

M. H. HARTZELL.  
 UMBRELLA RIB AND STRETCHER JOINT.  
 APPLICATION FILED MAY 24, 1910.

990,551.

Patented Apr. 25, 1911.

Fig. 1.

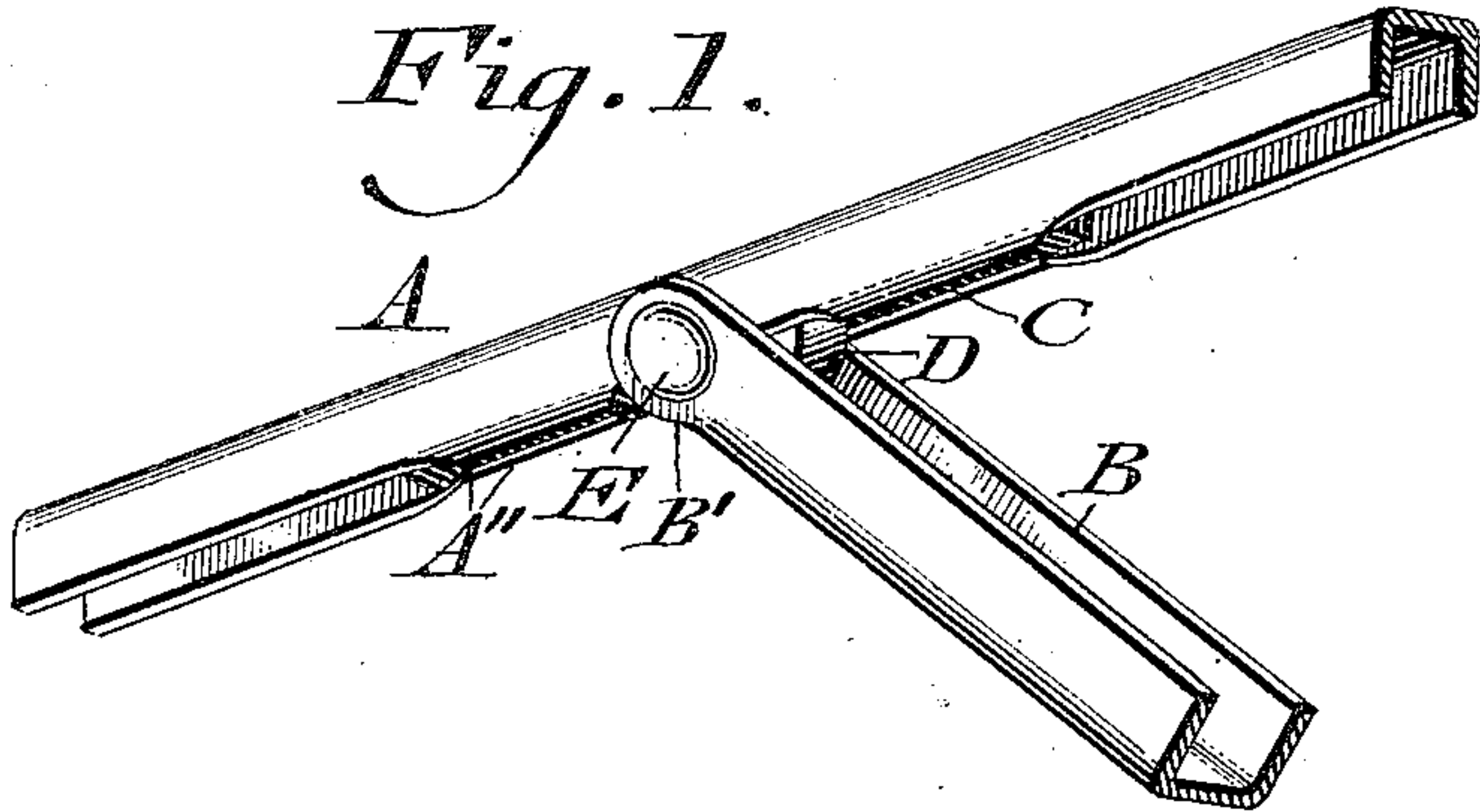


Fig. 2.

