(No Model.) 2 Sheets—Sheet 1.

F. E. BRESLER.

ADJUSTABLE CRANK CLAMP.

No. 545,843. Patented Sept. 3, 1895.

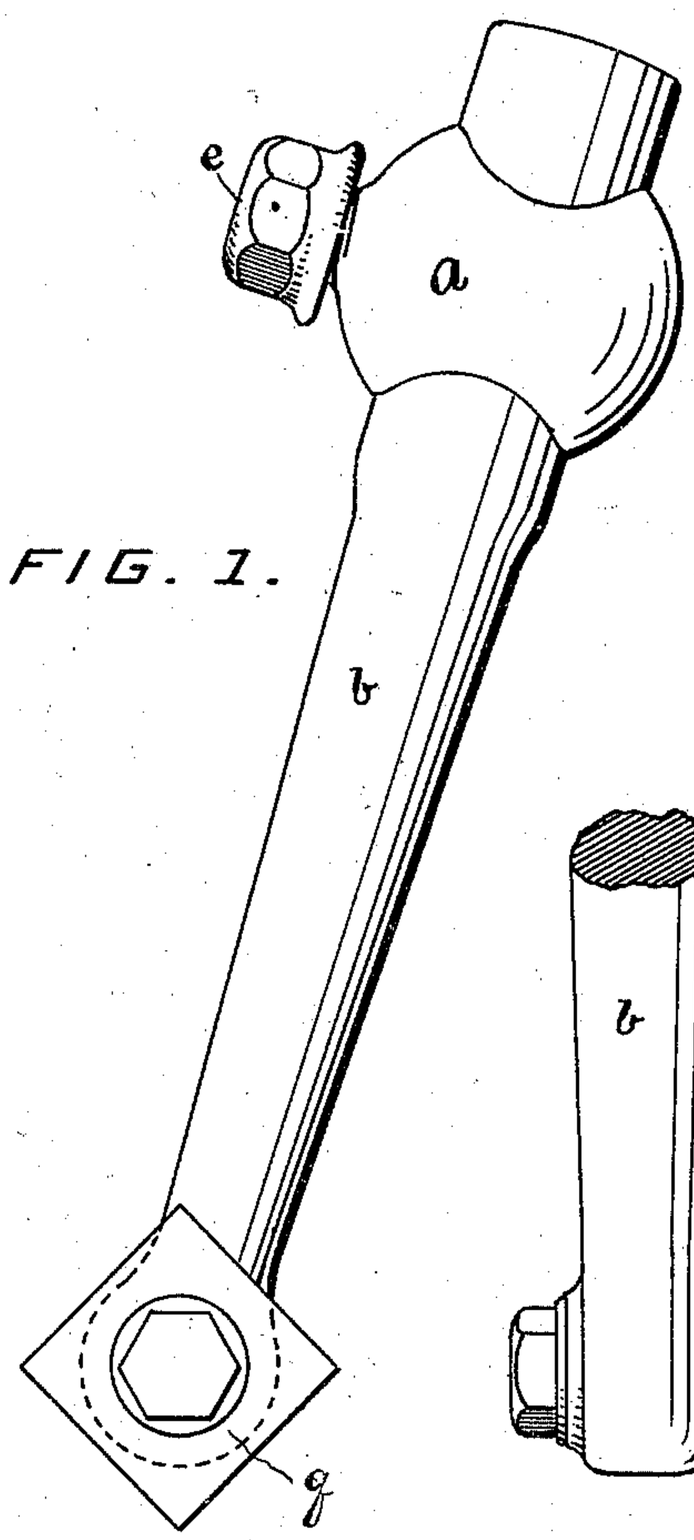


FIG. 1.

