

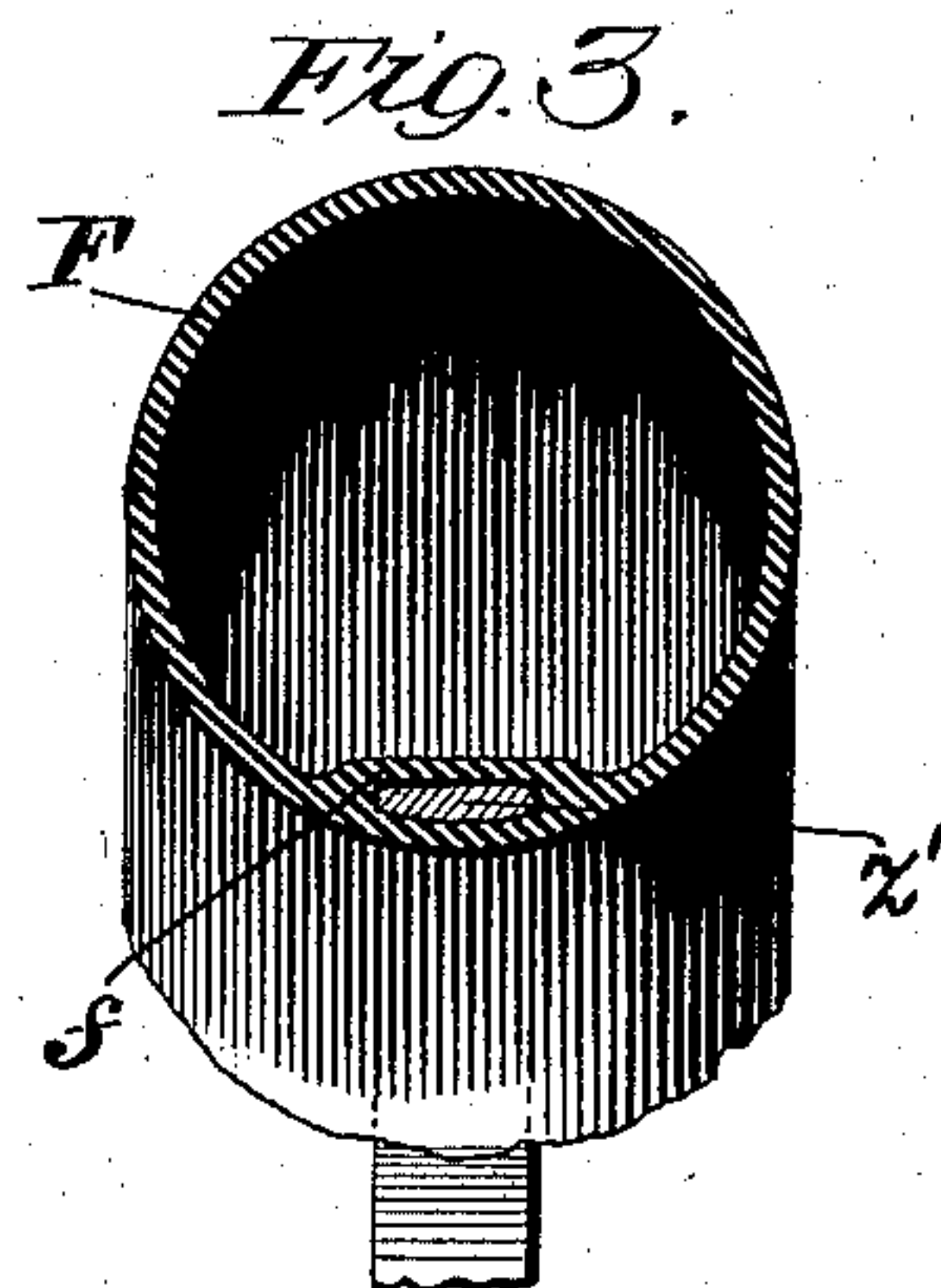