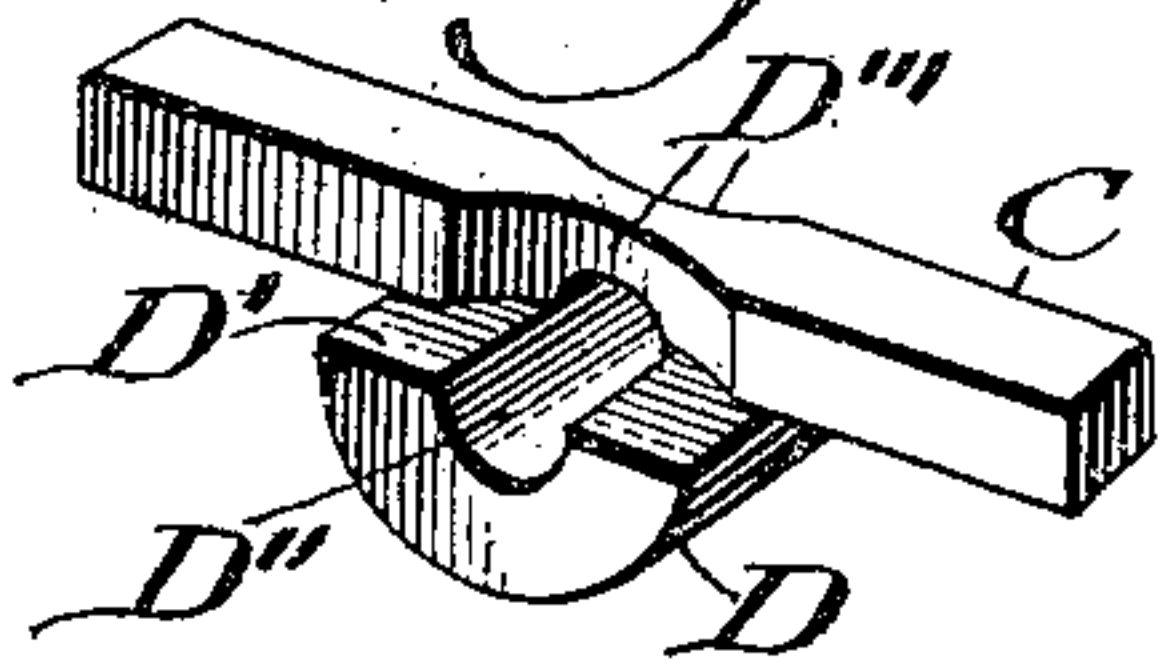


Fig. 3.

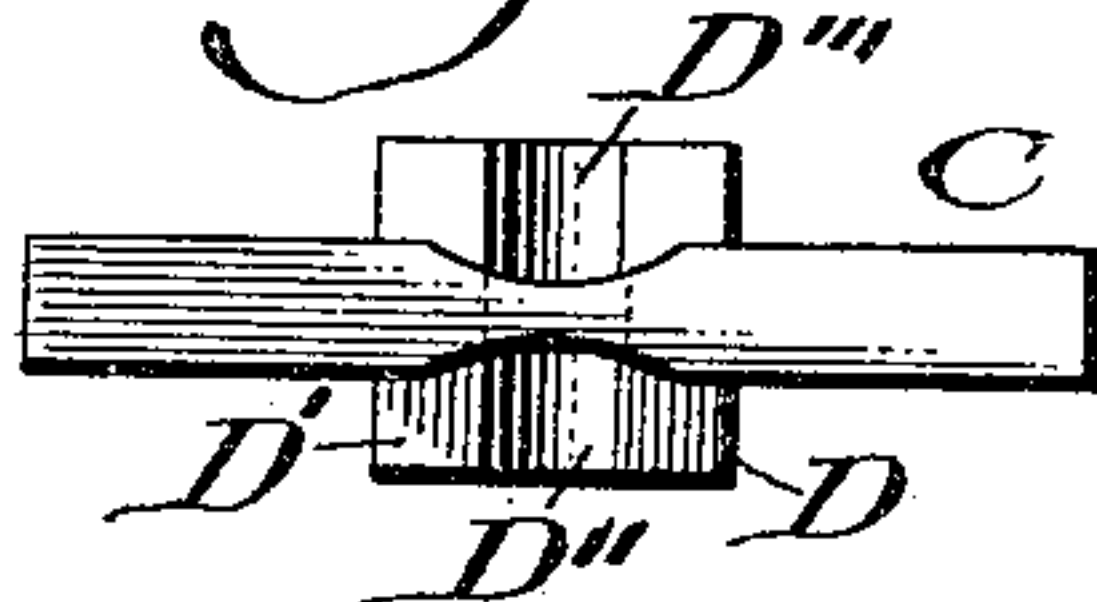


Fig. 4.