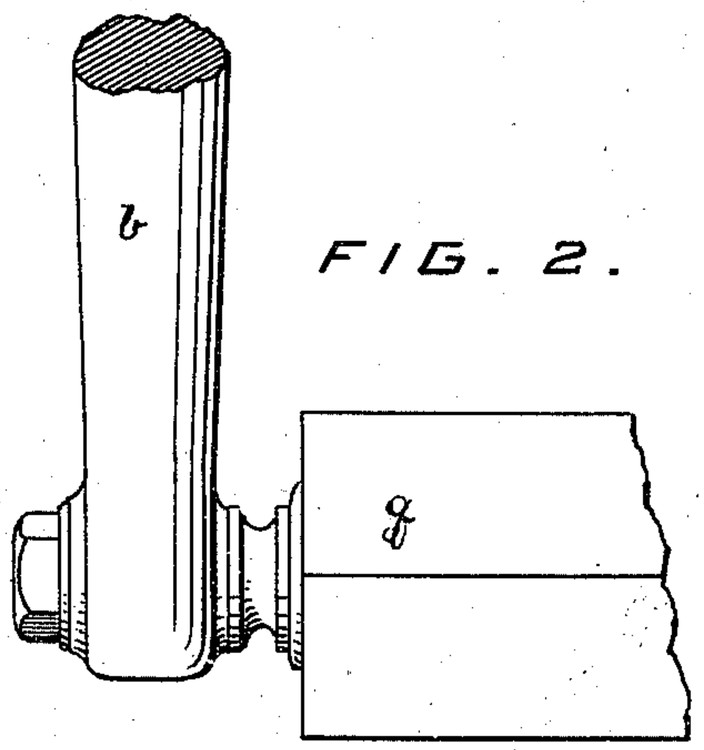


FIG. 2.

Witnesses
Jas. E. Thomas
J. A. Majole

Inventor
Fred E. Bresler
Per Geo. P. Thomas.
Attorney.

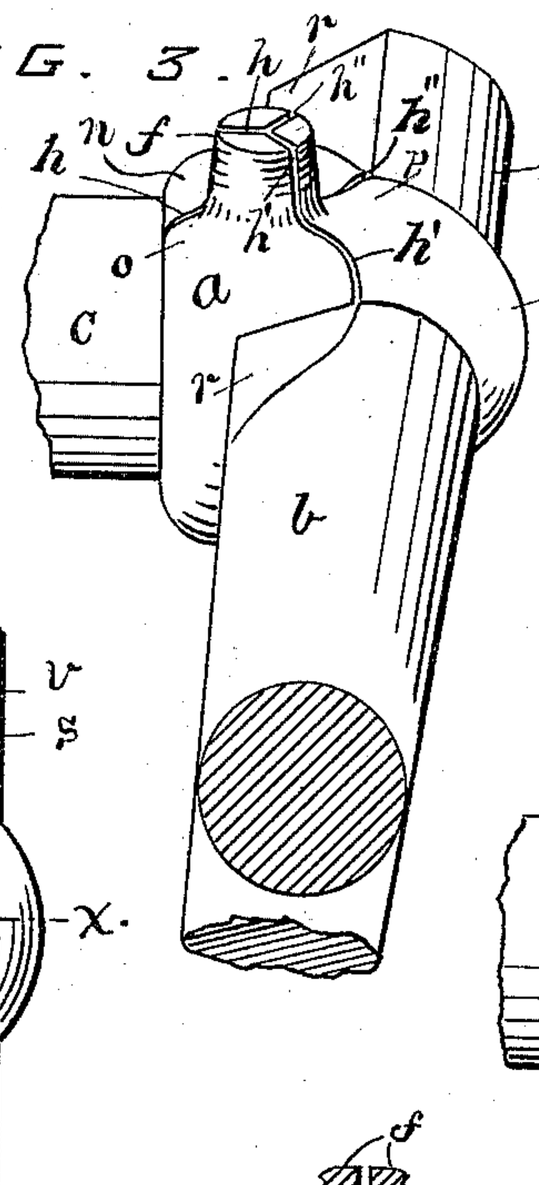
(No Model.) 2 Sheets—Sheet 2.

F. E. BRESLER.

ADJUSTABLE CRANK CLAMP.

No. 545,843. Patented Sept. 3, 1895.

FIG. 3.