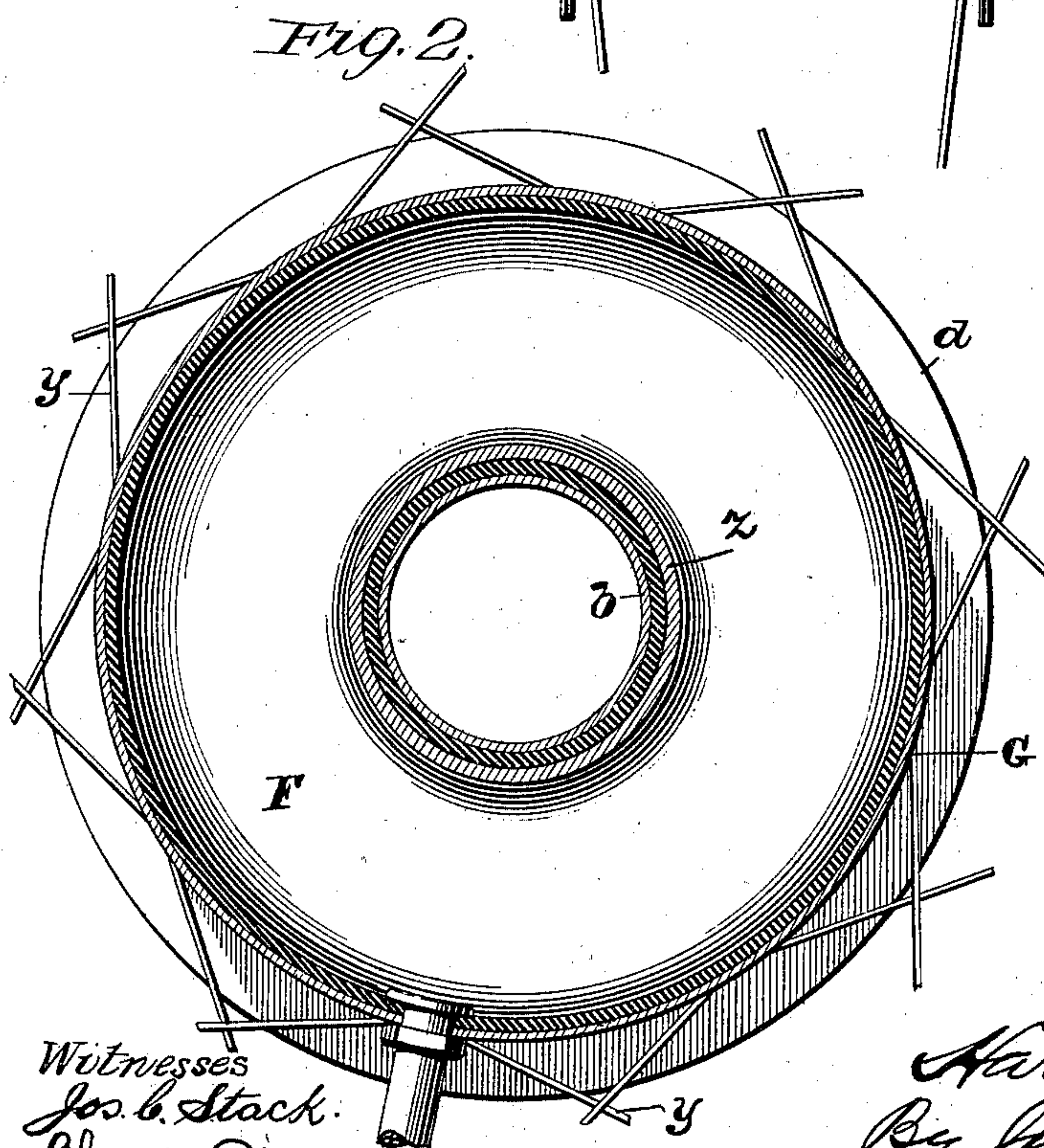
