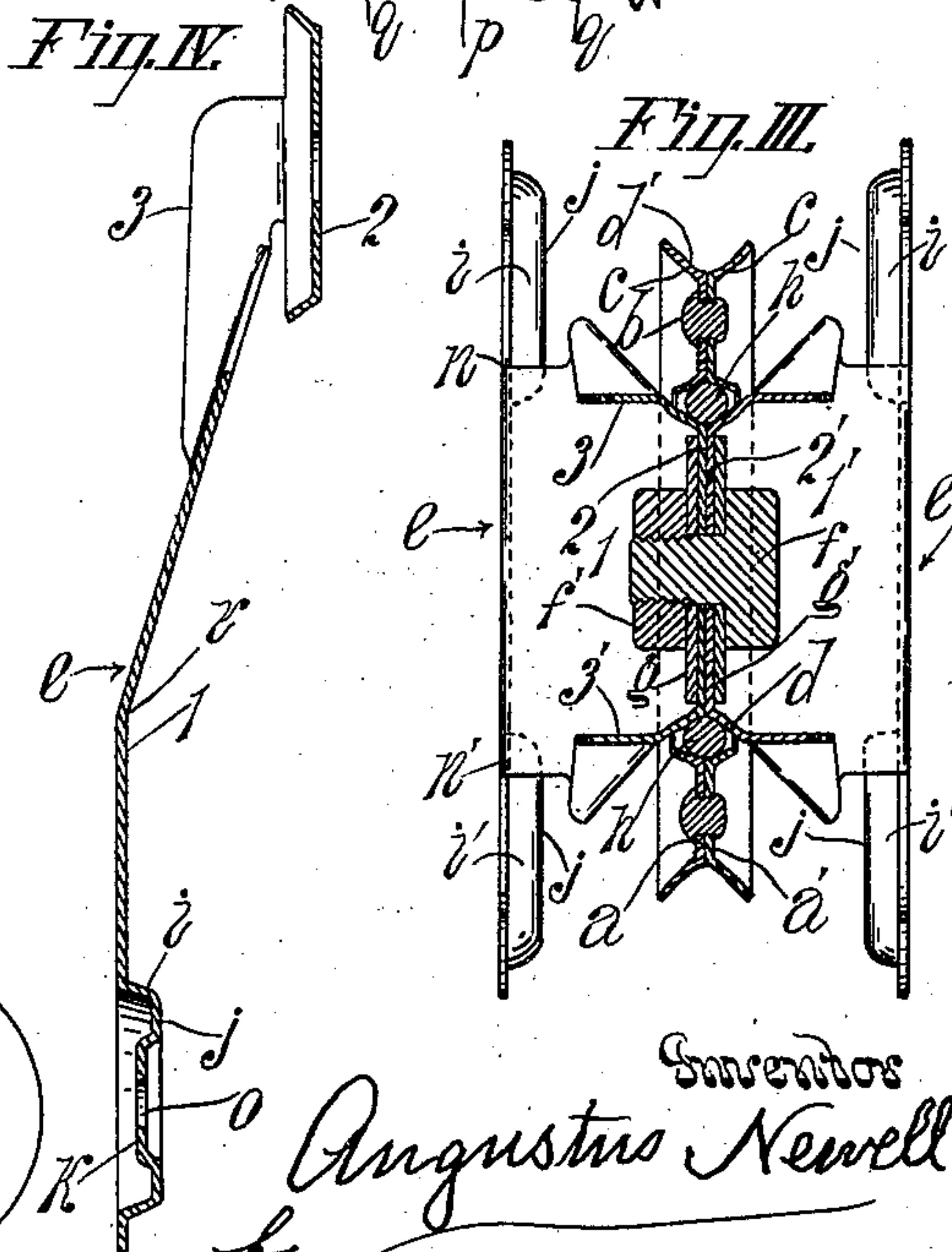
