

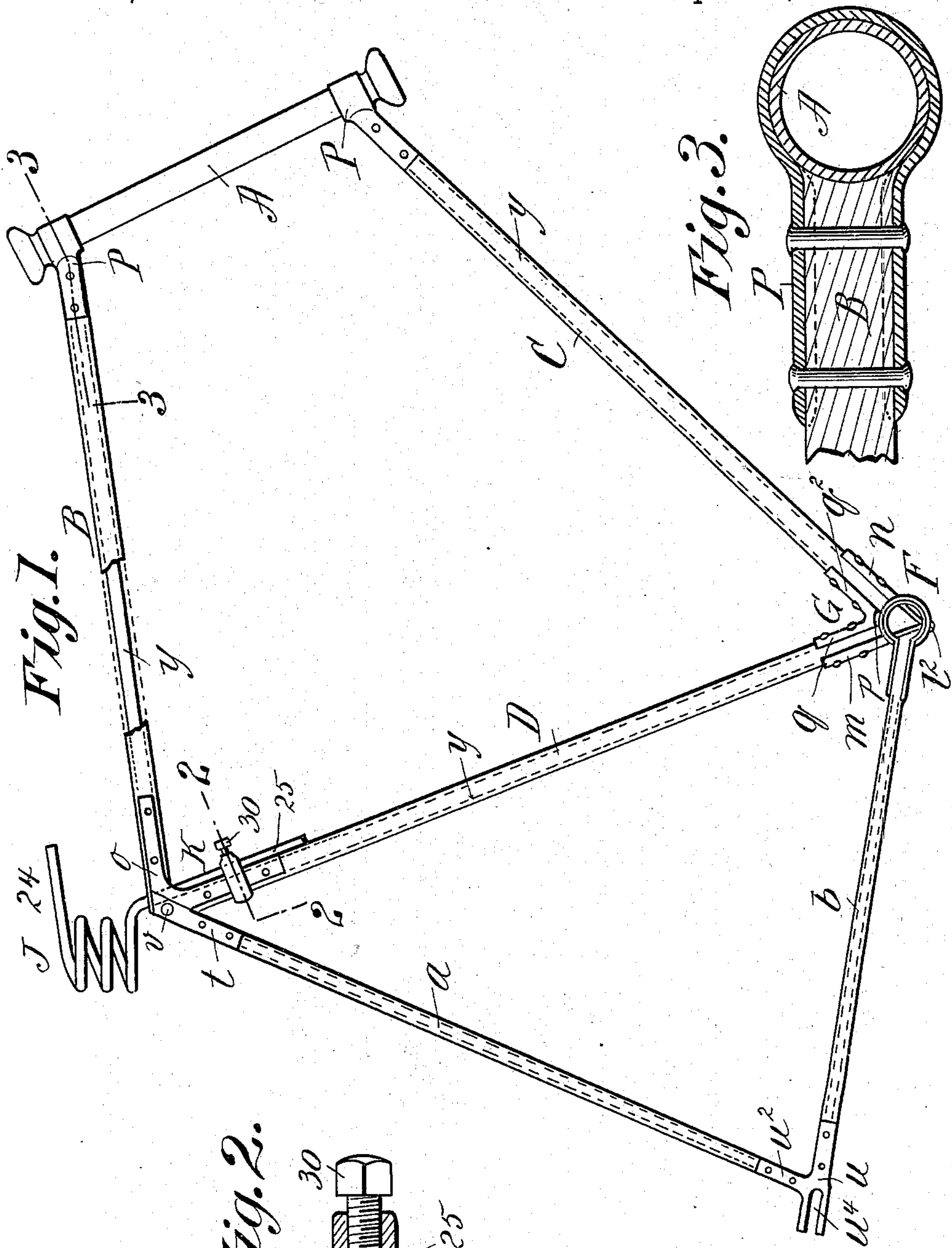
(No Model.)

4 Sheets—Sheet 1.

W. S. BELLOWS.  
BICYCLE.

No. 567,936.

Patented Sept. 15, 1896.

