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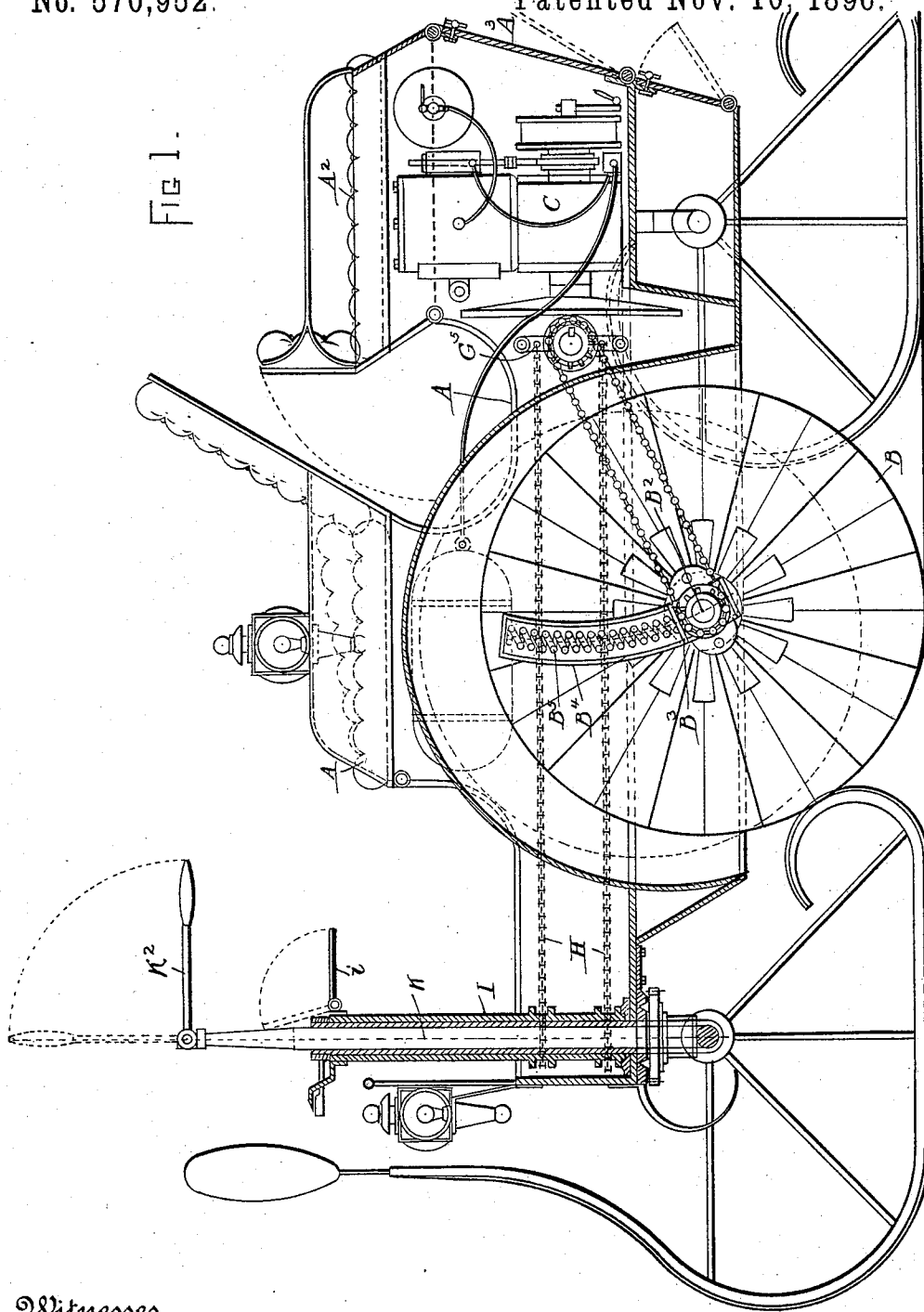
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R. H. PLASS.
SELF PROPELLING VEHICLE.

No. 570,952.

Patented Nov. 10, 1896.

Fig 1.



