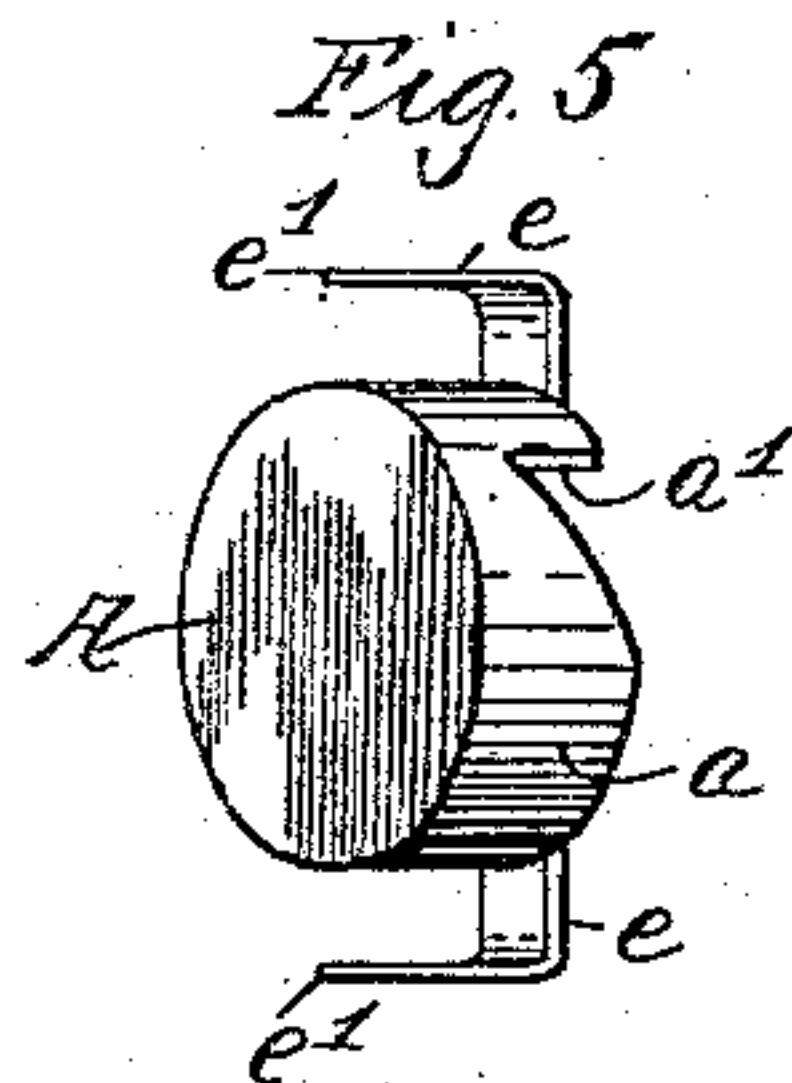
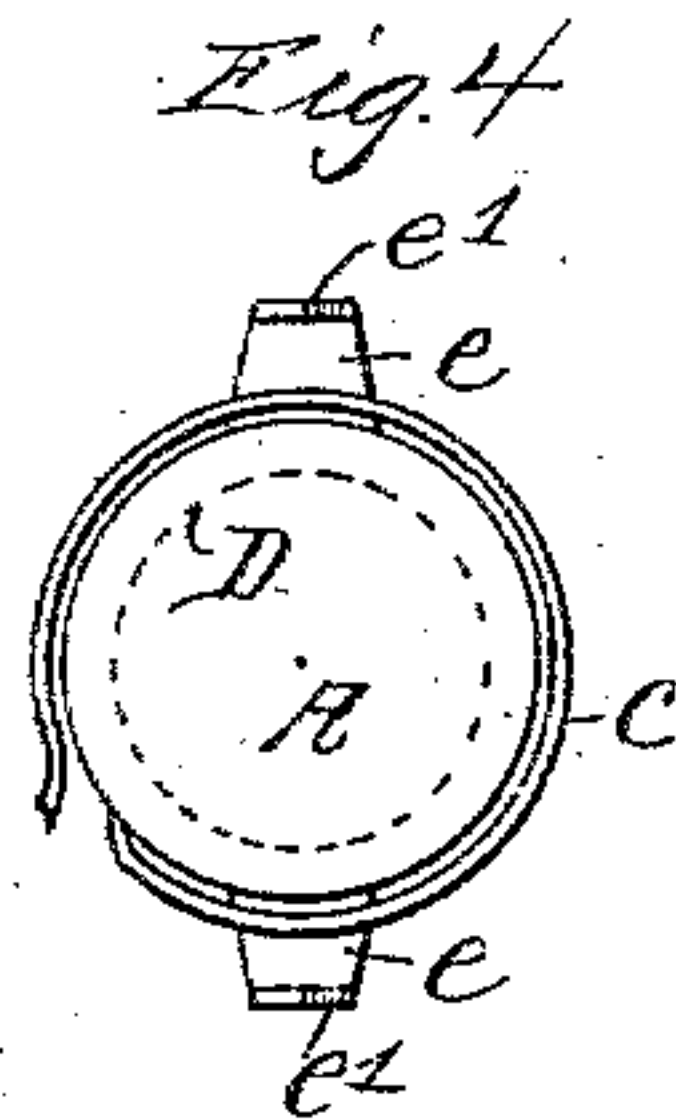