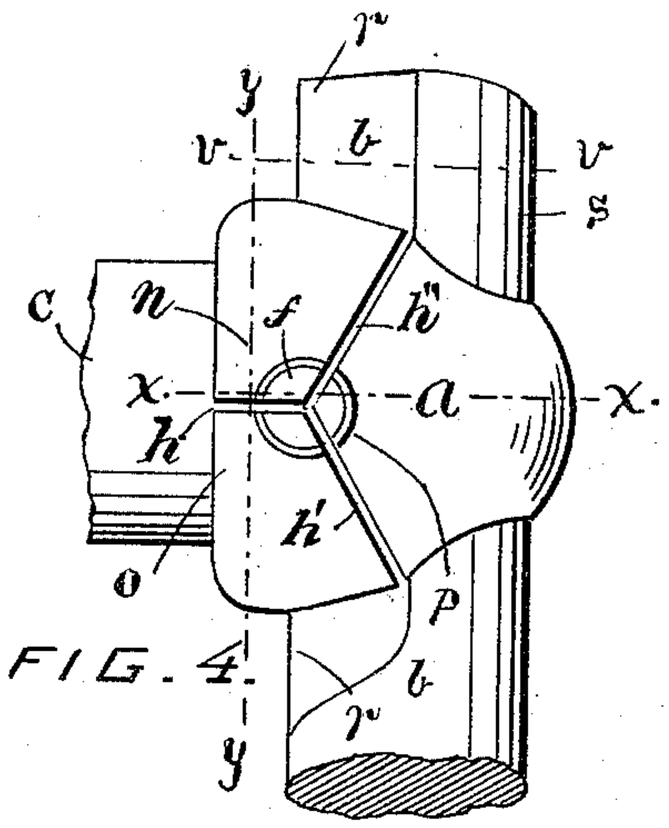


FIG. 4.

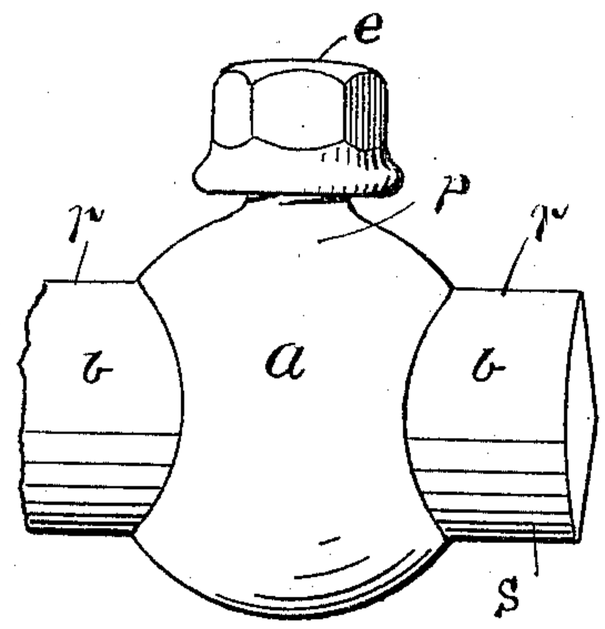


FIG. 5.

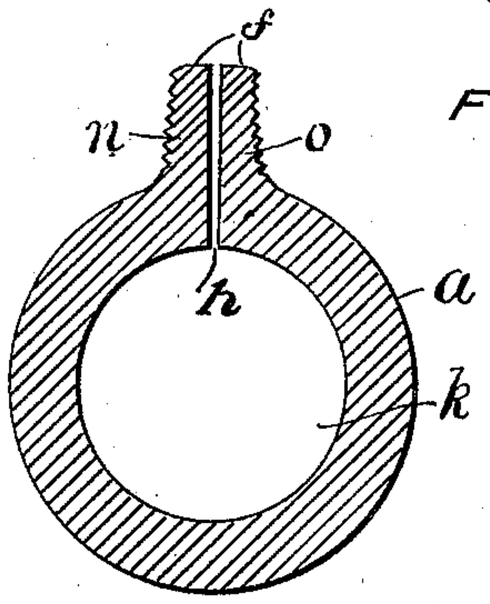


FIG. 6.

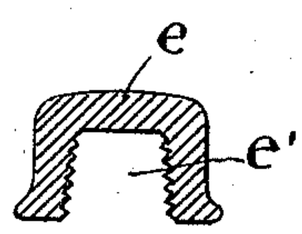


FIG. 11.

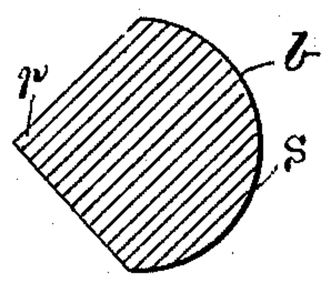


FIG. 10.