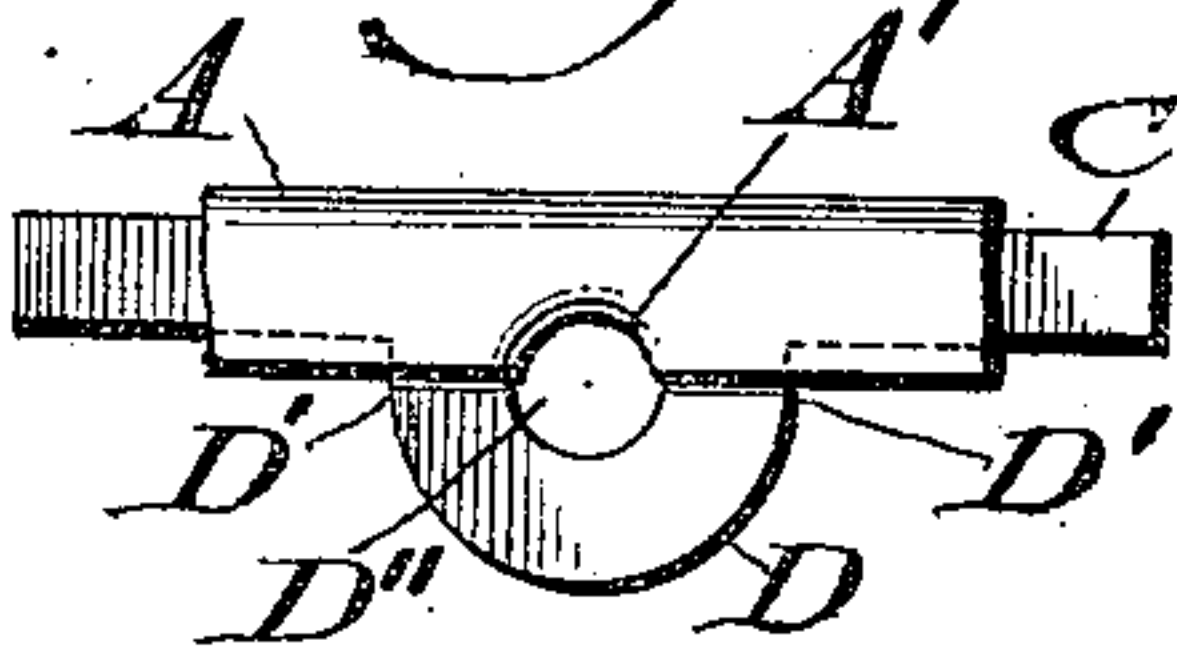


Fig. 6.

