A. J. DENNEY.

SELF PROPELLED SLEIGH.

APPLICATION FILED AUG. 5, 1912.

1,075,465.

Patented Oct. 13, 1913.

3 SHEETS—SHEET 1.

FIG. 1.

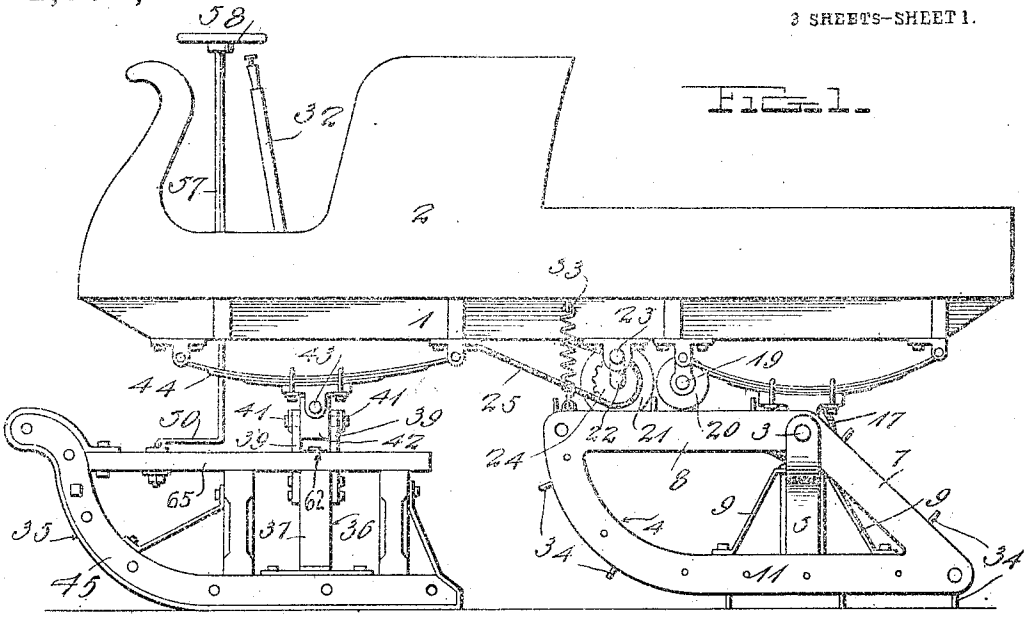


FIG. 2.

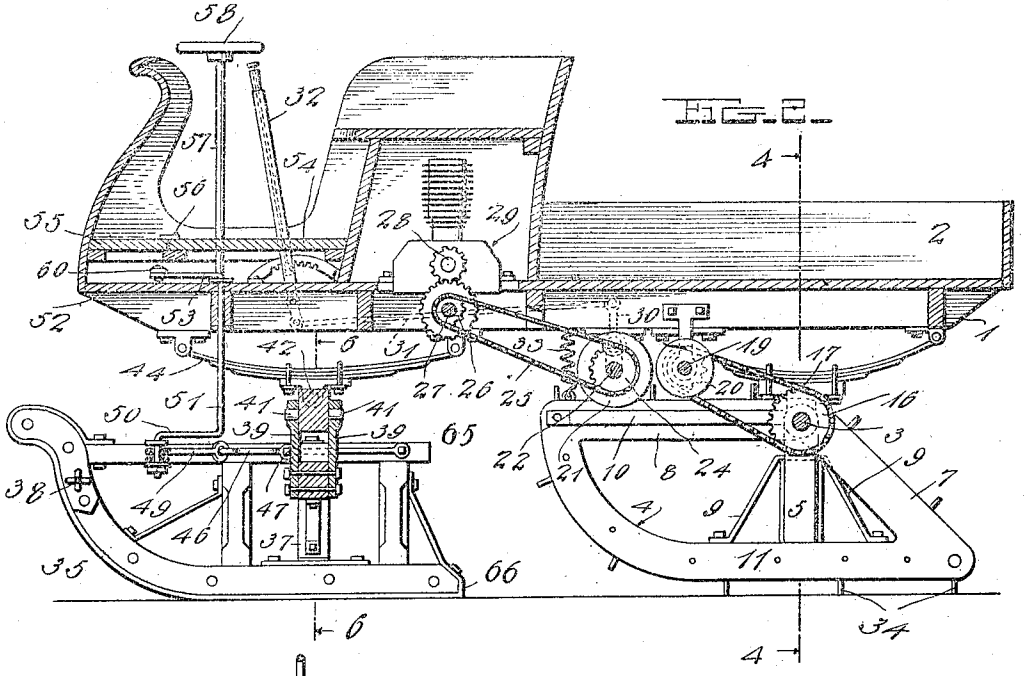
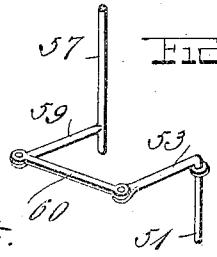


FIG. 3.



