(No Model.) 3 Sheets—Sheet 1.

J. F. SINKLER.

SELF PROPELLING CARRIAGE.

No. 385,881. Patented July 10, 1888.

Fig. 1.

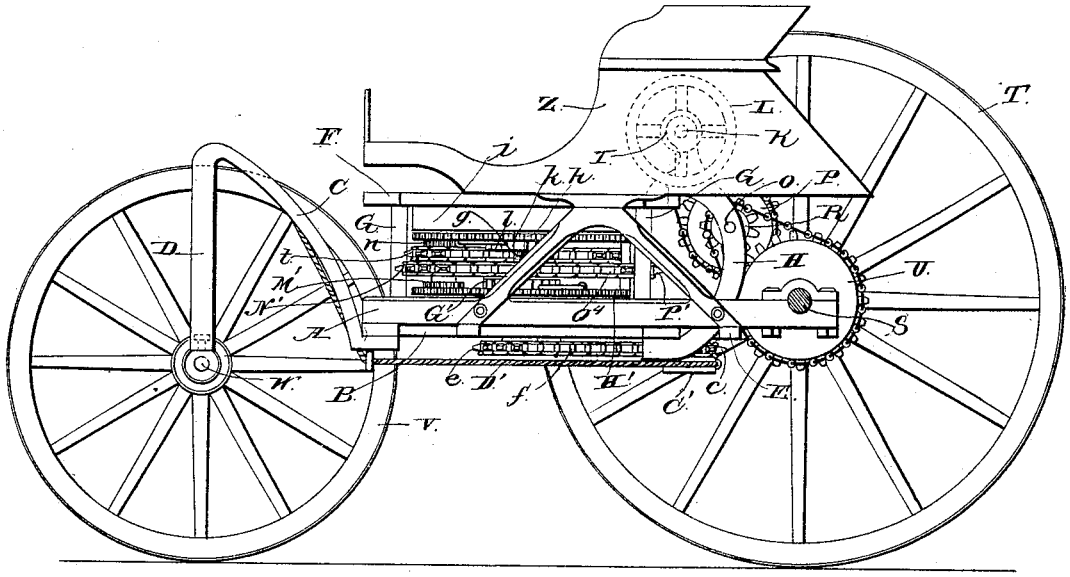
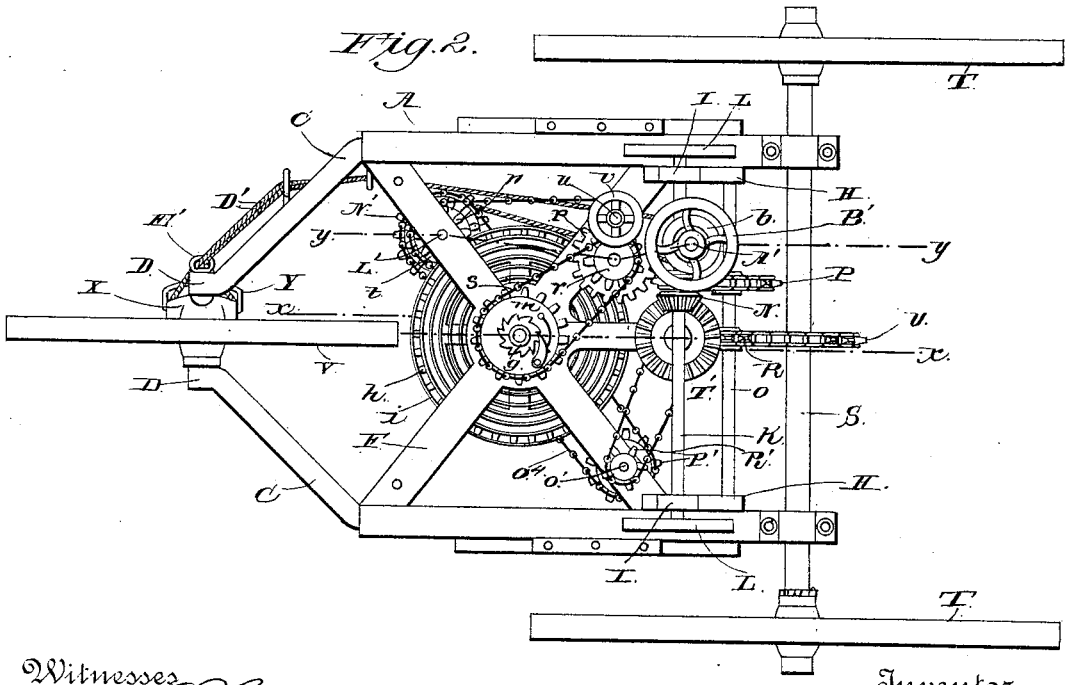


Fig. 2.



