G. E. WILLIAMS.

MOTOR SLEIGH.

APPLICATION FILED MAR. 27, 1920.

1,363,071.

Patented Dec. 21, 1920.

3 SHEETS—SHEET 1.

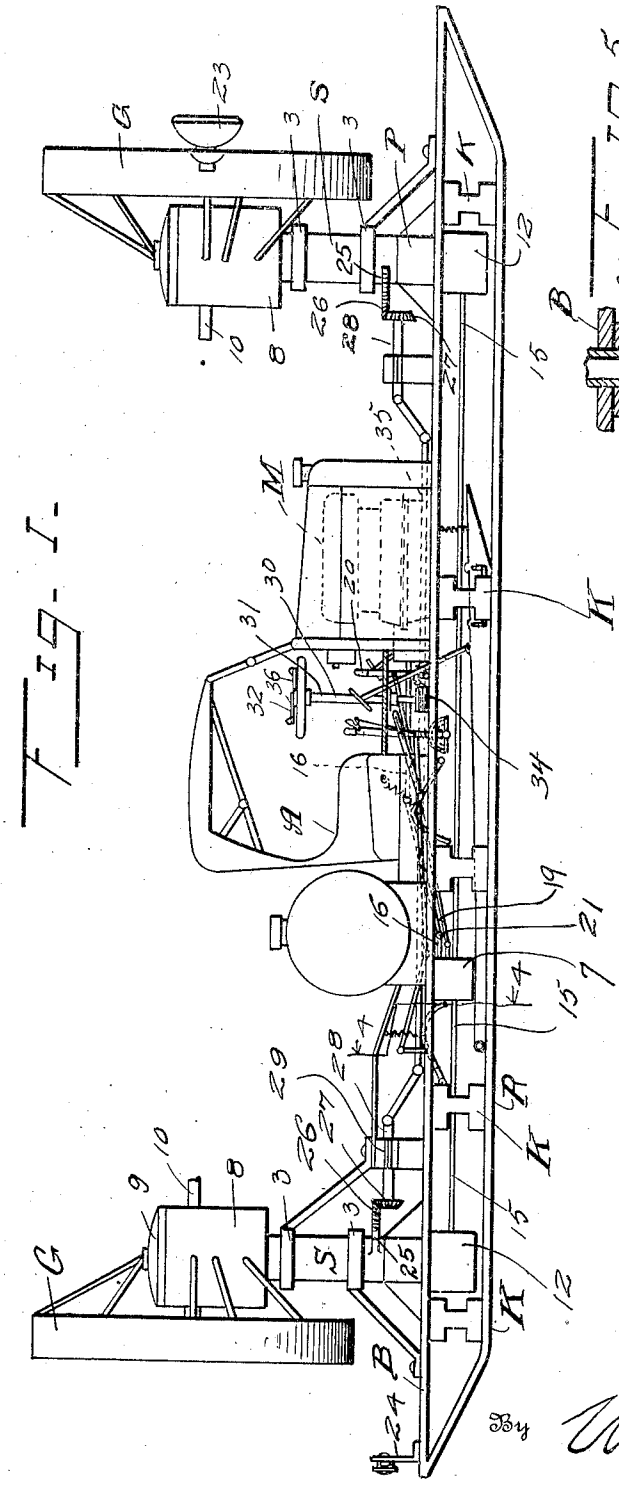


FIG. 1.

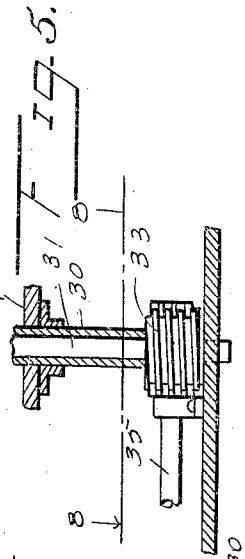


FIG. 5.

