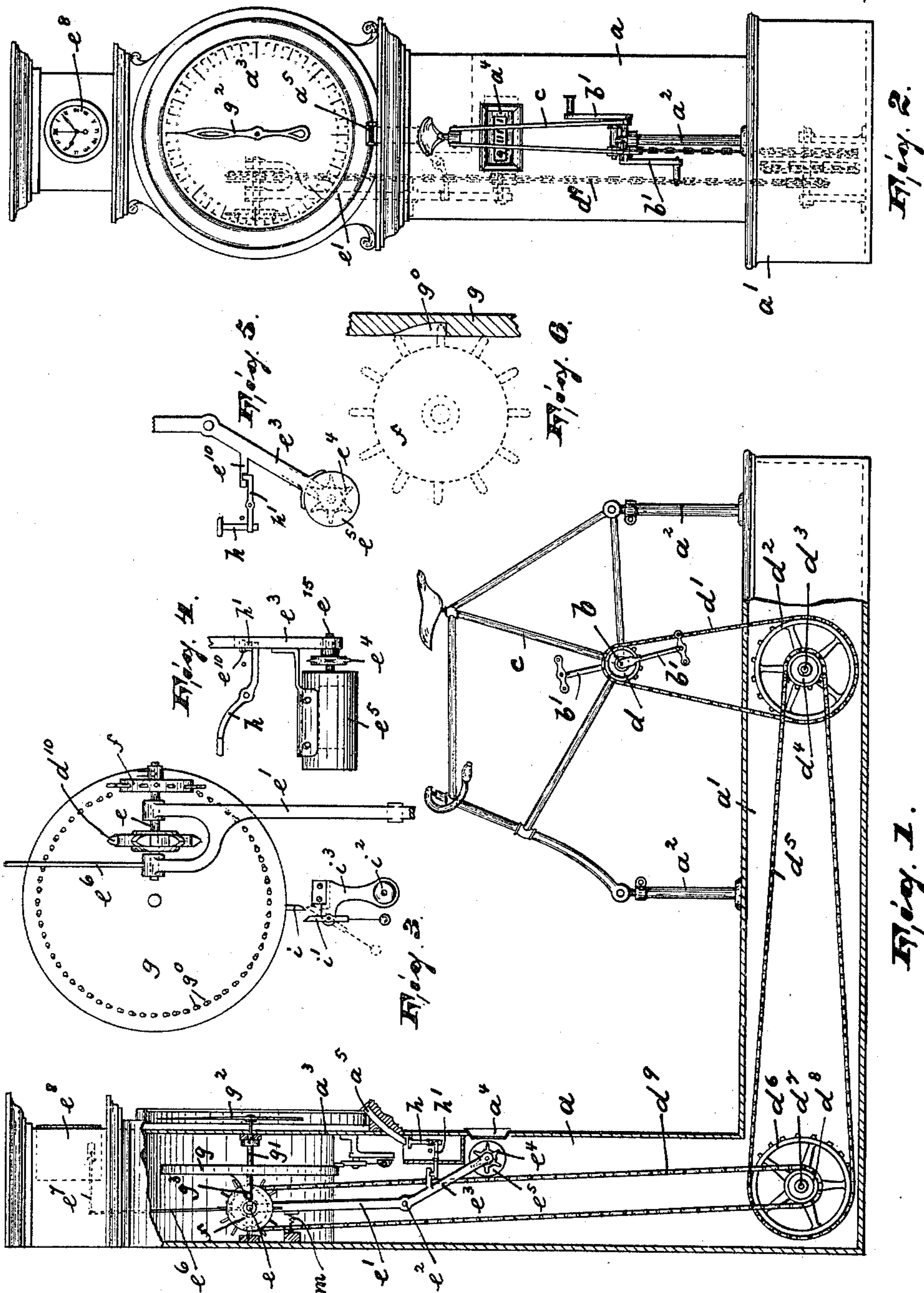


(No Model.)

J. L. MALES.
COMBINED CYCLE AND SPEED TESTER.

No. 600,229.