Witnesses
M. Fowler
Jno. Garner

Inventor.
James F. Sinkler.
by C. A. Snow & Co.
his Attorneys

(No Model.) 3 Sheets—Sheet 2.

J. F. SINKLER.

SELF PROPELLING CARRIAGE.

No. 385,881. Patented July 10, 1888.

Fig. 3.

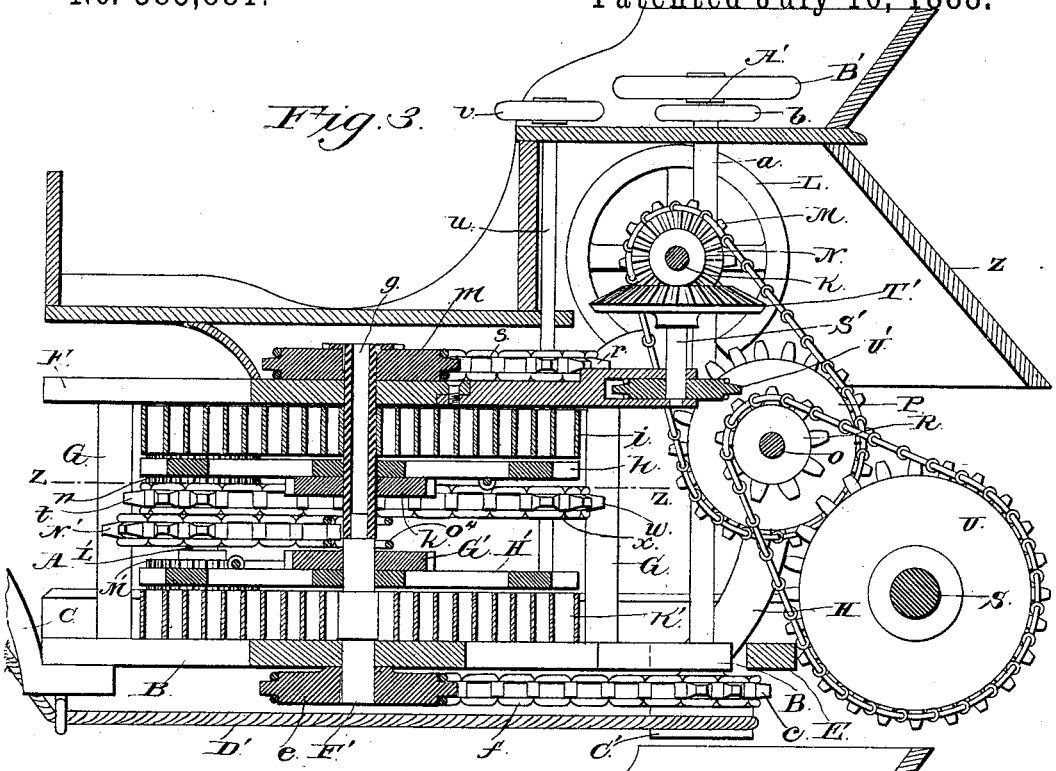
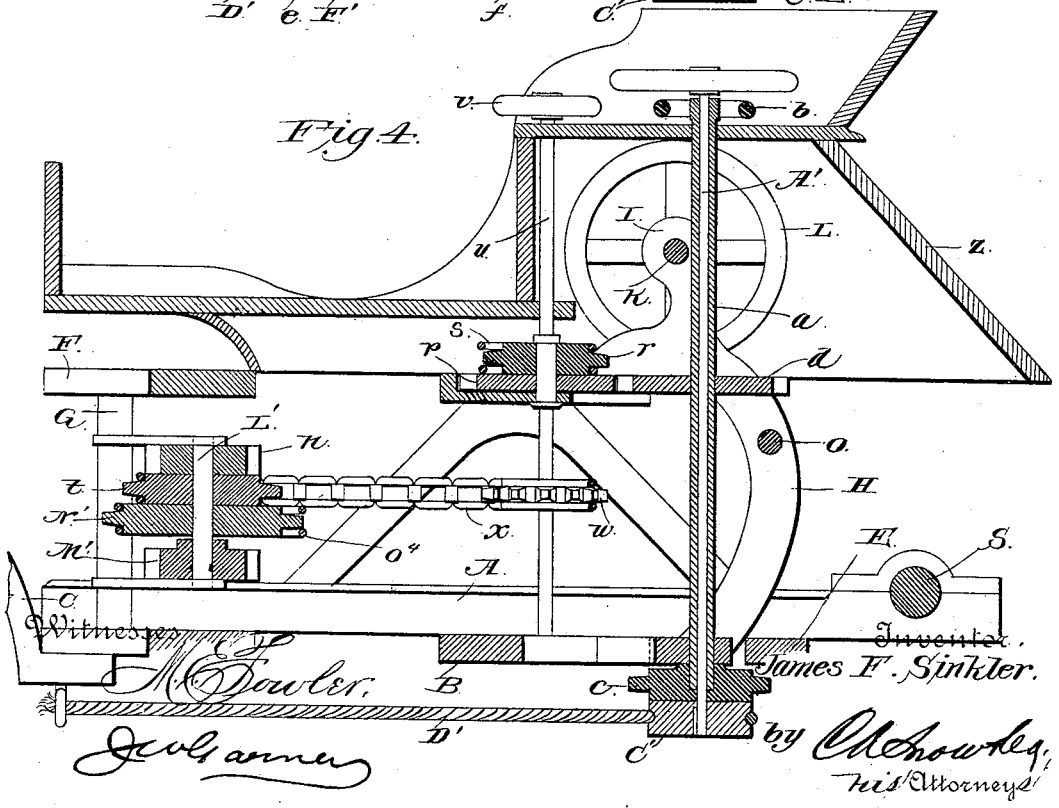


