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Patented Jan. 17, 1899.

J. C. & N. B. PETERSON.  
SELF PROPELLING TRACTION SLED.

(Application filed Nov. 18, 1897.)

(No Model.)

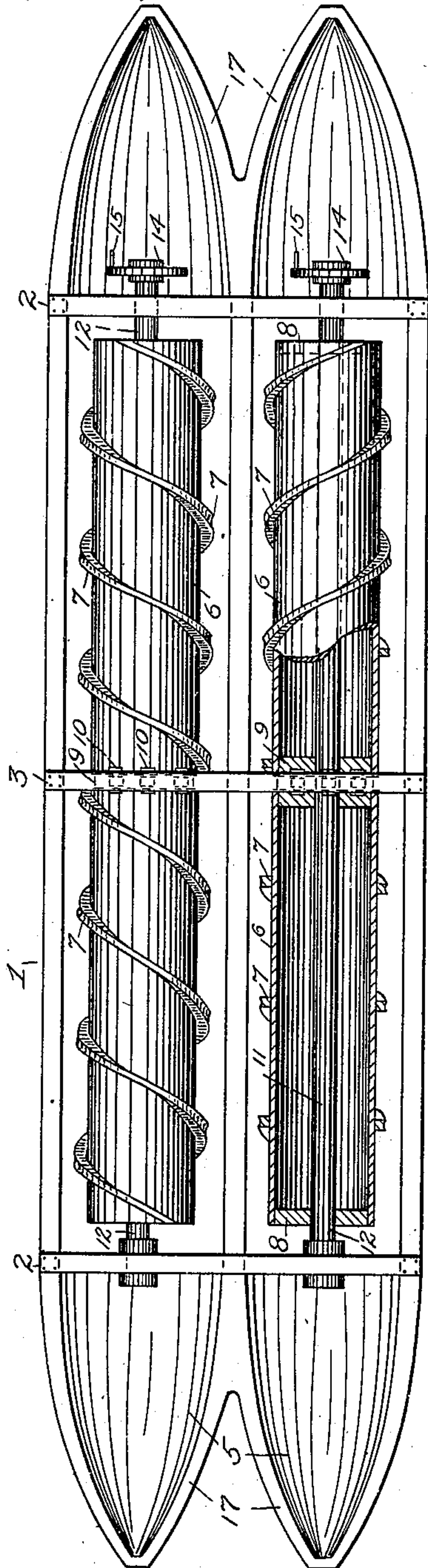


Fig. 1

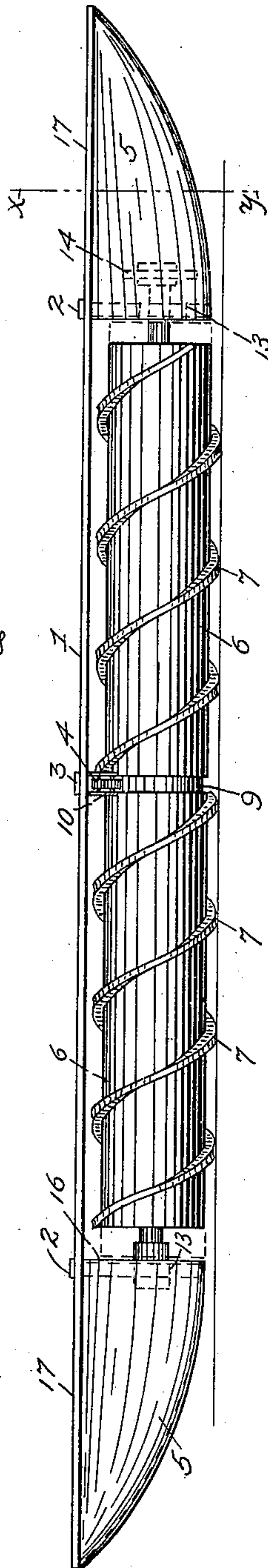


Fig. 2

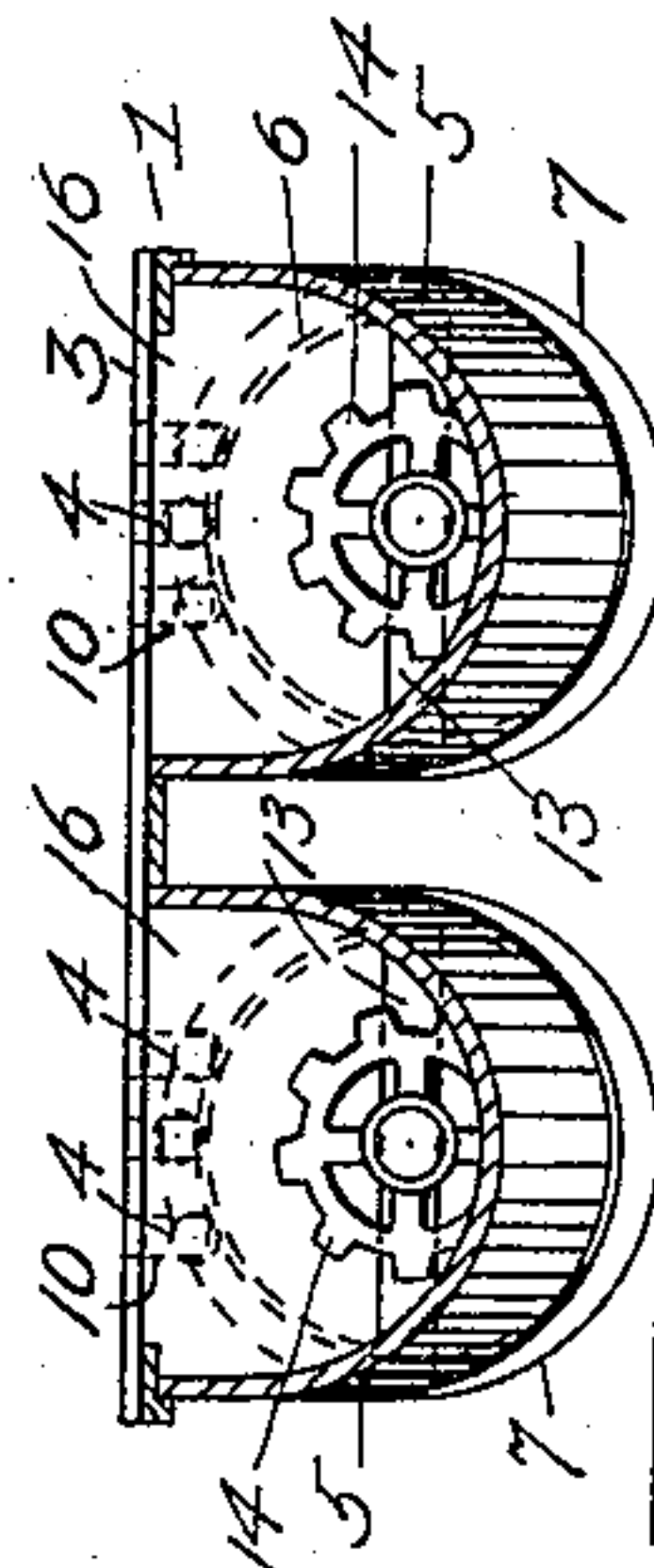


Fig. 3

Witnesses  
Samuel H. Richardson.  
Horace J. Thurlow

Inventors  
John C. Peterson  
Nils B. Peterson  
by Frank C. Adams  
Attorney.



# UNITED STATES PATENT OFFICE.

JOHN C. PETERSON AND NILS B. PETERSON, OF SEATTLE, WASHINGTON.

## SELF-PROPELLING TRACTION-SLED.

SPECIFICATION forming part of Letters Patent No. 617,905, dated January 17, 1899.

Application filed November 18, 1897. Serial No. 658,953. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. PETERSON and NILS B. PETERSON, citizens of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Sleds, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention has relation to an improved sled for transit over ice and snow, and which may also be used when occasion requires as a boat without change of parts.

The invention also relates to means whereby said sled may be propelled over the ice or snow or through the water when used as a boat.

We attain these objects by the construction and combination of parts illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of our "sled," as we have termed our device, with a portion of one of the tubular barrels for the helical runners broken away to disclose the interior construction thereof. Fig. 2 is a side elevation with the broken-out portion of the tubular barrel restored, and Fig. 3 is a transverse section on line *x y* of Fig. 2.

Similar letters and numerals refer to similar parts throughout the several views.

Referring to the accompanying drawings, forming a part of this specification, 1 indicates the upper framework or deck portion of our sled; 2, transverse end ties therefor; 3, a transverse tie disposed midway the device and adapted to support pendent rollers 4, which are provided to strengthen the device.

5 indicates concave conical ends of shell construction, and 6 opposite tubular barrels journaled in the ends 5 and provided with helical runners or threads 7 about the periphery thereof, which are of sufficient depth to project below the under surface of the shell ends and support same and the body of the device clear of the surface of the ice or snow and to propel the device upon rotation of the barrels when operated on the ice or snow or in the water.

