

No. 708,976.

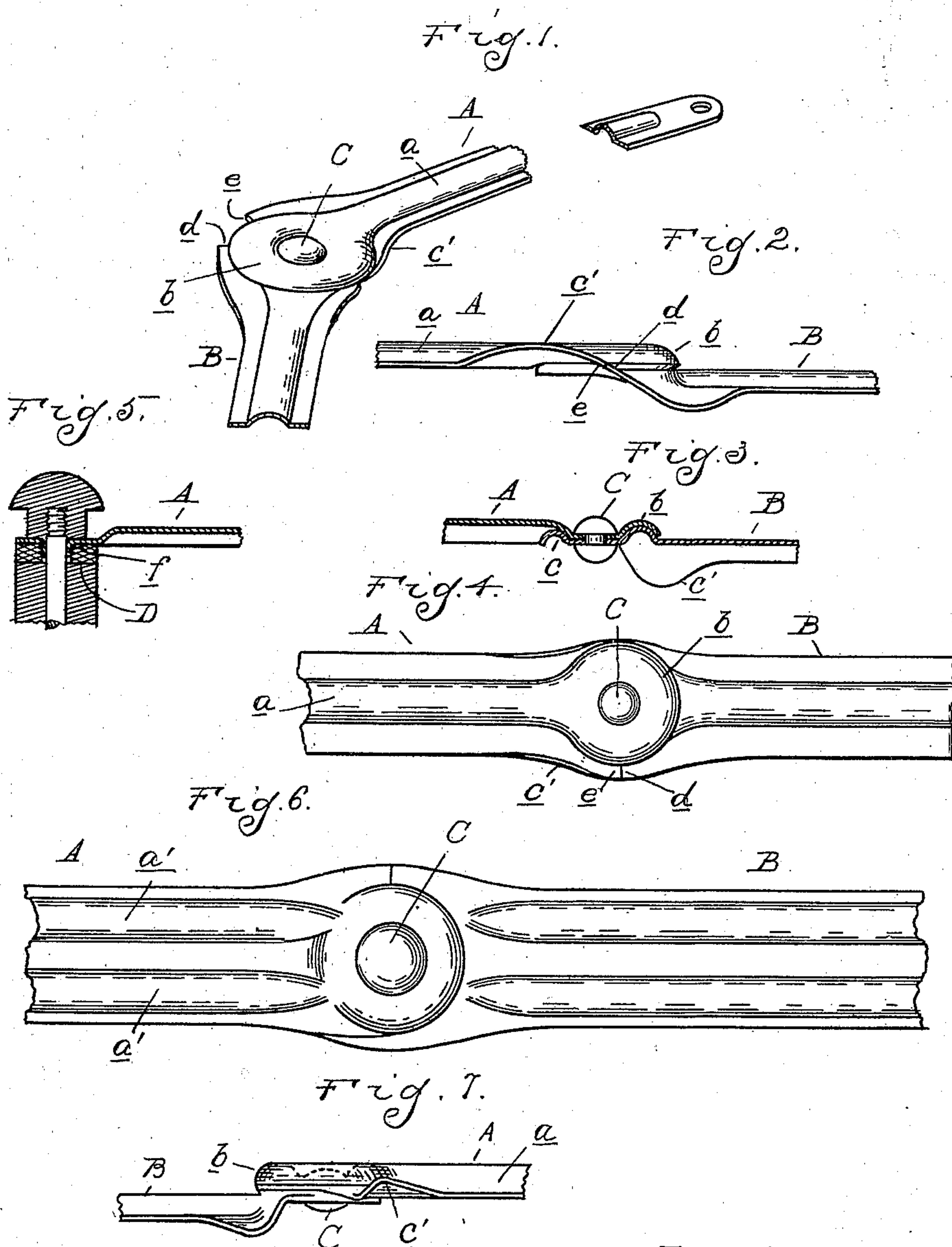
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J. P. JOHNSON.

FOLDING ROD.

(Application filed July 15, 1902.)

(No Model.)



Inventor

Jeremiah P. Johnson

By *[Signature]* *[Signature]*

Witnesses  
H. C. Smith  
A. G. Robertson



# UNITED STATES PATENT OFFICE.

JEREMIAH P. JOHNSON, OF DETROIT, MICHIGAN.

## FOLDING ROD.

SPECIFICATION forming part of Letters Patent No. 708,976, dated September 9, 1902.

Application filed July 15, 1902. Serial No. 115,620. (No model.)

*To all whom it may concern:*

Be it known that I, JEREMIAH P. JOHNSON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Folding Rods, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to improvements in folding rods more especially designed for use in the construction of carriage-tops.

It is a primary object of the invention to obtain a construction that may be struck up from sheet metal.

It is a further object to obtain a light and ornamental construction and one which will possess the required strength.

With these objects in view the invention consists, first, in the peculiar manner of forming the pivotal joint; further, in the construction of the shanks whereby the required rigidity is given to the rod and further in the peculiar construction, arrangement, and combination of parts, as hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view illustrating the joint portion of the folding rod. Fig. 2 is a side elevation thereof. Fig. 3 is a central longitudinal section. Fig. 4 is a plan. Fig. 5 is a section through the end of one of the rod-sections. Fig. 6 is a plan similar to Fig. 4, illustrating a modification. Fig. 7 is a view similar to Fig. 2 looking from the opposite side.