Fig. 4.



Witnesses
C. F. Dowler.
J. Wagner

Inventor.
James F. Sinkler.
by A. Snowden,
his Attorneys.

(No Model.) 3 Sheets—Sheet 3.

J. F. SINKLER.

SELF PROPELLING CARRIAGE.

No. 385,881. Patented July 10, 1888.

Fig. 5.

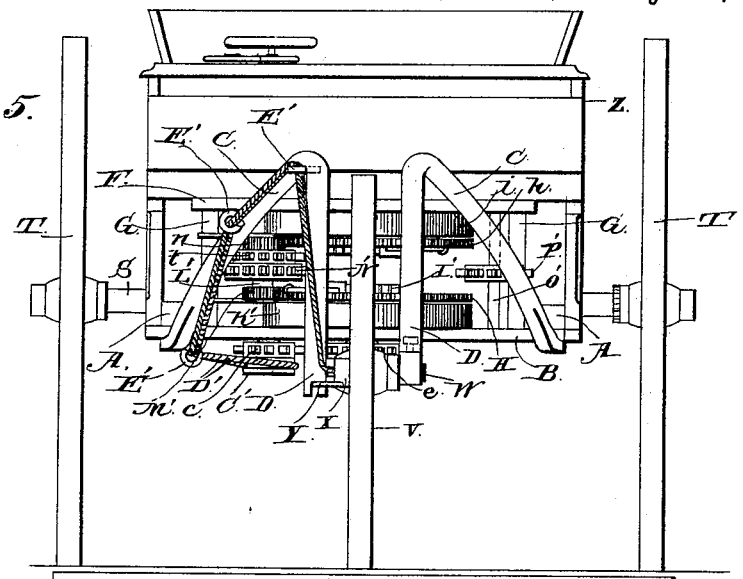


Fig. 6.