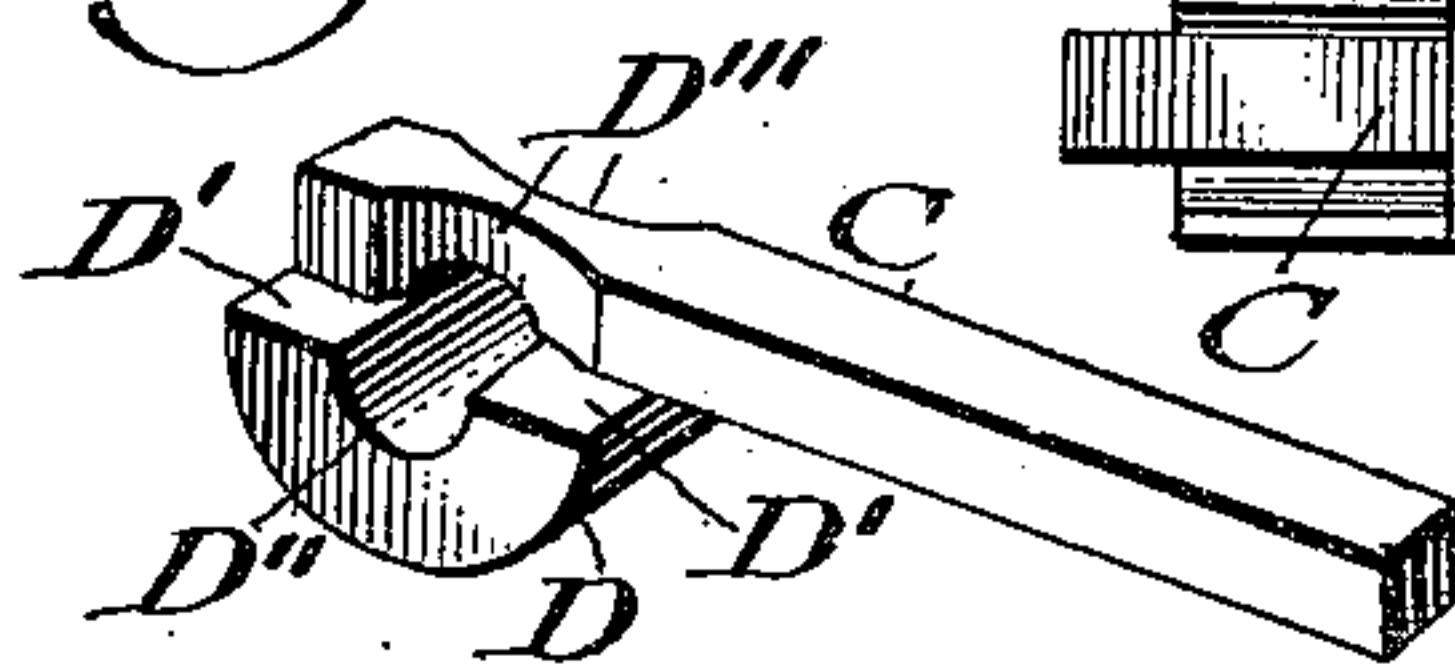


Fig. 5.

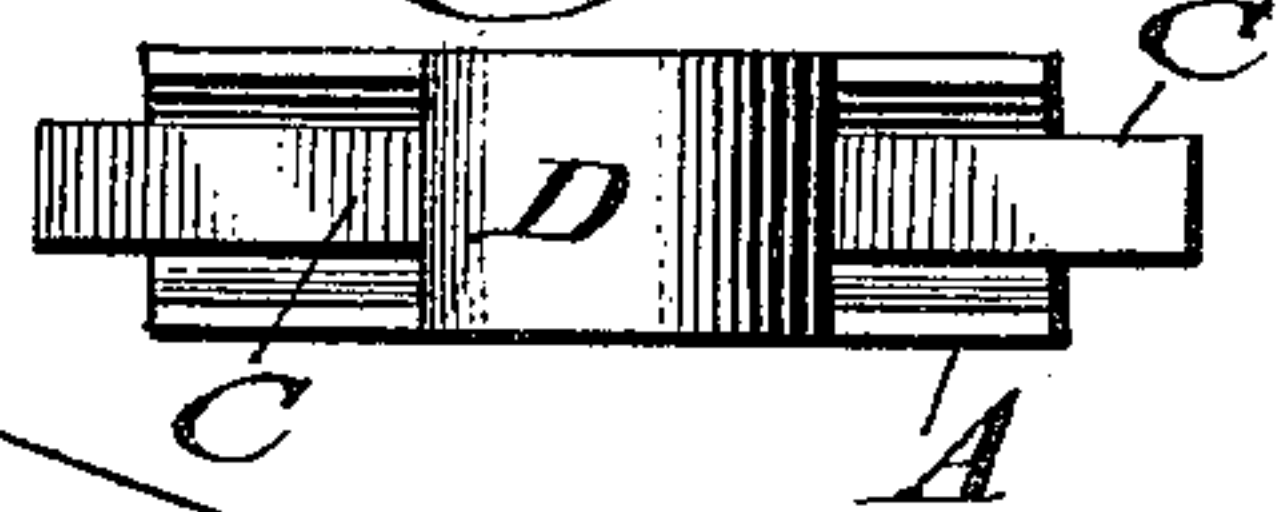


Fig. 7.

