

(No Model.)

F. NEWHOUSE.  
TRICYCLE.

2 Sheets—Sheet 1.

No. 462,086.

Patented Oct. 27, 1891.

Fig. 2.

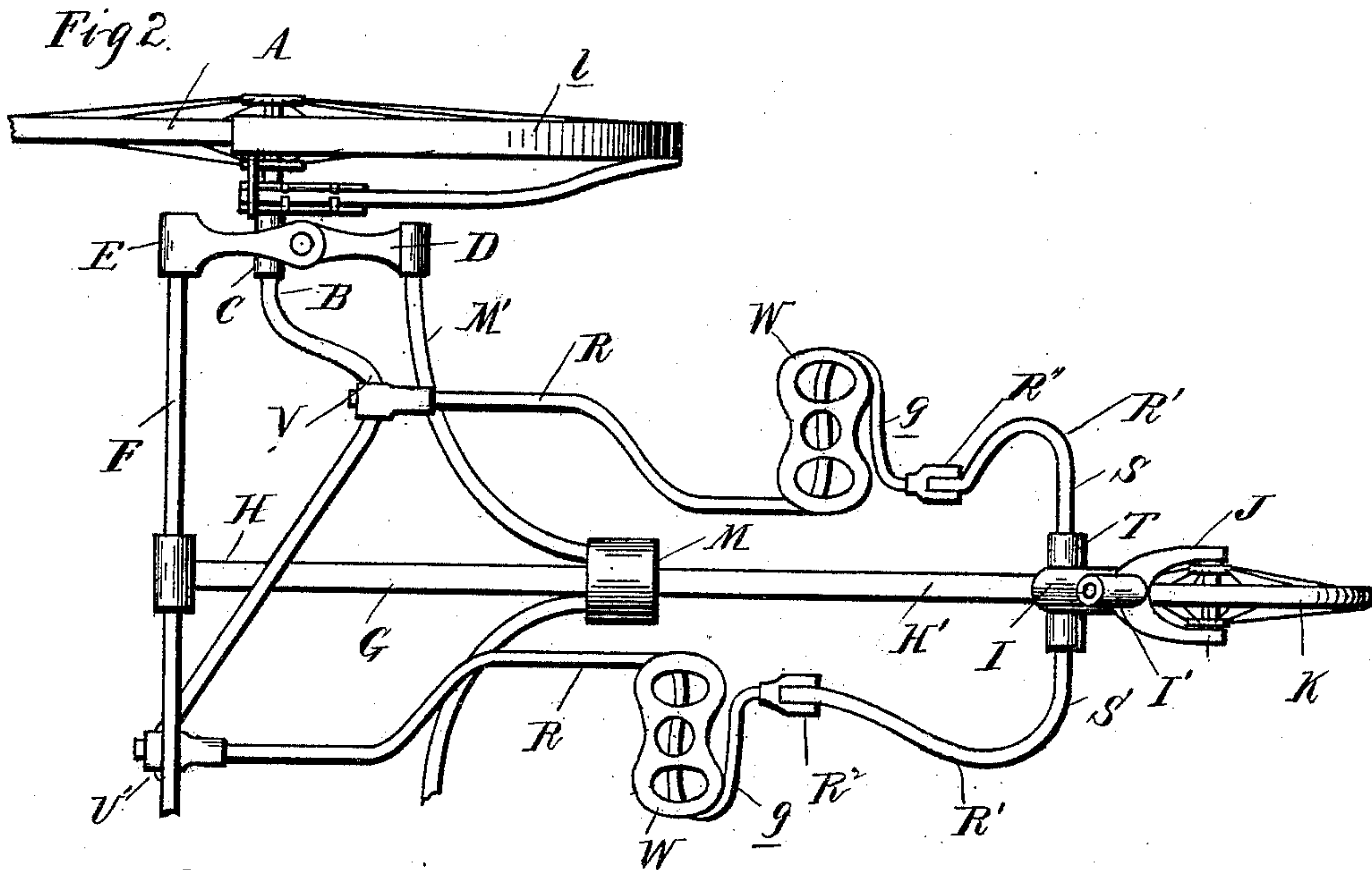
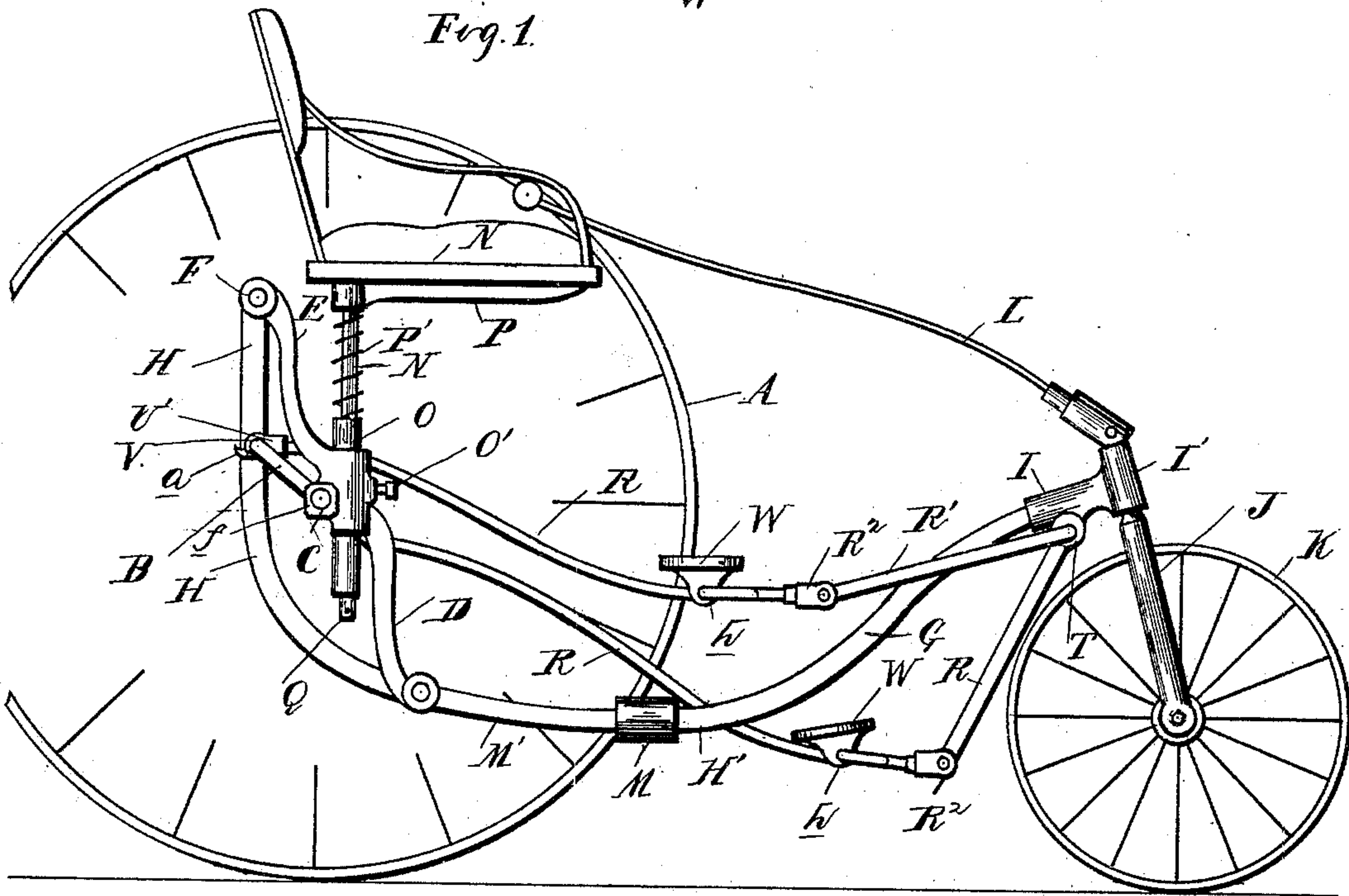


