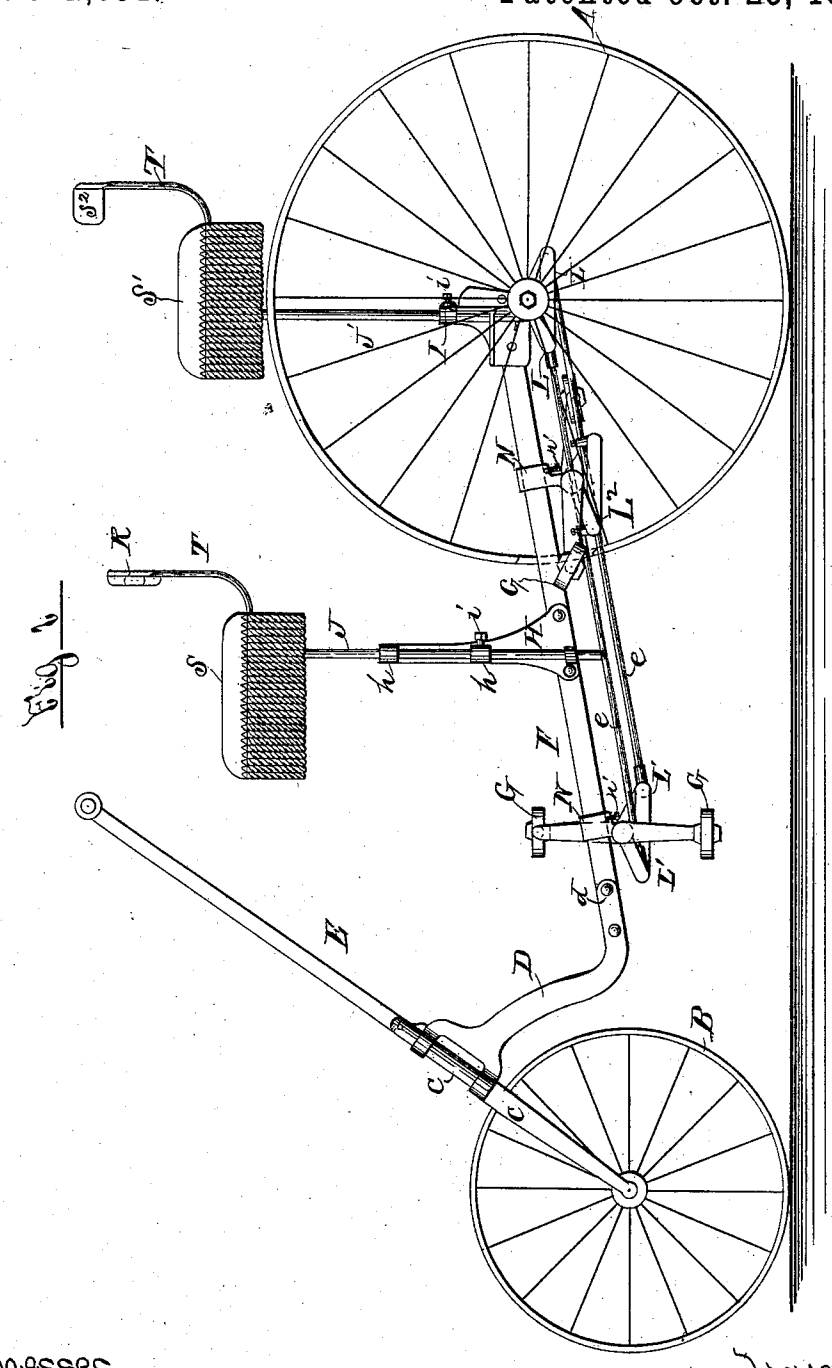
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H. LA CASSE.

TRICYCLE.

No. 372,031. Patented Oct. 25, 1887.



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E. C. Cannon

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Attys.

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(No Model.) 5 Sheets—Sheet 2.