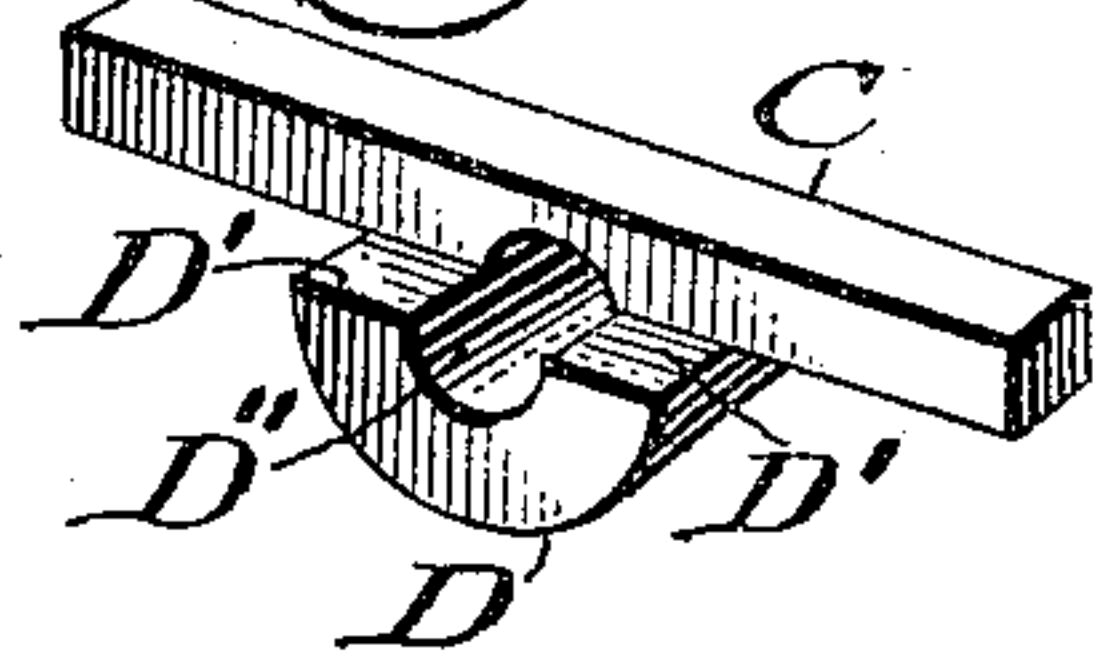


Fig. 8.

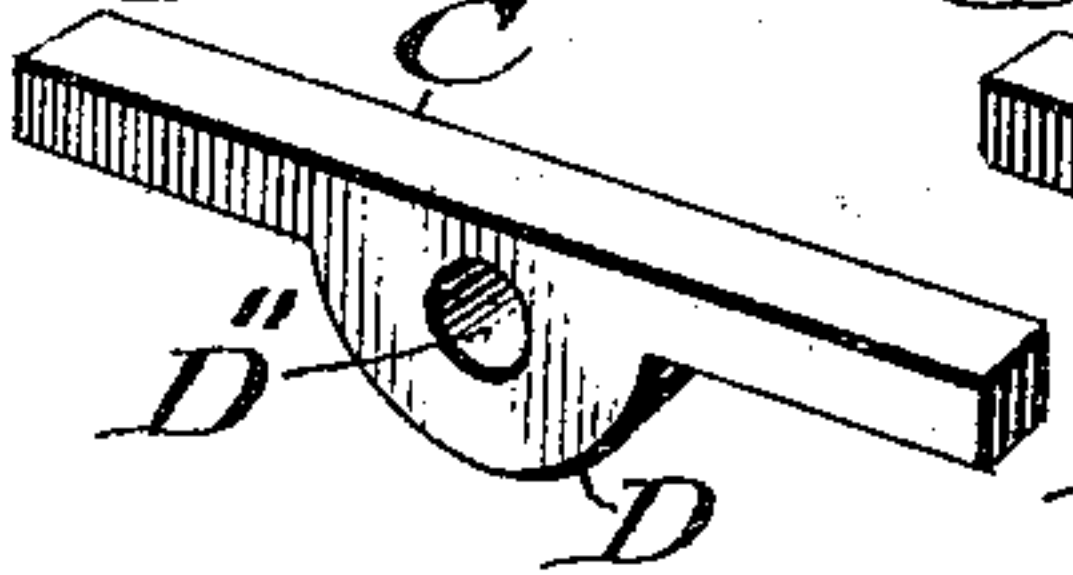


Fig. 9.