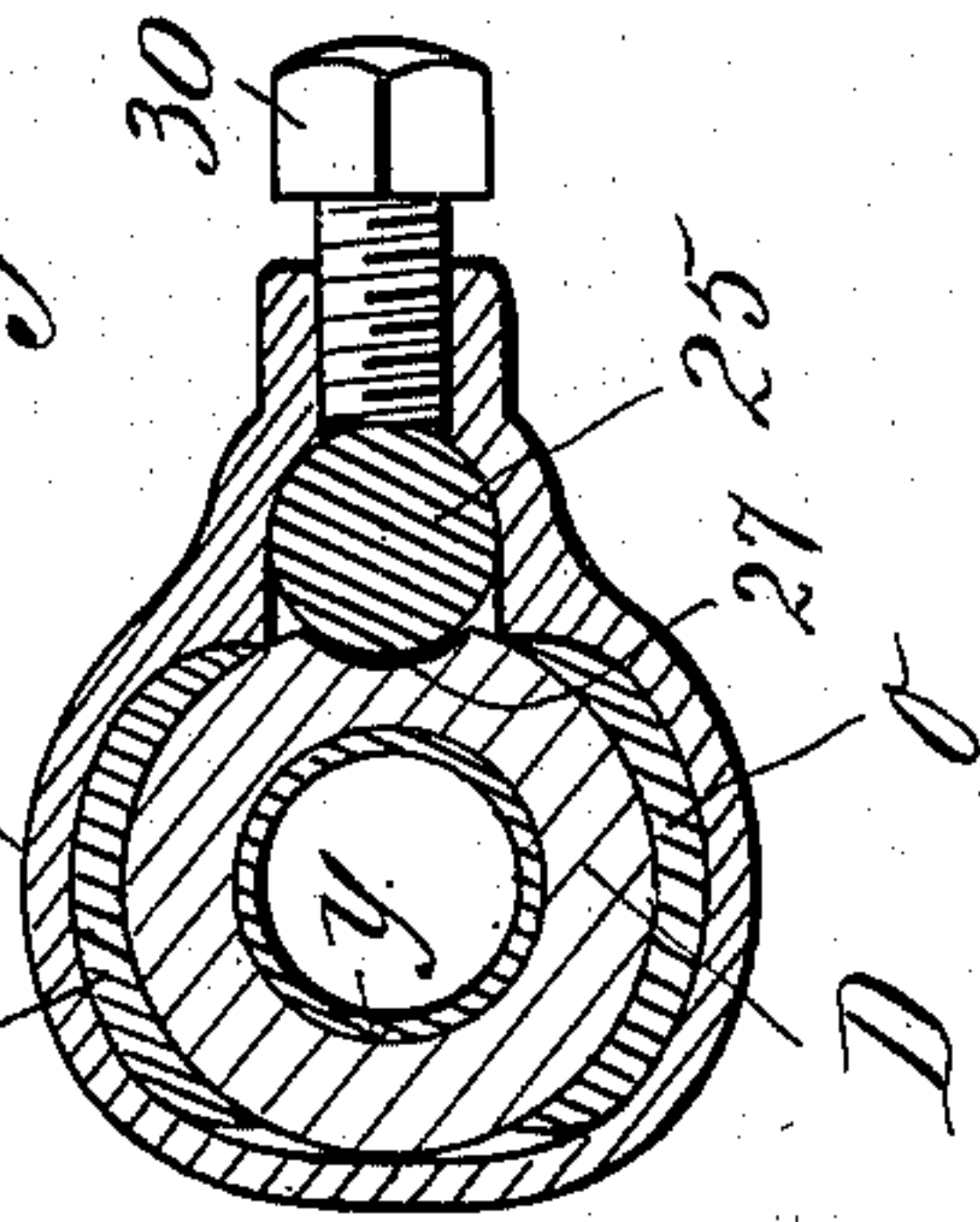


Witnesses:

J. E. Bellows

J. D. Gasford

Fig. 2.



Inventor,

W. S. Bellows

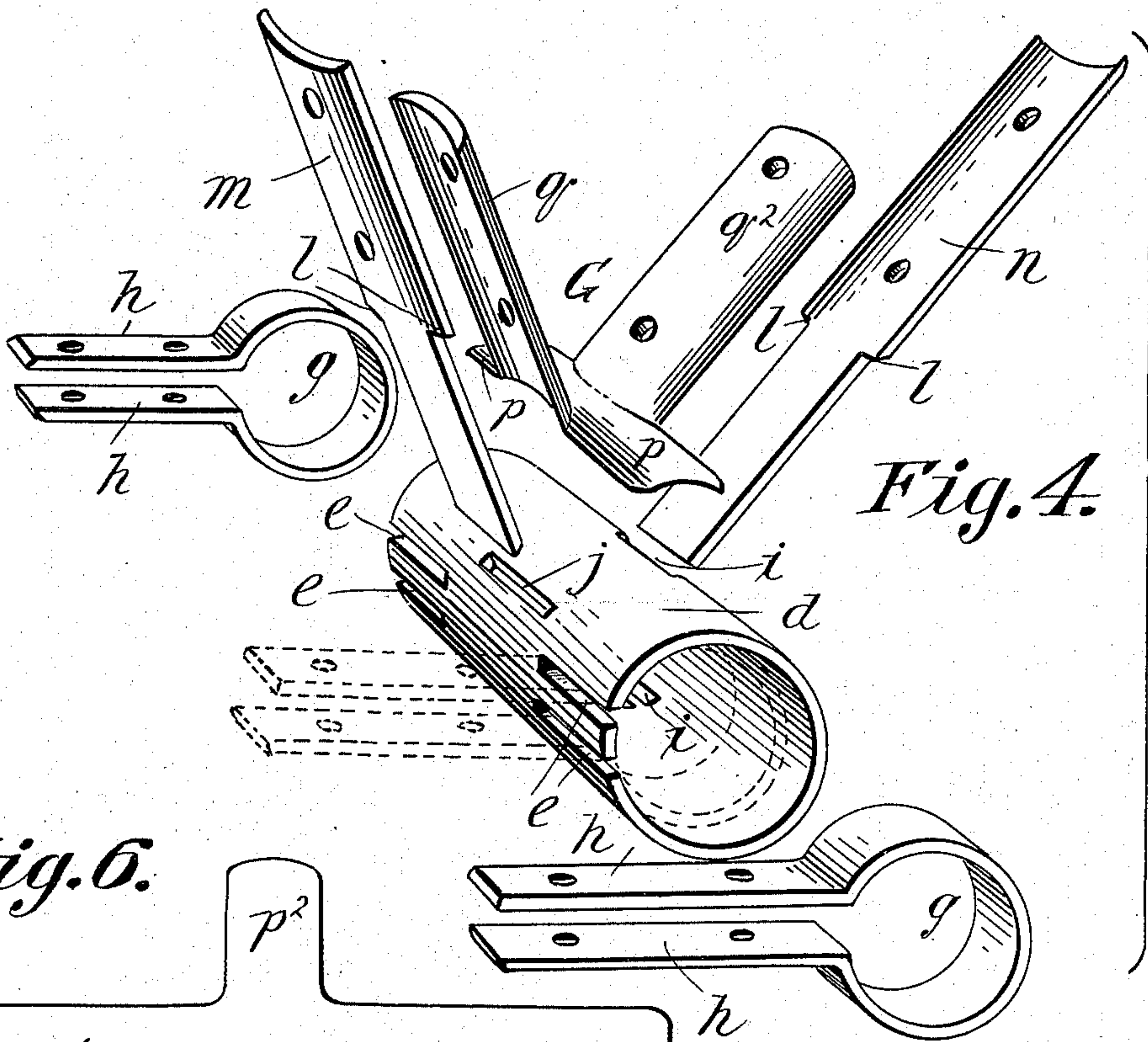
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BICYCLE.