Witnesses
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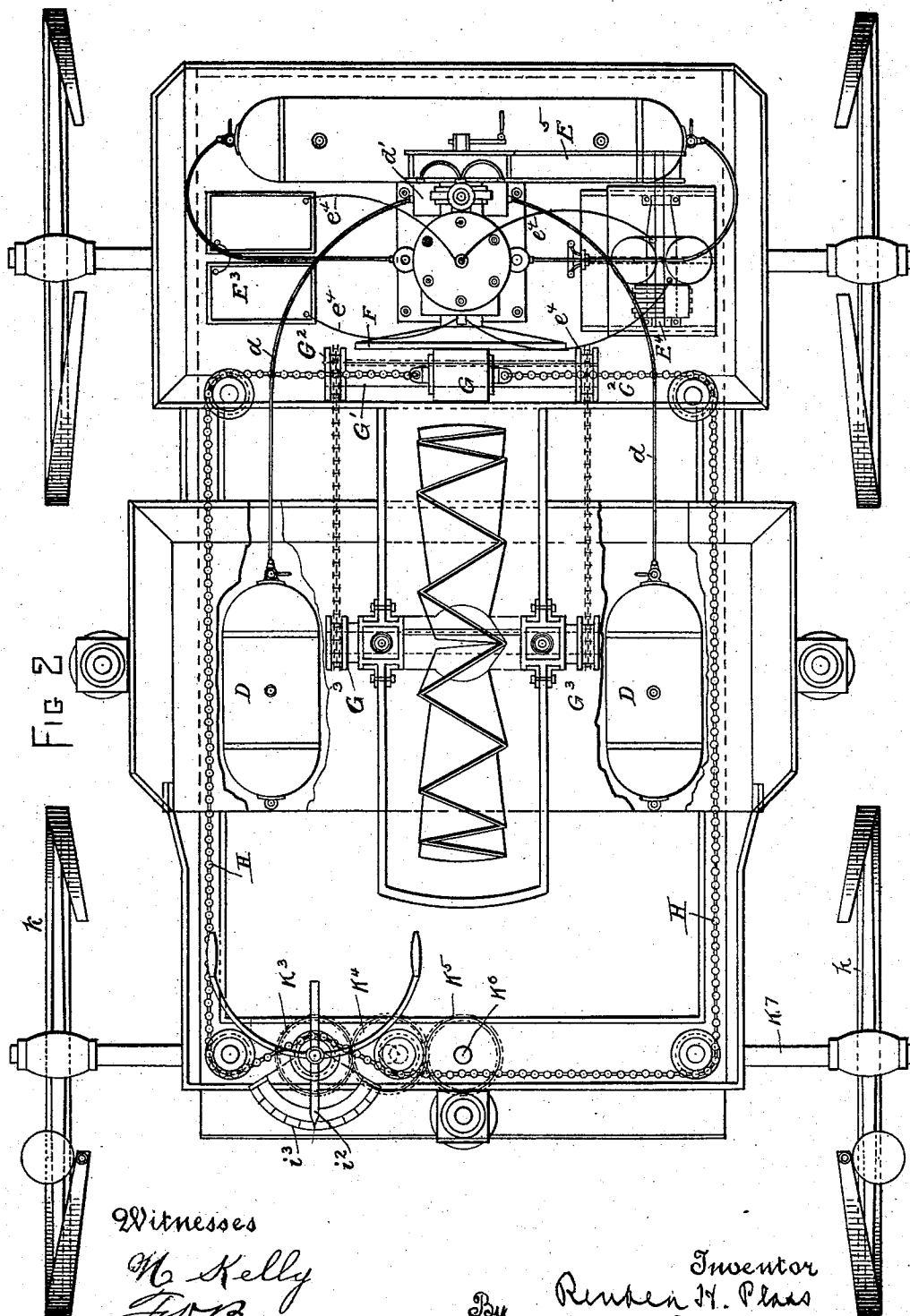
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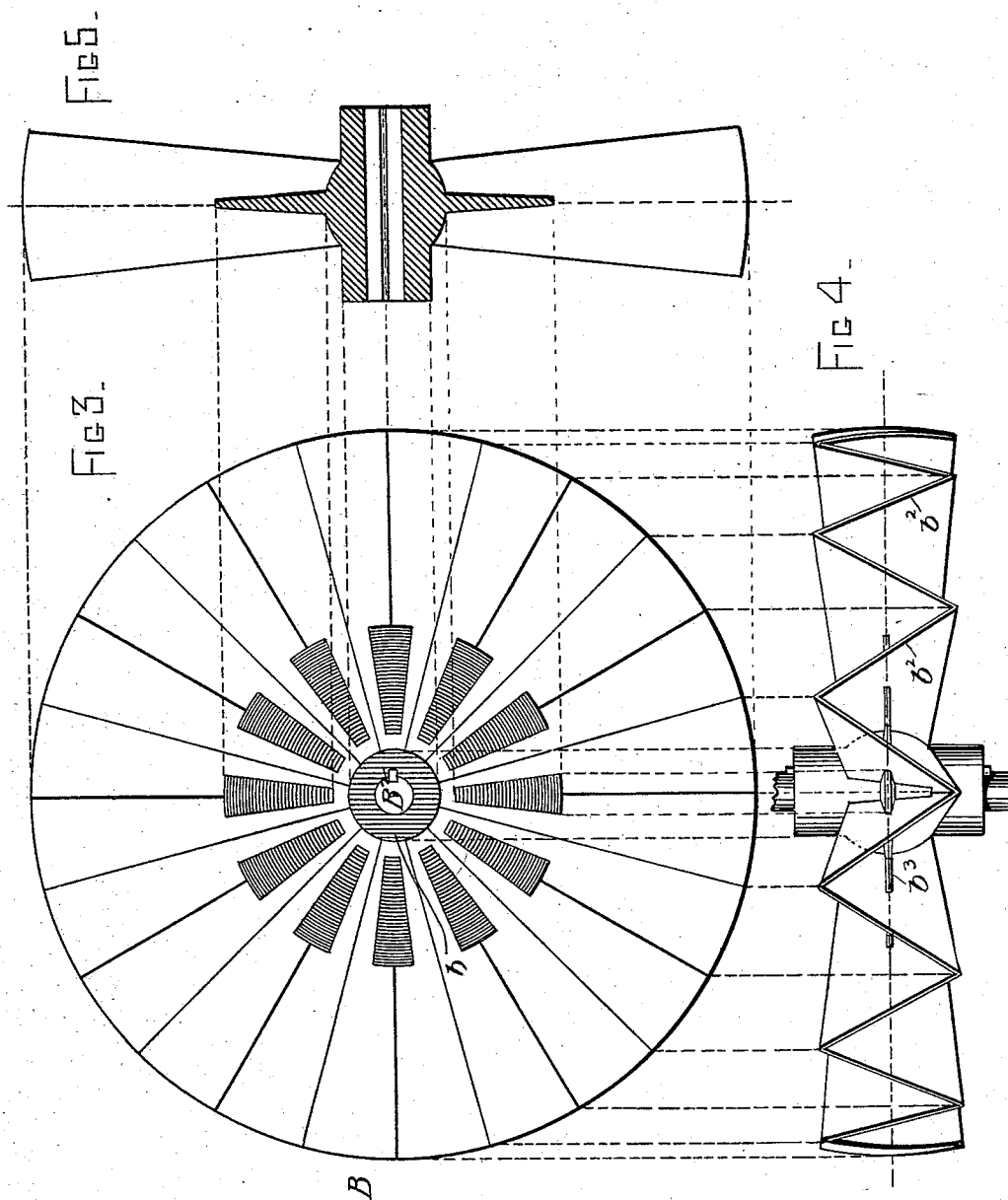
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UNITED STATES PATENT OFFICE.