Witnesses

J. R. Pierce

C. E. Hunt.

Inventor

A. J. Denney

By H. B. Williamson & Co.

Attorneys

A. J. DENNEY.

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3 SHEETS—SHEET 2.

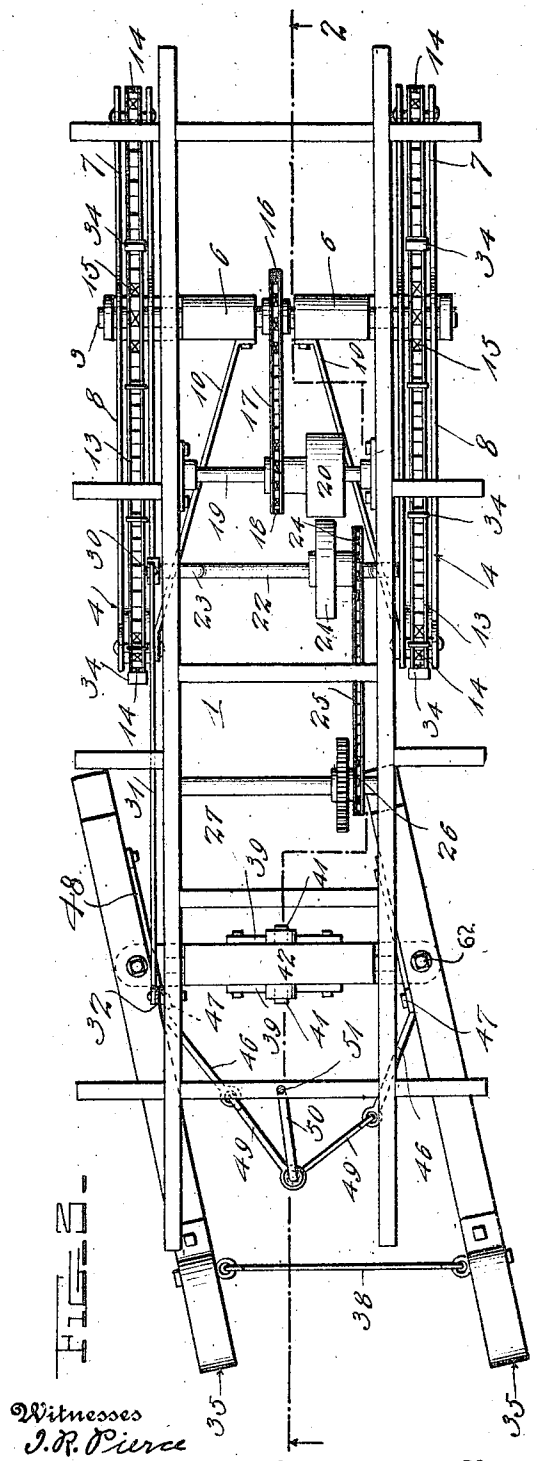


FIG. 2.