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TRICYCLE.

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Fig. 2.

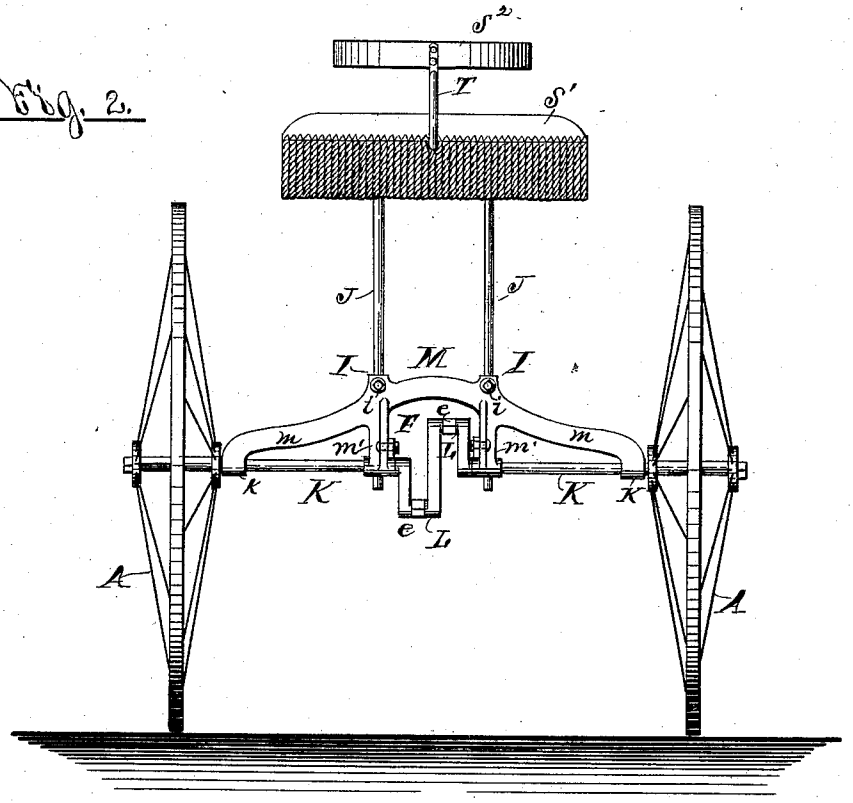


Fig 3

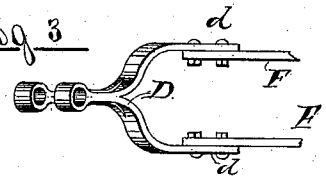


Fig 4

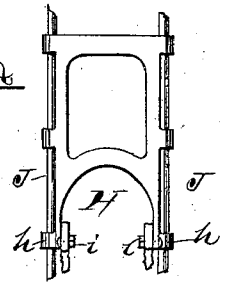
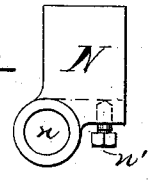


Fig 5



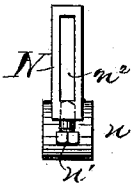


Fig. 6.

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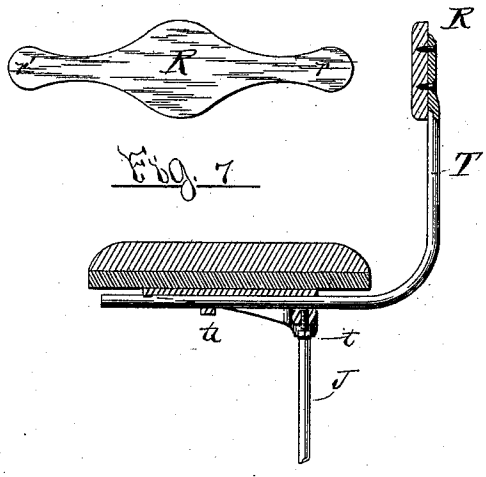


