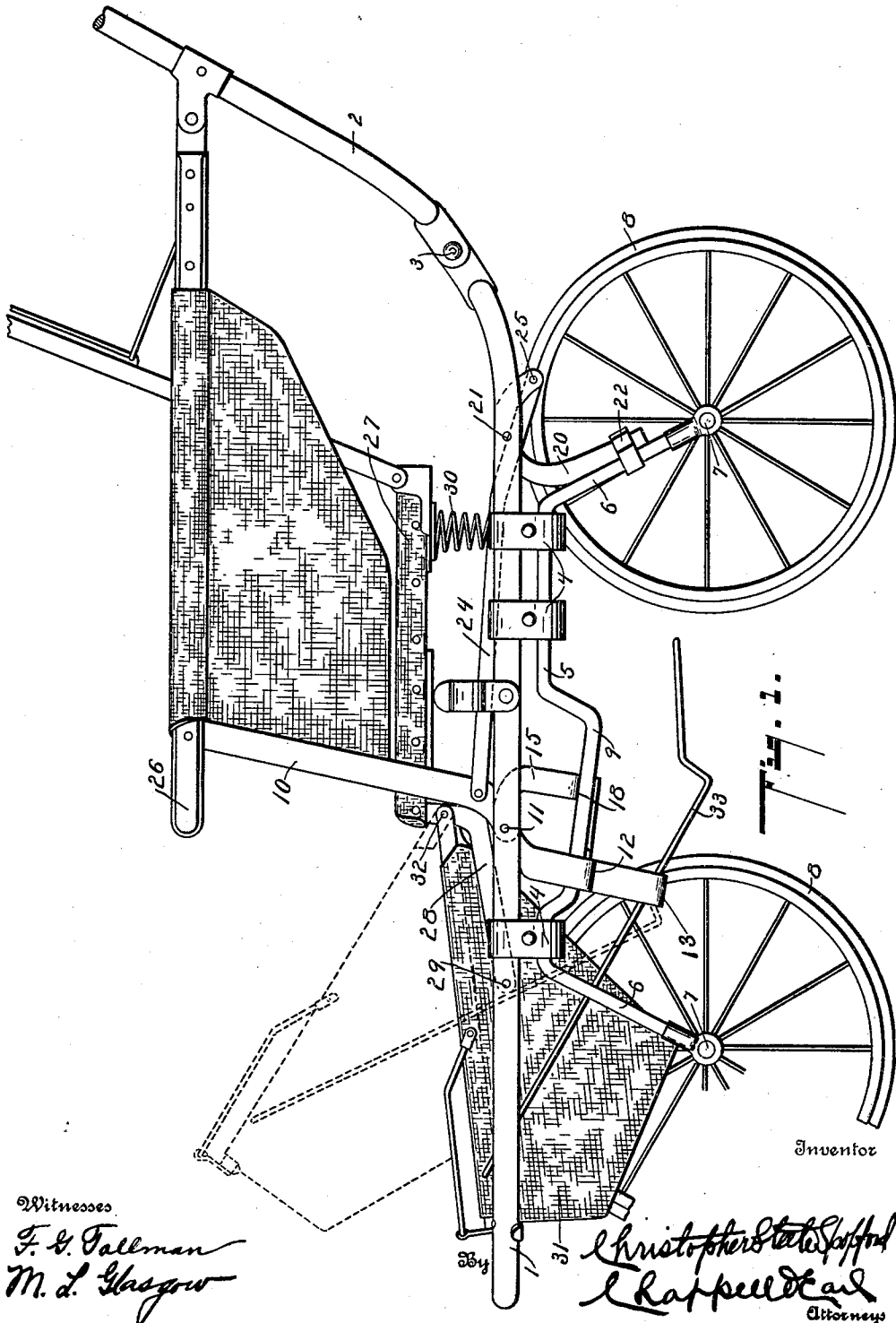


C. S. SPOFFORD.
FOLDING CARRIAGE.
APPLICATION FILED JUNE 25, 1909.

1,005,348.

Patented Oct. 10, 1911.

