

No. 624,247.

Patented May 2, 1899.

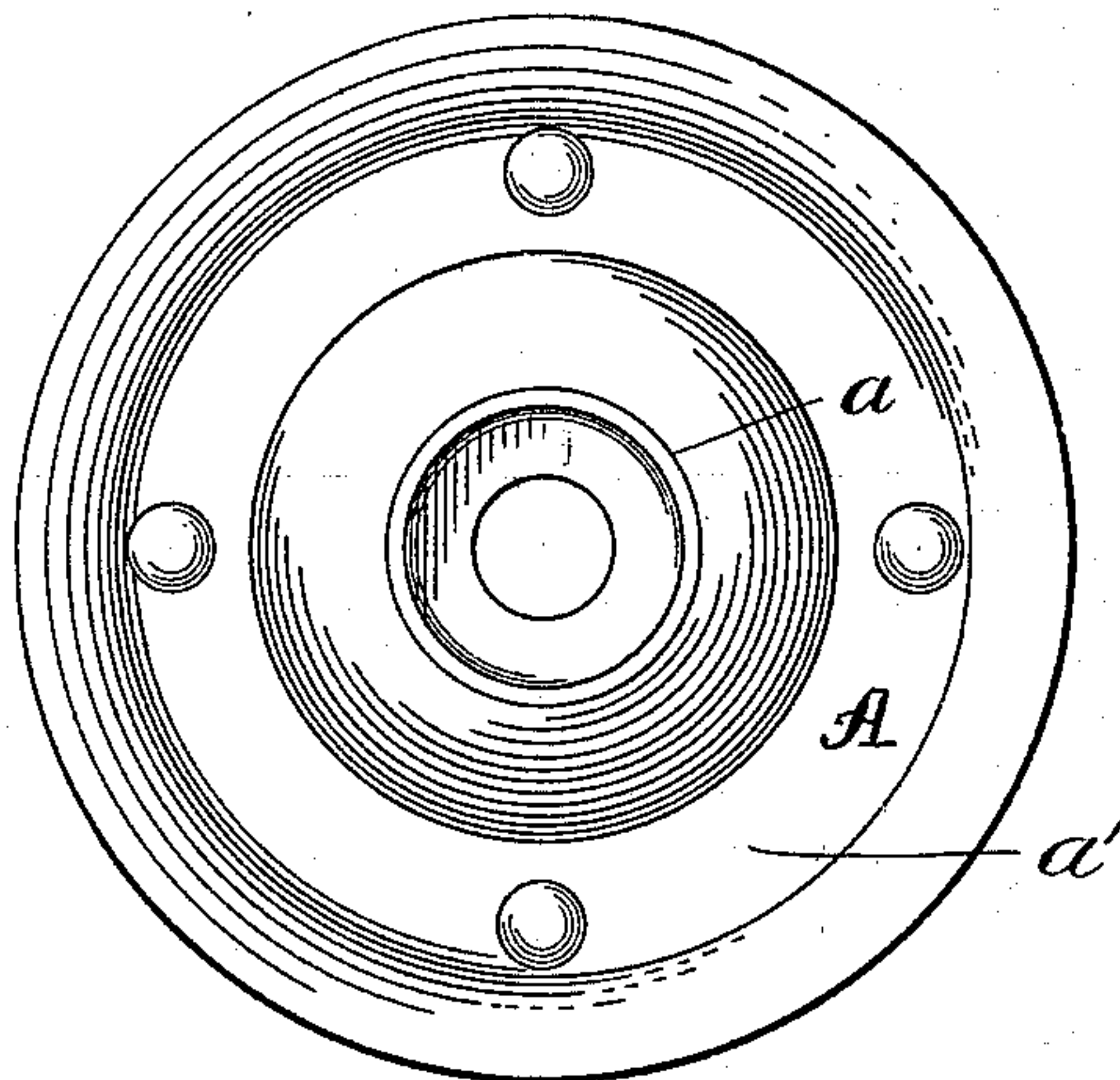
T. C. PROUTY.
DOOR HANGER.

(Application filed Apr. 1, 1898.)