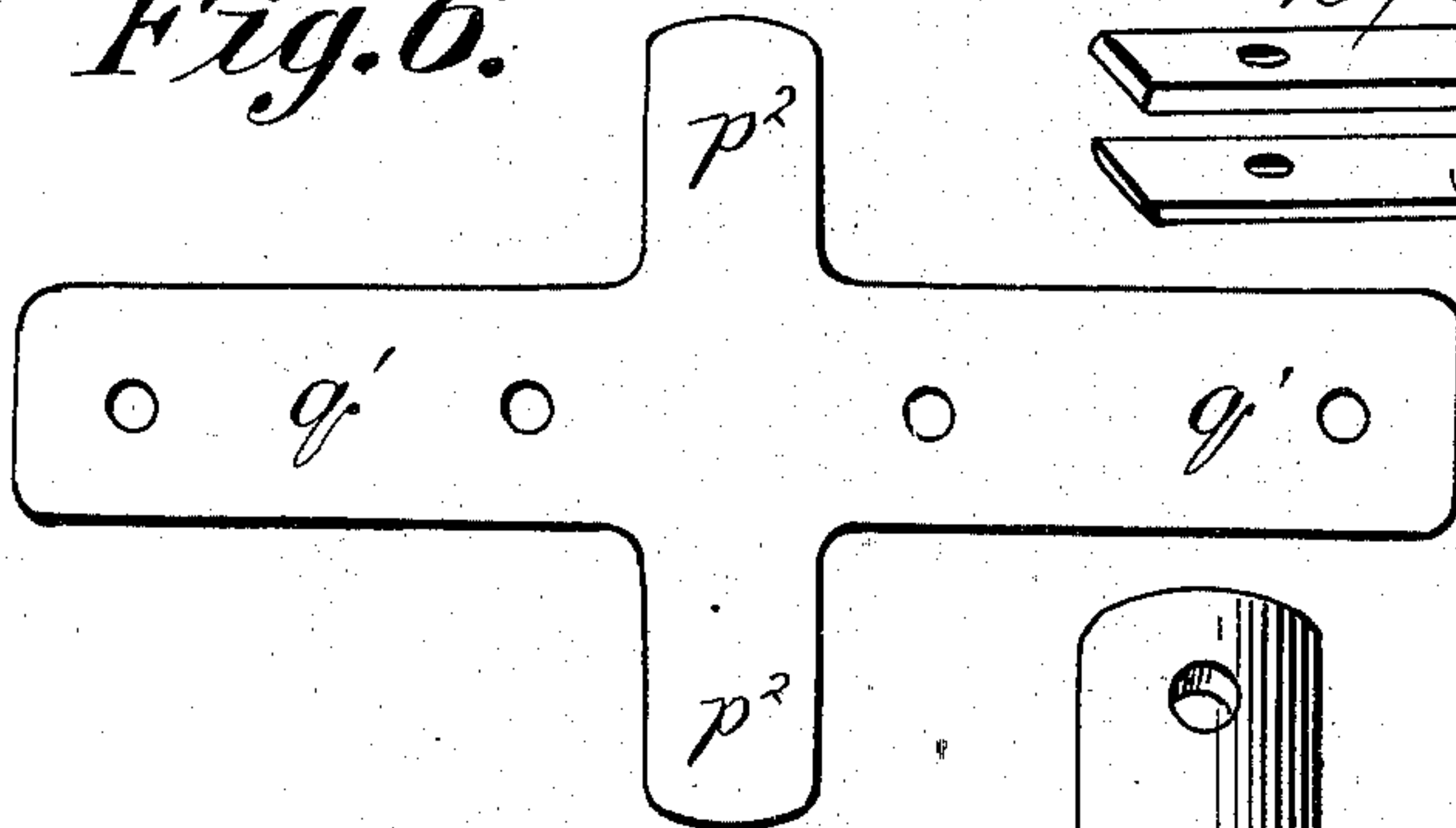
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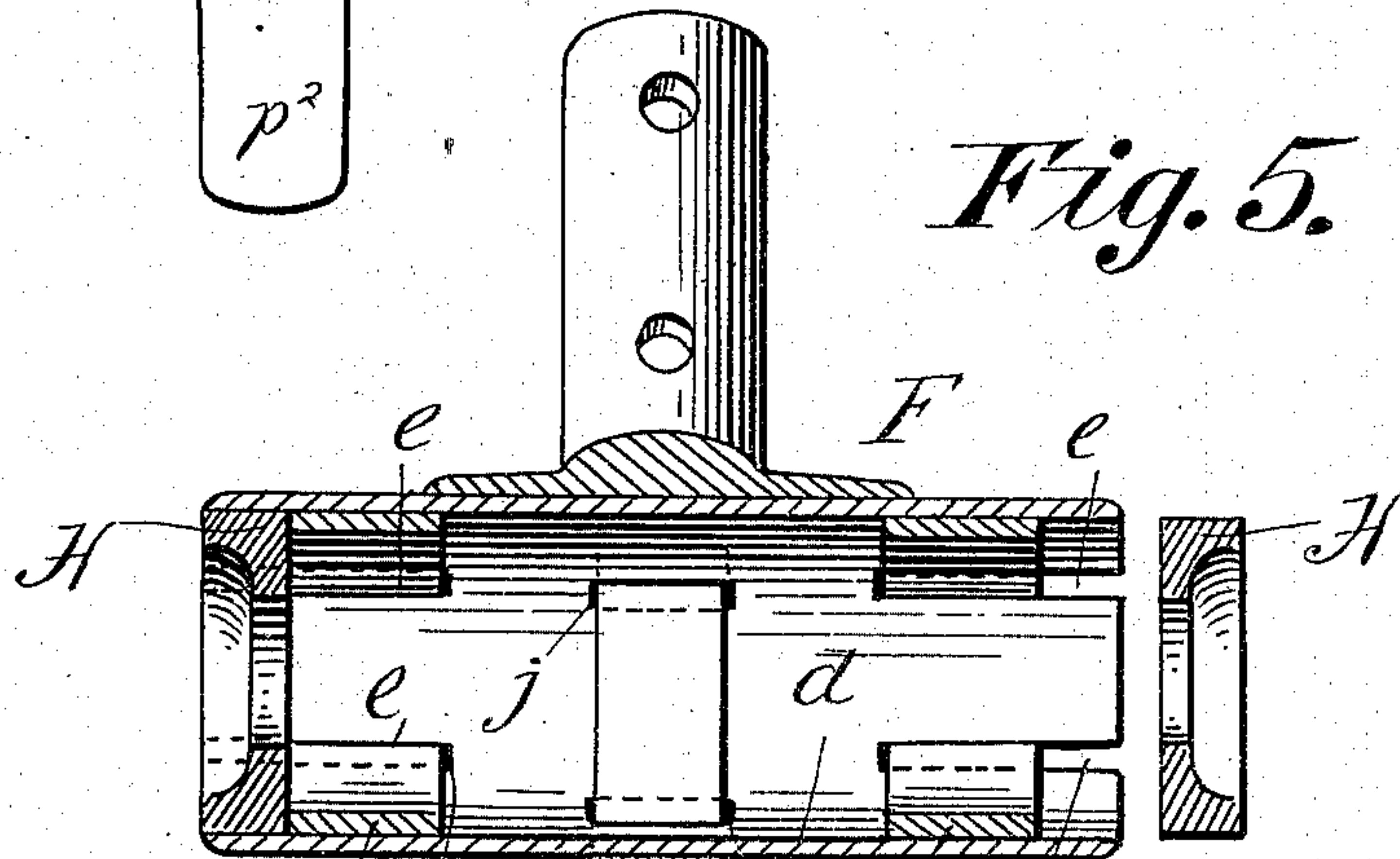