Fig. 1.



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2 Sheets—Sheet 2.

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Fig. 3.

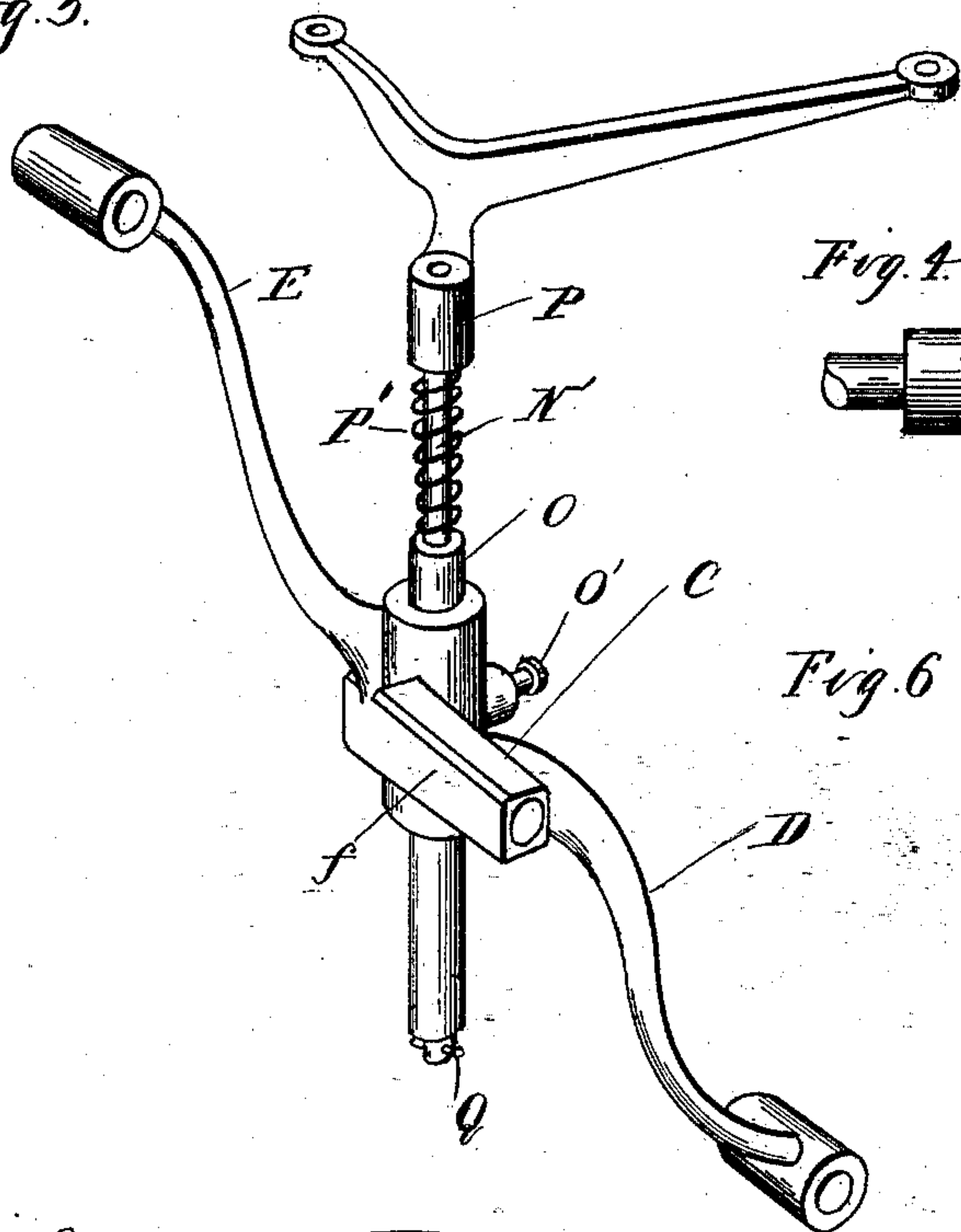


Fig. 5.

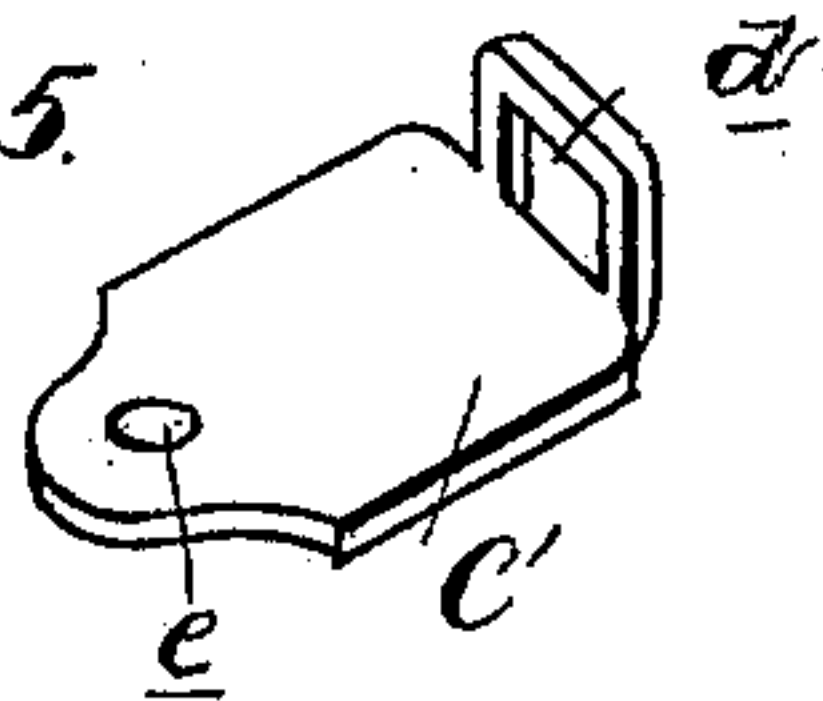


Fig. 4.