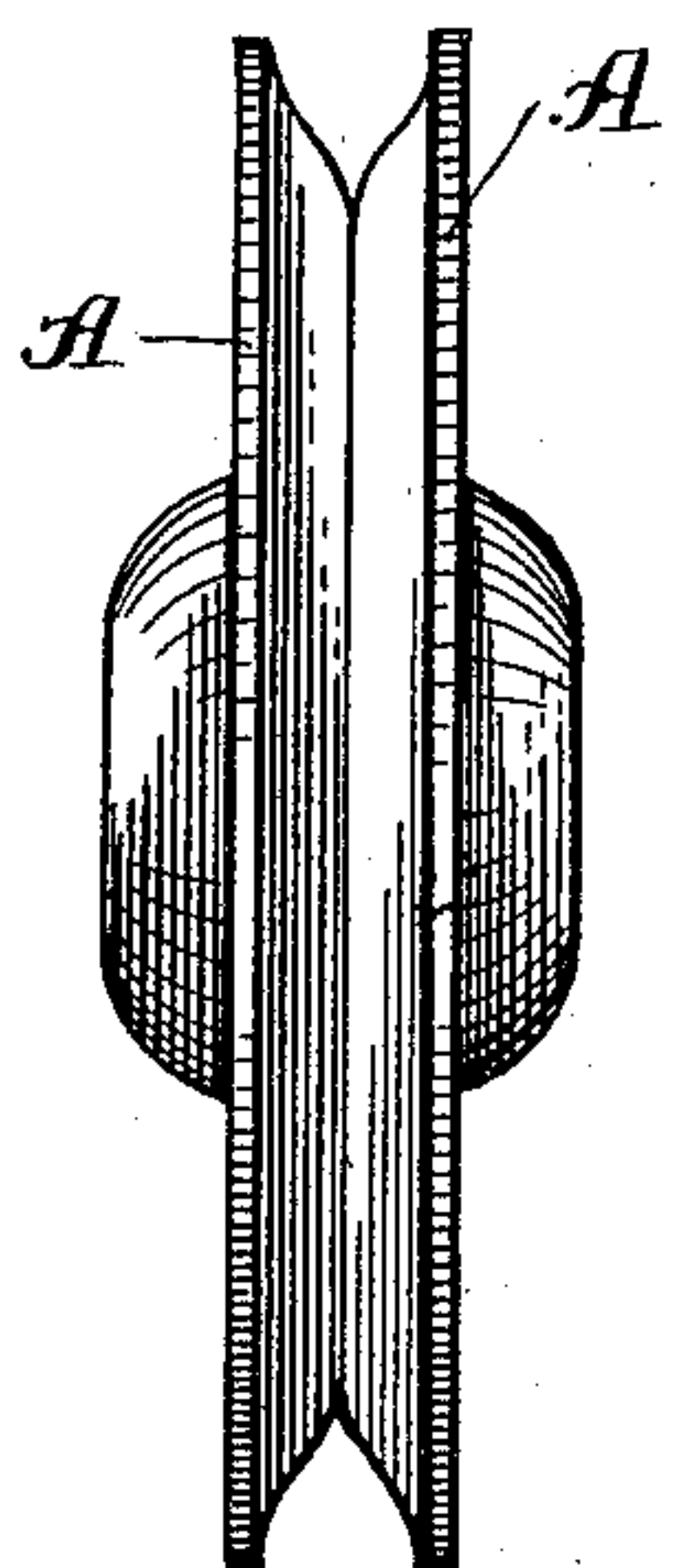
(No Model.)

