J. F. HOUGH.

TRICYCLE SPECIALLY APPLICABLE FOR INVALIDS OR THE LIKE.

APPLICATION FILED NOV. 20, 1917.

1,269,815. Patented June 18, 1918.

Fig. 3.

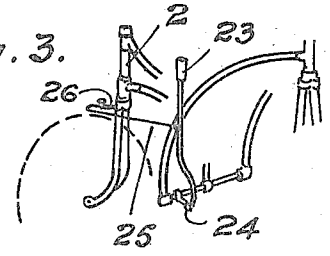


Fig. 1.

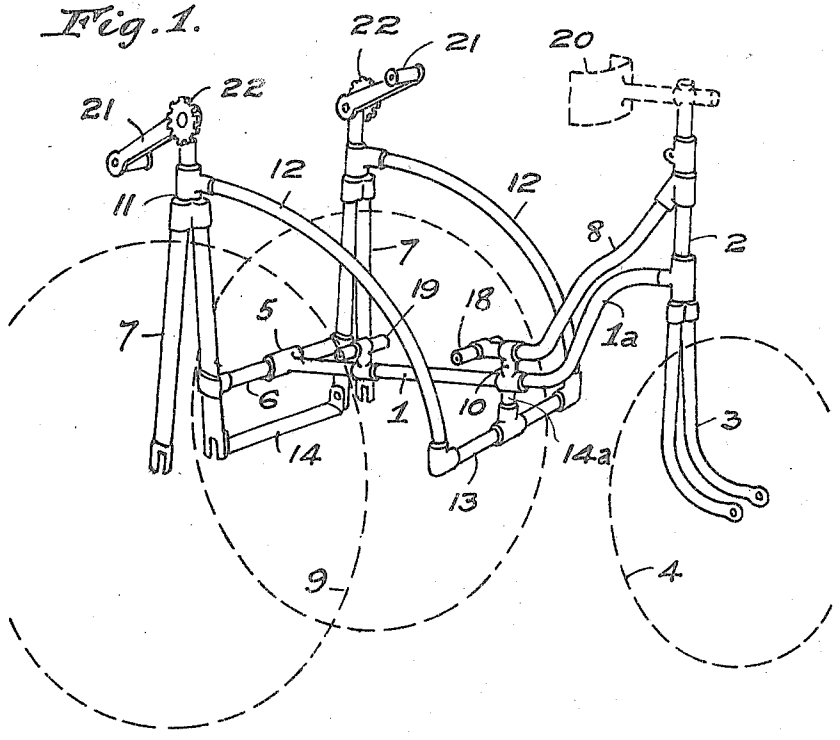
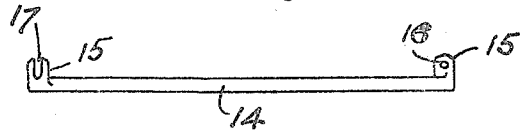


Fig. 2.



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UNITED STATES PATENT OFFICE.

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TRICYCLE SPECIALLY APPLICABLE FOR INVALIDS OR THE LIKE.

1,269,815. Specification of Letters Patent. Patented June 18, 1918.

Application filed November 20, 1917. Serial No. 203,026.

To all whom it may concern:

Be it known that I, JAMES FRANCIS HOUGH, a subject of the King of Great Britain, and a resident of Southport, England, have invented certain new and useful Improvements in Tricycles Specially Applicable for Invalids or the like, of which the following is a specification.

This invention relates to improvements in tricycles for the use of invalids or the like of that type in which the tricycle is provided with two front wheels and a smaller rear wheel by means of which the tricycle is steered, the front wheels being driven by hand and the seat carriage or the like for the rider being supported between the front driving wheels.

According to this invention the frame comprises a main backbone connected to the head of the fork of the rear wheel depending down and passing centrally along the machine where it is joined to a transverse tube coupling across the inner members of both front forks. The backbone is reinforced by an upper neck rail coupling the top of the rear head to a part of the backbone about the rear of the front wheels where it is connected to the backbone by a short vertical stay. The front wheels are carried in single vertical forks, from the heads of which curved rails pass around the peripheries of the front wheels to points below the backbone, these lowest extremities of the curved rails being joined across by a transverse rail, a short vertical stay rail connecting the transverse rail to the backbone at its central point. This constitutes the main framework of the machine. A distention rail is provided across the lower extremities of the front forks, this distention rail being detachable; and in order to carry the seating accommodation, short cross bars are provided, the rear cross bar being supported from the neck tube and the front cross bar from a short vertical stay at the forward end of the backbone. Means in addition to the back-rest are also provided such as a hand-lever pivotally carried from the lower rear transverse rail.

The invention is illustrated in the accompanying drawings in which Figure 1. is a perspective view of the frame, Fig. 2. being a detail view of the distention rail, and Fig. 3. a detail of the steering lever.

In carrying out the invention the frame comprises a main backbone 1, connected to the head 2 of the forks 3 of the rear wheel 4, this backbone depending down at 1^a, and passing centrally along the machine and being joined at 5 to a transverse tube 6, coupling across the inner members of both front forks 7. The backbone 1 is reinforced by an upper neck rail 8 coupling the top of the rear head 2 to the backbone 1 at about the rear of the large front wheels 9, the neck rail being connected to the backbone by a short vertical stay 10. The front wheels 9 are carried in single vertical forks 7 from the heads 11 of which curved rails 12 pass around the peripheries of the front wheels 9 to points below the backbone 1, these lower extremities of the rails 12 being joined across by a transverse rail 13, a short vertical stay 14^a connecting the rail 13 to the backbone 1.