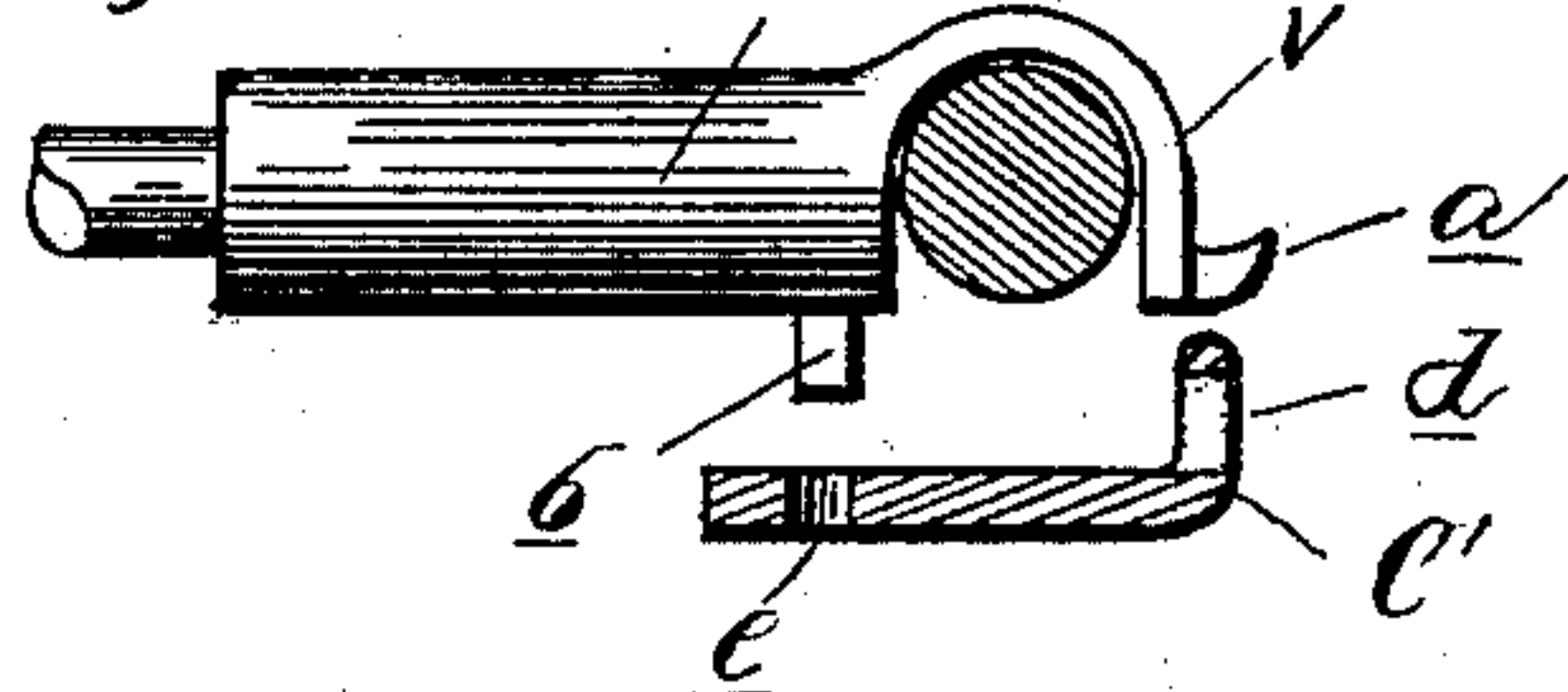


Fig. 6.

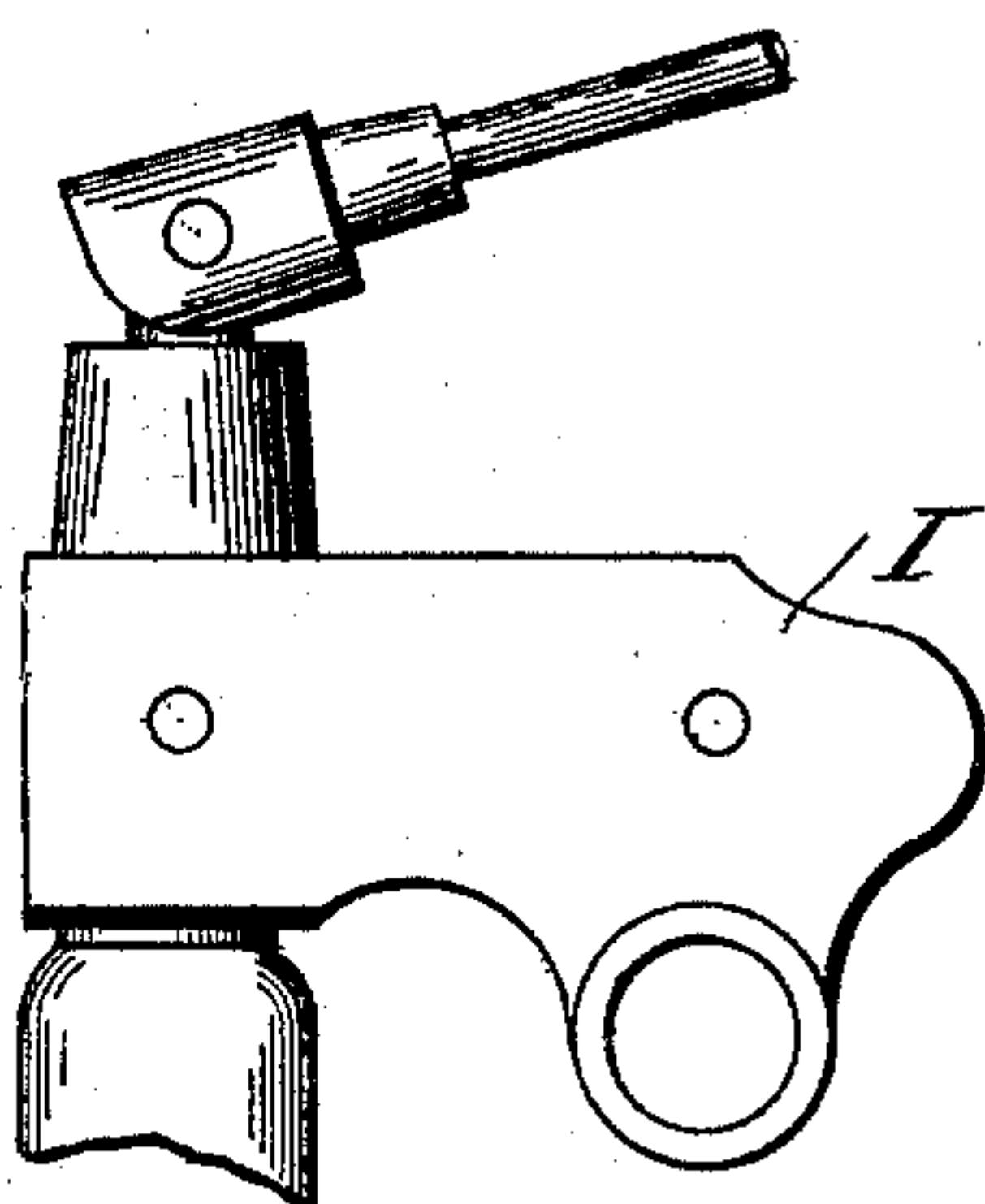


Fig. 8.