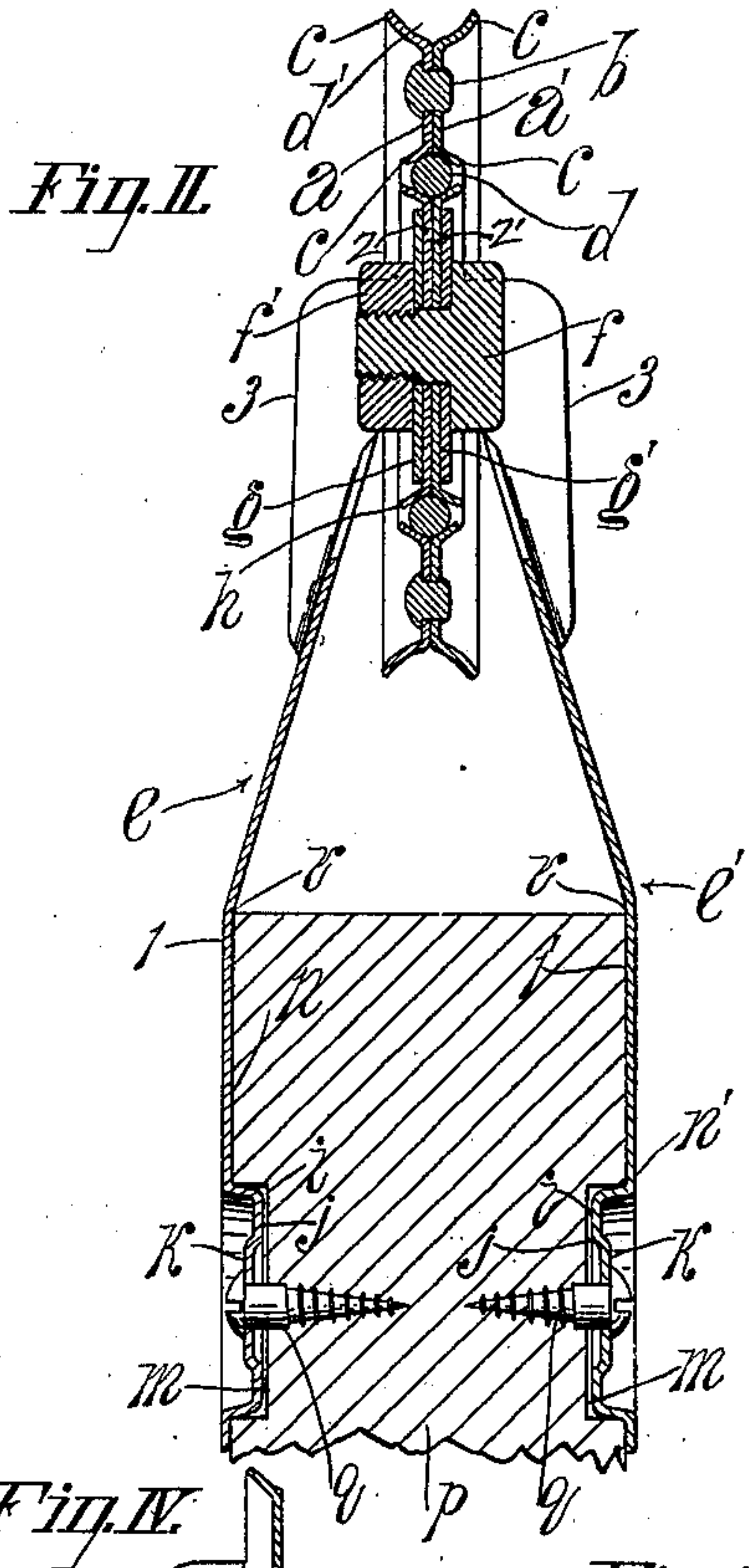
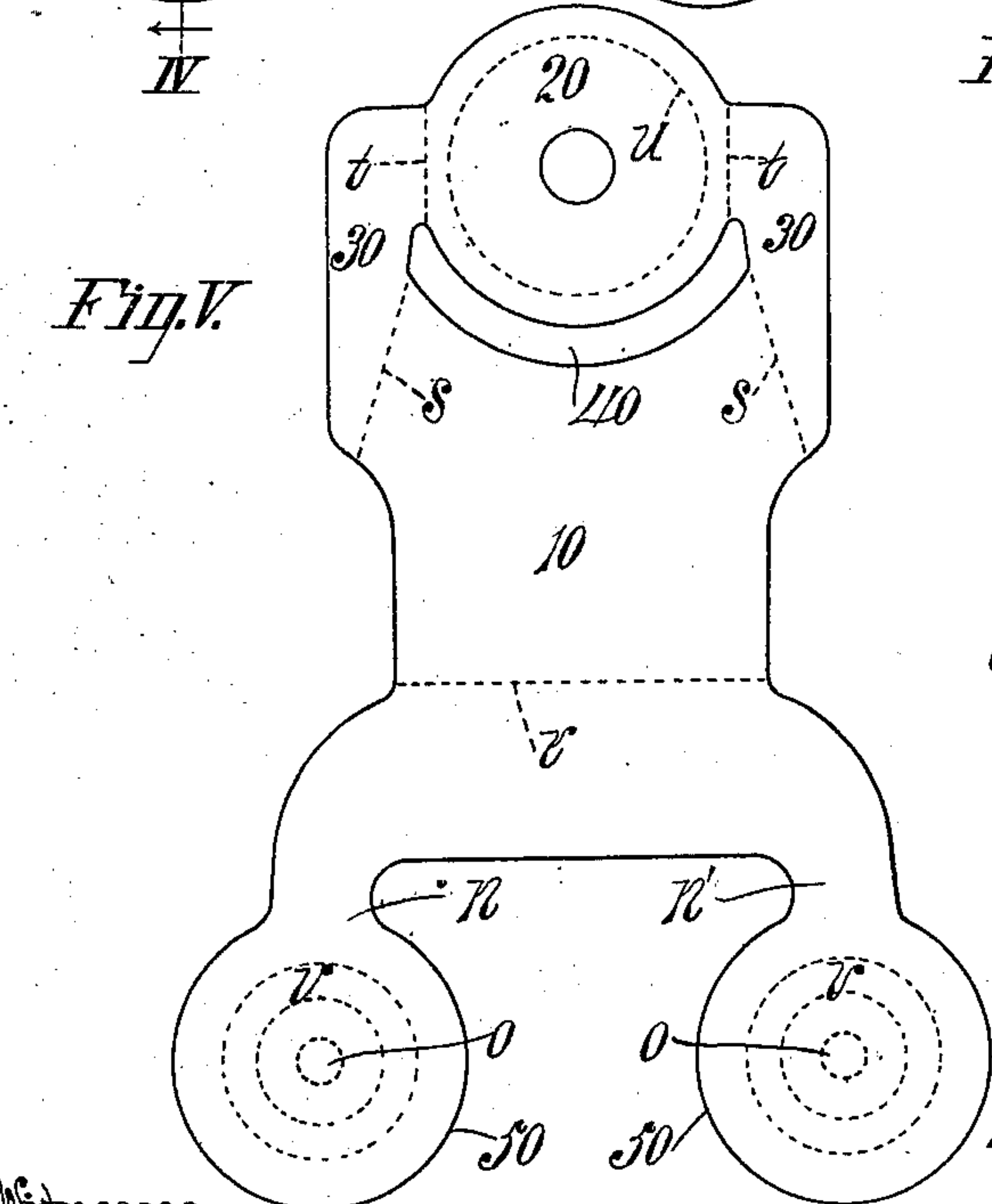