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-FIG. I-



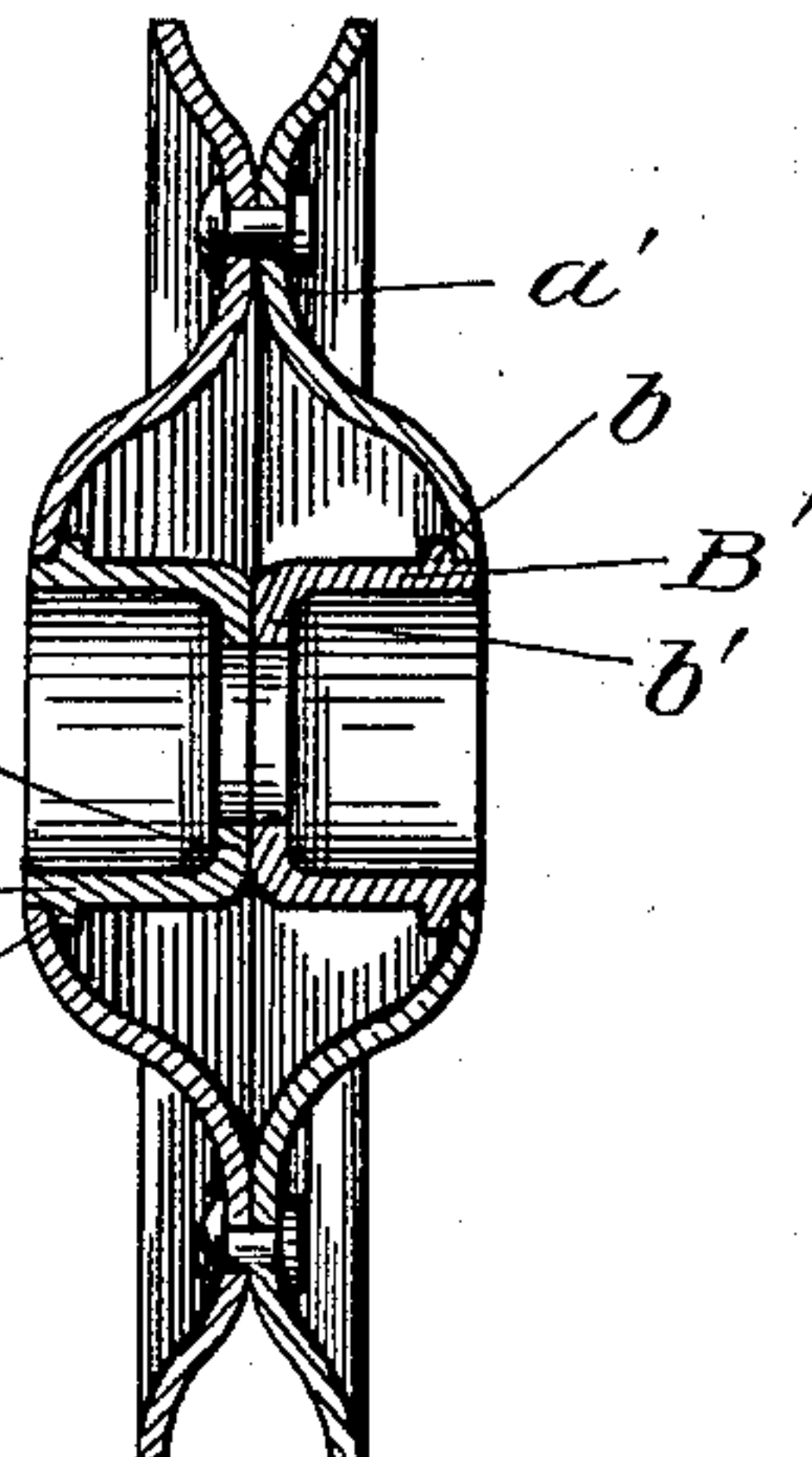
-FIG. II-