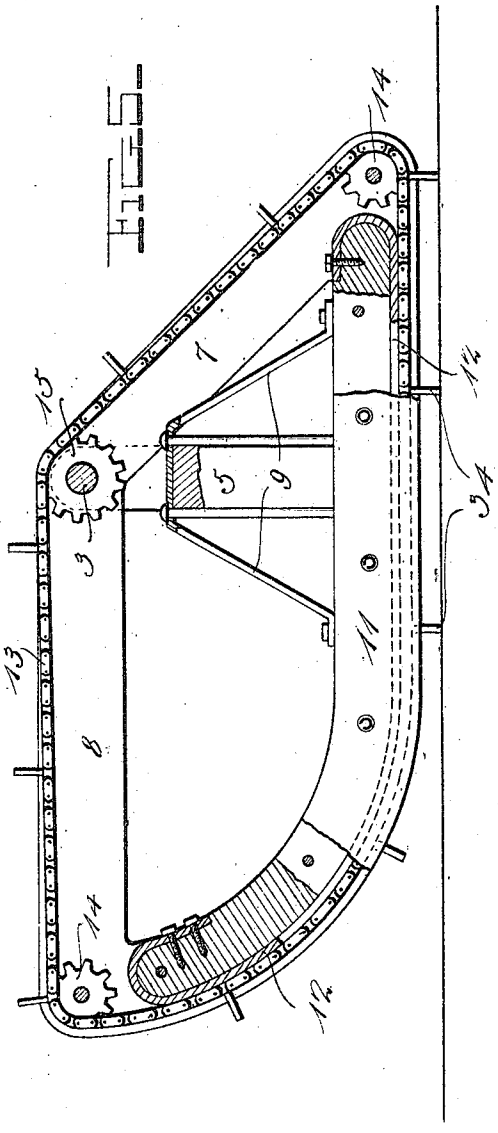


FIG. 5.

Witnesses
J. R. Pierce
C. C. Hunt.

Inventor
A. J. Denney
By A. B. Williamson & Co.
Attorneys.

A. J. DENNEY.

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3 SHEETS—SHEET 3.

FIG. 5.

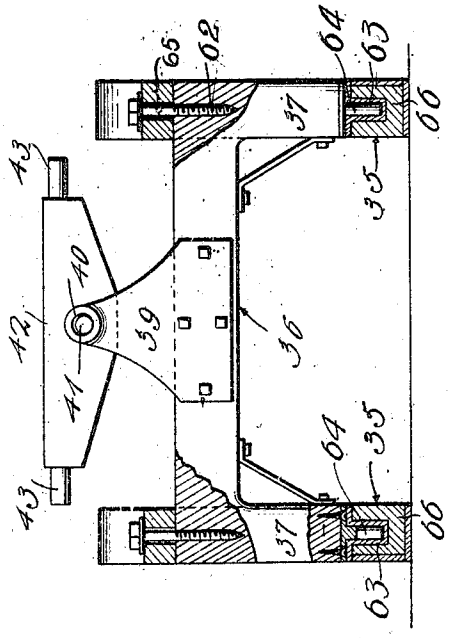


FIG. 7.

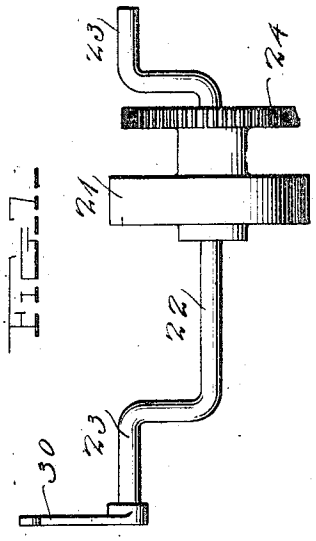
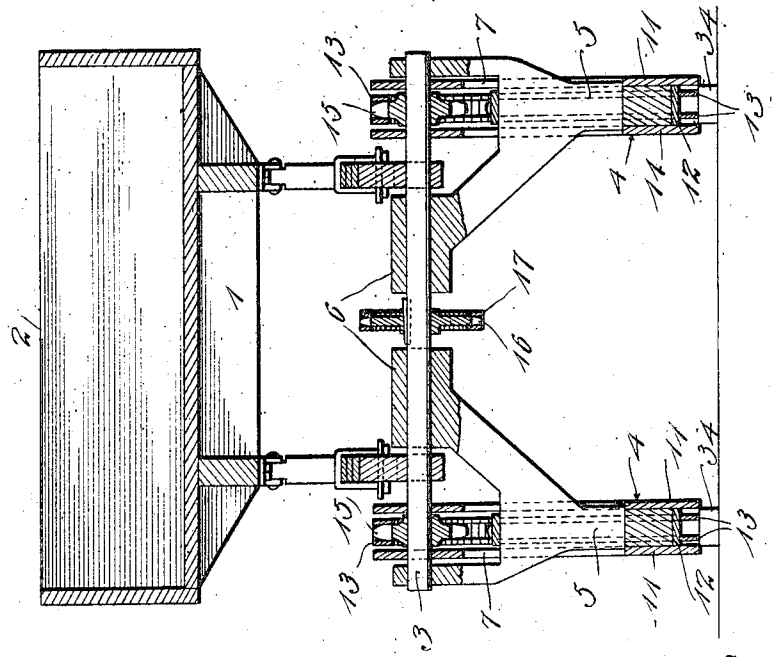


FIG. 4.



Witnesses
J. R. Pierce
C. E. Hunt.

Inventor
A. J. Denney

By A. Bowerson & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ANDREW J. DENNEY, OF CAMBRIDGE, IDAHO.

