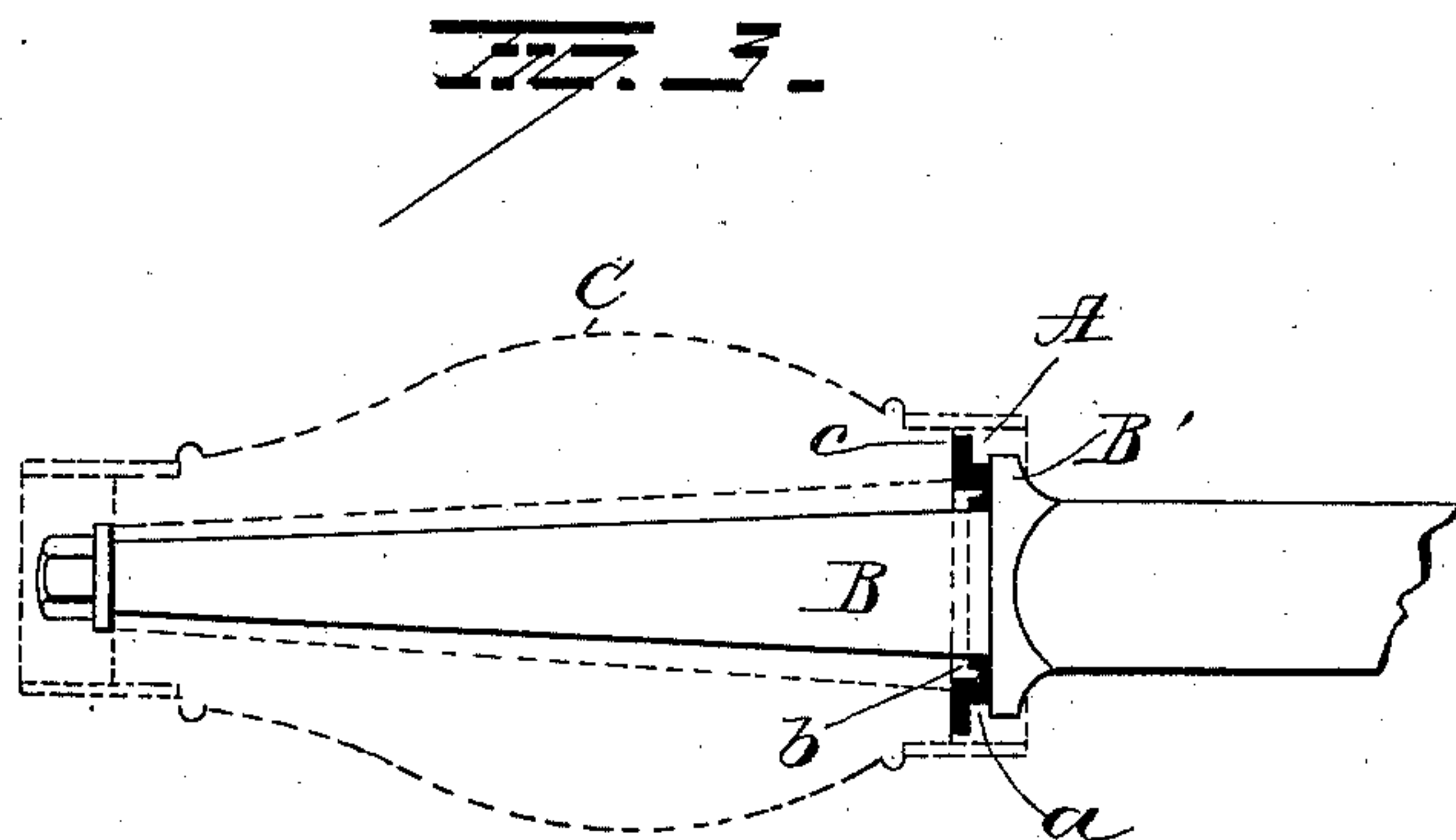
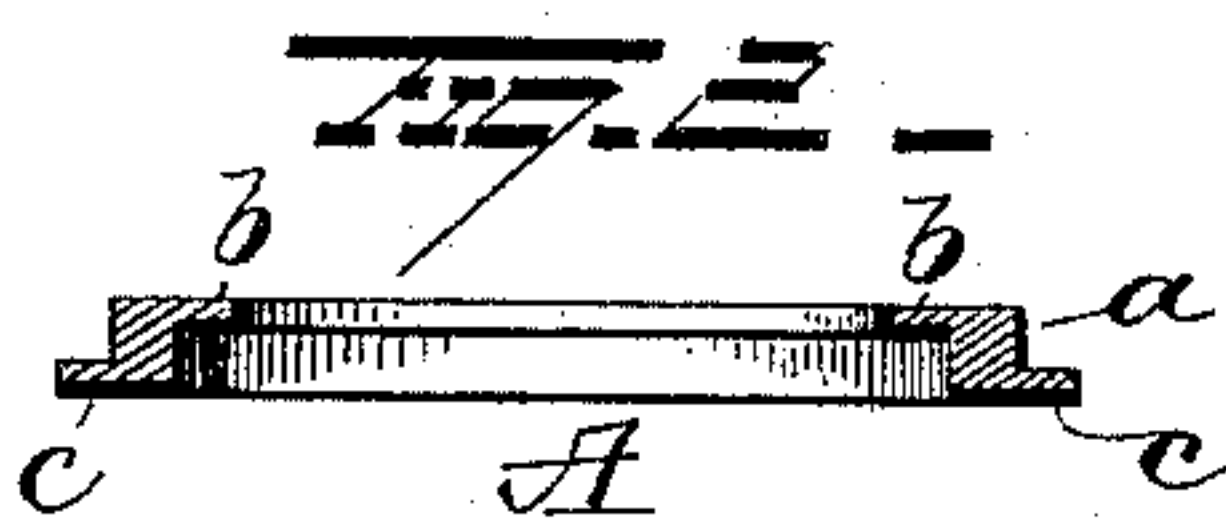