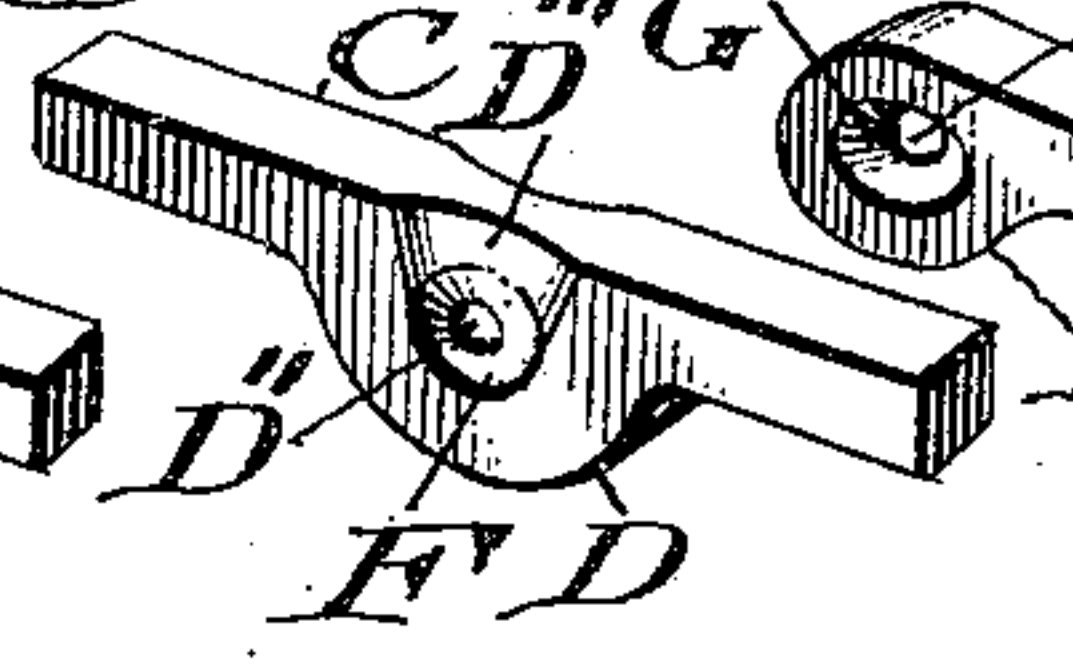


Fig. 10.

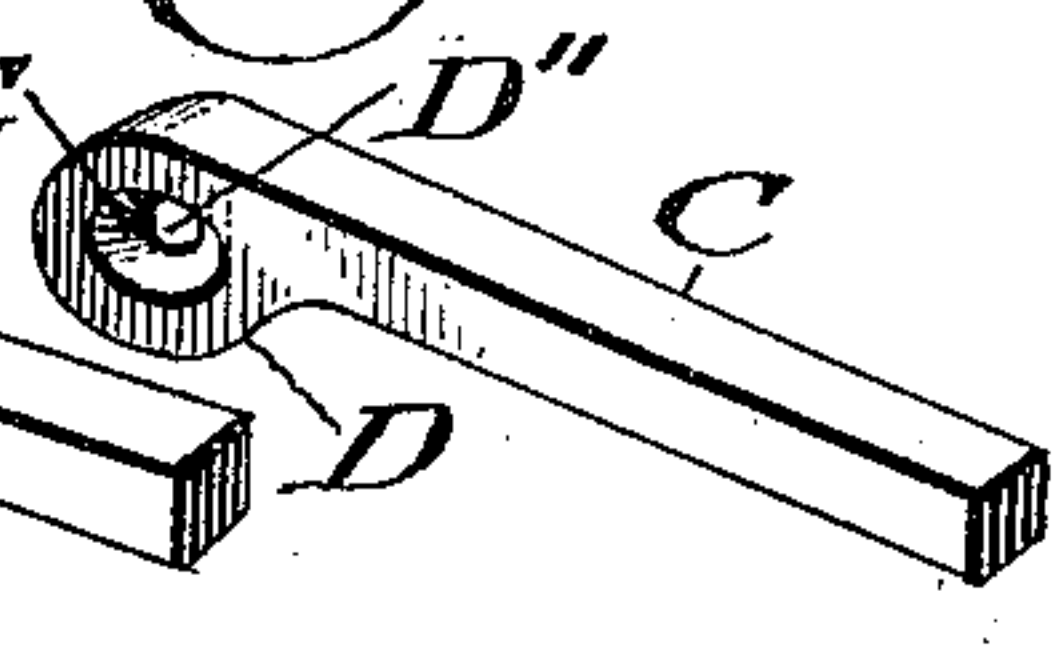


Fig. 11.