Fig. 7

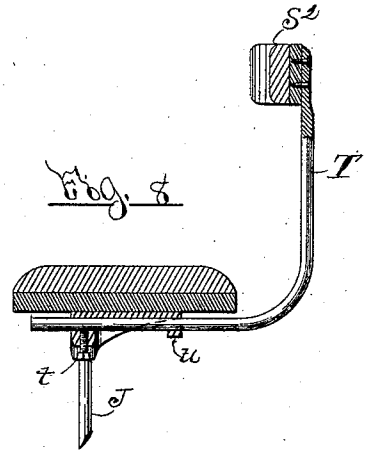


Fig. 8

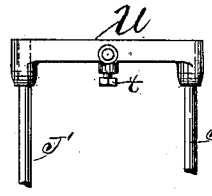


Fig. 9.

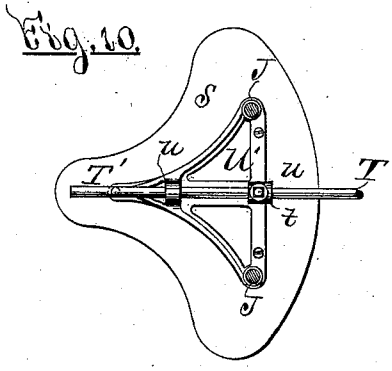


Fig. 10.

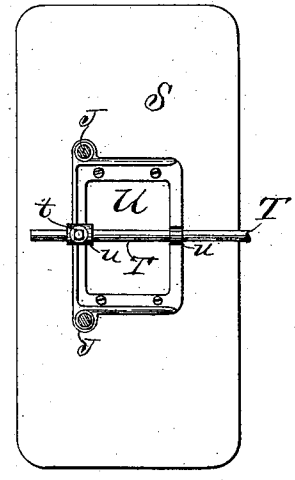


Fig. 11.

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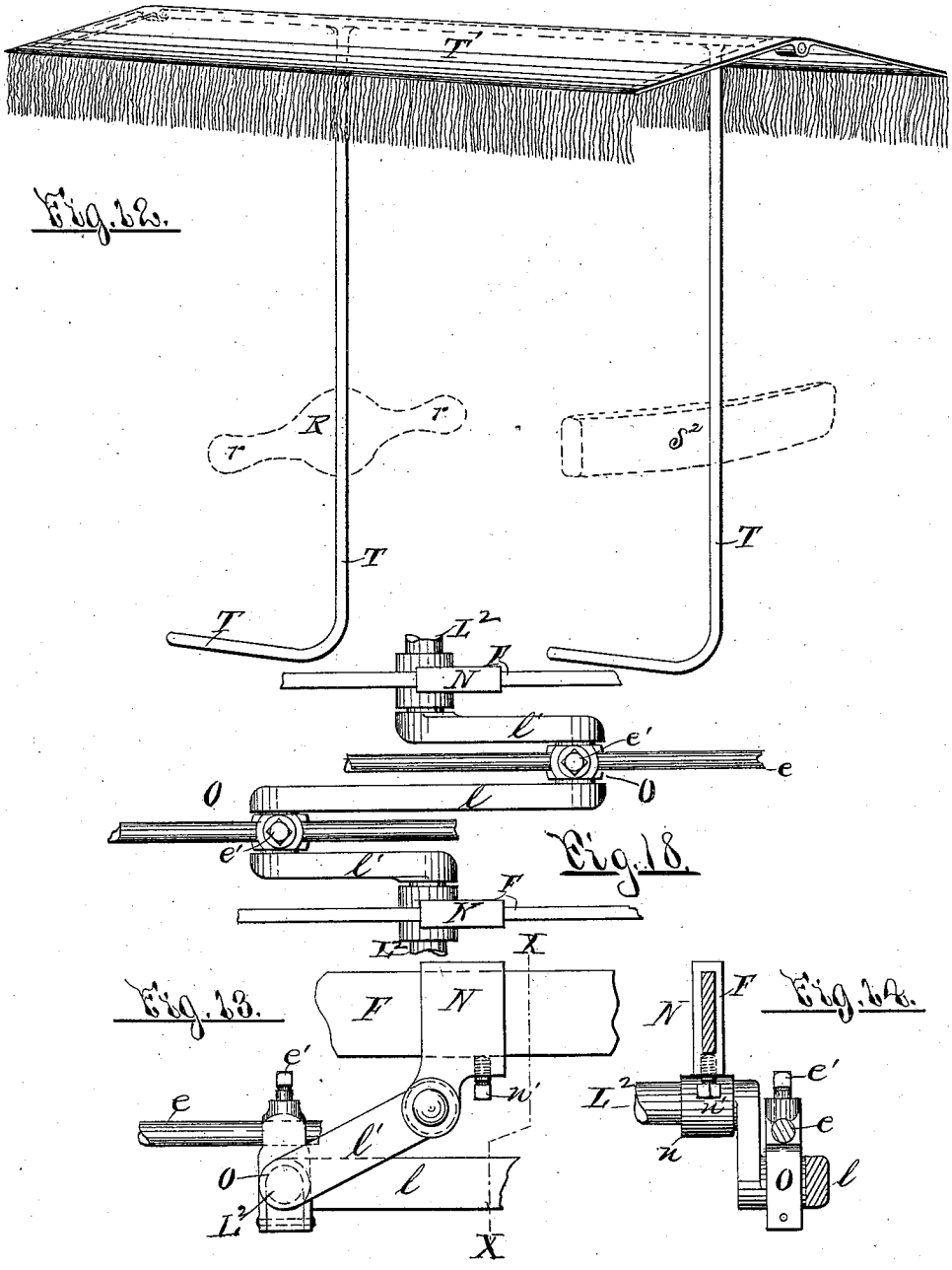