*Fig. 4.*

*Fig. 6.*



*Fig. 5.*



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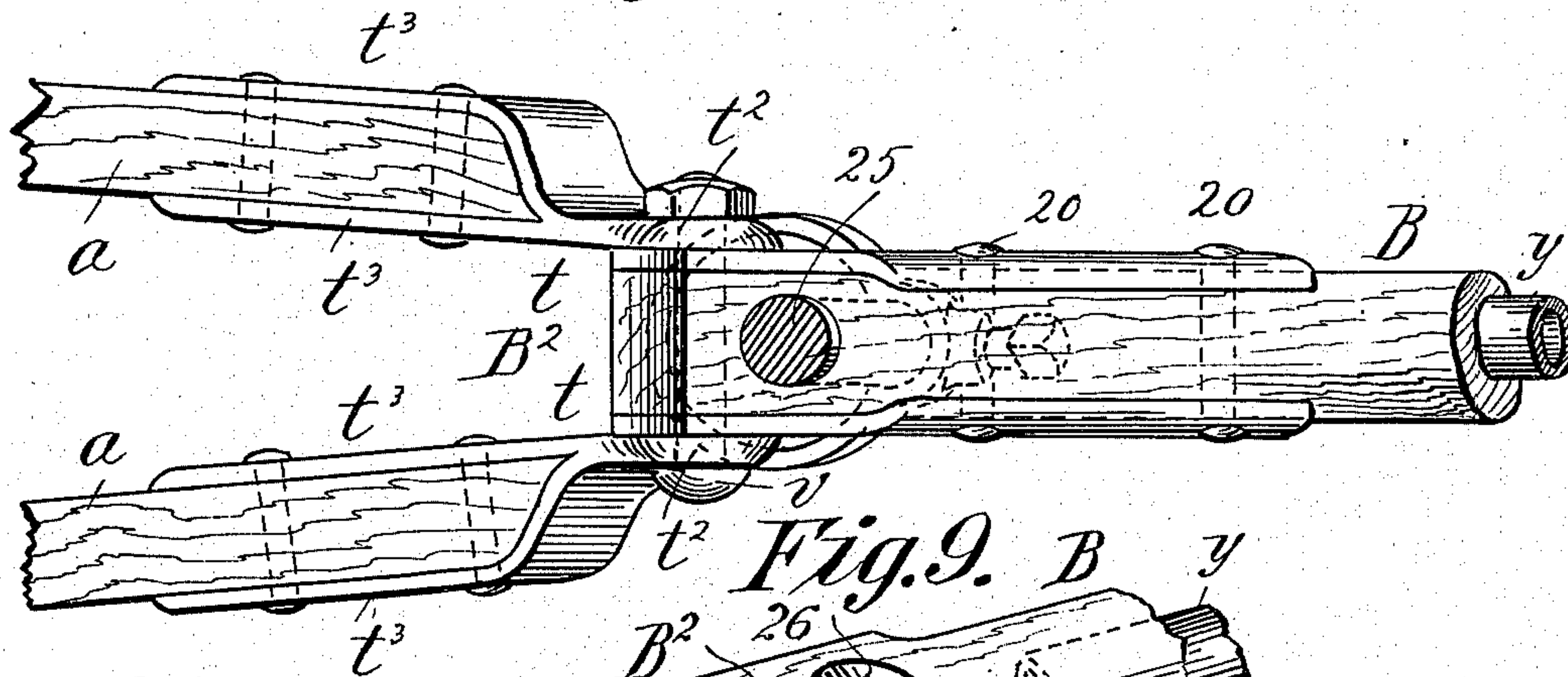