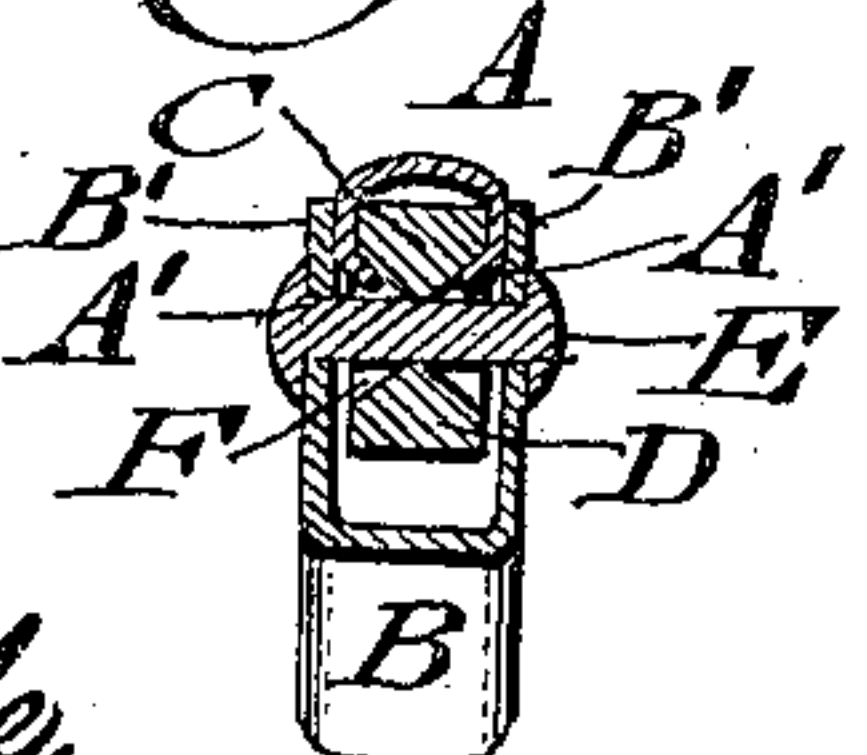
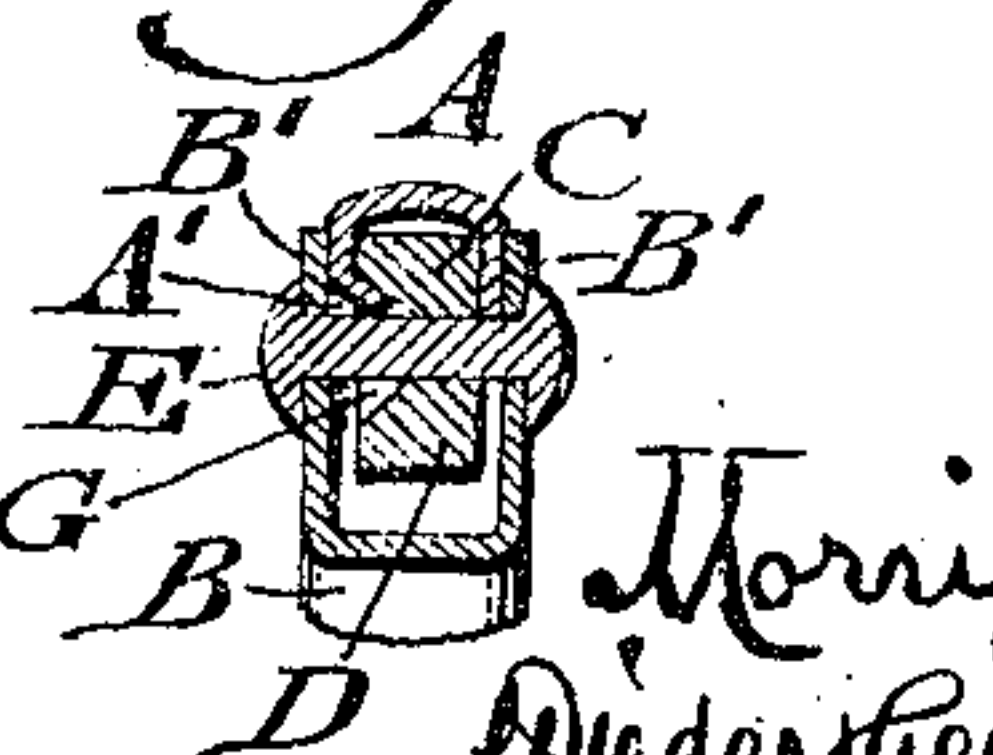


Fig. 12.



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# UNITED STATES PATENT OFFICE.

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UMBRELLA RIB AND STRETCHER JOINT.

990,551.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, MORRIS H. HARTZELL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Umbrella Rib and Stretcher Joint, of which the following is a specification.

My invention consists of an improved joint for pivotally connecting the rib and the stretcher of an umbrella, as will be hereinafter fully set forth and distinctly pointed out in the claims.

For the purpose of explaining the invention, the accompanying drawing illustrates a satisfactory reduction of the same to practice, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a perspective view of as much of an umbrella rib and stretcher connected by my improved joint, as is necessary to illustrate my invention. Fig. 2 represents a perspective view of the bar employed in making the joint. Fig. 3 represents a plan view of such bar. Fig. 4 represents a side elevation of the joint. Fig. 5 represents an underside view of the joint. Fig. 6 represents a perspective view of a slightly different form of bar from that illustrated in the above figures. Fig. 7 represents a perspective view of a blank or forging from which to produce another form of bar. Fig. 8 represents a perspective view of such blank or forging at another step of its manufacture. Fig. 9 represents a perspective view of the finished bar. Fig. 10 represents a perspective view of a slightly varied form of this latter bar. Figs. 11 and 12 represent transverse sections of joints having the bars illustrated in Figs. 9 and 10.