REUBEN H. PLASS, OF BROOKLYN, NEW YORK.

SELF-PROPELLING VEHICLE.

SPECIFICATION forming part of Letters Patent No. 570,952, dated November 10, 1896.

Application filed April 20, 1895. Serial No. 546,555. (No model.)

To all whom it may concern:

Be it known that I, REUBEN H. PLASS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Self-Propelling Vehicles; 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.

This invention relates to self-propelling vehicles, and it relates particularly to sleighs which are provided with mechanism for propelling them.

The object of the invention is to produce a sleigh of the kind referred to which shall be capable of operation by an unskilled person and which shall be capable of use on even or unven ground or upon ice whose surface is either smooth or uneven, which may be run at varying speeds, according to the will of the operator, and which shall be so constructed as to be incapable of being injured in passing over uneven ground or by having its propelling device come in contact with an obstruction.

The invention consists in the novel construction and arrangement of parts, as fully hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a two-seated sleigh constructed in accordance with my invention. Fig. 2 is a plan view, the frame of the vehicle being removed in order to show the operative parts of the driving and guiding mechanism. Fig. 3 is a side view of the propeller-wheel. Fig. 4 is a front view of the propeller-wheel; and Fig. 5 is a sectional view of the propeller-wheel, the section being taken at right angles to the axis of the wheel.

In the drawings, A represents the main body of the sleigh, in which is located the mechanism for impelling the same and for regulating the direction and speed of movement.

At the upper parts of the body are arranged the seats A¹ A², which are preferably hinged to the main portion in order to give access to the mechanism located beneath them. In

the sides of the body are hinged doors A³, which allow access to the mechanism for purposes of cleaning, oiling, &c.

The propelling-wheel B is arranged at about the center of the sleigh, preferably beneath the front seat. The wheel is necessarily made strong in order to withstand the strain imposed upon it, and to that end its tread is continuous, and the entire main portion of the wheel is made in one piece of metal and is provided with strengthening-ribs.