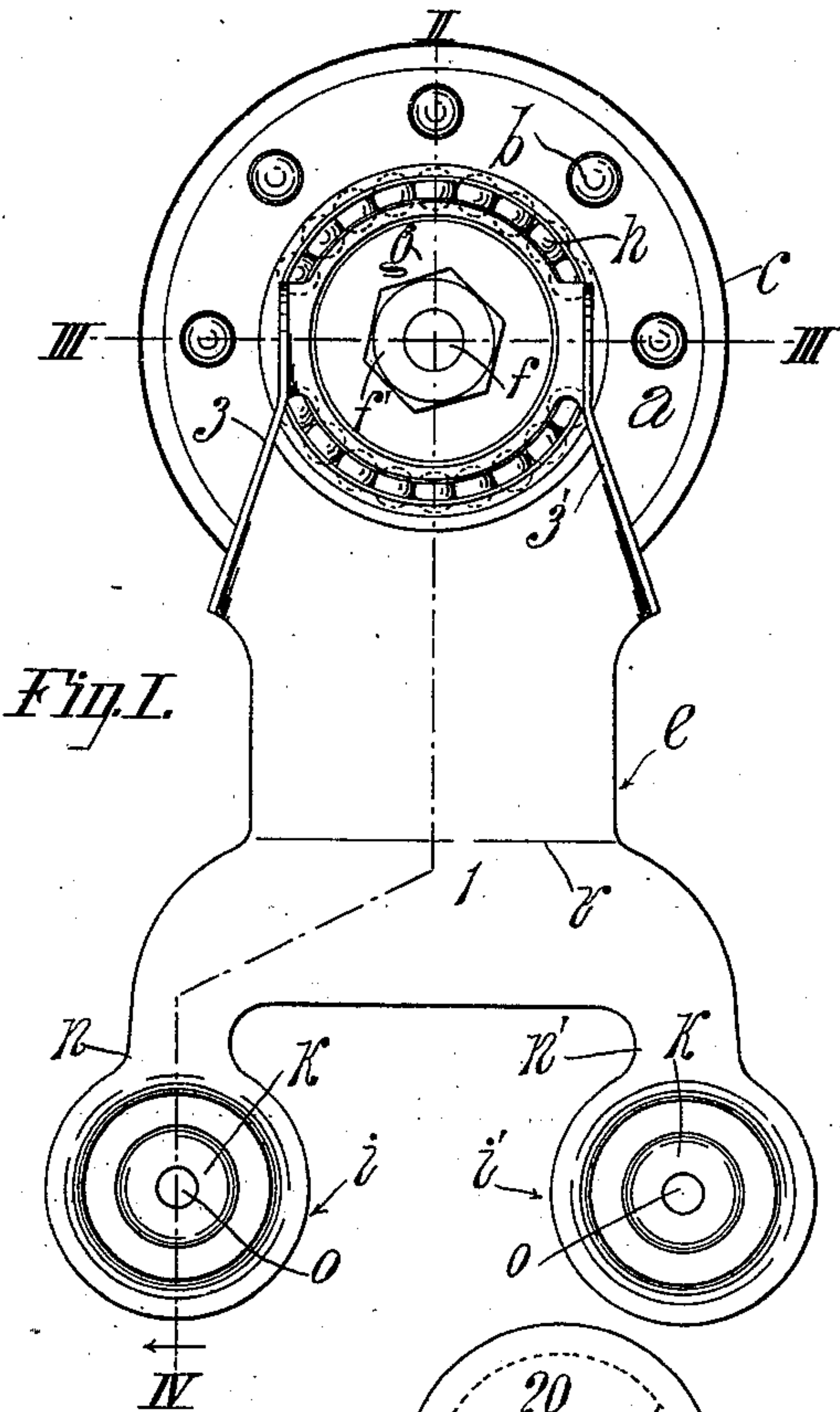