In the construction of carriage-tops a number of jointed brace-rods are employed, which are usually formed from wrought or cast metal. These rods are of the type usually designated as "rule-joint" or "break-joint" rods. Each consists of two sections pivotally secured to each other and adapted to be folded into parallelism, the joint being provided with stops which abut when the rod is straightened, so as to form a rigid brace. In forming a rod of this character from sheet metal it is necessary that it be ribbed or flanged, so as to impart sufficient rigidity, and it is equally essential that the portions forming the joint should be rigid in resisting lateral strains. This I have accomplished by forming the sections of the rod with ribbed or channeled

shanks, while the adjoining ends are fashioned to form a male and female pivotal joint.

As shown in Figs. 1 to 4 of the drawings, A and B are the two sections of the rod, each of which has the body or shank portion thereof bent into a channel form, as indicated at *a*. The inner ends of these sections are then cupped to form complementary annular bearings *b* and *c*. These bearings are held in engagement by a central pivot C, which may be a rivet. In forming these sections the crest of the rib on the section A merges into the annular cup-bearing *b*, while the edges or flanges *c'* form reinforcing members. The flanges *c'* on one side of each section are arranged to extend in alinement, so as to form the stops *d* and *e*. In order that the two sections may be folded into alinement, it is necessary that the shanks thereof be arranged upon opposite sides of the central plane. At the same time it is necessary that these shanks should be so joined to the annular bearings as to leave no weak point, and it is also necessary that the stops *d* and *e* should be arranged in the same plane. As shown in Fig. 2, this is effected by inclining the flange *c'* opposite the annular bearings so that the stops *d* and *e* will be arranged in a central plane between the sections and the flanges will extend oppositely therefrom above and below said plane. When thus formed, the joint will be greatly strengthened by reason of the inclined flanges *c'*, and at the same time the rod may be folded in one direction without interference between the two sections. The essential feature in this construction is that the flange be so shaped as to laterally strengthen the connection between the joint portion and the shank portion of the rod. It is not, however, necessary that flanges be formed or bent exactly as illustrated in Fig. 2.

In Fig. 6 a modification is shown in which the shank portion is provided with a double rib *a' a'*, the construction being otherwise similar to that shown in the other figures.

The ends of the brace-rod are usually pivotally connected with the other parts of the carriage-top, and to prevent wear and noise a washer of leather or other soft material is interposed between the rod and adjoining



member. With my sheet-metal construction I find it desirable to increase the width of the bearing on the pivot, and this is accomplished by striking up a flange *f*. The leather  
 5 washer D may then be sleeved upon this flange *f*, which will hold it in position.

The construction described may be formed from comparatively thin sheet metal, so that the rod is lighter than is possible where made  
 10 from cast metal. It may also be given an ornamental shape, while in strength it is equal to if not greater than the cast or wrought metal construction.

What I claim as my invention is—

15 1. A pivotal rod comprising a sheet-metal stamping fashioned to form at its end an annular rib surrounding a central pivot-aperture with an intermediate flange forming a seat for the head of the pivot, and a ribbed  
 20 shank merging into said annular rib.

2. A pivotal rod comprising a sheet-metal stamping fashioned to form an annular rib of channeled cross-section having an inwardly-extending concentric annular flange surrounding a pivot-aperture and forming a seat  
 25 for the head of the pivot, and a ribbed shank merging into said annular rib.

3. A pivotal rod comprising a sheet-metal stamping fashioned to form an annular rib surrounding a central aperture, a shank merging into said annular rib and a web or flange forming a strengthening-brace at the  
 30 juncture of said shank and annular rib.

4. A pivotal rod comprising a sheet-metal stamping fashioned to form an annular rib surrounding a central aperture, a ribbed shank merged into said annular rib, and a turned web or flange forming a strengthening-brace at the juncture of said shank and  
 35 annular rib.

5. A pivotal rod comprising a sheet-metal stamping fashioned to form an annular channeled rib surrounding a central aperture, a channeled shank merging into said annular  
 40 rib, and a web or flange extending laterally from the base of said shank also merging into the base of said annular rib and having the portion at the angle between said shank and annular rib turned to form a strengthening-  
 45 brace.

6. A folding rod comprising a pair of sheet-metal stampings fashioned to form complementary male and female annular ribbed bearings, a pivot arranged centrally of said  
 55 annular bearings and securing the same together, and a ribbed shank formed integral with and merging into each of said annular bearings.

7. A folding rod comprising a pair of sheet-metal stampings fashioned to form complementary male and female annular channeled ribs each having an inwardly extending annular flange surrounding a central aperture, a pivot passing through said aperture and  
 60 headed to bear on opposite sides of said flanges to secure said stampings together, and ribbed shanks merging into each of said annular bearings and arranged on opposite sides of a central plane so as to permit of folding into parallelism.  
 65

8. A folding rod comprising a pair of sheet-metal stampings fashioned to form complementary male and female annular channeled ribs, a centrally-arranged headed pivot securing said stampings together, a ribbed  
 75 shank formed integral with said flanges at the juncture of said shanks and annular bearings respectively turned in opposite directions in the two members to permit said shanks to be folded into parallelism.  
 80

9. A folding rod comprising a pair of stampings each fashioned to form complementary male and female pivotal bearings and outwardly-extending ribbed shanks and inclined oppositely-extending side flanges on each  
 85 member forming engaging stops for arresting further movement when said members are turned into alinement.

10. A folding rod comprising a pair of stampings pivotally engaging each other, a  
 90 pivotal bearing at one end of said rod formed by a struck-out annular flange and a washer sleeved upon said flange.

In testimony whereof I affix my signature in presence of two witnesses.

JEREMIAH P. JOHNSON.

Witnesses:

H. C. SMITH,  
 A. G. ROBERTSON.