Fig. 12.

Fig. 18.

Fig. 13.

Fig. 14.

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Fig. 15.

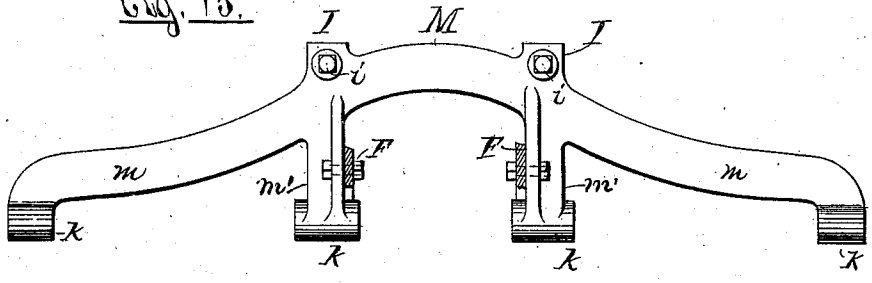


Fig. 16

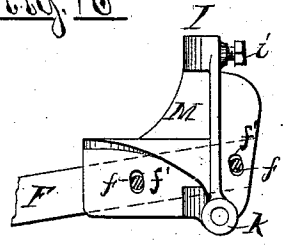
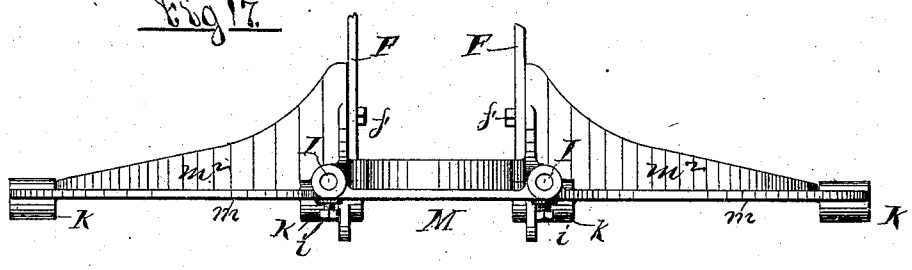


Fig. 17.