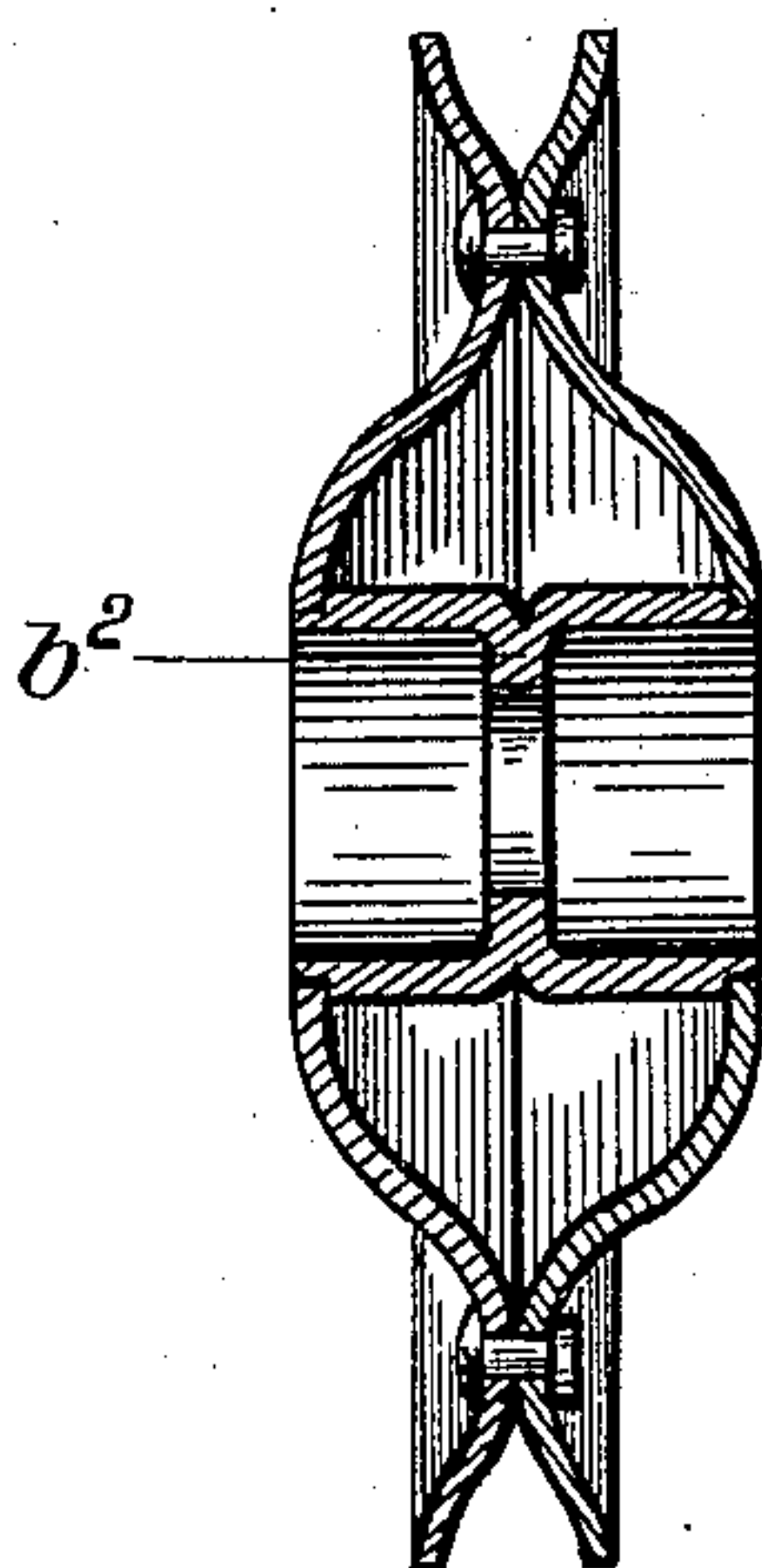
-FIG. V-



-FIG. III-



-FIG. IV-



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