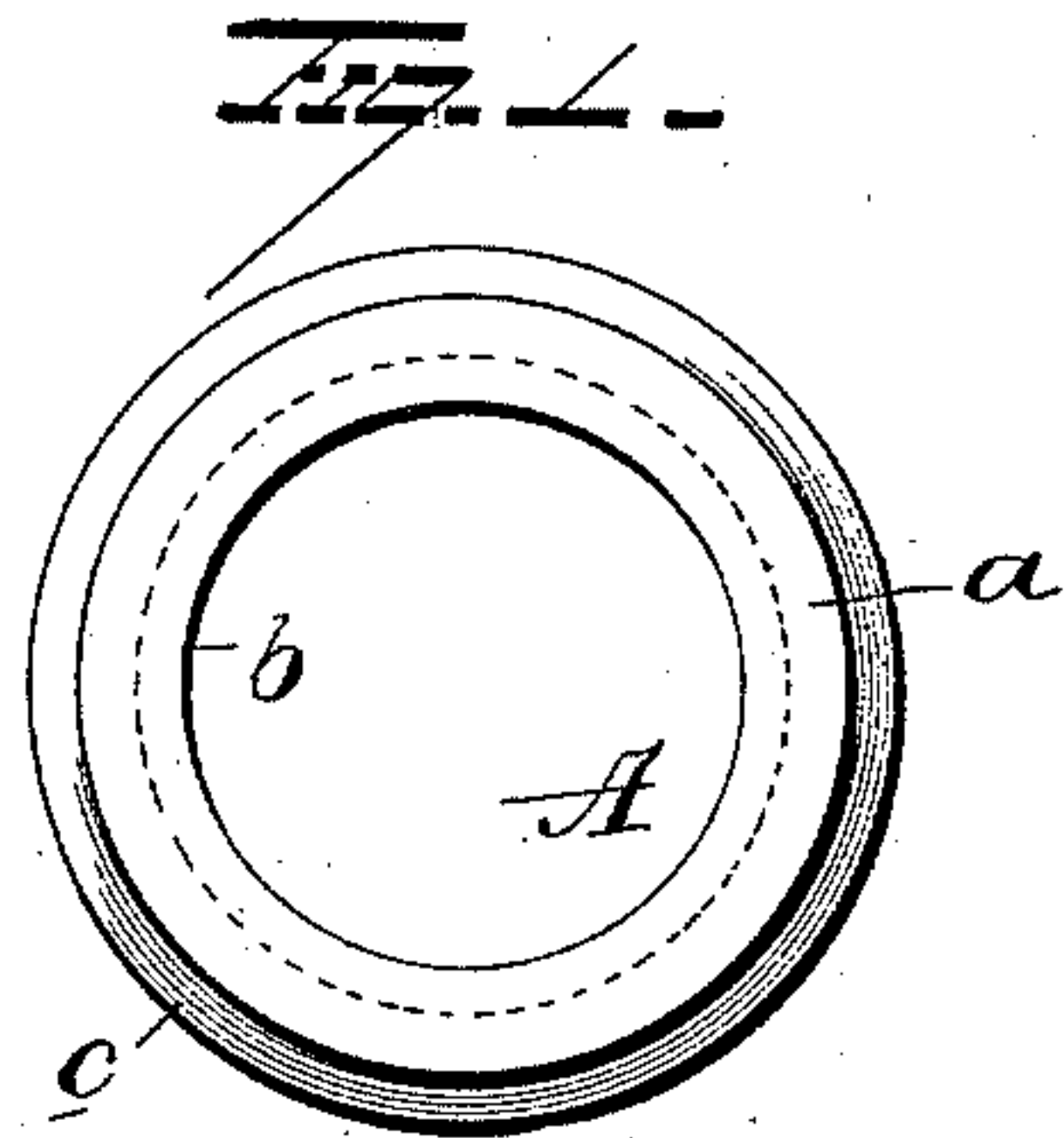


