

(No Model.)

H. N. D. PARKER.
VACUUM APPARATUS COUPLING.

No. 387,904.

Patented Aug. 14, 1888.

Fig. 1.

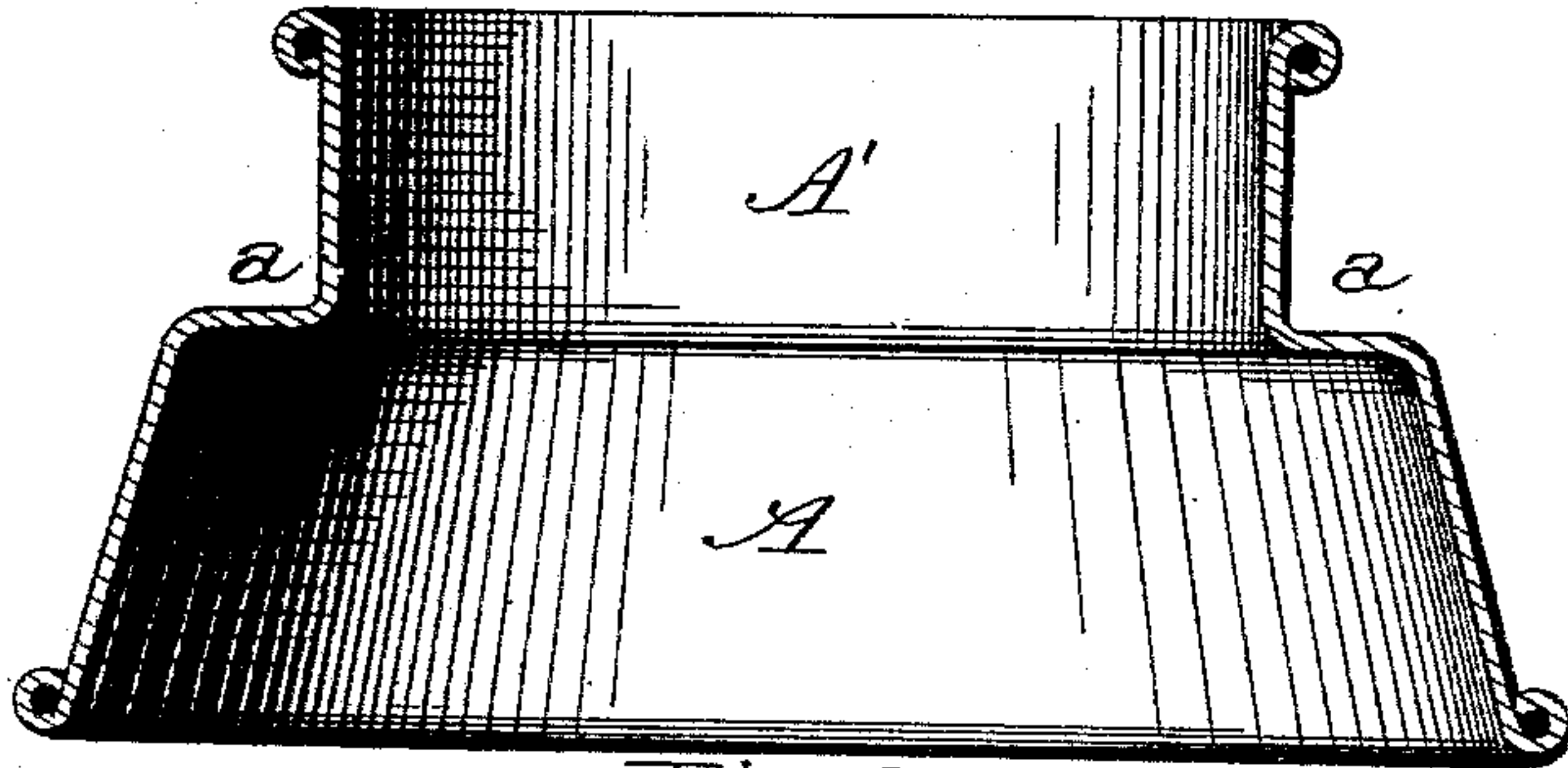


Fig. 3.