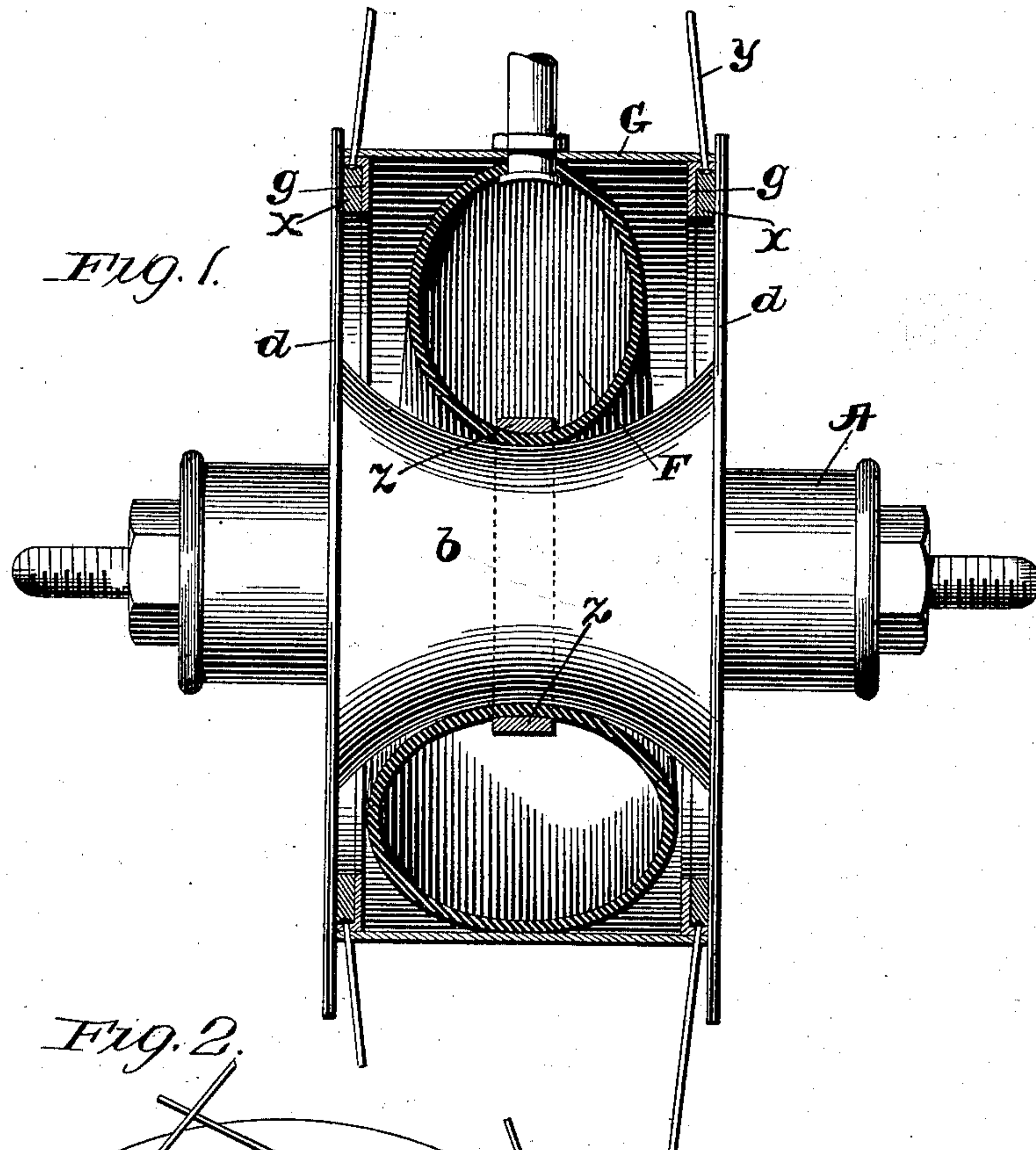
No. 625,645.