Patented Mar. 8, 1898.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JUDSON L. MALES, OF PATERSON, NEW JERSEY.

COMBINED CYCLE AND SPEED-TESTER.

SPECIFICATION forming part of Letters Patent No. 600,229, dated March 8, 1898.

Application filed May 7, 1897. Renewed February 5, 1898. Serial No. 669,280. (No model.)

To all whom it may concern:

Be it known that I, JUDSON L. MALES, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in a Combined Cycle Speed-Tester and Exercising Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a coin-controlled stationary cycle speed-tester and exercising apparatus of simple, strong, and durable construction and reliable in operation.

The invention consists in the improved coin-controlled cycle speed-tester and exerciser, its distance and speed indicator, and in the combination and arrangements of the various parts thereof, substantially as will be hereinafter described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a side elevation of my improved apparatus, a portion of the casing being broken away to better illustrate the nature of my said invention; Fig. 2, a front elevation of Fig. 1; Fig. 3, an enlarged detail view of a certain disk and its operating mechanism; Figs. 4 and 5, enlarged front and side elevations, respectively, of the cyclometer, of the arm carrying the same, and the levers controlling said arm; and Fig. 6, an enlarged detail view of a portion of the disk referred to in Fig. 3 and of its operating pin-wheel, the latter being shown in dotted lines.

In said drawings, *a* represents an upright casing, and *a'* the forwardly-projecting frame or platform, on which are secured the adjustable standards *a²* *a³*, adapted to receive and to support the (diamond) frame *c* of a bicycle. On the crank-shaft *b*, on which the pedal-carrying cranks *b'* are arranged in the usual manner, is a sprocket-wheel *d*, transmitting

its motion through the sprocket-chain *d'* to a sprocket-wheel *d²* of larger diameter and mounted on the shaft *d³*, having its bearings in a casing arranged under the frame of platform *a'*. On the shaft *d³* is also mounted a sprocket-wheel *d⁴*, of smaller diameter than the sprocket-wheel *d²*, and operating through a sprocket-chain *d⁵* the sprocket-wheel *d⁶*, the latter mounted on the parallel shaft *d⁷*, suitably supported within the lower portion of the casing *a*.

A sprocket-wheel *d⁸*, of smaller diameter than sprocket-wheel *d⁶*, is connected through the sprocket-chain *d⁹* with a sprocket-wheel *d¹⁰*, mounted on the shaft *e*, having its bearings in the upper forked portion of the arm or lever *e'*, fulcrumed, as at *e²*, within the casing *a*. On the shaft *e* is also secured a pin-wheel *f*, adapted to engage suitable holes or openings *g⁰*, arranged on the rear face of the disk *g*, which is mounted on the shaft *g'*, arranged at right angles to the shaft *e* and suitably supported in the casing *a*. Said shaft *g'* penetrates the dial-face *a³* and carries on its forward end a hand or pointer *g²*. The disk *g* is also provided with a rearwardly-projecting lug *g³*, adapted to engage an annular sleeve arranged on the shaft *e* and to thus force the said shaft backward and the pin-wheel *f* out of engagement with the disk *g*, as will be manifest.

The disk *g* is so weighted that when in normal position the hand or pointer is in a truly perpendicular position and the projecting lug *g³* in engagement with the sleeve on the shaft *e*. On the lowermost portion of the disk *g* and projecting from its periphery is a pin *i*, controlling the fulcrumed lever *i'*, suitably supported on a frame or bracket *i³* and adapted to strike the gong *i²* when said disk has arrived at its normal position.

The arm or lever *e'* is controlled by a spring *m*—that is to say, said spring tends to force said arm forward and the pin-wheel into engagement with the disk *g*.

Projecting downward and forward from the arm or lever *e'* is arranged an arm *e³*, carrying the horizontally-arranged shaft *e¹⁵*, on which is mounted the star-wheel *e⁴*, controlling and operating a cyclometer mechanism *e⁵*, which latter is carried by said arm *e³*

and is not illustrated in detail, as any well-known cyclometer can be used in connection with my improved apparatus.