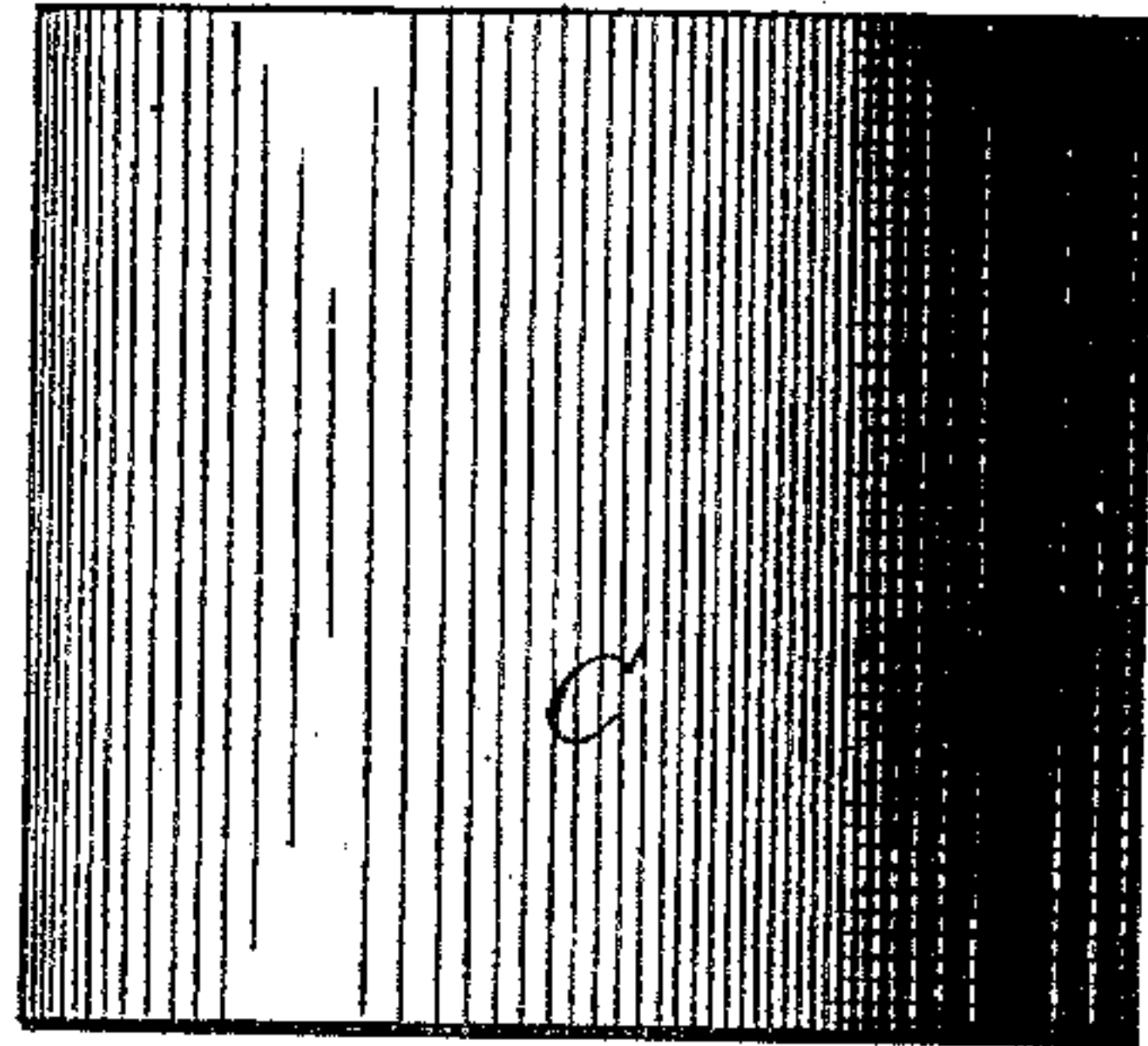


Fig. 2.