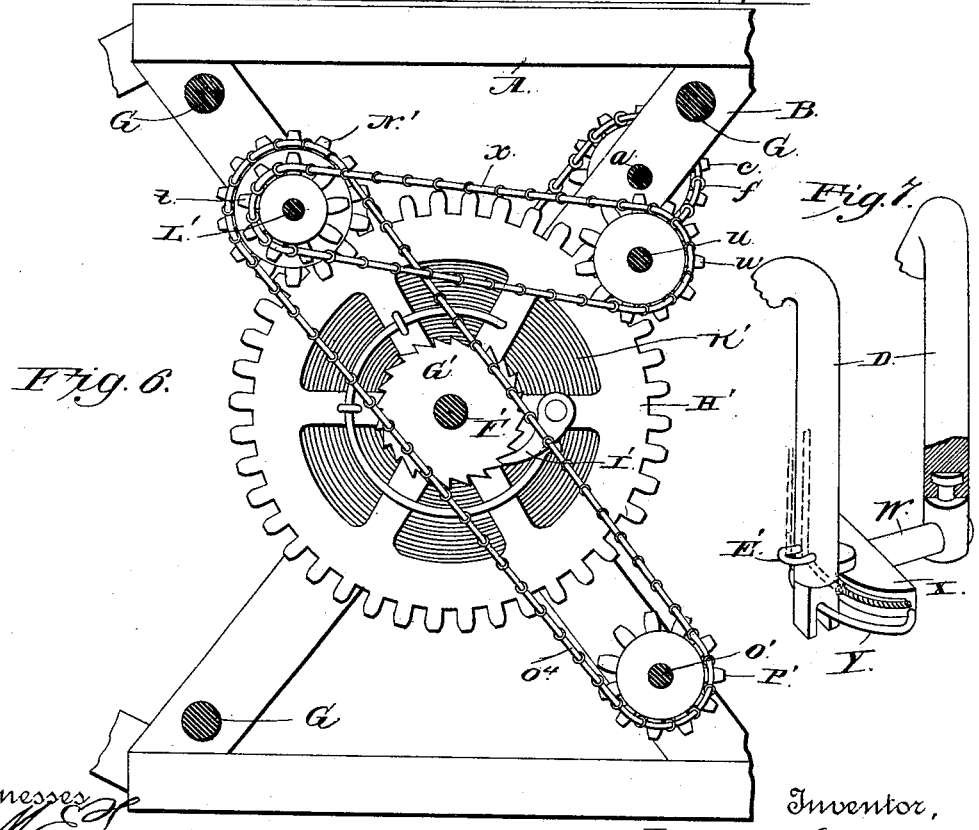


Fig. 7.

Witnesses
M. L. Fowler.
J. W. Garner.

Inventor,
James F. Sinkler.
by C. A. Crawford.
his Attorneys

UNITED STATES PATENT OFFICE.

JAMES FRANCIS SINKLER, OF TROY, TENNESSEE.

SELF-PROPELLING CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 385,881, dated July 10, 1888.

Application filed March 9, 1888. Serial No. 266,702. (No model.)

To all whom it may concern:

Be it known that I, JAMES FRANCIS SINKLER, a citizen of the United States, residing at Troy, in the county of Obion and State of Tennessee, have invented a new and useful Improvement in Self-Propelling Carriages, of which the following is a specification.

My invention relates to a self-propelling carriage; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of self-propelling carriage embodying my improvements. Fig. 2 is a top plan view of the same with a portion of the carriage-body removed. Fig. 3 is a vertical longitudinal sectional view taken on the line *x x* of Fig. 2. Fig. 4 is a similar view taken on the line *y y* of Fig. 2. Fig. 5 is a front elevation of my improved self-propelling carriage. Fig. 6 is a horizontal section on line *z z*, Fig. 3. Fig. 7 is a detail perspective view of the pilot-wheel and its connections.

A represents a pair of side bars, which are connected by a pair of crossed bars or arms, B, and have at their front ends curved extending arms C, which first extend upward and forward and have their outer ends bent downward in a vertical direction to form standards D. The bars A are connected near their rear ends by a cross-bar, E.

F represents a pair of crossed arms, which are arranged above the crossed arms B and are connected thereto by means of vertical corner-posts G.

H represents a pair of curved arms, which are arranged on the rear sides of the crossed arms F and B and connect the rear ends thereof together, said curved arms being arranged in vertical planes. Near the upper ends of said curved arms H are bearings I, in which is journaled a transverse shaft, K, which shaft is provided at its extremities with balance-wheels L, and has at a suitable distance from one end a small sprocket-pinion, M, and a miter-pinion, N.

O represents a transverse shaft, which is journaled in bearings in the curved arms H at a suitable distance from the shaft K, and is provided with a large sprocket-wheel, P, connected to wheel M by an endless sprocket-chain, and is further provided with a small sprocket-wheel, R.

S represents the driving-shaft, which is journaled transversely in bearings that are supported on the rear end of bars A. The said shaft is provided at its extremities with supporting and driving wheels T, one of which is rigid on the shaft and the other is connected thereto by a suitable pawl-and-ratchet mechanism, so that when the machine is traveling in a curved line one of said wheels T may rotate faster than the other. The shaft S is further provided with a large sprocket-wheel, U, which is connected to the small sprocket-wheel R on the shaft O by means of an endless sprocket-chain.