2 SHEETS—SHEET 1.



Witnesses
F. & Fallman
M. L. Glasgow

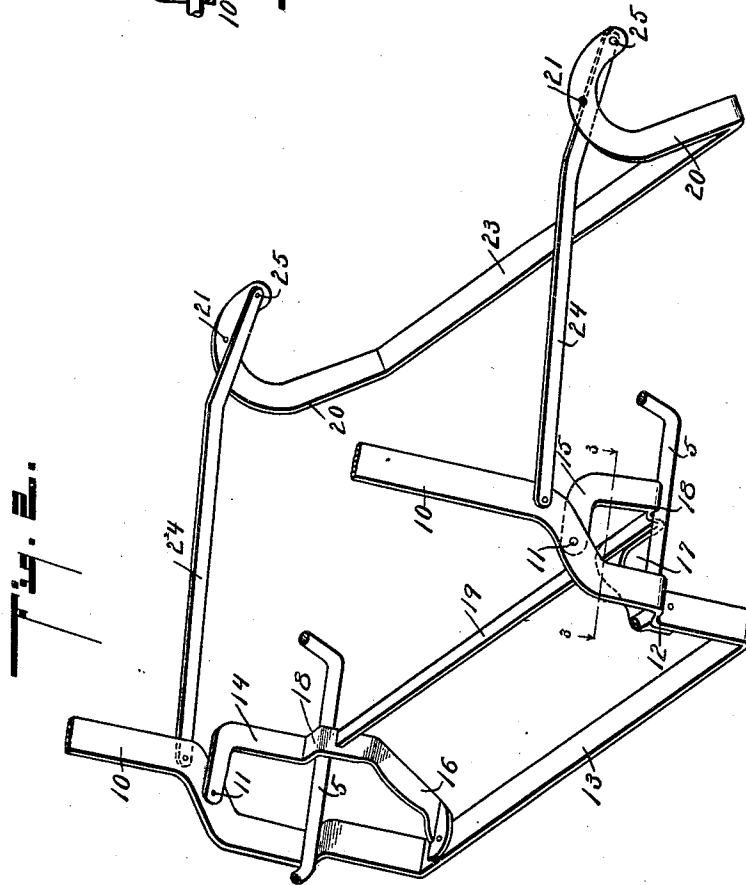
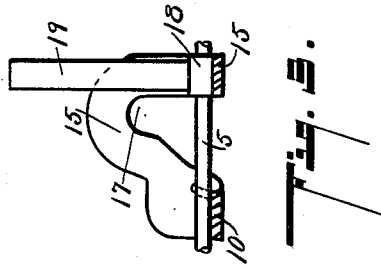
Inventor
Christopher S. Spofford
F. & Fallman
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Attorneys

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Witnesses
F. V. Fallman
M. L. Glasgow.

Inventor
Christopher Steele Spofford
By *Rappell & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

CHRISTOPHER STEELE SPOFFORD, OF STURGIS, MICHIGAN, ASSIGNOR TO STURGIS STEEL GO-CART COMPANY, OF STURGIS, MICHIGAN.

FOLDING CARRIAGE.

1,005,348.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Original application filed August 24, 1908, Serial No. 449,990. Divided and this application filed June 25, 1909. Serial No. 504,361.

To all whom it may concern:

Be it known that I, CHRISTOPHER STEELE SPOFFORD, a citizen of the United States, residing at the city of Sturgis, county of St. Joseph, State of Michigan, have invented certain new and useful Improvements in Folding Carriages, of which the following is a specification.

This invention relates to improvements in folding carriages.

It relates particularly to improvements in folding carriages of the type or general structure shown in the patent to Otto Kurz, dated September 17, 1907, No. 866,145, and I illustrate it, as I have embodied it in practice.

The main object of this invention is to provide in a collapsible carriage an improved means of erecting and collapsing the wheels and retaining them in either their erected or collapsed position.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The structure described constitutes one effective embodiment of my invention. Other embodiments would be readily devised by those skilled in the art.

The invention is clearly defined and pointed out in the claims.

A structure constituting an effective and preferred embodiment of the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:—

Figure 1 is a side elevation with two of the wheels removed of a structure embodying the features of my invention, a portion of the back, the handle and one of the wheels being broken away, the adjustment of the foot-rest being indicated by dotted lines. Fig. 2 is a detail perspective of the means for actuating and holding the wheels in their erected or collapsed position and of the bracing or locking means therefor. Fig. 3 is a detail section, taken on a line corresponding to line 3—3 of Fig. 2.

In the drawing, similar reference numerals refer to similar parts throughout the several views.

Referring to the drawing, 1 represents

the running gear frame, which is preferably formed of a piece of tubing. The handle, as 2, is pivoted at the rear end of the running gear, as at 3. The running gear frame is provided with clip-like hangers 4 for the wheel supports 5. The wheel supports 5 are preferably formed of rods having downwardly-projecting wheel-carrying arms 6 thereon provided with suitable journals 7 for the wheels, as 8. The wheel supports are pivotally supported on the hangers, so that they are free to swing therein to permit the wheels to be folded under the running gear frame, substantially as is shown and described in the Kurz patent referred to.