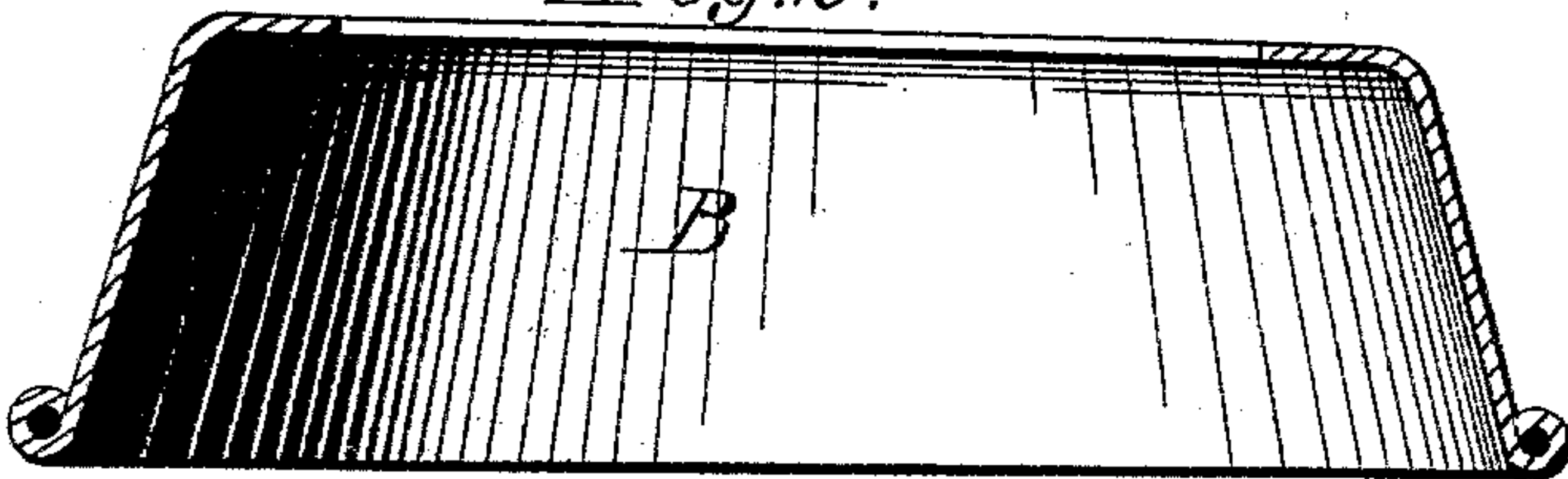


Fig. 4.