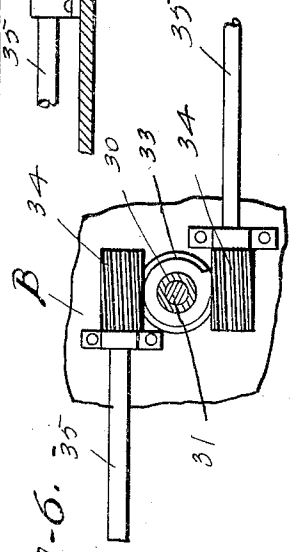


FIG. 6.

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3 SHEETS—SHEET 2.

Fig. 2.

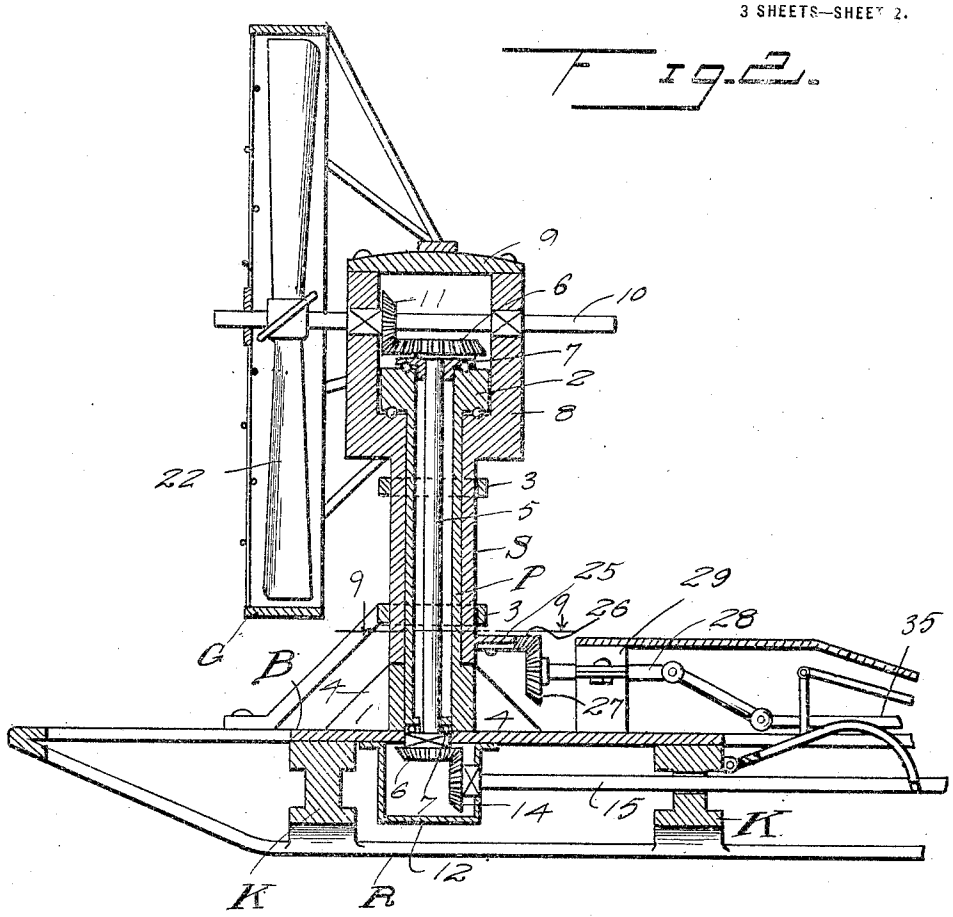
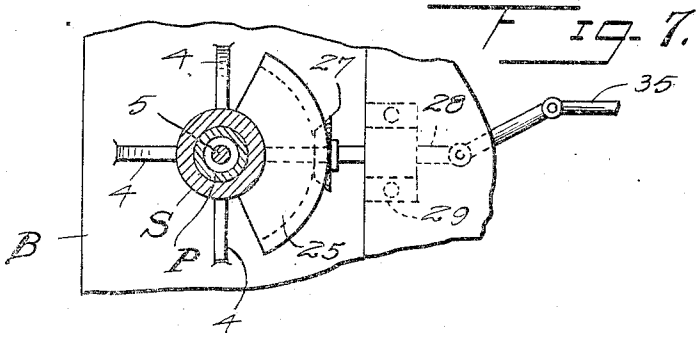


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 3.