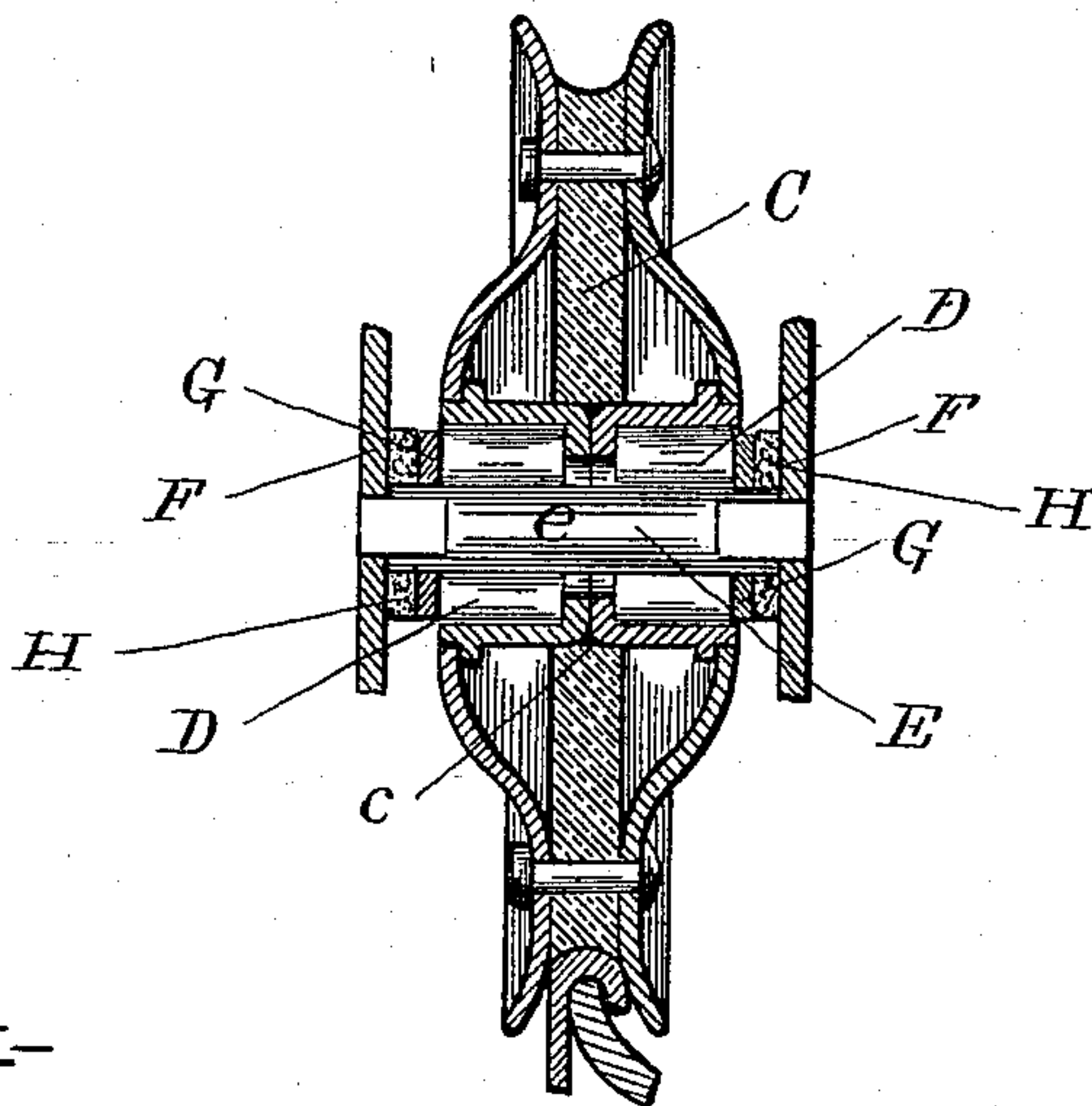
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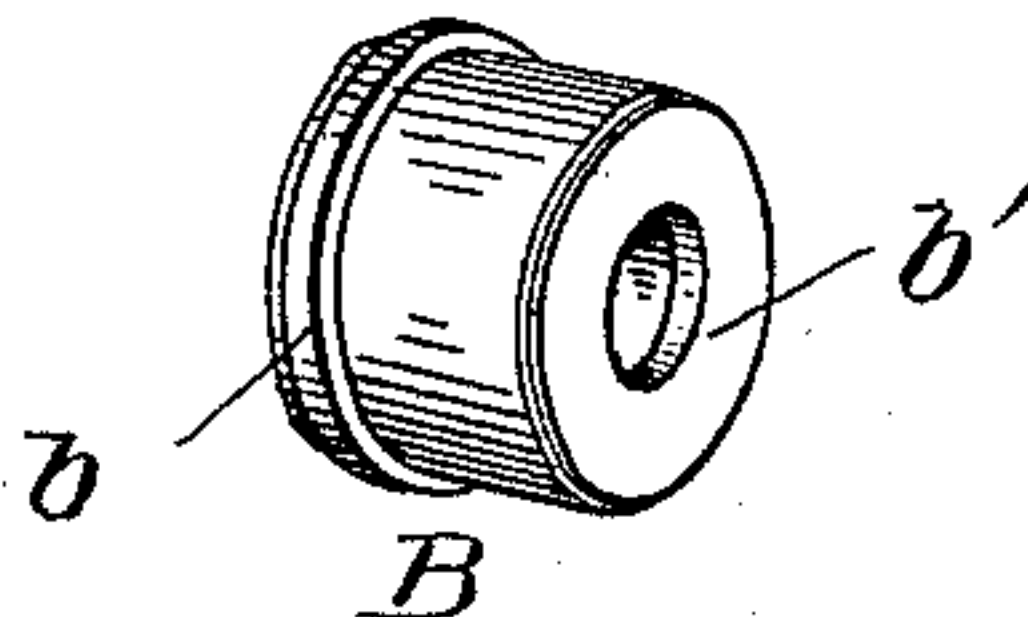