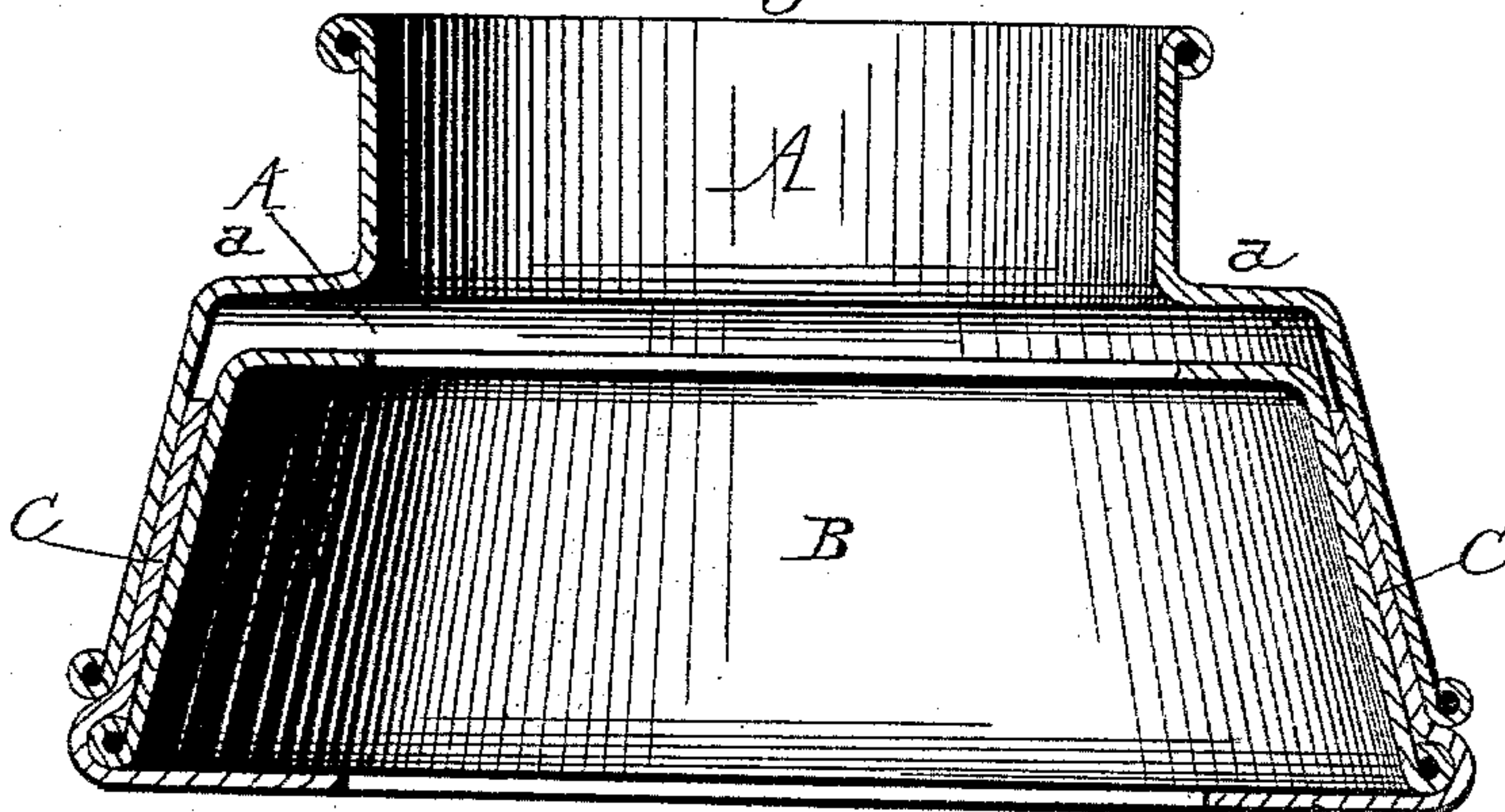
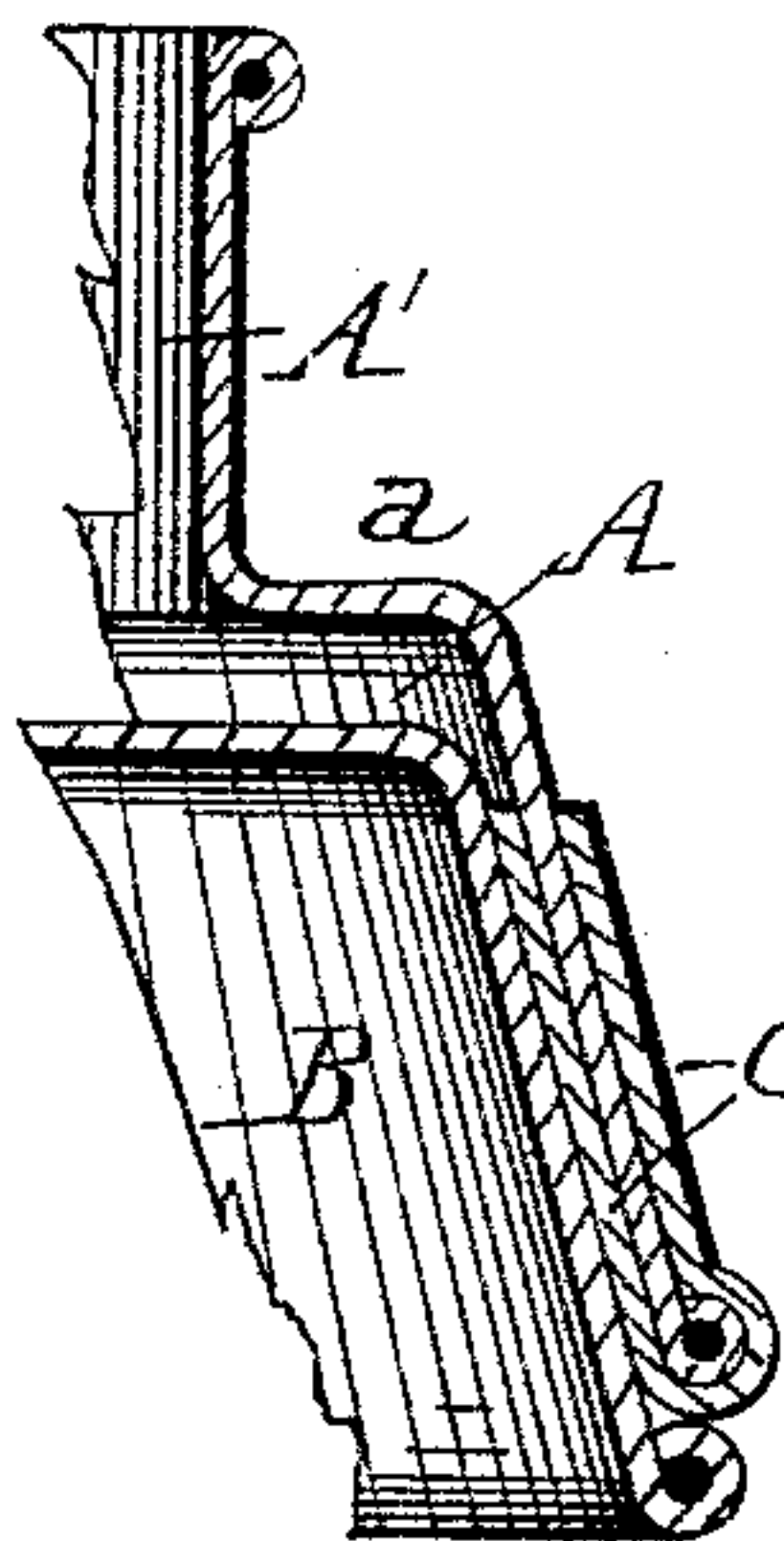