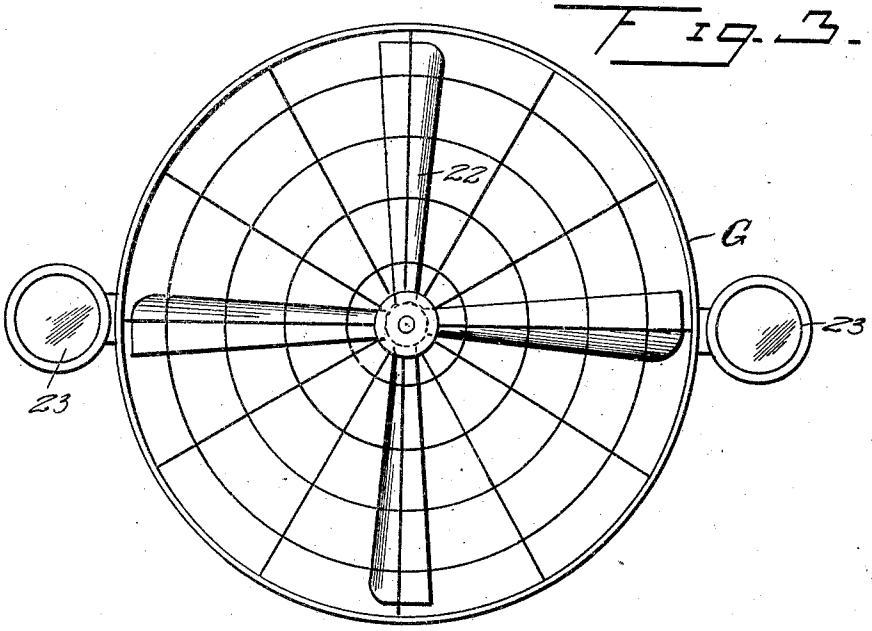


Fig. 4.

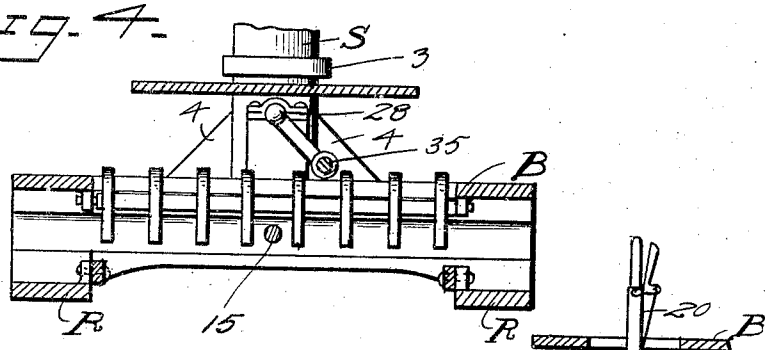
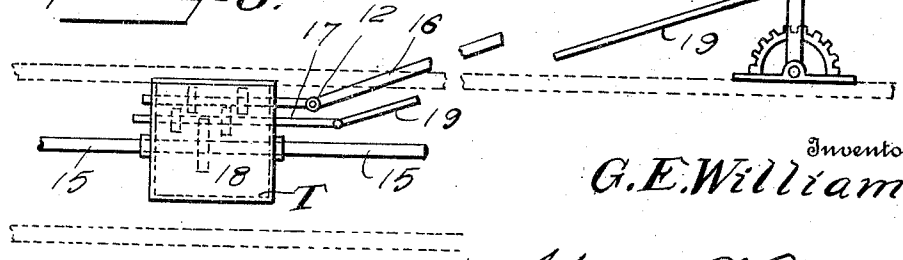


Fig. 8.



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UNITED STATES PATENT OFFICE.

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MOTOR-SLEIGH.

1,363,071. Specification of Letters Patent. Patented Dec. 21, 1920.

Application filed March 27, 1920. Serial No. 369,268.

