

G. GREUTMAN.

SULKY.

(Application filed Aug. 25, 1898.)

(No Model.)

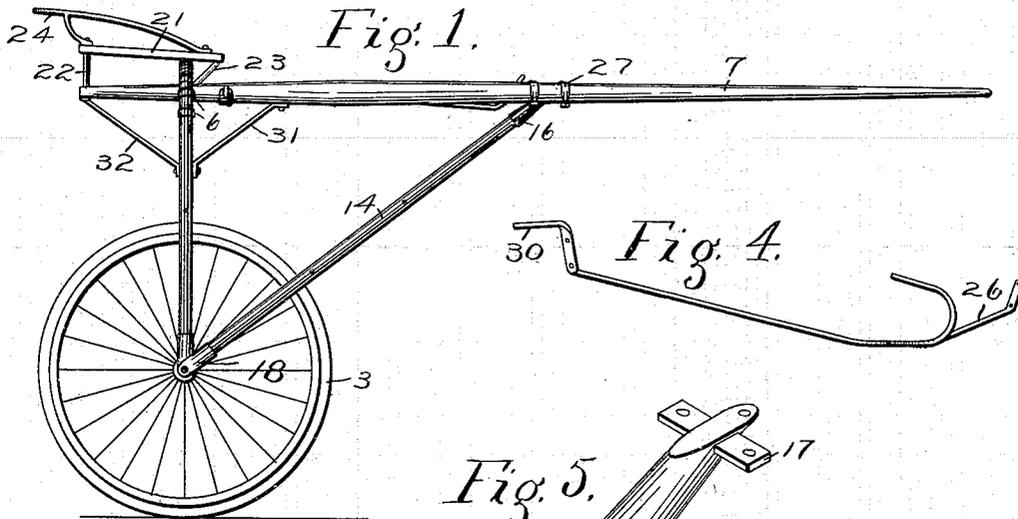


Fig. 1.

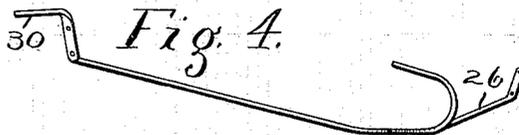


Fig. 4.

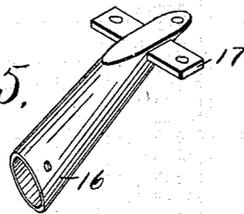


Fig. 5.

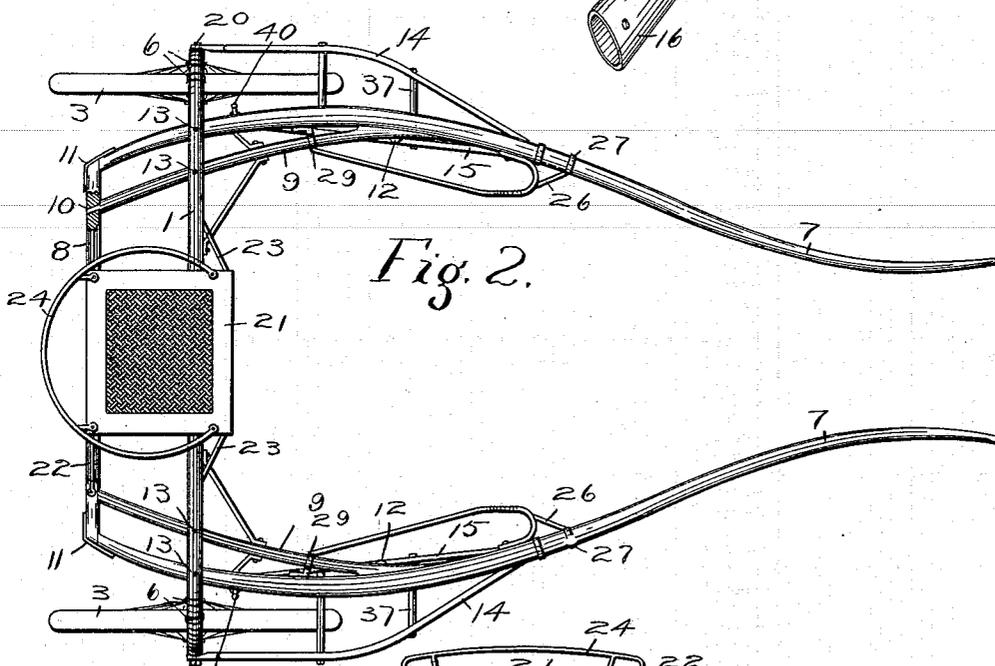


Fig. 2.