V represents a pilot-wheel which is journaled loosely on a horizontal shaft, W. One end of the said shaft is swiveled to the lower end of one of the standards D, and the opposite end of the said shaft has a semicircular pulley, X.

Y represents a semicircular rod which is arranged concentrically with the perimeter of pulley X, and has its ends bent inward and secured on said pulley, as shown. The lower end of the opposite standard, B, is bifurcated and engages the said semicircular rod, and thus enables the pilot-wheel to be turned, together with its shaft or axle, nearly through half a circle. On the side bars, A, is supported a body, Z, which is shaped somewhat like the body of an ordinary buggy.

a represents a hollow shaft which is journaled in bearings in the upper and lower crossed arms B, near the rear end of the carriage, and has its upper end projecting through the seat in the body of the carriage, and provided with a hand-wheel, *b*, by means of which the said hollow shaft may be turned. To the lower end of said shaft is secured a sprocket-wheel, *c*, and at a suitable distance from the upper end of said shaft is secured a pinion, *d*.

A′ represents a vertical shaft which extends through and has its bearing in the hollow shaft *a*. To the upper end of shaft A′ is secured a hand-wheel, B′, and to the lower end thereof is secured a drum or pulley, C′, to which are rigidly secured the inner ends of a pair of guide-ropes, D′. The said guide-ropes extend forward and are guided through suitable eyes, E′, with which one of the extensions C and

its standard D are provided, and said guide-ropes are attached to opposite ends of the segment-pulley X.

From the foregoing description it will be understood that by turning the shaft A′ the drum at the lower end thereof will coil one of the guide-ropes and uncoil the other, and thereby cause the said guide-ropes to turn the pilot-wheel and its shaft or axle so as to guide the carriage in any desired direction.

F′ represents a vertical shaft which is journaled in central bearings in the crossed arms B, and is provided with a rigid ratchet-wheel, G′.

H′ represents a large spur-wheel which is journaled loosely on the shaft F′, and is provided with a spring-actuated pawl, I′, that engages the ratchet-wheel, and thereby causes the shaft to be rigidly secured to the spur-wheel when the latter is rotated in one direction, and enables the said spur-wheel to be rotated in the contrary direction without imparting motion to the shaft.

K′ represents a coiled volute spring, which has its inner end rigidly secured to the shaft F′ and its outer end connected to the spur-wheel H′. To the lower end of shaft F′ is loosely mounted a sprocket-wheel, *e*, which is connected to the wheel *c* by an endless sprocket-chain, *f*. The said wheel *e* is connected to the shaft F′ by a pawl-and-ratchet wheel. Said wheel is adapted to rotate rigidly on the shaft in one direction and to turn the shaft with it when rotated in the contrary direction.

g represents a vertical hollow shaft which is journaled in a central bearing in the upper crossed arms, F, and the lower end of which receives and forms the bearing for the upper end of shaft F′. On the shaft *g* is loosely mounted a spur-wheel, *h*, which is similar to wheel H′, and a coiled volute spring, *i*, which is similar to spring K′, has its inner end connected to shaft *g* and its outer end secured to the wheel *h*. A ratchet-wheel, *k*, is rigidly secured to shaft *g*, and a spring-actuated pawl, *l*, which is pivoted to wheel *h*, engages the ratchet-wheel, and thereby allows the said wheel to revolve idly in one direction on the said shaft *g*. On the upper end of the said shaft *g* is loosely mounted a sprocket-wheel, *m*, which is connected to said shaft by a pawl and ratchet, as shown.

L′ represents a vertical shaft which is journaled in one side of the frame or case formed by the crossed arms F B and the posts G, and is provided with a spur-pinion, M′, that engages wheel H′, a similar pinion, *n*, that engages wheel *h*, a sprocket-wheel, *t*, and has also a larger sprocket-wheel, N′.

O′ represents a vertical shaft which is journaled in the frame or case on the side opposite the shaft L′, and is provided with sprocket-wheels P′ and R′, not of the same diameter, which sprocket-wheels are smaller than wheels N′. The latter is connected to sprocket-wheel P′ by means of an endless sprocket-chain, O⁴.