No. 670,640.

Patented Mar. 26, 1901.

A. NEWELL.
SLIDING DOOR HANGER.
(Application filed Aug. 6, 1900.)

(No Model.)



Witnesses
Severyingman.
J. Townsend.

Inventor
Augustus Newell
by Townsend Bros.
his Atty.

UNITED STATES PATENT OFFICE.

AUGUSTUS NEWELL, OF PASADENA, CALIFORNIA, ASSIGNOR TO THE PERFECT SLIDING DOOR CO., OF LOS ANGELES, CALIFORNIA.

SLIDING-DOOR HANGER.

SPECIFICATION forming part of Letters Patent No. 670,640, dated March 26, 1901.

Application filed August 6, 1900. Serial No. 26,075. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS NEWELL, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Sliding-Door Hangers, of which the following is a specification.

My present invention relates to improvements upon a sliding-door hanger patented to me by Letters Patent of the United States No. 623,030, dated April 11, 1899.

One object of my present invention is to make provision for great lateral strength with small amount of material; also, to provide for manufacturing the hanger-arms of great strength by stamping them from thin sheet metal.

A further object is to simplify the means for attachment to the door.

The accompanying drawings illustrate my invention.

Figure I is a side elevation of my newly-invented sliding-door hanger ready to be applied to the door. Fig. II is a section of the same on irregular line II IV, Fig. I, and showing a fragment of the door attached to the hanger. Fig. III is a plan section on line III III, Fig. I. Fig. IV is a section of one of the hanger-arms on line II IV, Fig. I. Fig. V is a view of the sheet-metal blank from which the hanger-arm is to be stamped. Dotted lines indicate the lines along which the metal is to be bent to form the hanger-arm.

This sliding-door hanger comprises an annular rim-piece formed of two annular plates *a a'*, fastened together by rivets *b* and having their circular edges *c* bent obliquely to form internal and external grooves *d d'*. To this extent my present hanger resembles my patented door-hanger.

e indicates a hanger-arm composed of a body 1 and a circular plate 2, the face of said circular plate being out of the plane of the body 1 and the edge of said plate 2 being bent obliquely toward the body 1, and a connecting member 3 3' formed integral with said body and plate and forming oppositely-arranged extensions of the obliquely-bent edge of said plate and extending between the plate and body substantially at right angles to the planes of said plate and body.

e' indicates a hanger-arm of like construction to that above described arranged with its circular plate 2' fitted against the circular plate of the other hanger-arm and coaxially of the annular plates *a a'*, with the bodies 1 1' of the two hanger-arms extending on opposite sides, respectively, of said annular plates. The circular plates 2 2' are fastened together by suitable means, preferably by means of the bolt *f* and nut *f'*.

g g' indicate two washers arranged, respectively, on opposite sides of the circular plates to be clamped by the bolt and its nut and to give requisite thickness to fill the space between the nut and the head of the bolt.

h indicates balls in the grooves formed between the circular plates and the annular plate.