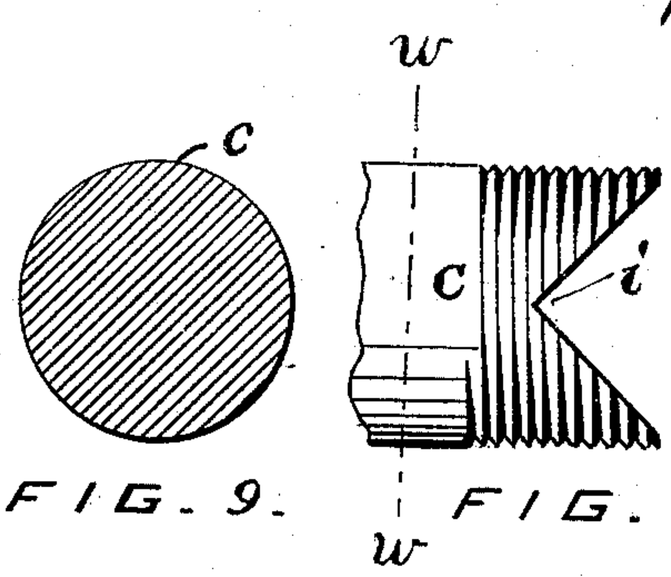


FIG. 9. FIG. 8.

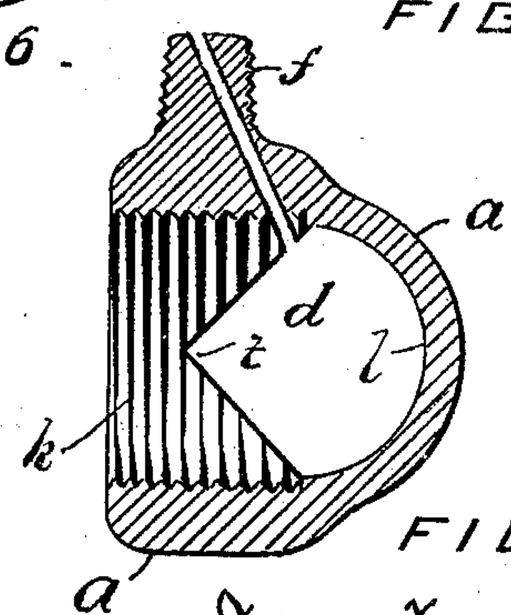


FIG. 7.

Witnesses
Jas E. Thomas
J. A. Hajole

Inventor
Fred E. Bresler
Per Geo. P. Thomas
Attorney.

UNITED STATES PATENT OFFICE.

FRED E. BRESLER, OF BAY CITY, MICHIGAN.

ADJUSTABLE CRANK-CLAMP.

SPECIFICATION forming part of Letters Patent No. 545,843, dated September 3, 1895.

Application filed September 15, 1894. Serial No. 523,148. (No model.)

To all whom it may concern:

Be it known that I, FRED E. BRESLER, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Adjustable Crank-Clamps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in adjustable crank-clamps, and relates especially to devices for adjustably attaching a crank to a shaft.

The objects of the invention are, first, to provide devices for attaching a crank upon a shaft which will permit the crank to be lengthened or shortened as desired in an expeditious and easy manner.

Another object is to provide devices for attaching a crank upon a shaft which will retain the same firmly and solidly in any desired position in relation to length of crank, and also allow the crank to be quickly and easily removed and replaced, and which can be made and applied at a less cost and trouble than the devices commonly used for that purpose.

My invention consists in the peculiar construction and arrangement of the parts, together with the combination and operation of the same, as I will hereinafter describe in detail, and which will also be specifically pointed out in the claims of this specification.

In the accompanying drawings, which form a part of this specification, my invention will be found illustrated, the same reference-letters being used therein to designate the same parts throughout the several views.

Figure 1 represents the side view of a bicycle-crank embodying my invention. Fig. 2 is a front view of the pedal end of the crank. Fig. 3 is a front view in perspective of the shaft end with section of crank attached with my improved clamping device. Fig. 4 is a plan view of the same. Fig. 5 is a view of the outside of the same in elevation. Fig. 6 shows a transverse section of the clamp, taken through *y y* in Fig. 4. Fig. 7 is a transverse section of the clamp through *x x* in Fig. 4. Fig. 8 shows a side view of the end of the shaft. Fig. 9 is a transverse section of the same, taken at *w* in Fig. 8. Fig. 10 is a transverse section of the crank, taken at *v v*, Fig. 4. Fig. 11 is a transverse central section of the clamping-cap detached.

c represents the driving-shaft of a bicycle, and the end of this shaft is provided with a transverse recess or groove *i*, preferably of a V form, while its periphery is provided with a screw-thread.

a is a clamping device provided with an opening *d*, extending entirely through its body, while in the side of the body is a threaded opening *k*, reaching to the opening *d*, and into this opening is passed the threaded end of the shaft *c*, before described. The inner side of the opening *d* is provided with a V shape recess *t*, the side walls of which when the shaft is in place coincide with flat surfaces or walls of the groove *i*, while the outer side *l* of the opening has the form of a semicircle.