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UNITED STATES PATENT OFFICE.

HENRY LA CASSE, OF AUBURN, NEW YORK.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 372,031, dated October 25, 1887.

Application filed December 24, 1886. Serial No. 222,445. (No model.)

To all whom it may concern:

Be it known that I, HENRY LA CASSE, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Tricycles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in what are termed "two-seat tricycles" of the class described and shown in my application of June 14, 1886, Serial No. 205,075, and has for its object the production of a tricycle which shall be simple in its construction and very strong, and the treadle mechanism arranged on the frame between the drivers and steering-wheel adjustably, so as to adapt the same to the convenience of the rider, also, to so construct and arrange the seat-supports as to permit the use of the canopy top; and to this end the invention consists in the general construction and arrangement of the parts, in the construction and arrangement of the rear truss-frame, whereby the side bars of the frame are adjustably connected thereto; also, in making the side bars adjustable in relation to the angle of the frame with the drivers and steering-wheel; also, in providing a bifurcated goose-neck constructed as shown in my above-mentioned application of June 14, 1886, Serial No. 205,075, but not claimed therein, to connect the side bars to the steering-wheel yoke; also, in so constructing the front-seat support and providing the same with adjustable bearings for the seat-rods, so that the same serves to brace the parallel side bars of the frame; also, in securing the treadles to the frame so that the same may be adjusted to suit the riders; also, in providing adjustable bearings for the cranks; also, in providing an adjustable back for the front seat, and the hand-support for the rear rider, all as hereinafter more particularly described, and pointed out in the claims.

In specifying my invention reference is had to the accompanying drawings, in which, like letters indicating corresponding parts in all the figures, Figure 1 is a side elevation of my improved tricycle, illustrating the general design and arrangement of the parts. Fig. 2 shows an end view of the same, illustrating the rear truss-frame carrying the axle and crank bearings of the drivers. Fig. 3 is an enlarged detached view of the bifurcated goose-neck, illustrating the connection of the parallel side bars thereto. Fig. 4 shows an end view of the front-seat support and brace for the forward end of the frame, and the adjustable seat-rods. Fig. 5 shows a side view of the adjustable bearing for the treadle-cranks secured on the side bars of the frame. Fig. 6 shows a detached end view of the same. Fig. 7 shows, respectively, detached views of the seat-back and hand-support for the occupant of the rear seat in the tricycle, and a detached view of the front seat, partly in section. Fig. 8 shows a detached view, partly in section, of the rear seat. Fig. 9 shows the rear-seat-supporting frame and adjustable-rods. Fig. 10 is an inverted bottom plan view illustrating the construction and arrangement of the forward-seat frame and the arrangement of the back-support, the same consisting of a saddle-seat. Fig. 11 shows a like view of the rear seat, showing the construction of the frame and back. Fig. 12 shows the canopy-top device secured to the seat-back supports. Fig. 13 is an enlarged detached detail of the adjustable bearing for the treadle-cranks. Fig. 14 is a sectional view of the same, taken on line *x x*, Fig. 13. Fig. 15 is an enlarged detached view of the rear truss-frame, illustrating the construction thereof and of the axle and crank bearings. Fig. 16 is an enlarged detached detail of the adjustable side bars and their support on the rear truss-frame. Fig. 17 is an enlarged top plan of the rear truss-frame, showing the connection of the side bars thereto; and Fig. 18 is an enlarged detached plan of the crank mechanism.

A A are the drivers, mounted on the axle K K, which is journaled in bearings *k k*, formed on the rear truss-frame, M.

B is the steering-wheel, located at the forward end of the tricycle in the yoke *c*.

C is the stem or spindle of the steering-wheel, passing through eyes or sockets in the goose-neck D.