To all whom it may concern:

Be it known that I, GRIFFITH E. WILLIAMS, a citizen of the United States, residing at Cambria, in the county of Columbia and State of Wisconsin, have invented certain new and useful Improvements in Motor-Sleighs, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in motor sleighs, and it is an object of the invention to provide a device of this general character having novel and improved means whereby the same is driven through the instrumentality of a propelling medium coacting with the atmosphere and wherein said propelling medium is also employed to control the direction of travel of the vehicle.

Another object of the invention is to provide a novel and improved means wherein the propeller is arranged adjacent the opposite ends of the vehicle and rotating about substantially a horizontal axis and wherein both of the propellers may be swung laterally in unison but in reverse directions so that said propellers are also comprised in the steering means for the vehicle.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved sleigh whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in side elevation of a motor sleigh constructed in accordance with an embodiment of my invention;

Fig. 2 is an enlarged fragmentary view partly in section and partly in elevation of the rear end portion of my improved sleigh as herein disclosed;

Fig. 3 is a view in front elevation of the propeller at the forward end of the sleigh;

Fig. 4 is a fragmentary transverse sectional view taken substantially on the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary view partly in section and partly in elevation, illustrating a connection between the steering post and one of the shafts coacting therewith;

Fig. 6 is a fragmentary sectional view taken substantially on the line 8—8 of Fig. 5;

Fig. 7 is a fragmentary sectional view taken on the line 9—9 of Fig. 2; and

Fig. 8 is a fragmentary diagrammatic view illustrating in detail the position and operation of the transmission.

As disclosed in the accompanying drawings, B denotes the body of my improved sleigh mounted upon the runners R. The runners R may be of any ordinary or preferred type and interposed between each of said runners and the body B are the knees K. The knees K may be of any ordinary or preferred construction.

Mounted upon each end portion of the body B at substantially the transverse center thereof is a vertically disposed tubular post or column P, having its lower end portion provided with a base 1 whereby the same may be effectively anchored in applied position upon the body B. The upper end portion of the post or column P is provided with an outstanding annular flange 2 which is relatively heavy. The flange 2 snugly engages with an enlarged end portion of a sleeve S surrounding the column or post P and capable of rotation therearound. Surrounding the sleeve S at longitudinally spaced points but free therefrom are the collars 3 and interposed between said collars 3 and the body B are the brace members 4 whereby the post or column P and the sleeve S are rigidly maintained in a vertical position and in order to effectively stand the strain imposed thereon when the sleigh is being driven.

Disposed through the tubular post or column P is a shaft 5 of a length to extend above and below said post or column and the opposite end portion of said shaft has secured thereto the bevel gears 6. Interposed between each end of the post or column P and the adjacent gear 6 are the anti-friction members 7 whereby the shaft 5 is permitted to rotate with a minimum of frictional resistance and is effectively held against end thrust.

The upper end portion of each of the sleeves S is provided with a housing 8 having a removable top or cover 9. Disposed

through said housing and rotatably supported by the walls thereof is a substantially horizontally disposed shaft 10, having affixed thereto within the housing 8 a bevel gear 11 in mesh with the upper gear 6 within said housing and whereby the shaft 10 is in driven connection with the shaft 5. Carried by the body B below each of the posts or columns P is a casing 12 in which a lower gear 6 is positioned and said gear 6 meshes with a gear 14 carried by an end portion of a propulsion shaft 15.

The propulsion shaft 15 is common to both of the shafts 5 and extends longitudinally of the vehicle at a desired point below the body B. Coacting with the propulsion shaft at a desired point intermediate its ends is a transmission T, said transmission also coacting with the transmission shaft 16 adapted to be operatively engaged with the drive shaft of the motor M. The transmission may be of any ordinary or preferred construction whereby different speeds of the propulsion shaft may be obtained, together with a reverse and also the desired neutral position.

The transmission T as herein embodied is of a type wherein certain of the gears comprised in the assembly of the transmission T are carried by a slide 17 having an end portion extending exteriorly of the casing 18 of the transmission. The extended portion of the slide 17 is operatively engaged through the medium of the rod 19 with a shifting lever 20 extending above the body B of the vehicle and in close proximity to the seat A so that an occupant of said seat A may have ready control of the transmission.