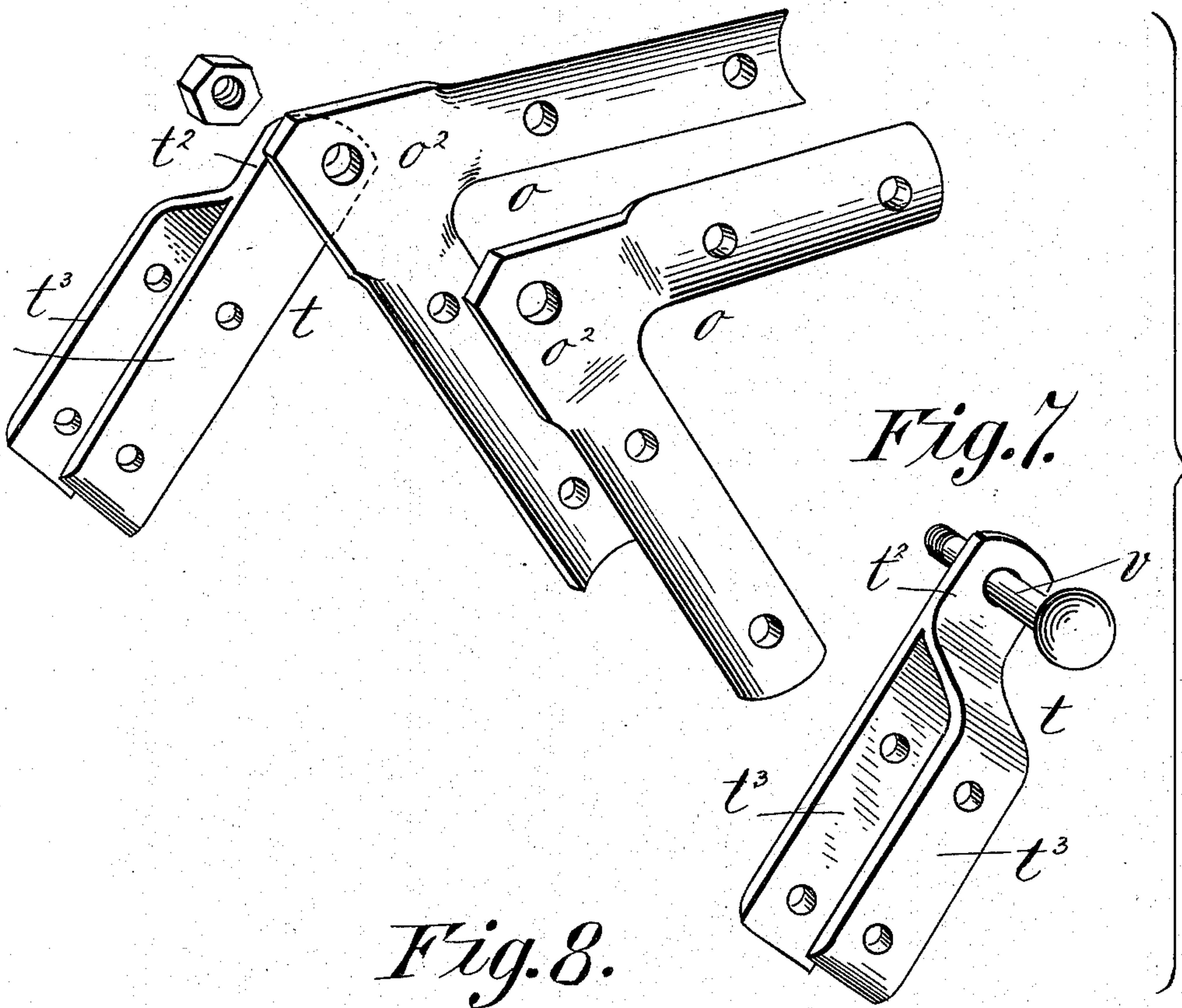
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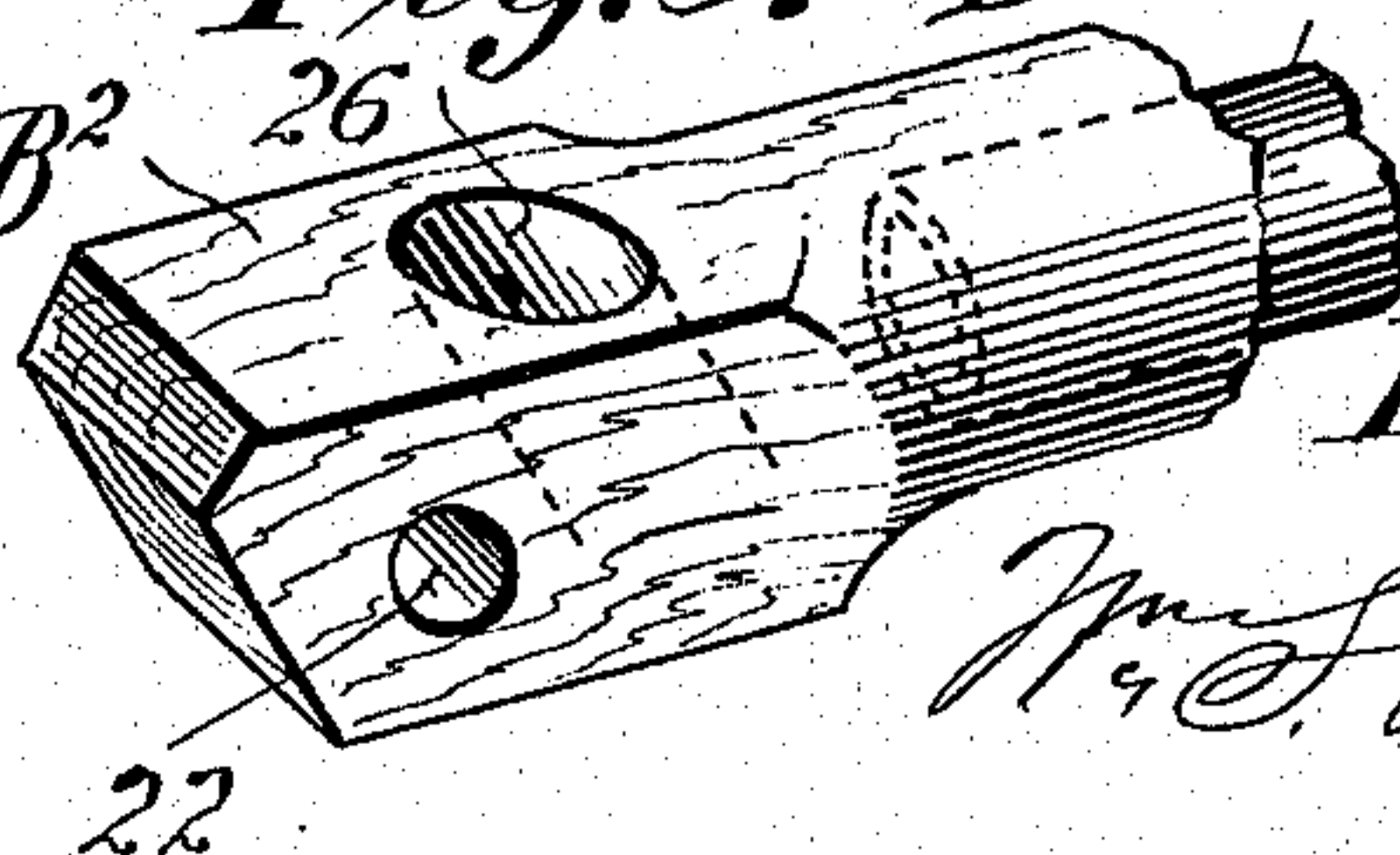
W. S. BELLOWS.  
BICYCLE.