The frame between the drivers and steering-wheel is composed of parallel side bars, F F, secured at their forward ends to the bifurcated goose-neck D by bolts *d d*, as is best shown in Fig. 3 of the drawings. The rear ends of the side bars, F F, are connected to the rear truss-frame, or to longitudinal side exten-

sions thereof, by the bolts *f f*, passing through the side bars, F F, into slots *f'*, formed in the extensions of the rear truss-frame, M, as best shown at Figs. 15, 16, and 17 of the drawings. The object of connecting the side bars of the tricycle-frame in this manner to the rear truss-frame is to adjust the same angularly in relation to the drivers and steering-wheel. It will be observed that the slots *f' f'* and the bolts *f* permit the adjustment of the side bars, F F, as stated, and by this means the angle of the side bars can be readily changed as desired. Furthermore, the frame may be shortened up or the steering-wheel brought closer to the drivers by simply changing the securing-point of the side bars, F F, on the rear truss-frame, M.

In order to brace the forward end of the frame composed of the side bars, F F, and at the same time to form a support for the forward seat of the machine, I provide the frame H, Fig. 4, which is constructed and secured to the side bars, F F, as best illustrated in Figs. 1 and 4 of the drawings.

It will be observed that the frame H is a bracket-shaped frame, terminating in two limbs, which are bolted securely to the side bars, affording a strong transverse brace, and lugs *h h*, Figs. 1 and 4, project from the sides of the upright bracket-frame, and the adjustable seat-supporting rods J J pass through the lugs, and are held at any desired point of adjustment by means of the set-screws *i i*, by which means the front seat is adjusted vertically to the required height for the convenience of the rider.

The rear-seat-supporting frame is illustrated at Fig. 9, and is composed of the frame U, Figs. 9 and 11, having the rods J' J' passing into sockets I I, Figs. 1 and 17, in the rear truss-frame, M, and the vertical adjustment is secured in the same manner as in case of the front seat support, and the set-screws *i' i'* serve to hold the supporting-rods at the required point of adjustment, as in the case of the set-screws *i i* in the bracket-frame H.

The rear truss-frame, M, is best illustrated at Figs. 2, 15, and 17, and consists of a metal truss provided with the curved wings or extensions *m m* and the straight extensions *m' m'*, each provided with bearings *k k k k* for the axle K K, and the rear crank-shafts, L L.

As shown in the plan view, Fig. 17, the rear truss-frame, M, is provided with webs m^2, which serve to greatly strengthen the truss-frame, and also with the side extensions or bearings for the side bars, F F, which are secured thereto, as previously described.

It will be observed that, owing to the construction of the rear truss-frame, M, four bearings are provided for the axle K K, and rear cranks, L L, are firmly supported at the point where the greatest strain is applied, and a solid construction is thereby provided to resist the strain caused by the actuating mechanism in propelling the tricycle.

The actuating mechanism consists of the cranks L L L' L' L^2 L^2, located, respectively, on the rear truss-frame and on the side bars, F F, of the connecting-frame between the drivers and steering-wheel, and also of the connecting rods *e e* and the treadles G G G G. The cranks L' L^2 are connected to the side bars, F F, by means of boxes N N, Fig. 1, and the said boxes embrace the side bars, F F, as is best shown at Figs. 6 and 14.

In order to adapt the position of the treadles to suit the height of the rider or riders occupying the seats to propel the tricycle, I secure the treadle-cranks adjustably to the side bars, F, as best illustrated in the detached views, Figs. 13 and 14, in which views the box N is shown provided with set-screws *n'*, which take against the lower edge of the side bars, F. I provide the boxes O, mounted on the crank-shafts L^2, provided with an eye through which pass the connecting-rods *e e*, and a set-screw, *e'*, bearing on the rods *e*, serves to securely hold the rods *e* in the eyes or sockets of the boxes O.