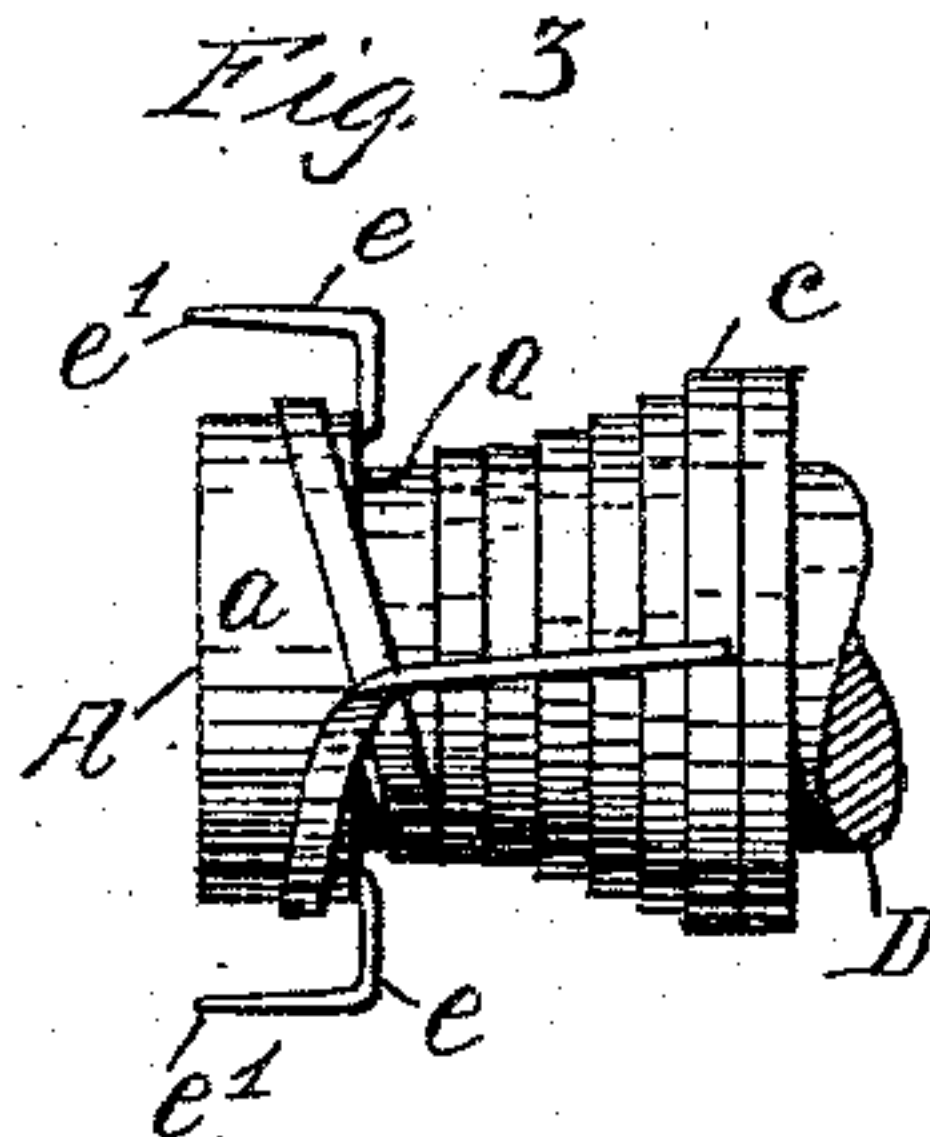