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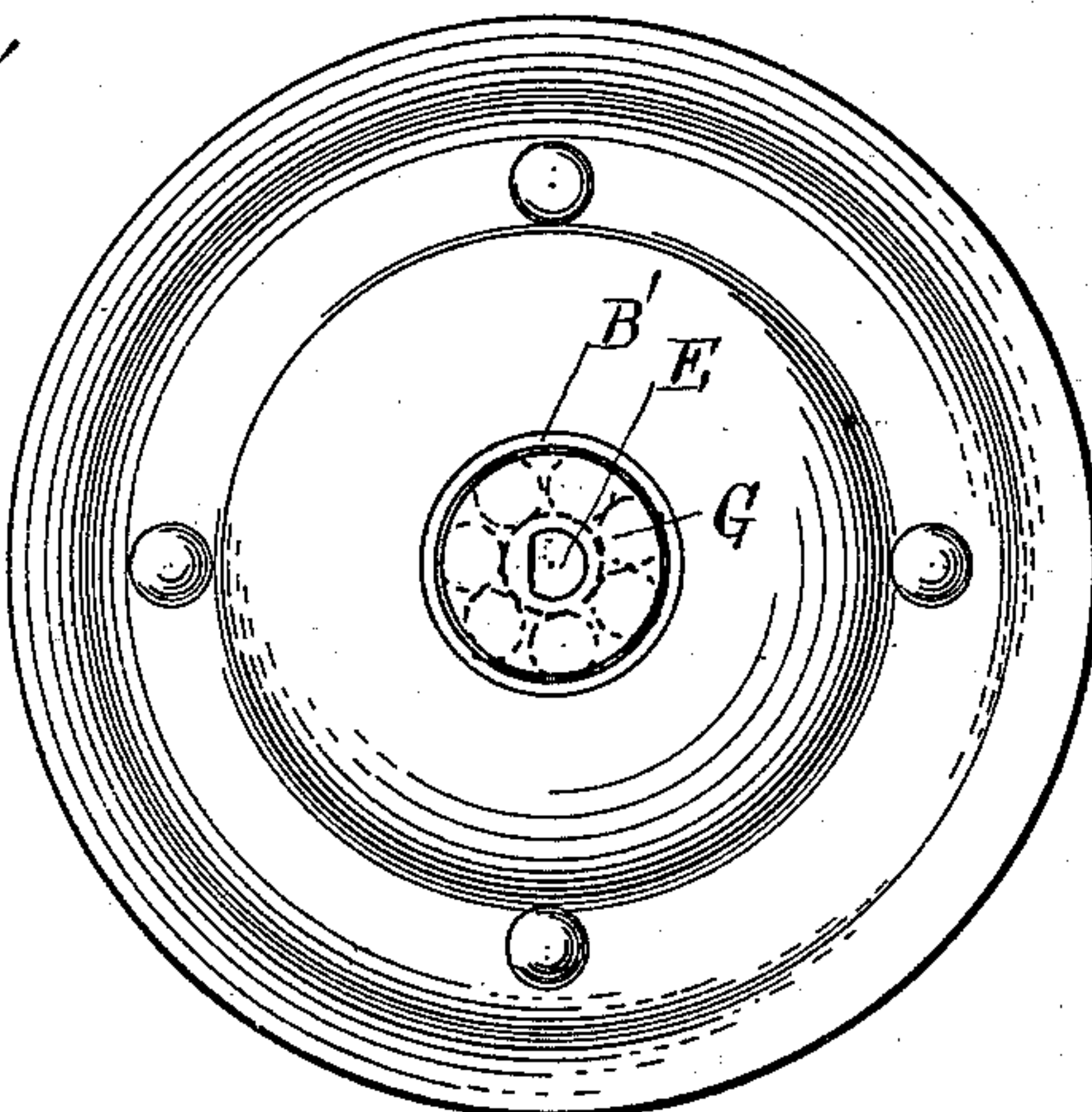
-FIG. VI-