In order to prevent racking of the front forks 7 a distension rail 14 is provided detachably connecting across the lowest extremities of the inner members of the front forks 7. This distension rail is provided with lugs 15 at each end, one lug having a perforation 16 taking over the axle end at one side and the other lug having a slot 17 to engage the axle of the other wheel, the distension rail being held by nuts. The seating accommodation which may be an ordinary seat, a bath chair type of receptacle, or otherwise, is not carried on a seat pillar or pillars as usual, but on short cross bars 18, 19, the rear cross bar 18 being supported from an extension of the upper neck tube 8 from the point where it is connected to the backbone 1 and the front cross bar 19 being supported by a short vertical stay from the forward end of the backbone. Such an arrangement provides an extremely rigid means for supporting the seat or the like.

In addition to the usual means for steering such tricycles which consists in providing the spindle of the rear forks with a padded backpiece 20 by pressing on which at either side the rider controls the steering, a hand lever 23 is provided, pivotally carried at 24 from the lower rear transverse rail 13, such lever passing up conveniently at one side of the seating accommodation and being coupled by a link 25 to an arm 26 carried from the rear forks. By operating the hand lever, therefore, the rear

forks may be swung angularly in the head 2, and the steering of the tricycle controlled additionally to the usual control exerted by the pressure of the back of the rider. This hand lever 23 may be detachably connected to the lower transverse rail by pivotally mounting it on a short angle bracket, the threaded stem of which is passed through two curved saddle pieces disposed on either side of the rear transverse rail and through perforations in opposite sides of the rail, a nut on the extreme end of the threaded stem gripping the saddle pieces about the transverse stay against a fixed shoulder on the stem. The threaded stem may be provided with a flat or flats and the perforations in the saddle pieces and the lower transverse rail shaped to correspond, thus preventing twisting of the bracket in its socket.

By eliminating the usual horizontal forks connecting the axles of the front wheels to the lower point of the curved rails 12, and providing the frame-work with vertical forks 7 only, a considerable economy and simplicity in construction is achieved. The front wheels 9 are driven by separate handles 21 and chains and sprockets 22, and if desired, the chain drive may be only at one side, a double crank handle between the heads of the front forks being provided in place of the separate handles 21 and in this case an ordinary loose trailer wheel could be fitted in the forks at the opposite side of the machine to that on which the chain drive is arranged.

I claim:

1. A hand driven tricycle comprising in combination, single vertical forks carrying the large front wheels, a separate driving handle for each front fork, a transverse rail connecting the inner members of the front forks, curved rails passing around the peripheries of the front wheels to the heads of the front wheel forks, a second rear transverse rail connecting the rear ends of the curved rails, a main backbone connected to the transverse rails and to the forks of the rear wheel, said rear forks, and a back rest carried from the rear forks by means of which the tricycle is steered.

2. A hand driven tricycle comprising in combination, single vertical forks carrying the large front wheels, a separate driving handle for each front fork, a transverse rail connecting the inner members of the front forks, a detachable distention bar coupling across the lowest extremities of the front forks curved rails passing around the peripheries of the front wheels to the heads of the front wheel forks, a second rear transverse rail connecting the rear ends of the curved rails, a main backbone connected to the transverse rails and to the forks of the rear wheel, said rear forks, and a back rest carried from the rear forks by means of which the tricycle is steered.

3. A hand driven tricycle comprising in combination, single vertical forks carrying the large front wheels, a separate driving handle for each front fork, a transverse rail connecting the inner members of the front forks curved rails passing around the peripheries of the front wheels to the heads of the front wheel forks, a second rear transverse rail connecting the rear ends of the curved rails, a main backbone connected to the transverse rails and to the forks of the rear wheel, a neck tube reinforcing the rear of the backbone and connected to the rear forks, said rear forks, and a back rest carried from the rear forks by means of which the tricycle is steered.

4. A hand driven tricycle comprising in combination, single vertical forks carrying the large front wheels, a separate driving handle for each front fork, a transverse rail connecting the inner members of the front forks curved rails passing around the peripheries of the front wheels to the heads of the front wheel forks, a second rear transverse rail connecting the rear ends of the curved rails, a main backbone connected to the transverse rails and to the forks of the rear wheel, a neck tube reinforcing the rear of the backbone and connected to the rear forks, said rear forks, short cross bars for carrying the seating supported from the backbone and from the neck tube, and a back rest carried from the rear forks by means of which the tricycle is steered.

5. A hand driven tricycle comprising in combination, single vertical forks carrying the large front wheels, a separate driving handle for each front fork, a transverse rail connecting the inner members of the front forks curved rails passing around the peripheries of the front wheels to the heads of the front wheel forks, a second rear transverse rail connecting the rear ends of the curved rails, a main backbone connected to the transverse rails and to the forks of the rear wheel, said rear forks, a back rest carried from the rear forks by means of which the tricycle is steered, and an additional steering handle pivotally carried from the rear transverse rail and linked to an arm on the rear fork.

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

JAMES FRANCIS HOUGH.

Witnesses:
A. J. DAVIES,
ESTHER HEGINBOTHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."