It will be observed that the cranks are what may be termed "three-part cranks," in which the cranks have a long arm or connection, *l*, and short arm *l'*, as is best shown in the detached plan view, Fig. 18, two boxes O being provided for the supporting-cranks and the treadles G G being secured on the crank-shafts outside of the side bars, F F, of the connecting-frame.

In order to adjust the treadles G G to the desired position to accommodate them to the height of the rider, it is simply necessary to loosen up the set-screws *n' e'* and slide the box N on the side bars, F F, of the frame to the desired position, then push the box O on the rod *e* to the proper position and again set up the set-screws *n' e'*, and these devices afford efficient and ready means to accomplish the desired purpose, and can be manipulated without special skill in the operator.

The seats for the riders may be of any desirable form. At Figs. 7 and 8 I have illustrated the usual form employed; but the front seat may consist of a saddle, S, Fig. 10, instead of the square seat S'. (Illustrated in Figs. 1 and 7.) When the saddle-seat is used, the triangular seat-frame U', Fig. 10, is preferably employed, and when the ordinary form of seat is used the parallelogram frame U, Fig. 11, is employed. In both cases, however, the frames U U' are provided with sockets *u u*, through which the seat-back supports T pass, and the set-screws *t*, Figs. 9, 10, and 11, serve to securely retain the same in position, and at the same time permits an in-and-out adjustment of the back-supports T.

The back-supports T are provided with the back pieces, R and S^2. The forward or front seat-back, R, is provided with handle-extensions *r r'*, Fig. 7, for the rider occupying the rear seat to grasp, affording him support in operating the treadles.

The seat-back supports T may be elongated

and a canopy top, T′, supported thereon, as illustrated in Fig. 12, and the same affords a very convenient and desirable awning or covering for protection against the sun or inclement weather.

The operation of my improved tricycle will be readily understood from the foregoing. The parts being all adjustable, the machine may be adjusted to the size of the riders, and the same is easily propelled by the feet operating the treadles G G. The connecting-rods *e e* transmit the motion from the treadles G G and their cranks to the rear or axle cranks, L L, and the machine is thereby actuated.

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

1. The herein-described tricycle, composed of the drivers A A, steering-wheel B, three sets of cranks, L L′ L², treadles G G, connecting-rods *e e*, and seats S S′, all substantially as and for the purpose set forth.

2. In combination, the rear truss-frame, M, and side bars, F F, connected adjustably thereto and to the neck D, substantially as and for the purpose set forth.

3. The combination of the bifurcated neck D, side bars, F F, rear truss-frame, M, and the bracket H, forming a combined front-seat support and brace for the connecting-frame, substantially as and for the purpose set forth.

4. In combination, the side bars, F F, bracket H, forming a combined brace for the side bars and a front-seat support, the treadles G G, mounted adjustably on the side bars, the drivers A A, and the steering-wheel B, substantially as and for the purpose set forth.

5. The parallel side bars, F F, in combination with the box N, having set-screws *n′*, the cranks L², having a box, O, with an eye for the connecting-rod *e* to pass through, and a set-screw, *e′*, substantially as and for the purpose set forth.

6. In a tricycle, the combination, with the drivers and steering-wheel, of the adjustable connecting-frame composed of the side bars, F F, and the adjustable actuating means mounted on the connecting-frame, substantially as and for the purpose set forth.

7. The combination of the seat-frame U, having sockets *u u*, through which passes the seat-back support T, a set-screw, *t*, the seat-back support T, and the seat-back R, having handles *r r*, substantially as and for the purpose set forth.

8. The combination of the seat S with the seat-back support T and the canopy top T′, all substantially as and for the purpose set forth.

9. The combination of the side bars, F, and bracket H, the said bracket forming a combined brace and a support for the seat, substantially as and for the purpose set forth.

10. The parallel side bars, F F, in combination with the adjustable box or bearing N, carrying the treadle-connection L², and the set-screw *n′*, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 21st day of December, 1886.

HENRY LA CASSE.

Witnesses:
FREDERICK H. GIBBS,
E. C. CANNON.