No. 567,936.

Patented Sept. 15, 1896.



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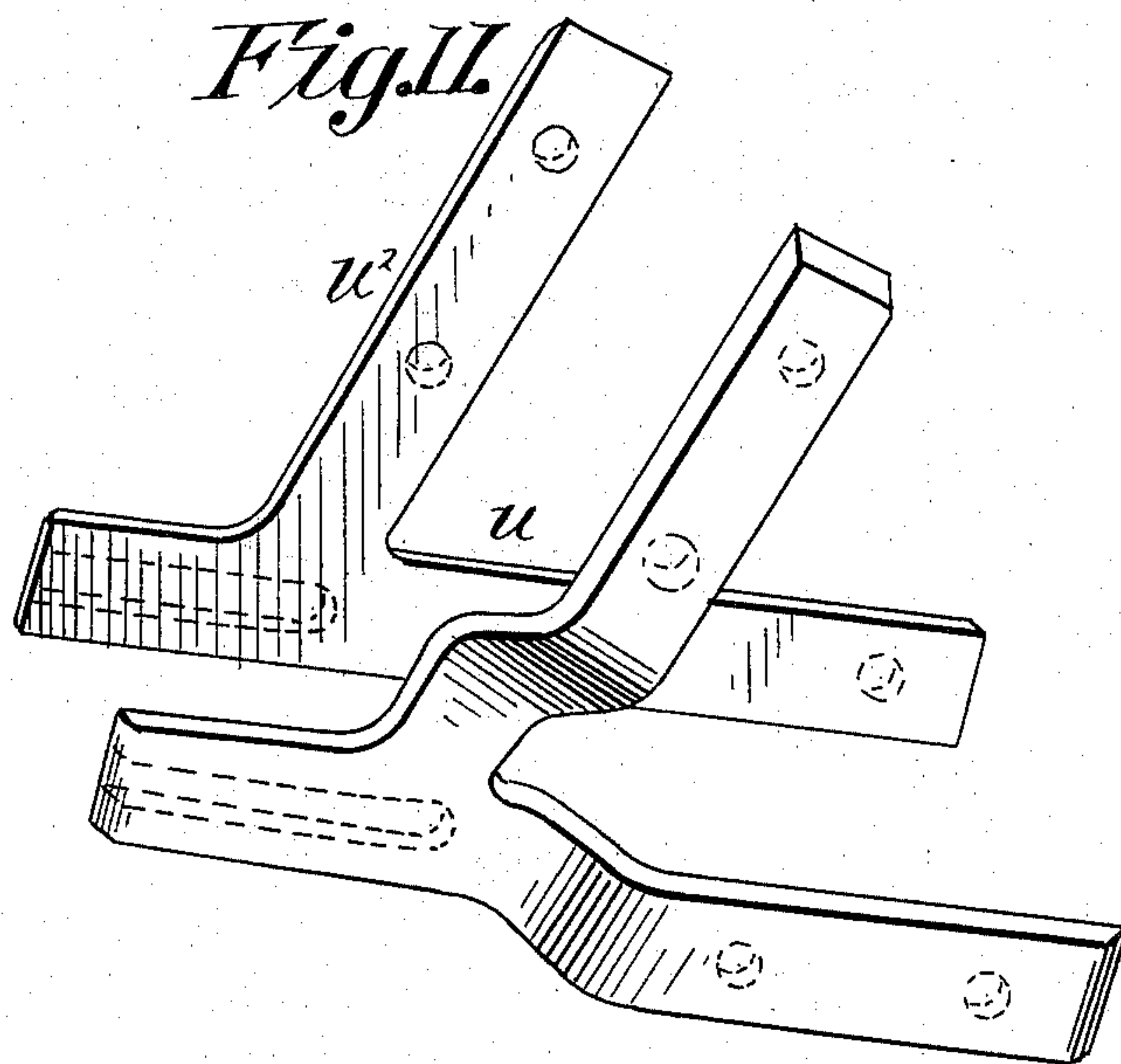
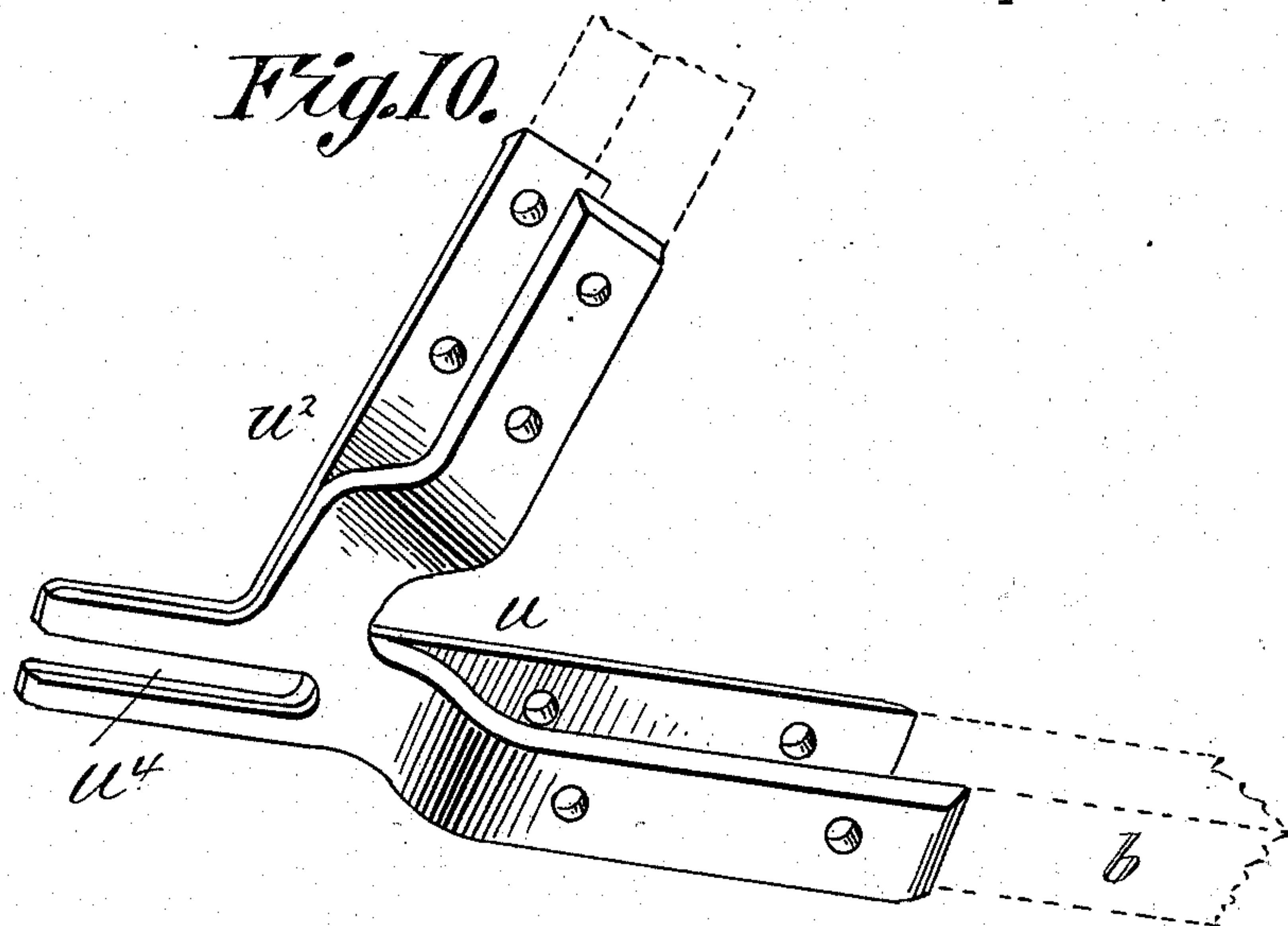
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4 Sheets—Sheet 4.