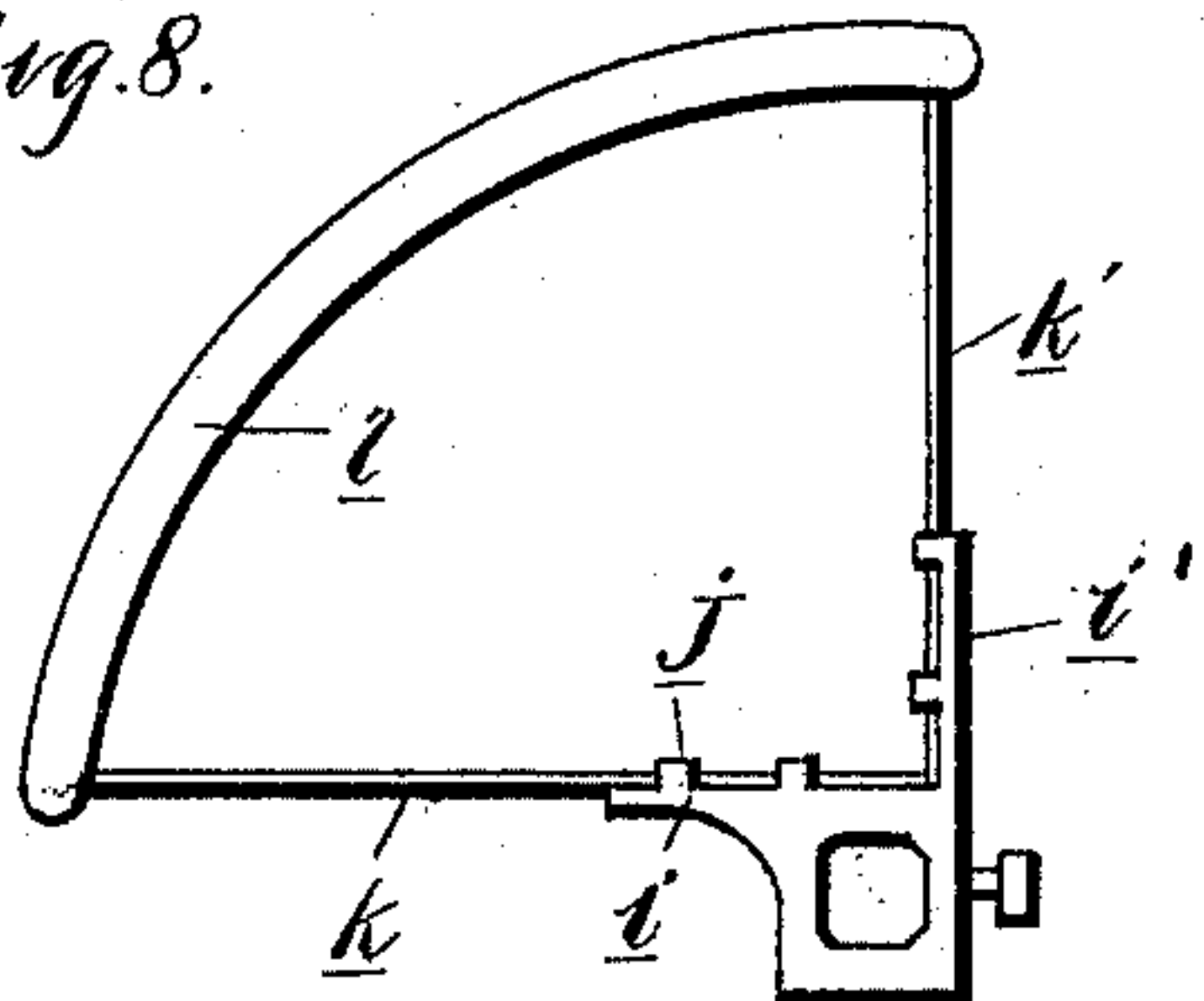


Fig. 7.