In this application no claim is made to the forming of the raceways for the ball-bearings *h* by means of the outwardly-bent edges of the plates.

In order to provide simpler and less expensive means for attaching the hanger-arms to the door, each hanger-arm is provided at each point at which it is to be fastened to the door with a centrally-perforated circular-dished boss *i*, the bottom of which is formed in an outer and inner ring *j k*, respectively, to give the effect of double thickness and stiffness to the bottom of the boss.

In the completed hanger the bodies 1 1' of the hanger-arms are parallel substantially throughout the portions which are to fit on the door, and the portions of the arms which extend between the said parallel portions of the body and the plates 2 2' slant inward and are braced at their upper ends by the outwardly-bent portions or wings 3 3'. The hanger-arms are thus securely braced against lateral deflection.

Each hanger-arm is provided at the lower end with two narrow limbs *n n'*, which extend parallel with the axis of the body *e* of said arm and terminate, respectively, in the dished bosses *i i'*. This construction allows the dished bosses to be stamped into the form shown without crimping or buckling the material. The perforations *o* are located centrally of the circular bosses and on the extended axes, respectively, of the limbs *n n'*.

and in practical manufacture are punched at the time of pressing the bosses into form.

In applying the hanger to the door the countersinks *m* for the bosses *i* are bored in the door *p* by a bit, the point of which makes the holes into which the screws *q* are inserted for fastening the bosses in place in the countersinks.

In practice four countersinks *m* are bored into the door for each hanger at the points where the bosses *i* *i'* are to come, respectively, and slightly deeper than the depth of the bosses to bring the bend *r* of the body of the hanger into alinement with the top of the door and to allow the screws to draw the arms firmly against the door. Then the bosses *i* are slipped into place in the countersinks *m* and secured by the screws *q*, which respectively engage the inner rings *k* and hold the bosses firmly in the countersinks. The weight of the door is held by the bosses in the countersinks and not by the screws.

In Fig. V is shown the sheet-metal blank from which the hanger-arm is to be struck up. This blank comprises a main body 10, a head 20 of circular form connected with the body 10 by side arms 30, a segmentary slot 40, extending between the arms to give the circular form to the lower part of the head, the limbs *n n'*, extending downward at the lower corners of the body, and two circular bodies 50 50' at the lower ends of said limbs *m m'*, said limbs extending parallel with the axis of the body 10.

Dotted lines *r*, *s*, *t*, *u*, and *v* indicate the lines along which the metal is bent in forming the hanger-arm.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A sliding-door hanger comprising an annular rim-piece furnished with an internal annular groove to form the outer wall of a ball-raceway; a hanger-arm composed of a body and circular plate, the face of said plate being out of the plane of the body, and the edge of said plate being bent obliquely toward the body, and connecting members integral with said body and plate, and form-

ing oppositely-arranged extensions of the obliquely-bent edge of said plate, and extending between the plate and body substantially at right angles to the planes of said plate and body; a hanger-arm of like construction to that above described, arranged with its circular plate fitted against the circular plate of the other hanger-arm, coaxially of the annular plate, with the bodies of the hanger-arms extending on opposite sides, respectively, of said annular rim-piece; means for fastening the circular plates together; and balls in the raceway formed between the circular plates and the annular rim-piece.

2. The door-hanger arm set forth, consisting in an integral member composed of a body; a circular plate, the edge of which is bent obliquely; and connecting members forming extensions of the oblique edge at opposite sides of the axis of the circular plate, and extending from said plate in planes which are at right angles to the plane of the face of said plate, and connecting said plate with said body.

3. A sheet-metal member for a hanger-arm, comprising a body having at one end a centrally-perforated, dished boss, the bottom of which is formed in an outer and inner ring, substantially as set forth.

4. A sheet-metal blank for forming a hanger-arm, comprising a main body; a head of a circular form, connected with said body by side arms; a segmentary slot extending between the arms to give the circular form to the lower part of the head; limbs extending downward at the lower corners of the main body, parallel with the axis of the main body; and two circular bodies respectively at the lower ends of said limbs.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, California, this 28th day of July, 1900.

AUGUSTUS NEWELL.

Witnesses:

JAMES R. TOWNSEND,
JULIA TOWNSEND.