The wheel supports are provided with offsets forming crank-like arms 9, which are inclined downwardly and slightly inwardly toward the rear. A pair of levers 10 is mounted on the side bars of the running gear frame by means of the pivots 11, the pivots being located above the offsets 9 of the wheel supports. The lower ends of the levers project downwardly below and preferably on the outside of the arms 9 of the wheel supports, as clearly appears from the drawing. The levers are provided with shoulders or rests 12 arranged to receive the arms 9 when the supports are erected,—see Fig. 2. These shoulders or rests are preferably formed by offsets in the levers.

The lower ends of the levers are preferably connected by a cross piece 13, the cross piece and levers being preferably formed of a single piece of material. On the lower ends of these levers and arranged to embrace the arms 9 are cam loops 14 and 15. These cam loops are so shaped and coact with the levers so that, when the levers are actuated, the wheel supports are swung in or out to collapse or erect them. To accomplish this, the loops are shaped so that they have a cam action on the arms, the loop 14 having a cam portion 16, and the loop 15 having a cam portion 17. These cam portions are somewhat dissimilar so that one wheel support is actuated slightly in advance of the other. The cam loops 14 and 15 are provided with shoulders or rests 18, which face in a direction opposite to the rests 12 on the levers, so that, when they are engaged with the arms 9, they coact to effectively support the same against movement in either direction. At the same time,

on the swinging of the levers, the rests do not interfere with the collapsing or erecting of the wheel supports on the actuation of the lever. The rests 18 are also preferably
 5 formed by offsets in the cam loops. To add to the strength and rigidity of the structure, I also provide a cross piece 19, which is connected at its ends to the cam loops opposite the shoulder portions 18 thereof, so that,
 10 when the wheels are erected, the strains on the wheels which would tend to collapse them are mainly thrust strains on this brace. The levers 10 are locked in their erected position, and thus the carriage locked in its
 15 erected position by means of the braces 20 which are pivoted on the running gear frame at 21.

The arms 6 of the wheel supports are provided with clips 22 with which the brace is
 20 engaged when the parts are erected. The lower ends of the braces 20 are preferably connected by a crosspiece 23, which adds materially to their rigidity and efficiency as braces, it being obvious that, when the wheel
 25 supports are erected and the braces engaged therewith the thrust on the wheels, which would tend to collapse or spread them, is sustained largely by means of the cross piece instead of by the pivots for the braces.
 30 The upper ends of the braces are preferably curved rearwardly and downwardly, as illustrated, and connected by the links 24 to the levers 10. These links are so arranged that, when the braces 20 are in position to
 35 engage the wheel supports, the pivoted connection 25 for the links to the braces is thrown below the center of the pivots 21 so that they serve as locks for the levers and braces for the wheel supports. The cross
 40 piece 23 for the braces being at the rear of the carriage is in position to be engaged by the foot of the operator to release the braces or to push them into engaging position, thus making the device convenient to operate.
 45 The levers 10 are connected at their upper ends by the bars or links 26 to the handles, so that when the handles are collapsed upon the running gear frame, the wheels are collapsed or folded and, when the handle is extended, the wheels are automatically erected,
 50 the collapsing and erecting movement being the same as that of the Kurz patent.

The seat 27 is supported at its forward end by the arms 28, which are pivoted at 29

to the running gear frame. At the rear end 55 of the seat it is provided with springs 30. This seat support is described in detail and is claimed in my application for Letters Patent, Serial No. 449,990, of August 24, 1908, of which this is a divisional application. 60

The foot-rest 31 is adapted to be adjusted, as indicated by dotted lines in Fig. 1. The foot rest is pivotally mounted at 32 and is supported in its elevated position by the supporting brace 33, which is adapted to 65 embrace the cross piece 13 at the lower ends of the levers 10. This foot-rest, however, forms no part of the present invention.

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

1. In a collapsible carriage, the combination with the running gear frame, of pivoted wheel supports having downwardly-projecting, inwardly and rearwardly inclined 75 crank-like arms; levers pivotally mounted on said frame to project downwardly on the outer sides of said arms; cam loops arranged on said levers to engage said arms to the rear of said levers, said levers being offset to provide upwardly-facing shoulder-like rests for said arms, said cam loops being offset to provide downwardly-facing shoulder-like rests for said arms when the parts are in their erected position. 80 85

2. In a collapsible carriage, the combination with the running-gear frame, of wheel supports having arms thereon; levers pivotally mounted on said frame; cam loops arranged on said levers to coact therewith 90 when actuating said wheel supports, said levers and cam loops being provided with oppositely facing arm-engaging shoulders adapted to engage the arm on opposite sides when the parts are in their erected position, 95 the shoulders of one of said parts being located in advance of the other whereby on the initial collapsing movement of said levers, the downwardly and outwardly-facing shoulders are disengaged from said arm. 100

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

CHRISTOPHER STEELE SPOFFORD. [L. s.]

Witnesses:

THOS. J. COLLINS,
 J. G. WALLICK.