-FIG. VII-



-FIG. VIII-



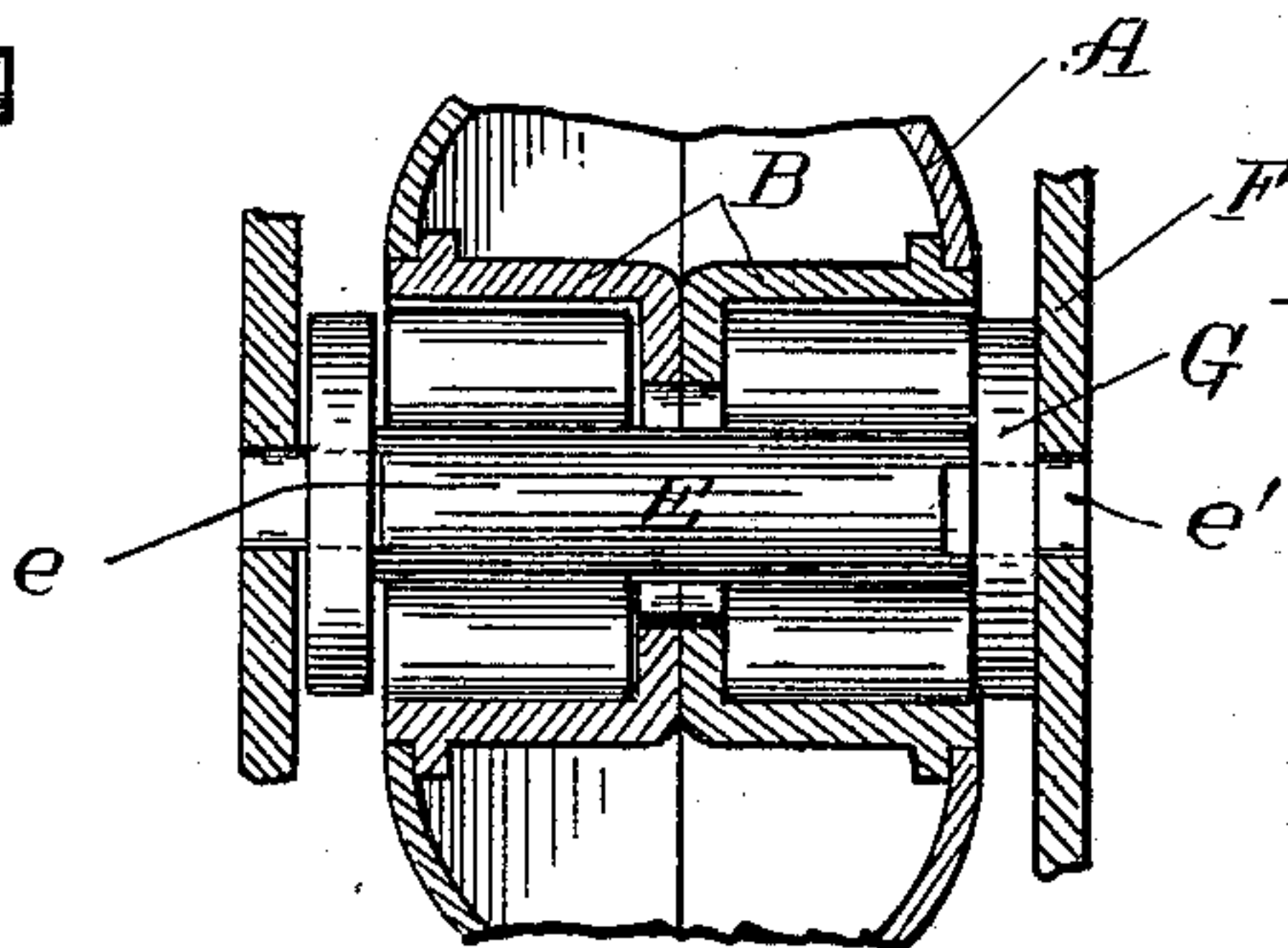
-FIG. IX-



-FIG. X-



-FIG. XI-



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UNITED STATES PATENT OFFICE.

THEODORE C. PROUTY, OF MIDLAND, MICHIGAN.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 624,247, dated May 2, 1899.

Application filed April 1, 1898. Serial No. 676,044. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. PROUTY, a citizen of the United States, and a resident of Midland, county of Midland, and State of Michigan, have invented a new and useful Improvement in Door-Hangers, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevational view of one form of anti-friction bearing-wheel of my improved door-hanger. Fig. II represents a front elevational view of same. Fig. III represents an axial cross-sectional view of said wheel. Fig. IV represents a similar view of said wheel, showing a second mode of construction and form of bearing. Fig. V represents a partial axial section showing a third mode of construction. Fig. VI represents an axial cross-sectional view of my improved door-hanger, showing the hanger frame or loop in partial section, embodying a second form of wheel mounted upon a track. Fig. VII represents a perspective view of one roller bearing-cup. Fig. VIII represents a side elevational view of the wheel in the hanger shown in Fig. VI. Fig. IX represents a view of the thrust-washer used in the hanger. Fig. X represents a top view of the wheel-shaft used in said hanger, and Fig. XI represents an enlarged detail partial axial cross-sectional view.

The wheel shown in Fig. I comprises in its structure two disks A A, each formed with a central opening a , stamped with a circular depression a' , forming inwardly-projecting portions, which rest upon each other and are riveted, forming thereby a wheel-body having said disks arranged transversely of the wheel-axis. The outer marginal portions of each disk form the wheel-tread and tread-guards, and the central portion of each disk is stamped to project outwardly some distance, whereby the introduction of a bearing

B in said openings is permitted. Said bearing consists of two bearing-cups B' B', each formed near its outer end with a projecting portion or circumferential rib b of greater diameter than that of the openings a . The inner surface of each disk around each opening engages the outer surface of a bearing-cup, such engagement being with the lateral surface of said ribs and with that part of the outer surface of each cup between a rib and the outer end of said cup, the diameter of said outer end and of the opening being substantially equal. Each cup is formed at its inner end with an inwardly-extending annular flange b' . These flanges are placed contiguous to each other, whereby a separating wall or flange is formed in the bearing and intermediate of its ends. Figs. IV and V illustrate forms in which the bearing consists of a single integral bearing-cup with an integral intermediate flange b^2 , substituting grooves in the cup and in the disks for projecting ribs.

Where it is desired to obtain a noiselessly-running wheel, a fiber disk C may be interposed between the two disks A A, a suitable opening c being provided for the admission of the bearing. Two independent sets of rollers D D, Fig. VI, are located in said bearing, one set in each bearing-cup, the inner ends of each set being separated by the contiguous flanges $b' b'$.

A shaft E is secured in each side of the frame or support F and is rendered non-rotative by scarfing the ends thereof and forming an aperture of like form for their reception in said support. Between the outer ends of each set of rollers and the adjacent portion of the shaft-support is placed a thrust-washer G, rendered non-rotative on the shaft by means similar to those used for rendering the shaft non-rotative—that is, giving the shaft an angular cross-section and forming the washer with a corresponding aperture. The diameter of said washer is made slightly less than the internal diameter of the bearing-cups.