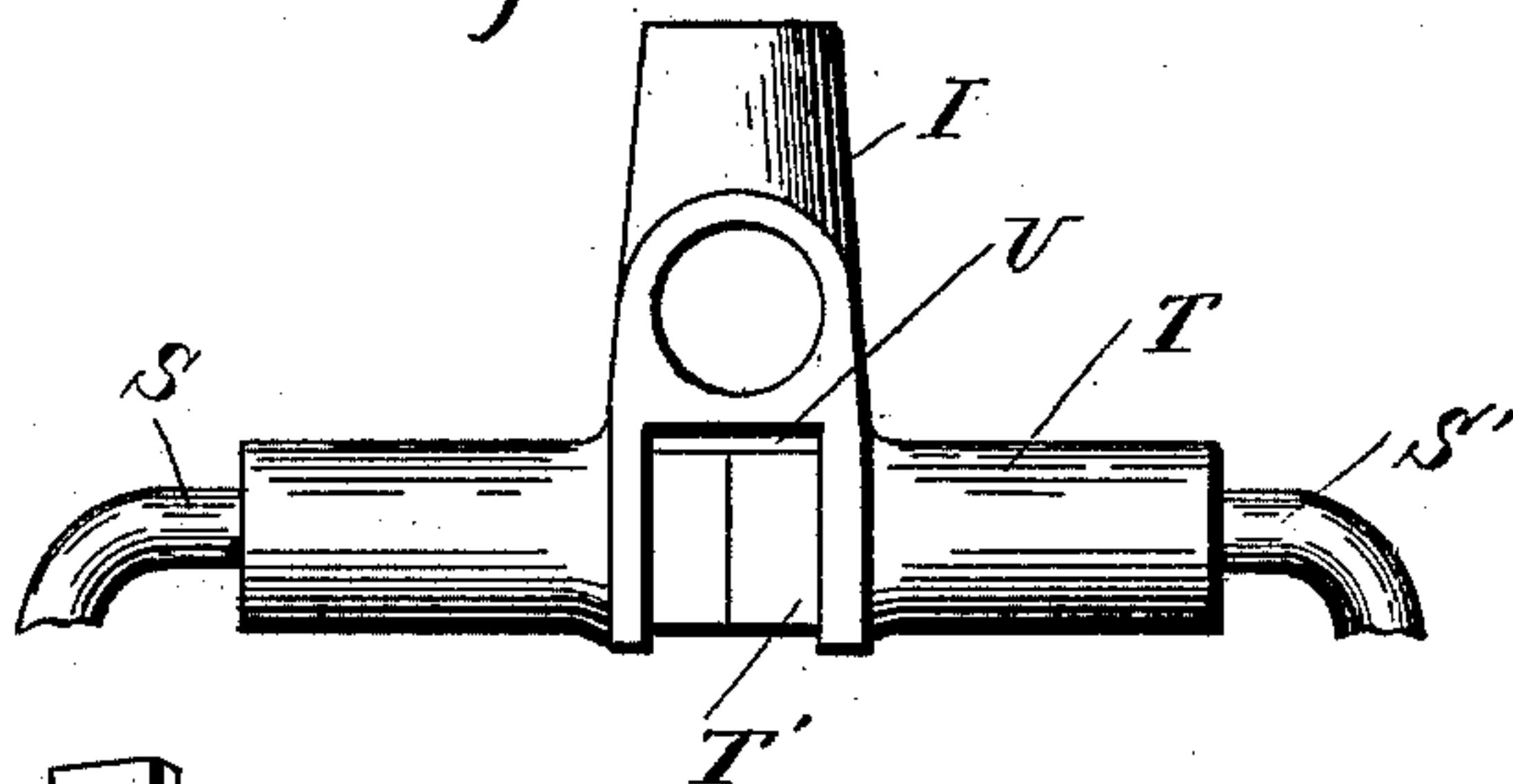
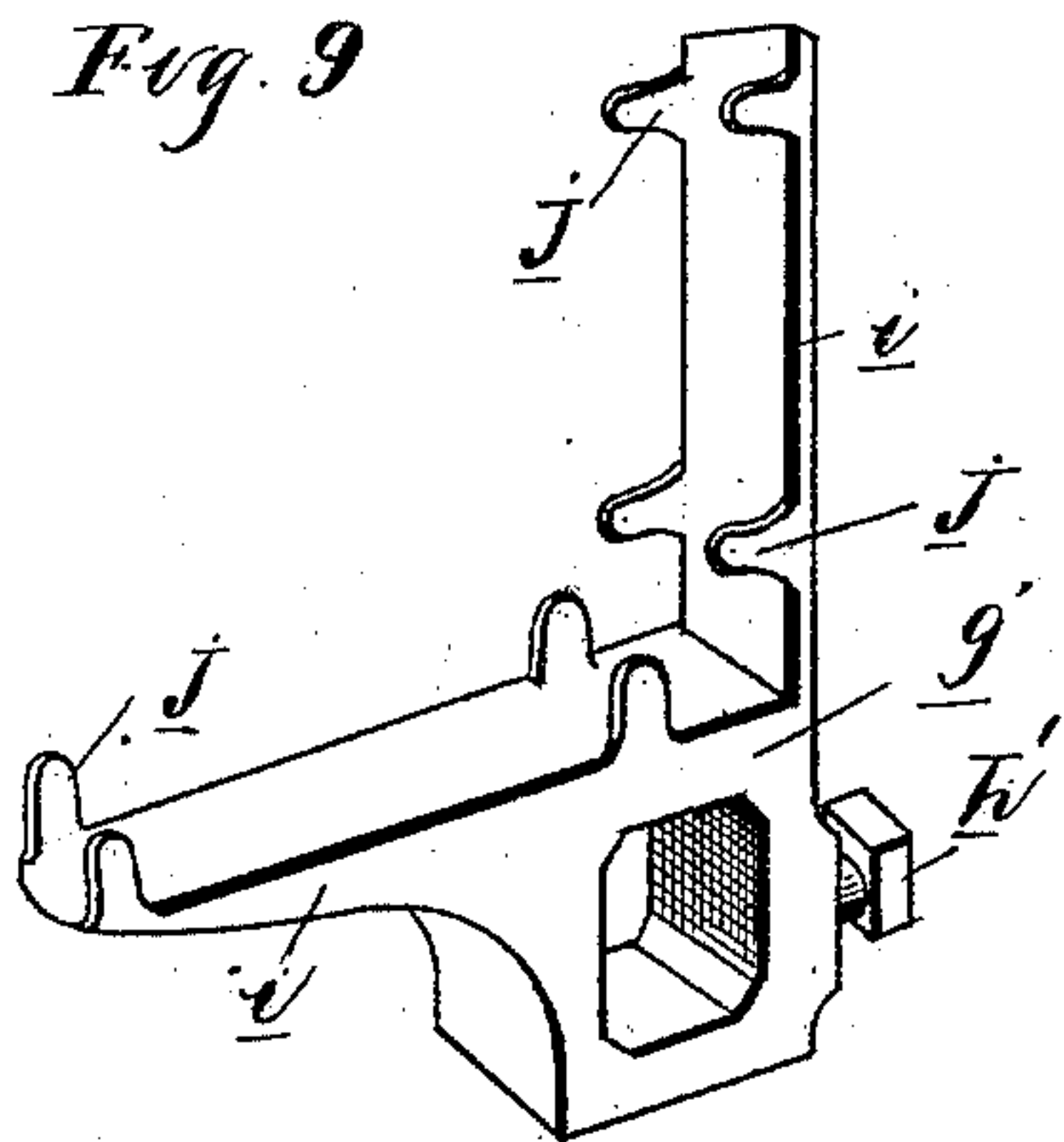