Patented May 23, 1899.

H. R. COLLINS.  
VEHICLE WHEEL.

(Application filed Sept. 28, 1898.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

HARRY R. COLLINS, OF SAYRE, PENNSYLVANIA.

## VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 625,645, dated May 23, 1899.

Application filed September 28, 1898. Serial No. 692,150. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY R. COLLINS, a citizen of the United States, residing at Sayre, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Vehicle-Wheels; 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.

This invention relates to vehicle-wheels of the type shown in patents granted to me November 30, 1897, Nos 594,603, 594,604, and 594,605, in each of which the hub and spoke-sections of the wheel are radially movable relatively to each other and a cushion is interposed between them in the form of a ring of elastic tubing. It has been found in practice that the full benefit of the cushioning properties of the tube is not had with the arrangements shown in said patents, and the aim of the present invention is to provide means whereby the cushioning properties of the tube may be utilized to the fullest extent. In such arrangements as shown in my prior patents above mentioned substantially the entire cushioning effect is had in the lower side of the tube where the hub presses upon it under the superimposed weight. I now propose to provide for simultaneously securing a cushioning effect in the upper side of the tube, and the invention consists in means whereby this is accomplished and which are pointed out in the appended claims.

The drawings which accompany and form part of this specification illustrate a number of forms in which the invention may be embodied, and these are specifically described hereinafter.

Of said drawings, Figure 1 represents the central portion of a bicycle-wheel, partly in axial section and partly in elevation, with my improvement applied thereto. Fig. 2 is a section taken at right angle to the section in Fig. 1, but omitting the hub proper; and Fig. 3 is a cross-section of a modified form of cushioning-tube.

In the drawings the reference-letter A designates the sleeve or hub proper of the wheel, having a saddle *b* and side plates, disks, or flanges *d*, between which the pneumatic tube F is located, said tube closely embracing the

saddle in the form of a ring and having seated upon it the spoke-ring G, which has a sliding fit against the inner faces of said disks or flanges. The spoke-ring is in the form of a plain band, and annular holders *g*, angular in cross-section, fit snugly in the ends of the same to confine the fiber washers *x*, which bear against the flanges *d*. The spokes *y* are entered through the band and the holders, and their ends are upset over the inner surfaces of the latter and bear against the fiber washers. This construction and arrangement of parts is similar to those shown in my former patents above mentioned, and in practice the weight imposed through the frame of the machine upon the hub is cushioned by the tubing, which is inflated with air under pressure, so that said tube immediately below the hub presents the horizontally-flattened appearance shown in section in Fig. 1.

In order that the upper portion of the pneumatic annulus may cooperate with the lower portion in cushioning, I introduce into the annulus a rigid ring *z*, which may be of any suitable material having the required rigidity to bind the inner circle of the annulus where it normally hugs the saddle. In the form shown in Figs. 1 and 2 this ring lies closely against the inside surface of the tubing encircling the saddle, whereas in the form shown in Fig. 3 a ring *z'* is shown embedded in the material of the tubing, whose inner side may be slightly thickened, as indicated at *f*, so as to completely envelop the ring. With either form of arrangement it will be seen that the ring so holds or binds the inner circle of the elastic annulus that flattening of the tubing on the lower side will result also in flattening the same on the upper side by reason of the downward pull of the ring, the flattening in the upper side being in a direction at right angles to that in the lower side of the tubing. It will be seen that by this arrangement I am enabled to utilize the cushioning properties of the pneumatic annulus more fully than possible with arrangements heretofore known.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a wheel, the combination with the hub and spoke-ring radially movable relatively to each other, of an interposed cushion in the

form of annular elastic tubing, and a rigid ring binding the inner circle of the tubing where it hugs the hub, substantially as described.

- 5 2. In a wheel, the combination with the hub and spoke-ring radially movable relatively to each other, of an interposed cushion in the form of annular elastic tubing, and a rigid ring within the tubing and encircling the hub,  
10 substantially as and for the purpose described.

3. In a wheel, the combination with the hub

and spoke-ring radially movable relatively to each other, of an interposed cushion in the form of annular elastic tubing, and a rigid ring embedded in the material of the tubing in the portion thereof which closely surrounds the hub. 15

In testimony whereof I affix my signature in presence of two witnesses.

HARRY R. COLLINS.

Witnesses:

T. P. DAVIS,

CHAS. E. RIORDON.