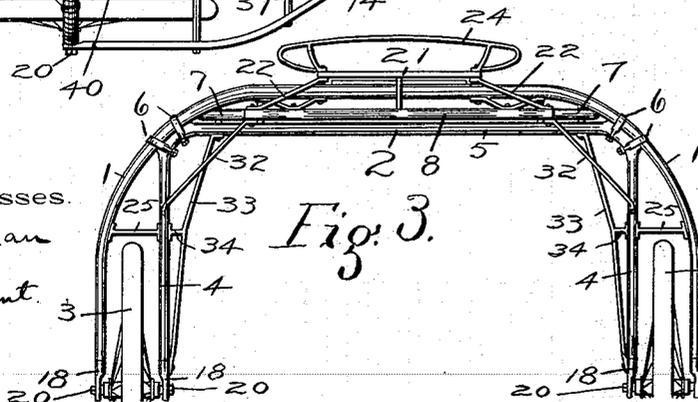


Fig. 3.

Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE GREUTMAN, OF ROCHESTER, NEW YORK.

## SULKY.

SPECIFICATION forming part of Letters Patent No. 615,447, dated December 6, 1898.

Application filed August 25, 1898. Serial No. 689,451. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE GREUTMAN, of Rochester, in the county of Monroe, State of New York, have invented certain new and useful Improvements in Sulkies; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

The object of my present invention is to provide a driving or racing sulky which shall be strong, simple, and light in weight.

To these and other ends my invention consists in certain improvements in construction and combination of parts, all as will be clearly set forth in the claims at the end of this specification.

In the drawings, Figure 1 is a side elevation; Fig. 2, a plan view; Fig. 3, a rear view; Fig. 4, a plan view of one of the stirrups, and Fig. 5 a perspective view of one of the socket connections.

Similar reference-numerals in the several figures indicate similar parts.

In the construction of a driving or racing sulky the combination of lightness with strength is the factor which determines its success, and to meet these ends I have employed an arched axle-frame composed of the outer and inner curved strips 1 and 2, respectively. The former, adapted to connect with the outer ends of the axles, extends over the tops of the wheels 3, while the latter, connecting with and supported by the inner ends of said axles, also serves to brace the outer arch by having the rounding corners between the vertical ends 4 and the flat top 5, which extend along the curve of the arch for a short distance, at which point the two pieces are rigidly united by the clips 6. By this method of construction I am enabled to build a frame of wood which is very light, and by making the arches of single continuous wooden strips one that is capable of sustaining great strains.

7 indicates thills of the usual form, which are united at their rear ends by the brace 8 and the corner-brace 9, the joints between the said parts being mortised and tenoned, as at 10, and the corners further secured by the plates 11. The forward ends of the braces 9 are fitted to the inner sides of the shafts, as

shown, and securely glued and bolted thereto by screws or bolts 12. The rear ends of the thills are projected through the opening between the inner and outer arches and secured therein by bolts 13, which pass through the strips 1 and 2 and the shafts, the latter being held firmly in position by spacing-collars surrounding the bolts and placed upon opposite sides of the shafts, between them and the adjacent sides of the arches.

Forked truss-braces, constructed of the wooden strips or bars 14 and 15, extend from opposite ends of the axles to meet the thills, where the ends are jointed or trimmed and glued together and introduced into the socket 16. Fig. 5 shows the construction of this socket and the manner in which the clip-plate 17 is formed or secured thereon in order to make the connections strong and the parts simple and few in number. It will be understood that the supporting ends of the arches and truss-pieces are strengthened and protected by inserting and securing them in sockets 18, which are flattened upon their extremities and adapted to receive the ends of the axles, which latter are secured by nuts 20.

The seat or support 21 for the driver is mounted over the top of the arch 1 and secured in position by braces 22, extending from the rear corners to the connecting-piece 8, and at the forward corners by braces 23, reaching down to the straight top 5 of the arch 2, as shown.