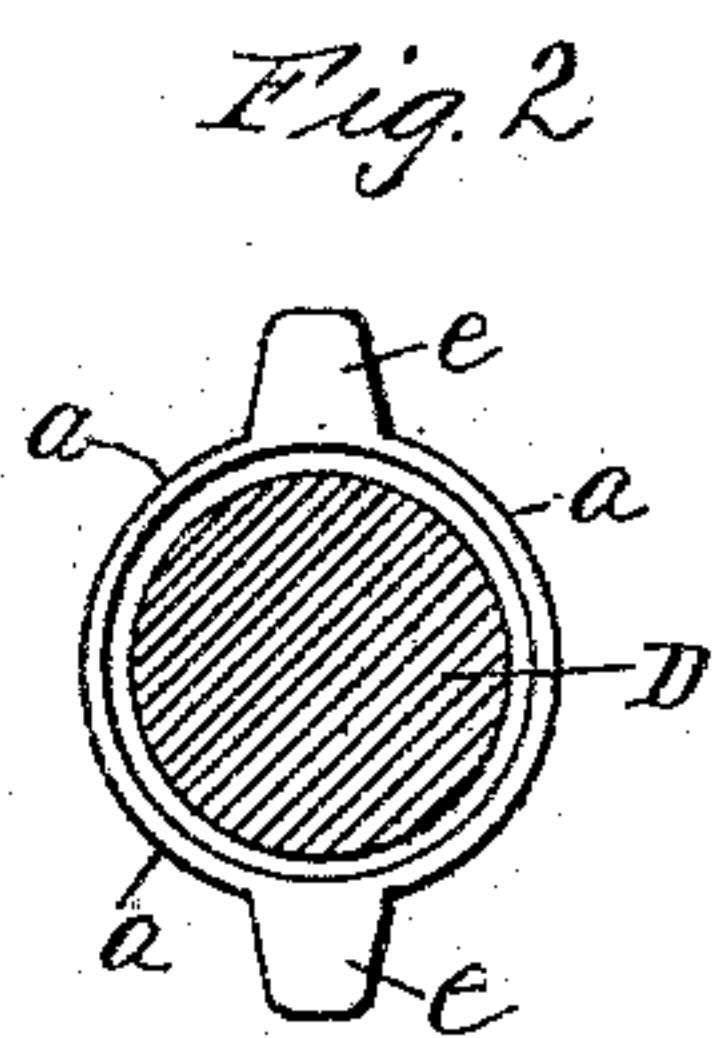
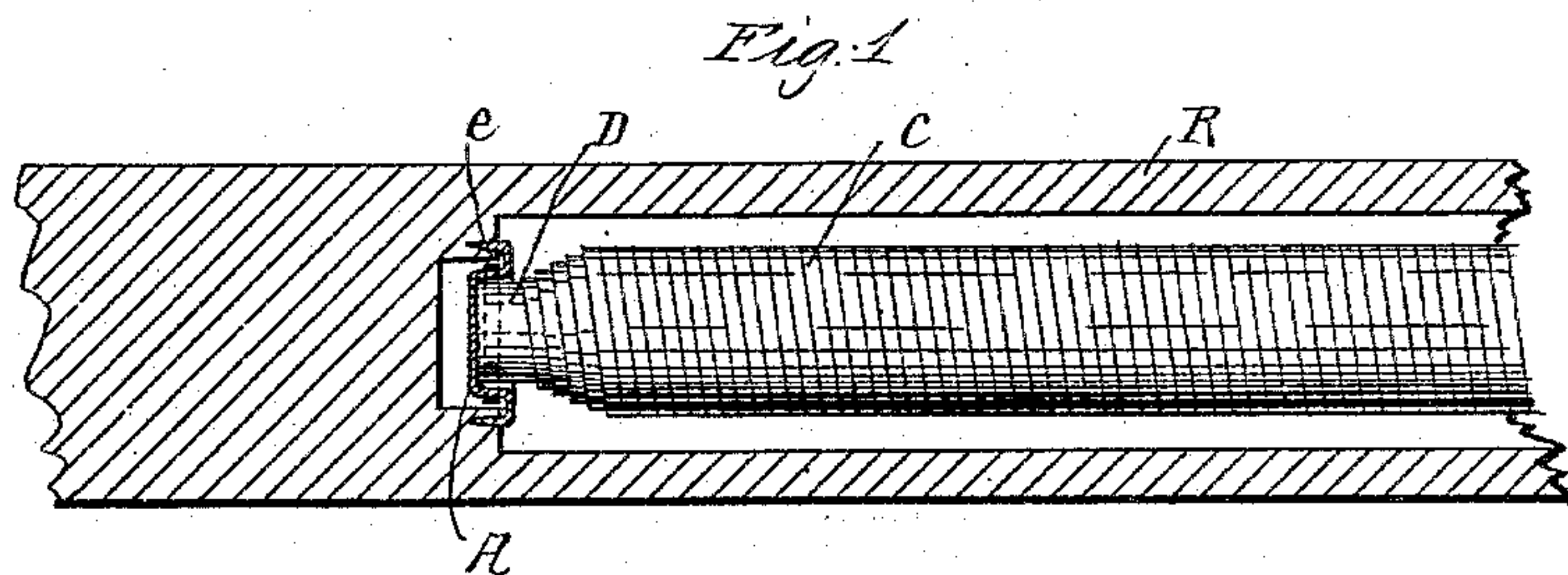