Fig. 9.



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# UNITED STATES PATENT OFFICE.

FREDERICK NEWHOUSE, OF TOLEDO, OHIO, ASSIGNOR TO THE TOLEDO METAL WHEEL COMPANY, OF SAME PLACE.

## TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 462,086, dated October 27, 1891.

Application filed February 26, 1891. Serial No. 382,890. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK NEWHOUSE, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Tricycles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in tricycles; and it relates to the peculiar construction, arrangement, and combination of the various parts, whereby a substantial tricycle is obtained with simplicity of construction and economy in manufacture, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my improved tricycle. Fig. 2 is a plan view thereof with the seat removed. Fig. 3 is a detached perspective view of the axle-box, the frame and seat supporting brackets, and the seat-support. Fig. 4 is a sectional elevation showing the means of attaching the pedal-lever to the crank-axle. Fig. 5 is a detached perspective view of the securing-plate shown in section in Fig. 4. Fig. 6 is an enlarged side elevation of the head. Fig. 7 is a detached rear elevation of the head, showing the manner of securing the levers thereto. Fig. 8 is a side elevation of the mud-guard. Fig. 9 is a detached perspective view of the supporting-bracket.

A are the main wheels, and B is a detachable crank-axle, one of the wheels being a driving-wheel and the other preferably a loose wheel.

C are axle-boxes secured near the ends of the axles between the wheels. To these axle-boxes are secured brackets, which are preferably cast integral therewith, and consisting of the downwardly and forwardly projecting arms D and the rearwardly and upwardly projecting arms E. The arms E are connected together by a bar or rod F, extending in rear of the crank-axle and above the same.

G is the backbone, secured at its rear end to the bar F, and consisting of the vertical portion H and the horizontal portion H', the vertical portion extending from the bar F to a point beneath the crank-axle, and the hori-

zontal portion extending forwardly and upwardly to the head I, which is provided with a suitable socket to receive the same. The head is also provided with a vertical socket I', in which the upper end of the bifurcated standard J engages.

K is the front wheel, pivotally secured to the standard J, and L is the steering-handle, pivotally secured to the upper end of the standard J.

M is a coupling secured centrally to the backbone and having side bearings, in which are secured the braces M', which curve laterally and are secured at their outer ends in sockets formed at the lower ends of the brackets D. It will be seen from this description that the backbone, brackets, and axle form a supporting-frame, and that the backbone is connected to the brackets upon both sides of the axle, which gives a most rigid structure.

N is a seat, to the under side of which are secured the standards N', which engage in vertical bearings O, formed by a tube slidably secured in guides formed in the axle-box or bracket and held in its adjusted position by means of the set-screw O'. Between the upper edge of the tube O and the head P of the standard is sleeved a spring P'. It is evident that the weight of the rider in the seat will rest upon the springs and that the seat will be guided in its vertical movement by the standards engaging in the guide-bearings. A suitable pin Q may be placed in the lower end of the standards to prevent their disengagement from their bearings. It is also evident that the seat may be adjusted vertically by adjusting the sleeve O by means of the set-screw O'.