24 indicates a railing or back which is slightly raised above the seat and encircles it upon the back and sides.

In the natural position for driving a vehicle of this kind the driver straddles the horse and supports his feet in the stirrups, which in the present instance are also adapted to form braces between the thills and pieces 9, being connected at the forward end by the extension 26, reaching to the under side of the thills and cooperating with the clip 27, and at the rear by passing under the thills and forming, as upon the opposite end, the clip-plate for the clip 29 on the brace 9 and the extension 30, engaging with the inner side of the thills, as shown. In this construction and by the manner of connecting the braces in various places by means of clips the thills are not necessarily weakened by bolt-holes or the

like. Further bracing between the front and rear of the arch 2 and the thills is shown at 31 and 32, the corners of said arch-piece being also strengthened by the truss-braces 33, 5 extending from the sockets on the lower ends of the arch 2 upward across the corner of the arch to the lower side of the straight portion 5, and are provided near their centers with feet 34, opposite which is provided a spreader 10 25 between the legs of the two arches to insure rigidity and prevent undue vibration between the parts. These braces being of particular importance are constructed of steel, while the various other metallic parts 15 may be made from cheaper stock, thereby greatly lessening the cost of manufacture.

37 indicates bolts between the forked braces 14 and 15, which are surrounded by tubing to act as spreaders, so that when the bolts 20 are tightened the pieces will be held apart and the whole form a solid brace.

The trace-hooks, adapted for securing the traces of the harness to the vehicle, are of the usual construction, being attached to the outside of the thills, as shown at 40. 25

I claim as my invention—

1. In a sulky, the combination with the main frame embodying the inner and outer arches and each having the downwardly-extending ends connected to the axles, the inner arch abutting directly against the outer arch above the wheel-axles and secured directly thereto, of the thills attached to the main frame, the axles and wheels thereon. 30

2. In a sulky, the combination with the main frame composed of the outer arch member having the downwardly-extending outer ends, of the inner arch member composed of a single piece of bent wood having the downwardly-extending ends and abutting directly against and secured to the outer arch member at the top of the downwardly-extending ends, thereby forming forks, of the axles connecting the proximate ends of the arches, the 40 wheels thereon and the thills secured to the main frame.

3. In a sulky, the combination with the upper arch members composed of a single piece of bent wood and the inner arch member having the upper portion substantially horizontal and the downwardly-extending ends, said inner member abutting directly against and secured rigidly to the outer member at the ends of its horizontal portion of the axles, 50

the wheels and the thills extending between the arches and secured thereto. 55

4. In a sulky, the combination with the main frame composed of the two arch members, having the downwardly-extending ends forming forks, the inner member having the substantially horizontal central portion and abutting and secured rigidly to the outer member at the upper portion of the forks, the forked braces connected to the axle, and to the upper portion of the inner arch member and the thills substantially as described. 60 65

5. In a sulky, the combination with the outer arch member 1, the inner arch member 2, the clips 6 connecting them, the axles, the braces 33 connected to the inner arch member and to the axle, of the thills 7, and the bifurcated braces connected to the axle and to the thills, substantially as described. 70

6. In a sulky, the combination with the main frame having the forks at the lower portion, the axles and their wheels, of the thills connected to the frame, the bifurcated braces 14 and 15, the sockets 16 for the ends thereof having the clip-plate 17 thereon and the clips securing them to the thills, substantially as described. 75 80

7. In a sulky, the combination with the thills and the rear cross-bar and brace 9 connecting them, of the stirrup-iron having the perforated portion 26 at the forward end extending beneath the thills, and the perforated portion upon the rear end passing beneath the brace and having the extension or foot 30 engaging with the inner side of the thills, and clips cooperating therewith to secure said iron to the thills and brace, substantially as described. 85 90

8. In a sulky, the combination with the main frame, composed of the outer arch member, the inner arch member having the substantially horizontal upper portion abutting against the outer member, the clips connecting them, and the axles and wheels, of the braces 31 and 32 arranged between the members, the braces 33 inside the inner arch member, the thills and the forward bifurcated braces extending from the ends of the axles and connected to the thills, substantially as described. 95 100

GEORGE GREUTMAN.

Witnesses:

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