(No Model.)

E. F. HARTSHORN.  
SPRING SHADE ROLLER.

No. 511,076.

Patented Dec. 19, 1893.



Witnesses  
*Fred Kempfer*  
*V. P. Wilson*

Inventor  
*Edmund F. Hartshorn*  
By *his Attorneys*  
*Gifford & Law.*



# UNITED STATES PATENT OFFICE.

EDMUND F. HARTSHORN, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE  
STEWART HARTSHORN COMPANY, OF NEW JERSEY.

## SPRING SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 511,076, dated December 19, 1893.

Application filed March 3, 1893. Serial No. 464,502. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND F. HARTSHORN, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Spring Shade-Rollers, of which the following is a specification.

My improvement relates to the support or bearing for the inner end of the shaft or spindle on which the spring is coiled; and consists of a metallic socket or cup to which the end of the spring is attached and in which the shaft turns, and to the method of securing the socket in the bore of the roller.

In the drawings Figure 1 is a sectional side view of a portion of the roller, with the shaft and spring in position in the same, showing the inner end of the shaft resting in the socket. Fig. 2 is a front end view of the socket with a section of the shaft in the same. Fig. 3 is a side elevation of the socket with the inner end of the shaft in the same, showing the manner of connecting the spring to the socket. Fig. 4 is a rear end view of the socket and Fig. 5 is a perspective view of the socket.

The object of my improvement is to secure a simple and effective bearing for the inner end of the shaft or spindle, which shall be self fastening so that it will be secured in the roller merely by inserting the shaft into the bored-out recess, and that will be held exactly in the center of the bore and of the roller.

My improved metallic socket is a cup-like structure A having a flat end or back, and sides *a* and of a diameter a little larger than the diameter of the shaft D so that the latter can turn readily within it. The socket or cup A is fixedly connected in the cavity of the roller, by the spurs or pointed projections *e*. As will be seen these spurs project out from the front or open end of the socket at right angles to the sides *a* for a little distance and then backward toward the rear end of the socket and terminate in the points *e'*. The bottom or inner end of the cavity of the roller is provided with the recess *b* formed in the center of the bore in which the cup or socket A sets, as shown in Fig. 1, and, as there seen the pointed spurs *e'* penetrate that part of the interior of the roller on each side of the recess *b*; the spurs being so shaped that when the socket is forced into the recess the points

*e'* will penetrate the wood which projects on each side and in front of the latter and thus secure the socket in place.

The movable end of the spring C which is connected with the roller when the shaft and and spring are in place in the latter, is secured to the socket A in the following manner: As the spring C is coiled around the shaft the outer coil passes over and onto the outside of the socket under the spurs *e'*, and encircling the latter, has its end secured by being passed over the adjacent coils, as shown in Fig. 3. The end of the spring is thus securely attached to the socket, and hence, when the latter is fastened in the cavity of the roller the end of the spring will be connected to the roller and revolve with the same. A notch, shown in Fig. 5 may be formed in the side of the socket A, having one edge *a* parallel with the plane of the sides *a*. The outer or stationary end of the spring, not shown in the drawings, is attached to the spindle or shaft D in any manner desired; and as one end of the spring is fastened to the end of the shaft D, and the other end attached to the socket A at the opposite end of the shaft, the shaft, spring and socket are all held together and the tension of the spring holds the inner end of the shaft in place within the socket.

To connect the spring and shaft with the roller and at the same time attach the end of the spring to the roller, it is only necessary to insert the shaft with the spring around the same, and the socket A in place on the inner end into the cavity of the roller and force the socket into the recess *b* in the end of the cavity and by the same operation drive the spurs *e* into the roller when the socket will be securely held in place in the roller.

What I claim is—

1. In a spring shade roller the socket A, adapted to receive the inner end of the spindle, and having the spurs *e* projecting backward from the front of the socket substantially at right angles and parallel to the sides of the socket, between which and the socket the spring is held, and by means of which the socket is connected with the roller at the bottom of the bore, substantially as described.

2. In a spring shade roller, in combination



the bored-out roller R, having the inner recess *b* at the end of the bore, and the socket A, arranged to receive the inner end of the shaft, and adapted to enter the recess *b*, and  
5 provided with the spurs *e*, projecting backward, whereby the socket is attached to the roller as it is inserted into the recess *b*, substantially as described.

3. In a spring shade roller, in combination,  
10 the bored-out roller R, having the inner recess *b*; the socket A, adapted to receive the

inner end of the spindle, and to rest in the recess *b*, and provided with the spurs *e*, arranged to enter the roller on each side of the recess, whereby the socket is attached to the  
15 roller as it is inserted into the recess; the spindle D; and spring C, secured to the socket, substantially as described.

EDMUND F. HARTSHORN.

Witnesses:

A. G. WINTER,

F. E. HEATH.