Between the scarfed ends of the shaft, as shown in Fig. X, is an intermediate portion e , left cylindrical and forming the direct inner bearing for the rollers. This portion e is made of a length such that when the extreme amount of side play is given the shaft

and shaft-support the roller ends nearest the said support will project beyond the corresponding end *e* of the bearing portion of said shaft, as illustrated in Fig. XI, which shows
 5 an exaggerated amount of play, whereby the intervention of the washer adjoining said end is permitted between said roller ends and the adjacent portion of the support.

In the form of antifriction-wheel shown in
 10 Fig. VI a compressible felt washer *H* is interposed between each thrust-washer and the adjacent portion of the support. Such felt washer eliminates the clicking sound emitted when the roller-wheel is shifted from side to
 15 side relatively to the support, as is readily understood. The said form of hanger is suitable for what are known as "parlor-doors," where absence of sound is desirable. By the use of the double row or two independent sets
 20 of rollers and the separating-flange in the roller-bearing I have found that the difficulties met with in wheels having but a single set of rollers passing completely through the bearing have been overcome. The above im-
 25 proved construction renders both sides of the roller-bearing independent of each other, and hence the rate of speed of the rollers on one side cannot affect the rollers on the other. Such difference in speed in wheels of a single
 30 set of rollers causes the latter to wear unevenly and to become irregular in shape, thereby increasing the friction and reducing the life of the wheel. By interposing the thrust-washer, as described, the contact with
 35 the shaft-support of the wheel and the consequent abrasion of both are prevented. Side thrusts due to tilting or other causes are communicated to the ends of one set of rollers, which receive the contact of the washer with
 40 little friction. The thrust is hence applied to the intermediate flange, which also receives the contact of the rollers with little friction. The wheel in consequence runs very smoothly even when its axis is placed in a vertical po-
 45 sition. The thrust-washer being non-rotative, it is seen that the felt deadening-washer is subjected to no wear, inasmuch as it is interposed between two relatively stationary sur-
 50 faces, the only force to which it is subjected being a compressing force. The life of said washer is hence indefinite.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards
 55 the mechanism herein disclosed, provided the means covered by any one of the following claims be employed.

I therefore particularly point out and distinctly claim as my invention—

60 1. In a door-hanger, the combination with an antifriction-wheel comprising in its con-

struction a wheel-body consisting of disks arranged transversely of the wheel-axis, a bearing consisting of two bearing-cups each formed with an inwardly-extending annular flange, 65 the flanges of each cup being contiguous to each other; of a shaft and two sets of rollers, one set of rollers located on each side of said flange, said shaft extending throughout said bearing-cups and forming a bearing for said 70 rollers, substantially as set forth.

2. In a door-hanger wheel, the combination of disks arranged transversely of the wheel-axis and formed with central openings, a bearing located in said openings and formed with 75 circumferential ribs interiorly engaging said disks and provided with an inwardly-projecting flange intermediate of the ends of said bearing, two sets of rollers and a shaft, one set of rollers located on each side of said flange, 80 substantially as set forth.

3. In a door-hanger the combination of an antifriction-wheel comprising in its construction a wheel-body having a central opening, a bearing located in said opening, two sets of 85 antifriction-rollers in said bearing, the latter provided with an inwardly-extending flange separating said sets of rollers, and a suitable shaft; a support for said shaft and a washer interposed between said shaft-support and 90 the outer roller ends, for receiving the lateral thrusts from the shaft-support, said washer having a diameter less than that of the outer end of the bearing whereby said thrusts are communicated to the outer roller ends and 95 thence to the said internal bearing-flange, substantially as set forth.

4. In a door-hanger, the combination of an antifriction-wheel comprising in its construction a wheel-body having a central opening, 100 a bearing located in said opening, two sets of antifriction-rollers in said bearing, the latter provided with an inwardly-extending flange separating said sets of rollers, and a suitable shaft; a support or frame for said shaft, a 105 thrust-washer interposed between said frame and the roller ends and a deadening-washer interposed between said thrust-washer and frame, substantially as set forth.

5. In a door-hanger, the combination of an 110 antifriction bearing-wheel, a support for the wheel-shaft, said shaft non-rotative in said support, a thrust-washer non-rotative upon said shaft and interposed between said sup- 115 port and the wheel and a compressible washer interposed between said thrust-washer and said support, substantially as set forth.

Signed by me this 28th day of March, 1898.

THEODORE C. PROUTY.

Attest:

D. W. CHASE,
 J. F. CALDWELL.