SELF-PROPELLED SLEIGH.

1,075,465. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed August 5, 1912. Serial No. 713,389.

To all whom it may concern:

Be it known that I, ANDREW J. DENNEY, a citizen of the United States, residing at Cambridge, in the county of Washington and State of Idaho, have invented certain new and useful Improvements in Self-Propelled Sleighs; and I do 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 improvements in self propelled sleighs.

One object of the invention is to provide a sleigh of this character having an improved construction and arrangement of propelling mechanism, whereby the sleigh may be readily propelled over soft snow.

Another object is to provide an improved construction and arrangement of steering runners and means for operating the same, whereby the sleigh may be readily steered in the desired direction.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a side view of my improved sleigh; Fig. 2 is a central vertical longitudinal section on line 2—2 of Fig. 3; Fig. 3 is a plan view of the running gear, propelling and steering mechanism with the body of the sleigh removed; Fig. 4 is a vertical cross section taken on the line 4—4 of Fig. 2; Fig. 5 is a side view of one of the rear runners with the parts broken away and in section showing the construction of the driving sprocket chain engaged therewith; Fig. 6 is a vertical cross section of the front runners of the sleigh; Fig. 7 is a detail front view of the rock shaft and friction pulley forming part of the driving mechanism of the sleigh; Fig. 8 is a detail perspective view of a portion of the steering mechanism.

Referring more particularly to the drawings, 1 denotes the supporting frame of my improved sleigh and on which is arranged and suitably secured a body 2 of any desired shape or design. Revolubly mounted in suitable bearings secured to springs on the side sills of the frame 1 at the rear end thereof is a rear runner attaching shaft 3 on which are loosely mounted the rear runners 4 of the sleigh. The runners 4 comprise standards 5 having on their upper ends bearing sleeves 6 which engage the shaft 3 as shown. The runners are also connected at their rear ends to the shaft 3 by pairs of rear braces 7 and at their forward ends are connected to the shaft by pairs of braces 8. The runners are further braced and connected to the standards 5 by front and rear bracing plates 9 and inner side bracing plates 10. Secured to the opposite sides of the runners 4 are chain guiding plates 11, the lower edges of which project below the lower sides of the runners and form guide flanges for the runners. The lower sides or bottoms of the runners are covered and protected by metal shoes or wear plates 12 and engaged with said plates are shoes, and adapted to travel between the flanges formed by the projecting lower edges of the guide flanges 11 are endless propelling chains 13 which pass around guiding sprocket wheels 14 which are revolubly mounted in the guide plates 11 at the front and rear ends of the runners as shown. The upper stretches of the chain 13 are also engaged with driving sprockets 15 which are fixedly mounted on the runner supporting shaft 3 as shown. Also fixedly mounted on the shaft 3 preferably at a point midway between the ends thereof and between the inner ends of the sleeves 6 is a sprocket gear 16 which is connected by a sprocket chain 17 to a sprocket gear 18 on a counter shaft 19 revolubly mounted in suitable bearings in the side bars of the supporting frame 1 as shown. Also fixedly mounted on the shaft 19 is a friction pulley 20 with which is adapted to be engaged a friction pulley 21 loosely mounted on a rock shaft 22 having cranked or offset ends 23 which are loosely mounted in suitable bearings in the side bars of the main frame 1 as shown. Also loosely or revolubly mounted on the rock shaft 22 and secured to and forming a part of the pulley 21 is a sprocket gear 24 which is connected by a sprocket chain 25 to a sprocket pinion 26 on a power transmitting shaft 27 also journaled in suitable bearings in the side bars of the frame 1 and which is suitably geared to the driving shaft 28 of a motor 29 which is preferably arranged in the body of the sleigh beneath the seat therein.

On one end of the rock shaft 22 is a short crank arm 30 which is connected by a forwardly depending operating rod 31 to a shaft shifting lever 32 pivoted to one of the

side bars of the frame and extending upwardly through the bottom of the sleigh body within convenient reach of the operator seated in the sleigh. By this arrangement, it will be seen that the shaft 22 may be readily rocked or shifted to bring the friction pulley 21 thereon into operative engagement with the friction pulley 20 on the counter shaft 19 whereby the latter is driven and will in turn drive the shaft 3 and the propelling chains 13 in the proper direction for propelling the sleigh. When it is desired to stop the sleigh without stopping the motor, the shaft 22 is shifted in a reverse direction by the lever 32 thus disengaging the friction pulleys on the shafts 22 and 19.