On one side of the body of the clamp is a projecting stud or nipple *f*, having a tapering form and provided with a screw-thread, and this nipple is divided into three sections by the narrow slits *h*, *h'*, and *h''* radiating from the center of the nipple and extending through the clamp-body into the openings *d* and *k*, and forming thereby the sections *n* and *o* on opposite sides of the slit *h* and the section *p* on the outer side of the slits *h'* and *h''*, a cap *e*, provided with a tapering threaded opening *e'*, is passed over the nipple, the mouth of the threaded opening being of a dimension to pass over the outer end of the nipple when the slits are extended to their widest dimension, so that as the cap is screwed on the nipple the sections will be brought toward each other and the slits closed together.

b is a crank-arm having on its outer end the handle or treadle *q*, and the rear side of its inner end is provided with a V-formed rib *r*, corresponding in form to the V of the opening *d*, while the outer side *s*, opposite the rib, is provided with a rounded form fitted to the curve of the side of the opening *d*, so that when the end of the arm is passed through the opening *d* the fit will be loose, and so that the arm may be easily moved in either direction to allow a proper adjustment of the arm for distance between center of the shaft and the treadle, and then on tightening down the screw-cap *e*, the slits *h*, *h'*, and *h''* will be closed together and the sections *n* and *o*

clasped tightly around the shaft, and the section *p* will also be firmly clasped around the crank-arm so as to crowd the V of the arm into the V-recess in the opening, and the end of the shaft thereby holding the whole firmly and solidly in position by frictional contact, the V-rib on the arm fitting into the V-recess in the end of the shaft, providing against any liability of the clamp turning on the shaft when subjected to a heavy or sudden strain.

It will be seen that the advantages of my improved clamp are very great, as it allows a quick and easy adjustment of the length of arm or the entire removal and replacement of the crank to be made, and at the same time the cost of construction does not add materially to the expense of attaching a crank upon a shaft in the ordinary manner.

Of course it will be understood that while with the form of crank herein described, the V-recess in the opening and a corresponding V form of rib on the crank is a superior form of construction and provides for the treadle always being in alignment with the shaft; yet in other forms of cranks the V on both the crank and opening may be omitted and the parts fitted in a circular form and the operation of the clamp would be the same, and the threads on the shaft and the opening *k* may be also omitted, if desired, as the parts *n* and *o* are drawn by the screw-cap so that they clamp firmly upon the surfaces of the shaft and in a manner to hold under all ordinary circumstances, and I wish it understood that I do not confine my invention particularly to this form of construction nor to the application of the improved clamp to the driving-shaft of bicycles alone, as it can be used as well in any other form of crank.

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

1. A crank clamp consisting of a body portion with an opening extending through it for the crank arm, an opening into one side extending into said crank opening for the end of the shaft, and having on one side an outwardly projecting tapering nipple provided on its periphery with a screw-thread, and provided with three sections formed by radial slits, two of said slits extending into the body to the said crank opening and the other slit extending into the said shaft opening, and a cap provided with a tapering threaded opening fitted to pass over said nipple and draw said sections toward each other, substantially as set forth.

2. The combination of a shaft and a crank, of a clamp consisting of a body provided on its inner side with an opening passed over the end of the shaft, and having a transverse opening through its body passed over the end of the crank arm, and provided on one side with a projecting tapering nipple having on its periphery a screw thread and with radial slits extending into said body portion to said openings, and a screw cap provided with a tapering threaded opening passed over said nipple for the purpose set forth substantially as described.

3. The combination with a shaft having its end provided with a transverse V formed recess and with a screw thread of a clamping device having a body portion provided on its inner side with a threaded opening passed over the threaded end of the shaft, and having a transverse opening with its inner side of a V form coinciding to the V recess of the shaft end and provided on its upper side with the sections *n*, *o*, and *p*, substantially as described and with the adjacent ends of said sections projecting outwardly for forming a tapering threaded nipple *f*, a crank arm having one end portion passed into said transverse opening in the clamping device, and having on its inner side a V rib fitted to the V recess of said opening and a cap *e*, provided with a tapering threaded opening passed over said nipple, substantially as set forth.

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

FRED E. BRESLER.

Witnesses:
GEO. P. THOMAS,
JAS. E. THOMAS.