S′ represents a vertical shaft which is journaled in brackets that project rearward from the upper and lower sides of the inclosing frame or case, and is provided at its upper end with a rigid miter-wheel, T′, that meshes with the miter-pinion N. The said shaft S′ is further provided with a smaller sprocket-wheel, U′, which is connected to sprocket-wheel R′ by means of an endless sprocket-chain.

From the foregoing description it will be readily understood that when the springs are wound then it will cause shaft F′ to rotate, and thereby communicate motion through the gearing, sprocket-wheels, and sprocket-chains hereinbefore described to the shaft K, having the balance-wheels L, so as to rotate said shaft at a very high rate of speed, the spring uncoiling very slowly. The rotary motion of the shaft K is communicated to the shaft O, the latter being rotated at a much slower rate of speed by reason of the wheel P being larger than the wheel M, to which it is connected, and the small sprocket-wheel R on said shaft O, together with the large sprocket-wheel U on the driving-shaft and the endless sprocket-chain which connects said wheels R and U, causes the driving-shaft to be rotated at a still lower rate of speed and the driving-wheels S thereof to propel the carriage, as will be readily understood.

Journaled on a spindle which projects from the upper side of one of the arms F is a spur-wheel, *p*, that meshes with pinion *d* on hollow shaft *a*, and rigid with said wheel *p* is a small sprocket-wheel, *r*, which is connected to the wheel *m* on shaft *g* by an endless sprocket-chain, *s*.

By grasping the hand-wheel of the hollow shaft *a* and turning the latter in one direction the shaft F may be turned so as to wind up the lower spring, the sprocket-wheel *m* slipping idly on its shaft *g* while this is being done, and by turning the said hollow shaft *a* in the opposite direction, so as to cause the wheel *e* to slip idly on the shaft F′, the upper spring may be wound, as will be readily understood. The openings are thus wound one at a time, each serving to continue the velocipede in motion while the other is being wound.

u represents a vertical shaft which is journaled in suitable bearings at a slight distance in advance of the shafts A′ *a*, and is provided at its lower end with a rigid sprocket-wheel, *w*, and at its upper end a hand-wheel, *v*. An endless sprocket-chain, *x*, connects the wheels *w* and *t*, and inasmuch as the shaft L′ is geared directly to the wheels *h* and H′, as before stated, rotary motion is imparted to the shaft *u* when the velocipede is in motion.

When it is desired to stop the velocipede, this may be accomplished by grasping the hand-wheel *v* and thereby checking the rotation of the shaft *u* and of the spring-shafts *g* and F′.

Having thus described my invention, I claim—

1. The combination, in a self-propelling car-

riage, of the driving-shaft journaled to the rear end of the carriage and having the driving-wheels, the pilot-wheel journaled on a shaft adapted to be turned in a horizontal plane and supported in advance of the carriage, connections to direct the pilot-wheel in any direction, the shaft O, sprocket-wheels and sprocket-chain connecting the same to the driving-shaft, the shaft K, sprocket-wheels and sprocket-chain connecting the latter to the shaft O, said shaft K having the balance-wheels L and the spring-actuated mechanism connected to the shaft K to rotate the latter, substantially as described.

2. The combination, in a self-propelling carriage, of the driving-shaft journaled thereto and having the driving-wheels, the spring motor or mechanism and connections between the same and the driving-shaft to rotate the latter, the forward-extending arms C, having the standards D, the horizontal shaft or axle having one end swiveled to the lower end of one of said standards and provided at the opposite end with a curved arm or rod engaging the lower end of the other standard D, the pilot-wheel journaled loosely on said shaft or axle, the shaft A′, the hand-wheel to rotate the same, and connections between said shaft and the axle on which the pilot-wheel is mounted, substantially as described.

3. The combination of the spring-shafts *g* F′, having the loose spur-wheels and the pawls and ratchets connecting the said spur-wheels to their shafts, with the driving mechanism having the gears engaging the said spur-wheels, the sprocket-wheels loose on said shaft and connected thereto by pawls and ratchets and adapted to rotate in opposite directions independently of the shafts, the shaft *a*, having the wheel *e* and chain connecting the same to the sprocket-wheel on shaft F′, the pinion *d*, rigid on shaft *a*, the gear *p*, meshing with pinion *d*, the wheel *r*, rigid with said gear, and the endless chain *s*, connecting the said wheel *r* and the sprocket-wheel on the shaft *g*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES FRANCIS SINKLER.

Witnesses:
JAS. H. WHEELER,
H. C. WHEELER.