The main body of the wheel is fluted or corrugated, and the flutes or corrugations decrease in width from the outer end or bearing surface to the center, where they join the hub b. In order to strengthen the wheel, there is interposed between adjacent wings b² a rib b³, which is formed with or attached to the wings and extends from the hub to a point about midway between the hub and the bearing-surface of the wheel.

The propelling-wheel B is attached to a shaft B³, to which it is keyed or otherwise suitably secured. The shaft is mounted in boxes B³, arranged in guides B⁴, connected to the body of the sleigh. The boxes are capable of sliding in the guides and held in the lower ends of the same, unless the propelling-wheel comes into contact with an obstacle, by coil-springs B⁵, arranged above the boxes and bearing thereon. The guides B⁴ are curved as shown, their curvature corresponding to the arc of a circle drawn with the shaft from which the propelling-wheel receives motion, so that any variation in the height of the shaft carrying the propeller-wheel will not affect the driving mechanism.

The power necessary to drive the sleigh is derived from an engine C, which may be a gasolene or similar engine, arranged beneath the rear seat of the sleigh. The gasolene or other hydrocarbon necessary to run the engine is contained in two tanks D, placed under the front seat of the sleigh and connected with a receiving-reservoir d' by means of pipes d. A pump E is connected to the explosion-chamber of the engine, and this pump is connected with the reservoir d' by means of pipes d. The pump is operated by an eccentric on the main shaft of the engine, and its movements are so timed as to inject a

quantity of hydrocarbon into the explosion-chamber at the beginning of each stroke of the piston.

The spark necessary to explode the charge of hydrocarbon in the explosion-chamber is furnished by making and breaking an electric circuit, the current of which is derived from the battery E³ or from a dynamo E⁴, which is driven by a belt E⁵ from the engine. Conductors e⁴ connect the battery and the dynamo, respectively, with the engine.

Fixed to the main shaft of the engine is a friction-disk F, having its contact-faces concave, and power is transmitted from this friction-disk through a friction-roller G to the propeller B. The friction-roller G is mounted on a shaft G' in such way as to turn with the shaft and at the same time be capable of moving longitudinally on the shaft.

The relative positions of the friction-disk and the roller are such that when the friction-roller is opposite the center of the disk it will not be in contact with the surface thereof, but by moving it slightly in either direction it will be brought into contact with the surface of the disk, the side with which it is brought into contact of course governing the direction of movement of the friction-roller and consequently of the shaft upon which the roller is placed. Fixed to the shaft G' are pulleys G², and attached to the shaft of the propeller are corresponding pulleys G³. The pulleys G² and G³ are so connected by endless chains that revolution of the shaft G' is communicated to the propeller.

The position of the friction-roller G is regulated by chains H, which are attached, respectively, to the upper and lower ends of bars G⁵, connected to the friction-roller G and passing in contact with a pillar I, which is provided with a handle i for turning it. Attached to the front end of the pillar I is an indicator-finger i², which is arranged above a dial i³, so that the position of the pillar and of the friction-roller G will always be indicated by the position of the indicator-finger. The pillar I is hollow, and extending down through it is a shaft K, provided at its upper

end with a handle K². The lower end of the shaft is provided with a gear K³, meshing with a gear K⁴, which in turn meshes with a gear K⁵, attached to the king-bolt K⁶. This king-bolt is rigidly attached to an axle K⁷, which is capable of turning with the king-bolt as a center and carries runners k at its outer end.

The handles i and K² are connected by hinged joints respectively with the roller I and with the shaft K, permitting their being turned up out of the way, as shown.

While I have herein particularly described means for connecting the engine with the driving-wheel, I do not herein claim the same, as this subject-matter is embraced in the claims of my application Serial No. 546,559.

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

1. A self-propelling sleigh comprising an engine mounted thereon, a propeller-wheel, a connection between the propeller-wheel and the engine, and means for governing the connection between the engine and the propeller-wheel comprising a shifting friction-wheel, chains connected to the shifting friction-wheel and passing around a vertical hollow shaft arranged in the front of the sleigh, front runners mounted on a pivoted axle and a shaft provided with a handle and arranged in the hollow shaft, and gears for connecting the vertical shaft and the axle, substantially as described.

2. A propeller for a sleigh of the kind described, having a series of wings arranged at angles to each other and connected at their edges forming a continuous tread, and braces extending from the hub of the wheel outward and formed with or attached to the wings, substantially as described.

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

REUBEN H. PLASS.

Witnesses:

THOS. S. HOPKINS,
F. H. SMITH.