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

HOLLAN N. D. PARKER, OF CHICAGO, ILLINOIS.

VACUUM-APPARATUS COUPLING.

SPECIFICATION forming part of Letters Patent No. 387,904, dated August 14, 1928.

Application filed May 10, 1887. Serial No. 237,787. (No model.)

To all whom it may concern:

Be it known that I, HOLLAN N. D. PARKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Diminishing Vacuum-Coupling, of which the following is a full and complete description.

My invention relates to the class of machinery so constructed as to form hollow vessels or other receptacles of varying size and form in which may be placed a limb or a part thereof or any portion of a living or other body, and from which said receptacle, after the making of a suitable air-tight coupling at the point of entrance of such limb or body into said receptacle, the air may be to a greater or less degree exhausted, thereby forming a partial vacuum therein and surrounding the said limb or other portion of a body so placed, as described.

It is evident that a jar, can, or other hollow receptacle so made as to be fitted to receive and contain a limb—as a human arm or leg—one end thereof being open and through which open end the arm or leg is thrust into the said receptacle, if such open end be constructed of about the size of the arm or leg therein by the placing of a rubber belt or band around the neck of such receptacle and around said arm or leg, the said rubber belt being partially upon the arm or leg entering through such neck into said receptacle and partially upon the neck, an air-tight joint will be obtained, permitting the air to be exhausted, or partially so, from the said receptacle. If, now, the neck of the receptacle be made of about the size of the arm or leg placed therein, there will be but little strain or pull resulting from the action of the air in its pressure upon such rubber band or belt when a partial vacuum is created in the receptacle, while if the neck of such receptacle be much larger than is the arm or other object therein the atmospheric pressure upon that portion of the rubber belt or band constituting the air-tight joint which is between the arm and the neck of the receptacle will be very considerable, and in such case the person having an arm or leg in such neck will suffer more or less pain on account thereof.