W. S. BELLOWS.  
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No. 567,936.

Patented Sept. 15, 1896.



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# UNITED STATES PATENT OFFICE.

WILLIAM S. BELLOWS, OF SPRINGFIELD, MASSACHUSETTS.

## BICYCLE.

SPECIFICATION forming part of Letters Patent No. 567,936, dated September 15, 1896.

Application filed May 10, 1894. Serial No. 510,692. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. BELLOWS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Bicycles, of which the following is a full, clear, and exact description.

This invention particularly relates to the frames of safety-bicycles.

The object of the invention is to provide a new and improved crank-shaft hanger or "bracket" which shall be light, simple, easily produced, and cheap, and which shall be adapted to receive the connections therewith of those several frame members which, as usual, converge to the bracket; and the invention consists in the construction of the hangers substantially as will hereinafter fully appear, and be pointed out in the claims.

Reference is to be had to the accompanying drawings, in which the present improvements are fully and clearly shown, and in which—

Figure 1 is a side elevation of the frame with the saddle-support held in place relative to the saddle-post. Fig. 2 is a cross-section, on a large scale, on line 2 2 of Fig. 1. Fig. 3 is a cross-section, on a large scale, taken on the line 3 3, Fig. 1. Fig. 4 is a perspective representation of the parts which constitute the hanger-bracket and junction devices for enabling the connection of the frame members with said bracket. Fig. 5 is a vertical longitudinal section of the bracket. Fig. 6 is a plan view of a single metallic blank from which a device comprised in Fig. 4 is formed. Fig. 7 is a representation in perspective of detached parts which together constitute the metallic junction devices for the saddle-post, top frame member, and rear upper fork members of the frame. Fig. 8 is a plan view showing the last-named devices as in their combination with the aforesaid frame members. Fig. 9 is a perspective view showing a rear end portion of the upper frame member, which is held by the aforesaid metallic devices. Figs. 10 and 11 are perspective representations of the metallic devices which constitute the rear-wheel support and the junction members for the rear upper and rear lower opposing frame members or fork-legs, and also indicating the sim-

ple and inexpensive manner of producing the same.

In the drawings, A represents the head, which is formed as usual.

B is the backbone or upper frame member.

C is the lower forward oblique frame member, D the saddle-post, and *a a* and *b b* are the upper and lower fork-legs or bifurcated frame members.

F is the bracket or crank-shaft support, and the parts D C and *b b* converge to this bracket, as usual, and have connections therewith through the novel means which will be now described. The bracket consists of a tube *d*, with paired slits or kerfs *e e*, extended from its ends at its rear side. Suitable lengths of strip metal are provided which, as particularly seen in Fig. 4, are bent around to form eyes or loops *g* with parallel extension-limbs *h h*. The said loop portions *g* are peripherally fitted and brazed inside and within the ends of the bracket-tube, and they constitute internal shoulders for the annular hardened ball-bearing cases H, which are set in said tubes against and outside of the shoulders, formed as stated. The terminal members *h h* of the said looped and return-bent strip metal are extended rearwardly through said kerfs and afford attachment-limbs for the rear lower fork members of the frame, the attachment being made by bolts or otherwise. The said bracket-tube also has intermediately thereof the slots *i i* and *j j*, arranged in lines forward of and at the rear of the axis of the tube and angular to each other, corresponding to the divergence of the saddle-post and the lower front member C of the frame. I also provide metal bars *m* and *n*, which may be of strap-iron of considerable rigidity, and which have the lateral shoulders *l l*, as clearly seen in Fig. 4, while their extremities are extended through the aforesaid slots *i i* and *j j* and confined in such engagement by brazing, and preferably, in addition thereto, by turning the ends of the parts which protrude below the bottom of the tube back against such bottom face, as seen at *l'*, or rivets or pins may be also employed in this connection. In addition to these strips or bars *m* and *n* and intermediate between them there is provided the angular metallic appliance G, having the laterally-extended feet *p p*, overlying and secured to



the top of the bracket by brazing and, preferably, pinning in addition to the brazing, and having the angular oblique members  $q$  and  $q^2$ , extending in separation from and in parallelism with the bars  $m$  and  $n$ . Between the paired junction members  $q$  and  $m$  and  $q^2$  and  $n$  the lower ends of the saddle-post and frame member C are introduced and confined by the transversely-applied riveted bolts.