The transmission shaft 16 is herein disclosed as of an articulated type so that the same may be readily led to the transmission T and it is to be understood that each of the knuckles 21 comprised in said transmission shaft may be any desired form of universal connection.

Upon the outer end portions of each of the shafts 10 are mounted the propeller blades 22, the blades carried by each of said shafts 10 being preferably two in number and oppositely directed. It is also to be understood that the pitch of each of the propeller blades 22 will be of a degree prefererd.

Each set of propeller blades travels within a cage or guard G operatively supported by the adjacent housing 8 and the cage or guard G, at the forward end of the vehicle, may have mounted thereon at transversely spaced points the headlights 23. Suitably mounted on the rear portion of the body B is a tail light 24.

Each of the sleeves S adjacent the lower end thereof is provided with an inwardly directed plate 25, preferably integrally formed therewith and which is provided on its under face or surface with a segmental rack 26. Meshing with the rack 26 is a bevel pinion 27 carried by an end portion of a short shaft 28 extending longitudinally of the body B and rotatably supported by the bearing 29.

At a point in advance of but in close proximity to the seat A is a steering gear tubing 30 through which is disposed a steering post 31. The upper end portion of the post 31 has operatively engaged therewith an operating wheel 32 of any ordinary or preferred type. The lower end portion of the post 31 has affixed thereto a spiral gear 33 coacting with the substantially diametrically opposed spiral gears 34, each carried by the inner end portion of a longitudinally disposed shaft 35. The opposite end portions of each of the shafts 35 is operatively engaged with a shaft 28. Upon rotation of the steering post 31, both of the sleeves S through the instrumentality of the shafts 35 will cause said sleeves to rotate in unison but in reverse directions whereby the propeller blades at the opposite ends of the body B will also operate to steer or control the direction of travel of the vehicle. Each of the shafts 35 is also of an articulated type so that the same may be properly mounted upon the body B and in the best possible manner.

It is also to be understood that the steering gear column will have mounted thereon the requisite levers 36 such as a spark lever and throttle lever for controlling the motor M which is of an internal combustion type.

It is also to be understood that the gears 6, 11 and 14 run in oil and for which reason the housing 8 and the casing C are each of an oil type construction.

From the foregoing description, it is thought to be obvious that a sleigh constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. A vehicle of the class described comprising, in combination, a body, a post mounted upon the body, a sleeve loosely surrounding said post, a housing carried by the sleeve and movable therewith, a substantially horizontally disposed shaft supported by the housing, propelling means carried by the shaft, a motor, a driving con-

nection between the motor and the shaft, and means for imparting turning movement to the sleeve.

2. A vehicle of the class described comprising, in combination, a body, a post mounted upon the body, a sleeve loosely surrounding said post, a housing carried by the sleeve and movable therewith, a substantially horizontally disposed shaft supported by the housing, propelling means carried by the shaft, a motor, a driving connection between the motor and the shaft, and means for imparting turning movement to the sleeve, said post being tubular, a part of the driving connection between the motor and the shaft being disposed through the tubular post.

3. A vehicle of the class described comprising, in combination, a body, a post mounted upon the body, a sleeve loosely surrounding said post, a housing carried by the sleeve and movable therewith, a substantially horizontally disposed shaft supported by the housing, propelling means carried by the shaft, a motor, a driving connection between the motor and the shaft, means for imparting turning movement to the sleeve, and bracing means interposed between the body and the sleeve.

4. A vehicle of the class described comprising, in combination, a body, upstanding posts carried by the opposite end portions of the body, sleeves surrounding said posts and having rotary movement independently thereof, substantially horizontally disposed shafts carried by the sleeves, propeller blades carried by the shafts, a motor, a driving connection between the motor and each of the shafts, and means for imparting rotation to the sleeves in unison but in reverse directions.

In testimony whereof I hereunto affix my signature.

GRIFFITH E. WILLIAMS.