For the reasons hereinabove named and

others it has heretofore been customary to construct a large number of receptacles fitted to receive arms and legs of varying sizes, or to make use of the form of coupling described and illustrated in the patent granted H. R. Allen on the 23d of November, 1875, numbered 170,217, by the use of which a reduction is possible of the opening to the vacuum-chamber; but such reduction is not possible without enlarging or shortening the vacuum-chamber, as the case may be; and, furthermore, the connection of the coupling with the vacuum-chamber in the form referred to is one not well adapted for readily securing an air-tight joint and the retaining of such joint when a partial vacuum is created in the chamber; and in my invention I have secured such a joint as will become the tighter the greater the vacuum in the vacuum-chamber, without the necessity of special care in placing the joints together, and even without the intervention of rubber between the said coupling and the neck of the vacuum-chamber, and the size of the vacuum-chamber is unchanged whatever change is made in the opening of the coupling; and the object of my invention is to secure a diminishing vacuum-coupling formed of more than one piece, one of said pieces being permanently attached by an air-tight joint to the receptacle or the neck thereof, and some one of the other pieces forming a part of my said coupling coming around the arm or leg passed through the same into but not wholly within the jar or other receptacle and fitting reasonably close thereto so constructed that the creation of a partial vacuum in the chamber shall cause the said coupling to become the tighter, and thereby avoid the necessity of constructing so large a number of such receptacles as is now required, while at the same time the air-tight joint is secured easily and quickly.

That piece of my diminishing coupling forming the removable portion of my device which is placed over the part permanently secured to the neck of the receptacle, and also over the arm or leg entering such receptacle, may be fitted or placed over a like part or portion secured to any receptacle, and any one of the several removable pieces, being alike in every essential feature except in the size of the ap-

erture obtained by the use thereof, may be placed on the receptacle having the lower portion or part of my improved diminishing vacuum-coupling attached thereto.

5 I have illustrated my invention by the drawings accompanying this specification and forming a part hereof, in which—

Figure 1 is a cross-section of and cut vertically through the removable portion of the device. Fig. 2 is a cross-section of that portion of the device which is permanently attached to the receptacle used. I have not illustrated the neck of the receptacle to which the device may be attached, as it forms no part of the coupling and may be secured thereto in any suitable manner. Fig. 3 is an elevation of a rubber belt or band required in my device. Fig. 4 is a cross section illustrating the manner in which the several pieces and the rubber belt or band constituting the device join together to form a coupling. Fig. 5 is a cross-section of a portion of the coupling joined together and forming the complete coupling.

25 Like letters refer to like parts throughout the several views.

A is a beveled ring.

a is a horizontal web extending from beveled ring A to ring A' and firmly secured to each of said rings. The ring A' is usually constructed by me with perpendicular sides; but a slightly-beveled shape may be given such sides, if preferred. The web *a* may be of any desired depth, thereby changing the size of ring A'.

35 B is a beveled ring secured at the lower end in any suitable manner to the neck of the receptacle from which the air is to be partially exhausted. The bevel of this ring B is the same as is the bevel of ring A, and in case the

rings are cast and their meeting faces afterward turned, or if said rings be spun of any flexible metal, a perfectly air-tight diminishing coupling will be secured thereby; but as in practical use a coupling so constructed is liable to receive dints or bruises in such manner as to seriously impair the practical working of the joints so far as their being air-tight is concerned, I prefer to make use of a rubber belt or band to be interposed between rings A and B.

C is a rubber belt or band. This belt is made of elastic rubber, and in putting my improved device together the belt is pulled or stretched on beveled ring B, so that the lower half or portion thereof comes below the lower edge of said beveled ring B. Beveled ring A is then pressed over ring B, having the rubber belt C stretched thereon in the manner illustrated in Fig. 4. Afterward that portion of rubber belt C so extending below the lower edge of ring A may be turned over against and pulled upon or over the outside of ring A. A perfectly air-tight joint or coupling is thus formed, as illustrated in Fig. 5.

Having thus described my invention, its construction, and operation, what I claim, and desire to secure by Letters Patent, is—

In an apparatus for vacuum treatment, the combination of beveled ring A, having web *a* thereon extending to ring A' and secured thereto, with beveled ring B, having a like bevel and fitting into beveled ring A, all substantially as described, and for the purpose set forth.

HOLLAN N. D. PARKER.

Witnesses:

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