Each pedal-lever is composed of two parts R R', pivoted together at R''. The levers R' are provided with lateral extensions S S', which engage in sockets T, formed on the under side of the head I. Their ends are suitably screw-threaded to engage with nuts T' in a socket U between the lateral extensions S S', as plainly shown in Fig. 7. The rear portion R of each pedal-lever is provided at its rear end with a head U', having a suitably-grooved bearing V, adapted to engage over the central portion of the crank, and



provided at its rear side with a horn *a* and on its under side with the lug *b*.

*C'* is a plate having an apertured offset *d*, adapted to engage with the horn *a*, and an aperture *e*, through which the lug *b* is adapted to engage. When the parts are thus secured, as shown in Figs. 4 and 5, the lug *b* may be headed and the parts will be securely held in position.

10 Near the forward end of the portion *R* of each pedal-lever a lateral bearing is formed, with which the pedal *W* pivotally engages, and a return-bend *g* is formed in the pedal-lever to act as a stop upon one side. The  
15 hinged portion *h* of the pedal-lever acts as a stop upon the other side of the pedal, so that it has the usual limited oscillation, giving a convenient movement to the foot of the operator.

20 *f* is a squared bearing formed on the axle-box between the bracket and the wheel, and upon this bearing is secured a block *g'* by means of the set-screw *h'*. This block is provided with a horizontal arm *i* and a vertical  
25 arm *i'*. Upon the sides of these arms are the lugs *j*, adapted to be turned over upon the fender-rods *k k'* to secure them to the blocks, *l* being the fender which is secured to the outer ends of these rods.

30 The construction of the pedal-levers and pedal differs from previous constructions in that the pivotal connection between the two parts of the levers is arranged at a point between the pedal and the fulcrums of the levers, whereas in previous constructions the  
35 pivotal point has been arranged beneath the pedals. I find that a better result is had in the action of the levers by arranging it in the manner described, and I also find that it cheapens the cost of manufacture and adds  
40 to the strength of the parts, dispensing with the long connecting or pivot pin passing through the pedal itself. By bending the portion *R* of the pedal-lever I form integral  
45 with that portion the bearing or pin upon which the pedal is pivoted and also stops upon both sides of that bearing to limit the rocking motion of the pedal.

I consider the construction of the head with  
50 the use of the lateral sockets *T* and nuts *T'* as an especially advantageous method of securing the forward end of the pedal-levers to the head.

What I claim as my invention is—

55 1. In a tricycle, the combination, with the axle, of axle-boxes secured thereon, brackets upon said axle-boxes, a cross bar connecting said brackets, and the backbone connected to said brackets in front and rear of the axle,  
60 substantially as described.

2. In a tricycle, the combination of a backbone secured at its forward end to the standard and at its rear end to a cross-bar, and brackets secured to the axle-boxes, to which  
65 said cross-bar is secured in rear of the axle, and braces secured centrally to the backbone at their forward ends and at their rear ends

to the brackets in front of the axle, substantially as described.

3. In a tricycle, the combination, with the 70 axle-boxes, of bearings formed thereon, seat-supporting standards sliding in said bearings, and a spring interposed between said bearings and the seat, substantially as described.

4. In a tricycle, the combination, with the 75 axle-boxes, of bearings formed thereon, means for vertically adjusting said bearings, seat-supporting standards sliding in said bearings, and a spring interposed between said bearings and the seat, substantially as described. 80

5. In a tricycle, the combination, with the axle, axle-boxes, and brackets secured to said axle-boxes, of seat-supporting bearings centrally of said bracket, the seat supported thereon, a connecting-bar between the rear- 85 wardly-extending arms of said bracket, the backbone secured to said bar, and braces connecting centrally to the backbone and to the forwardly-extending arms of the bracket, substantially as described. 90

6. In a tricycle, the combination, with the axle-boxes having a squared bearing *f* adjacent to the wheels, of the arms *i i'*, the lugs *j* thereof, the fender-rods *k*, held in position by the peening over of said lugs or riveting 95 them, and the fender *l*, substantially as described.

7. In a tricycle, the combination, with the backbone, of a coupling centrally secured thereon and provided with longitudinal sockets 100 and the braces secured in said sockets and connecting with the axle, substantially as described.

8. In a tricycle, the combination, with the frame, of a pedal-lever having a joint formed 105 intermediate the pedal and its fulcrum and the pivotal bearing for the pedal formed integral with the lever, substantially as described.

9. In a tricycle, the combination, with the 110 pedal, of a pedal-lever having the pivotal bearing for the pedal formed integral therewith by a lateral loop and stops for the oscillation of the pedal upon both sides of this bearing, substantially as described. 115

10. In a tricycle, the combination, with the head, of the pedal-levers *R'*, having lateral extensions *S S'*, sockets *T*, and nuts *T'*, the parts being arranged substantially in the 120 manner described.

11. In a tricycle, the combination, with the crank-axle, of the pedal-lever pivotally engaged therewith by means of a grooved plate *U'*, having the horn *a* and lugs *b*, and the plate *C'*, having the aperture-offset *d* and the aperture 125 *e*, through which the lug is adapted to engage and be headed, substantially as described.

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

FREDERICK NEWHOUSE.

Witnesses:

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W. E. MILLEN.