Similar letters of reference indicate corresponding parts in the figures.

Referring to said drawings, A indicates a rib, and B a stretcher thereof. Said parts are U-shaped in cross-section as usual in metallic umbrella frames, and the stretcher is sufficiently larger than the rib to admit of the side flanges of the former to straddle those of the latter when the parts are folded together. A bar C, preferably square in cross-section, fits within the groove of the U-shaped rib and is formed with a

semi-cylindrical projection or ear D of greater width than the bar, so as to have its ends project at both sides of the latter to form shoulders D' which may bear against the edges of the grooved rib. A bore or eye D'' is formed through the bar and projection to be diametrically divided by a line drawn along the edges of the flanges of the rib and to have one half within and one half outside of such line. The sides of the bar at opposite sides of the eye are formed with inturns or notches or recesses D''', and the side flanges of the rib are bent or struck inwardly to form inturns or notched lips A', which engage the notches in the sides of the bar and register with and correspond to the inner half of the eye. The bar is secured in the groove of the rib by bending or swaging the edges of the flanges over the face of the bar, as indicated at A''. The end of the stretcher is formed with perforated ears or forks B' which straddle the projection and the rib, and a rivet or pivot-pin E passes through said ears and the eye of the bar, and has its ends suitably swaged or otherwise headed to be firmly held in engagement with the ears of the stretcher.

In Fig. 6 is illustrated a slightly varied form of bar in which the projection and eye is formed at one end of the bar instead of at about the middle, as in the form illustrated in Figs. 1 to 5 inclusive.

Instead of making the projection forming the eye with the shoulders bearing against the edges of the flanges of the rib, the blank from which such bar is made and illustrated in Fig. 7, will not have the notches or recesses formed in the side of the bar, and the projecting ends are cut off to have the sides of the projection flush with those of the bar, as is illustrated in Fig. 8. The ends of the eye are now beveled, as shown at F in Figs. 9 and 11, or one end, only, of the eye is beveled, as shown at G, in Figs. 10 and 12, whereupon the bar is secured in the rib in the same manner as above described, and the stretcher is pivotally secured by the rivet. The notched lips of the flanges of the rib engage the beveled end of the eye in this instance instead of the notches in the bar.

The bar will reinforce the rib at the joint where the strain comes in opening the umbrella and while the same is open, and the



eye being formed by this separate bar will be stronger and form a more rigid pivot bearing than in umbrellas where the end of the stretcher is pivoted between ears directly formed upon the flanges of the rib or upon a geat.

The pivot bar or rivet will have a complete bearing for its entire circumference in the eye of this device and neither wear nor strain will be exerted directly against any portion of the rib. The bar is simple and inexpensive in its construction, and may be quickly and easily secured in the rib without the use of any extraneous fastening devices. The joint between the stretcher and rib is close up to and into the rib, so that the joints will not form any bulge on the folded umbrella, and the stretcher may double upon the rib and close over the same when the umbrella is folded, so that the umbrella may be folded smoothly and in a very thin roll.

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

1. In a device of the character stated, a grooved rib formed with opposed notched lips, a continuous bar in the groove of the rib and formed with a projection or ear and with a bore partly through the body of the bar and partly through the projection, said projection having extended ends forming shoulders to rest against the walls of the groove and said bore registering with the notched lips and adapted to serve as a com-

plete and unbroken bearing for the pivot pin securing the stretcher.

2. In a device of the character stated, a grooved rib substantially U-shaped in cross-section, and having two opposed notched lips upon its flanges, and a bar secured in the groove of the rib by the flanges being bent inward upon it and having an ear or projection the ends of which form shoulders resting against the walls of the rib flanges and formed with a transverse bore partly through the projection and partly through the body of the bar and with notches in its sides engaged by the lips upon the rib flanges.

3. In a device of the character stated, a grooved rib having two opposed notched lips projecting inward from the walls of the groove, a bar secured in the groove of the rib by the walls of the groove bent inward upon it and formed with an ear or projection having a transverse bore through it and projecting ends forming shoulders resting against the walls of the groove and formed with notches in its sides engaged by the lips upon the walls of the groove, a stretcher having a fork upon its ends straddling the projection on the bar and the sides of the rib, and a pivot pin through said fork and the bore of the projection.

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