(No Model.)

C. C. JEROME.
WASHER FOR VEHICLE AXLES.

No. 409,790.

Patented Aug. 27, 1889.



Witnesses

W. H. Nottingham
Geo F. Downing

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By *his* Attorney

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UNITED STATES PATENT OFFICE.

CHARLES C. JEROME, OF CHICAGO, ILLINOIS.

WASHER FOR VEHICLE-AXLES.

SPECIFICATION forming part of Letters Patent No. 409,790, dated August 27, 1889.

Application filed February 8, 1889. Serial No. 299,172. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. JEROME, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Washers; 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.

My invention relates to an improvement in washers.

The object is to provide a device applicable to vehicle-axles of such construction that it may be readily adjusted to fit axles of varying diameters, as well as hub-boxes, upon which the device is designed to impinge, thereby dispensing with the necessity of providing a large number of different sizes of washers to suit the demand of the service.

With this end in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a detached perspective view of the washer. Fig. 2 is a cross-section of the washer through its center, and Fig. 3 is a longitudinal axial section of a wheel-hub and axle with the washer in position and in contact with the hub-box.

As the metal axles of vehicles are now manufactured they vary in diametrical size, different makers having their own standard for size, and even the axles of the same maker sometimes varying slightly, so that the washers employed to take up lost motion of the wheel-hub on the axle are difficult to adjust as ordinarily made. It is desirable to employ a metal or composition of metals that will resist wear the best, and it is of great importance that such compositions should be softer than both the axle-collar or hub-box, between which the washers made from this composition are placed.

In view of the advantages pertaining to the ordinary soft-metal washers, which may be either too large or too small for the axle or hub-box, I have devised an improved form of soft-metal washer which will be self-adjust-

ing to the axle and hub-box within a reasonable limit, and which will now be described.

A represents the washer. It is composed of any anti-friction metal or compositions of metals best suited for the service. It consists of an annular plate *a*, of proper thickness and such relative diameter to that of the axle near its collar *B'* that a space will intervene between the inner curved surface of the washer proper and the axle-body *B*. (See Fig. 3.) On the side of the washer that has contact with the collar *B'* an integral thin flange *b* is formed which projects inwardly, its width being such that an orifice will be produced bounding its inner edge of a diameter that will permit the flange to neatly fit on the regular standard size of axle-spindles the washers are intended to encompass. On the opposite side of the washer-body *a* the thin flange *c* is integrally formed. This projects radially from the body at its outer edge, as shown, and is thus adapted to engage the base of the hub-box *C* if said box is of a diameter less than the standard size. The thin flanges *b c* are designed to retain the body of the washer concentric with the axle and hub-box, so that said body *a* will be held from displacement edgewise, and thus have proper contact with the end face of the hub-box *C*, as well as the adjacent surface of the axle-collar *B'*. Should the axle-body be of a diameter in excess of standard size, or the hub-box bore be less than standard diameter, it is apparent that the flanges *b c* will yield and assume a cup form, or they may bend over to lie flat upon the inner and outer edges of the washer-body *a*, these flanges being bent to adjust themselves to suit the relative diameters of the hub-box and axles by the act of drawing up the nut *D* on the outer end of the axle.

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

1. A hub and axle washer having a thin yielding flange formed on its body and projecting inwardly therefrom, substantially as set forth.

2. A hub and axle washer having a thin yielding flange formed on its body and pro-

jecting outwardly therefrom, substantially as set forth.

3. A hub and axle washer having a thin flange integral with its body and extended
5 inwardly in line with one of its ends, and also a thin flange projected outwardly in a line with the opposite end of said washer, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES C. JEROME.

Witnesses:

GEO. C. JEROME,
HENRY R. SMITH.