The forward ends of the runners 4 are loosely and yieldingly connected to the bottom of the sleigh body by coil springs 33 whereby the rocking movement of the runners on the shaft 3 will be limited and yieldingly resisted when the rear ends of the runners engage obstructions or pass over rough surfaces. The links of the propelling chains 13 on the runners are provided at intervals with outwardly projecting spurs or snow engaging members 34 which sink into loose snow or firmly engage the ice over which the sleigh is being propelled and thus provide a firm grip for the chains. In practice it is intended to provide sets of propelling chains having spurs of different length for use on ice or snow covered surfaces as it has been found in practice that chains having short spurs are more effective for propelling over surfaces covered with ice or hard packed snow while chains having long spurs are practically necessary in propelling over deep snow.

The forward end of the sleigh is supported on steering runners 35 comprising upper runner bars 61, pivotally mounted on the upper end of the bearing posts 37, by the pivots 62, extending vertically through the bars 65, and into the posts 37 formed on the extremities of the supporting frame 36, and lower runner bar 66, having therein sockets 63, to engage the studs 64, secured to the bottom of the bearing posts 37. The runners 35 are loosely connected at their forward ends by a connecting rod or link 38. Secured to the cross bar of the frame 38 is a pair of upwardly projecting parallel bearing plates 39 having therein centrally disposed bearing apertures 40 which are engaged with bearing studs 41 arranged on and projecting from the opposite sides of a bolster 42. The bolster 42 is provided on its ends with studs 43 which are engaged with springs 44 secured to the lower side of the forward ends of the side bars of the frame 1 as shown. By thus arranging the runners 35 it will be seen that they may be swung laterally to steer the sleigh in the desired direction and that they will also be permitted to rock in a vertical plane on the studs 43 when passing over obstructions or uneven surfaces. The runners 35 are provided with shoes or wear plates 45 and are suitably braced as is also the runner supporting frame 36.

In order to guide or steer the sleigh in the desired direction, I provide a steering mechanism comprising runner engaging rods 46 having on their inner ends eyes with which are engaged bolts 47 whereby the inner ends of the rods are secured to the inner sides of the upper bars of the runners a short distance ahead of the pivotal connection of the runners with the frame 36. The forward ends of the rods 46 are bent inwardly to a slight extent toward the center of the space between the runners. Also connected with the bolts 47 are bracing rods 48 which extend back along the inner sides of the upper bars of the runners and are secured thereto as shown. The forward ends of the rods 46 are loosely connected by links 49 to the forwardly projecting right angular lower arm 50 of a crank shaft 51 which is mounted in the lower bottom 52 of the forward end of the sleigh body. On the upper end of the shaft 51 is an upper forwardly projecting right angular crank arm 53 which is disposed and operates between the lower bottom 52 of the sleigh and an upper false bottom 54 arranged above the lower bottom and spaced therefrom as shown. At the forward end of the upper false bottom 54 is a removable panel 55 whereby access may be had to the space between said bottoms, said panel being removably held in place by turn buttons or other suitable fastenings 56.

Suitably mounted at its lower end in the bottoms 52 and 54 of the sleigh body is a steering rod or shaft 57 having on its upper end a hand wheel 58 and on its lower end a crank arm 59 which is disposed and works in the space between the bottoms 52 and 54 and is connected at its outer end by a link 60 with the forward end of the upper crank arm 53 of the crank shaft 51. By thus constructing and arranging the steering mechanism, it will be seen that the runners 35 may be readily turned by the operator to guide or steer the machine in the desired direction.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined and claimed.

Having thus particularly described my invention, what I claim is:

1. In a device of the character described,

the combination of a body supporting frame, and rear supporting and driving runners operatively mounted thereon; of a front supporting member comprising a supporting frame of inverted U shape, the depending ends of which form bearing posts, front runners having upper and lower bars pivotally mounted on the upper and lower ends of said posts, a link connection between the front ends of the front runners whereby they may be turned in unison, and operating mechanism connected to the front runners to guide said sleigh.

2. In a sleigh of the character described, a front runner supporting frame of inverted U shape, the depending ends of which form bearing posts, front runners having upper and lower bars to receive said post between them, upper pivots passed vertically through the upper bars and into said posts, lower pivots on the bottoms of said posts and mounted in sockets in the lower bars of the front runners, a link connection between the front ends of the front runners whereby they may be turned in unison, and operating mechanism connected to the front runners for guiding said sleigh.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ANDREW J. DENNEY.

Witnesses:
M. A. NELSON,
H. L. STEWART.