The star-wheel e^4 is adapted to engage the sprocket-chain d^9 and be operated thereby, and the reading of the cyclometer can be observed through the glass-covered aperture a^4 in the casing a .

The forwardly-projecting lug e^{10} of the arm e^3 is provided on its under side with a notch or recess adapted to be engaged by the upwardly-extending knob or projection of a fulcrumed lever h' , the other end of which rests upon one end of a balanced fulcrumed lever h , arranged at right angles to the lever h' and adapted to be operated by the weight of a coin, such as a nickel, which is dropped down upon said lever through the slot a^5 , arranged in the casing a , as clearly illustrated in the drawings.

From the arm or lever e' projects upward a rod or wire e^6 , connected through a lever e^7 with the mechanism of a stop-clock e^8 , the latter of any well-known make or construction, and as said construction does not form a part of my invention the same is not illustrated in detail.

In operation when a coin is dropped through the slot a^5 upon the free end of the balanced lever h the fulcrumed lever h' is operated, causing its knob or projection to disengage from the notch arranged on the under side of the projection e^{10} , and allowing the fulcrumed and connected arms e' and e^3 to be acted upon by the spiral spring m —that is to say, said arms are turned upon the fulcrum e^2 , and thus throw the pin-wheel f into engagement with the openings g^0 of the disk g and the star-wheel e^4 into engagement with the sprocket-chain d^9 . By rotating the pedals the sprocket mechanism heretofore described is operated, the pin-wheel causing the disk g to revolve until its projecting lug g^3 engages the sleeve on the shaft e , and thus forces said shaft and its supporting-arm e' into normal position. Simultaneously the arm e^3 is also returned to its normal position and the knob or projection on the lever h' will engage the notch in the projection e^{10} . The operation of the disk and of the star-wheel controlling the cyclometer are thus simultaneously stopped and another coin is required to release the mechanism above referred to. When the disk g has arrived at its normal position, the gong i^2 is sounded and the stop mechanism of the clock a , which has been started by the forward movement of the lever e^7 , is arrested.

It is supposed that one revolution of the hand or pointer g^2 corresponds to the distance of one mile and the various sprocket-wheels must therefore be constructed to accomplish the above; but it will be manifest that other measurements of distances may be employed and that the construction of the apparatus, as shown and described, may be altered without changing the scope of my invention.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, a hand or pointer carrying shaft suitably supported in said casing, a disk mounted on said shaft, a wheel adapted to operate said disk, a spring-controlled fulcrumed arm supporting said wheel, means for transmitting motion from the crank-shaft to said wheel, a coin-chute, an operating-lever extending into the path of the coin-chute, and means connected with and operated by said lever for normally holding said fulcrumed arm, substantially as and for the purposes described.

2. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame mounted on said casing, a pedal-carrying crank-shaft in said cycle-frame, a hand or pointer carrying shaft suitably supported in said casing, a disk on said shaft, a wheel adapted to operate said disk, a shaft carrying said wheel, a spring-controlled fulcrumed arm supporting said shaft, means for transmitting motion from the crank-shaft to the wheel-carrying shaft, an arm projecting from the spring-controlled arm and provided with a notched projection, a fulcrumed lever provided with a knob or projection adapted to engage said notched projection, an operating-lever controlling said fulcrumed lever, a coin-chute in alignment with said operating-lever, substantially as and for the purposes described.

3. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, a hand or pointer carrying shaft suitably supported in said casing, a disk mounted on said shaft and provided with a lug or projection, a wheel adapted to operate said disk, a shaft carrying said wheel and adapted to be engaged by said lug or projection on the disk, a spring-controlled fulcrumed arm supporting said shaft, means for transmitting motion from the crank-shaft to the wheel-carrying shaft, a coin-chute, an operating-lever in the path of said coin-chute, and means connected with and operated by said lever for normally holding the fulcrumed arm and its wheel out of operative position, substantially as and for the purposes described.

4. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame suitably supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, a hand or pointer carrying shaft suitably supported in said casing, a disk mounted on said shaft, a wheel adapted to operate said disk, a shaft supporting said wheel, a sprocket-wheel on said shaft, an endless sprocket-chain engaging said sprocket-wheel, a second sprocket-wheel suitably supported in the casing for operating said sprocket-chain, means for transmitting motion from the crank-shaft to the last-men-

tioned sprocket-wheel, a spring-controlled fulcrumed arm supporting the wheel-carrying shaft, an arm downwardly projecting from the spring-controlled arm, a star-wheel
 5 revolubly mounted on said downwardly-extending arm and adapted to be operated by the sprocket-chain, a cyclometer carried by said arm and operated by said star-wheel, a coin-chute, an operating-lever in the path of
 10 the coin-chute, and means connected with and operated by said lever for normally holding the spring-controlled arm and its downwardly-projecting arm out of operative position, substantially as and for the purposes de-
 15 scribed.

5. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame suitably supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, an arm fulcrumed
 20 in said casing, a shaft supported on said arm, a sprocket-wheel mounted on said shaft, a second sprocket-wheel suitably supported in said casing, an endless sprocket-chain connecting said sprocket-wheels, means for trans-
 25 mitting motion from the crank-shaft to the last-mentioned sprocket-wheel, a star-wheel revolubly mounted on the fulcrumed arm and adapted to be operated by the sprocket-chain, a cyclometer carried by said fulcrumed
 30 arm and controlled by said star-wheel, a coin-chute, an operating-lever in the path of the coin-chute, and means connected with and operated by said lever for normally holding said arm out of operative position, substan-
 35 tially as and for the purposes described.

6. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame suitably mounted on said casing, a pedal-carrying crank-shaft in said cycle-frame, a fulcrumed
 40 arm in said casing, a shaft carried by said arm, a sprocket-wheel mounted on said shaft, a second sprocket-wheel suitably supported in the casing, an endless sprocket-chain connecting said sprocket-wheels, means for trans-
 45 mitting motion from the crank-shaft to the last-mentioned sprocket-wheel, a star-wheel carried by said fulcrumed arm and adapted to be operated by said sprocket-chain, a cyclometer also carried by said arm and con-
 50 trolled by said star-wheel, a spring controlling said fulcrumed arm, a coin-chute, an operating-lever in the path of the coin-chute, and means connected with and operated by said lever for normally holding the fulcrumed

arm out of operative position, substantially 55 as and for the purposes described.

7. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame suitably supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, a spring-controlled 60 fulcrumed arm suitably supported in the casing, a rod or wire upwardly projecting from said arm, a lever operated by said rod or wire, a stop-clock in said casing and controlled by said lever, a wheel carried by the fulcrumed 65 arm, means for transmitting motion from the crank-shaft to said wheel, a hand or pointer carrying shaft suitably supported in said casing, a disk mounted on said shaft and adapted to be operated by said wheel, a coin-chute, 70 an operating-lever in the path of said coin-chute, and means connected with and operated by said lever for normally holding said fulcrumed arm and its wheel out of operative position, substantially as and for the purposes 75 described.

8. A cycle speed-tester and exerciser, comprising a casing, a cycle-frame suitably supported on said casing, a pedal-carrying crank-shaft in said cycle-frame, a sprocket-wheel 80 on said crank-shaft, a spring-controlled fulcrumed arm in the casing, a shaft carried by said fulcrumed arm, a sprocket-wheel on said shaft, a wheel also mounted on said shaft, a hand or pointer carrying shaft suitably supported 85 in said casing, a disk on said shaft and provided with a rearwardly-extending lug or projection, adapted to engage the shaft of the wheel and the wheel respectively, a pin carried by said disk, a gong, a gong-hammer 90 suitably supported in said casing and adapted to be operated by said pin, a chute, an operating-lever in the path of said chute, means connected with and operated by said lever for normally holding the fulcrumed arm 95 and the wheel carried thereby out of operative position, and means for transmitting motion from the sprocket-wheel on the crank-shaft to the sprocket-wheel of the wheel-carrying shaft, substantially as and for the pur- 100 poses described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of April, 1897.

JUDSON L. MALES.

Witnesses:

ALFRED GARTNER,
 LOUISE SNYDER.