10 This device G may be constituted by a single blank of cross form, as seen at Fig. 6. The members  $p^2$  of this blank may be merely rendered concave or convex to fit the top of the bracket-tube, while the members  $q'$  are bent

15 up into the angular and oblique relations and also curved in cross-section to correspond to the peripheries of the parts C and D.

The connection between the saddle-post, top frame member B, and opposing rear upper fork members  $a a$  is made by means of the devices seen in Sheet 3 of the drawings, which will be now referred to. I provide opposing metallic angular parts  $o o$ , lying at opposite sides of and secured to the saddle-post and member B, by means of the rivets

20 20 or otherwise. In addition to these angular plates or junction parts  $o o$  I also provide the paired parts  $t t$ , each comprising the tongue  $t^2$  and the rearward and downward extensions  $t^3$  for receiving the connections

25 between said extensions  $t^3$  of the upper end of the wooden fork-legs  $a a$ . The tongues  $t t$  are placed sidewise against the flat corner portions  $o^2$  of the angle-plates  $o$ , and the bolt

30  $v$  is passed transversely through the said tongues  $t^3 t^3$ , the parts  $o^2 o^2$ , and through the intervening squared rear end portion  $B^2$  of the top member B, the hole through said squared part  $B^2$  being seen at 22 in Fig. 9.

40 The saddle-support J, which is indicated as a series of convolutions and which has the top horizontal arm 24 for the saddle, also has the depending limb 25. This is passed downwardly through the hole 26 in part  $B^2$  of frame

45 member B and closely alongside the front of the saddle-post, which, as indicated in Fig. 2, is slightly grooved or channeled, as seen at 27. The band K surrounds the post, the depending members of the parts  $o o$ , and the

50 depending limb of the saddle-support, and the set-screw 30 passes through the band against the limb of the saddle-support, firmly holding the latter in any vertically-adjusted position. Metallic devices are seen in this

55 frame which constitute the rear wheel axle-support and the connection-limbs for the rear ends of the opposing upper and lower fork-legs, and each of these devices consists of a flat metallic plate having a horizontal

60 section  $u$  and an upward forward section  $u^2$  and another part of corresponding face contour, the rear portion of which is imposed against and brazed to the similarly-formed portion of the first plate, while its forward

65 extremity and its upward forward section are outwardly offset, as is plainly seen in Figs.

10 and 11. This device is very simply formed by making the first plate of the face plan shown flat, while the second plate, of corresponding face plan, has its forward section and upwardly-extended section offset, its un-

70 bent part being set against and brazed to the corresponding rear portion of the flat plate, and these so-brazed rear portions of the plates, now practically as a homogeneous part,

75 are longitudinally slotted, as seen at  $u^4$ , for the reception, in the usual manner, of the extremities of the rear wheel-axle.

The frame members B, C, and D are indicated as consisting of round bars of wood

80 axially bored out and having therein lengths of tubing  $y$  of light gage. The rear fork members may also be similarly constructed, although these, as well as the members B, C, and D, may be of solid wood and minus the

85 internal tubing.

The form of connection at the tubular head A is made by means of a strap P (seen in Figs. 1 and 3) and the rivets, but no invention is deemed to be comprised in this form

90 of connection.

I claim—

1. In a bicycle, the crank-shaft bracket consisting of a tube with paired slits or kerfs provided therein from each end and the strap

95 metal bent around to form eyes or loops and parallel members, said loop portions being fitted peripherally inside of, and within the ends of, the tube, and having its said members extended rearwardly through said kerfs

100 and affording attachment-limbs for the rear fork members of the frame, substantially as and for the purposes described.

2. In a bicycle, the crank-shaft bracket consisting of a tube with the paired slits or

105 kerfs,  $e, e$ , at its ends, in combination with the strip metal bent around to form eyes or loops and parallel extension-limbs, said loop portions being peripherally fitted and secured

110 inside and within the ends of, the bracket-tube and constituting internal shoulders, and having the said terminal members extended rearwardly through said kerfs, for the purpose set forth, and the annular hardened

115 ball-bearing cases set in said tubes against and outside of the shoulders constituted by said loop members, substantially as described.

3. In a bicycle, the bracket-tube having at its middle the holes forward and to the rear of its axis, angular to each other, corresponding to the divergence of the saddle-post and the lower oblique front frame member, the

120 metal bars  $m$ , and  $n$ , having their extremities extending through said holes and confined in such engagements, the angular metallic part,

125 G, secured at its junction to the top exterior of the bracket and having its angular members  $q, q^2$ , extending in separation from, and in parallelism with, the bars  $m, n$ , and the saddle-post D and frame member C having their

130 lower extremities extended and confined respectively between said bar  $m$  and member



$q$ , and between said bar  $n$  and member  $q^2$ , substantially as and for the purposes set forth.

4. In a bicycle, the bracket-tube having at  
5 its middle the aperture forward and to the rear of its axis, angular to each other, corresponding to the divergence of the saddle-post, D and the lower oblique front frame member C, the metal bars  $m$ , and  $n$ , having  
10 their extremities extending through said holes and confined in such engagements, and the angular metallic part, G, having the laterally-extended feet overlying and secured

to the top of the bracket and having its angular oblique members  $q$ ,  $q^2$  extending in 15 separation from, and in parallelism with, the bars  $m$ ,  $n$ , and the saddle-post D and frame member C having their lower extremities disposed and confined respectively between said bar  $m$  and member  $q$  and between said bar 20  $n$  and member  $q^2$ , substantially as and for the purposes set forth.

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Witnesses:

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