The barrels 6 are preferably provided with solid ends 8 if they are constructed of tubing, which ends provide air-chambers within the barrels, adapted to increase the buoyancy of

the device that it may sustain a greater load when employed as a boat, though, if desired, the barrels may be constructed of solid cylinders of wood or other buoyant material.

If the barrels 6 are to be constructed with extreme length, intermediate heads 9 may be introduced and each barrel formed of two similar sections separated to expose a central portion of the periphery of the intermediate heads, that sustaining-rollers 4 may be introduced to provide struts intermediate the barrels and deck 1, for the mutual support thereof, the rollers 4 being journaled in suitable brackets 10, pendent from the transverse tie 3, and affording antifriction contact with the peripheries of the barrels as they rotate.

To journal the barrels to the framework or body of the sled, longitudinal shafts 11 are provided and may extend the entire length of the barrels and are secured to the heads 8 and 9, concentric therewith, or short sections of shafting may be introduced and secured in the heads 8 to provide the projecting ends 12, which form the journals for the barrels and operate in suitable boxes, as 13, provided in the base of the shell ends 5, one of said ends of each shaft being projected to receive sprocket-wheels, as 14, interior the shell ends, which may be provided with cranks 15 to rotate the barrels by hand, or a suitable engine or other well-known means for providing rotation of the barrels may be mounted upon the deck 1 and suitable means, as chains or belts, may be employed to transmit the power to the wheels 14.

About the peripheries of the barrels 6 are provided spiral or helical threads 7, which form the runners for the sled and provide propulsion therefor and also serve to propel same when floating in the water as a boat. One or more of these threads may be provided about each barrel, though we prefer to employ two, thus producing what is known as a "double" thread, the pitch of which may be varied to produce the best results in accordance with the work to be performed, barrels constructed for light work having threads placed thereon with greater pitch than those designed for heavy work.

The helical or spiral threads 7 are preferably of opposite hand on opposite barrels and may be constructed with concaved faces



that the edges thereof may more firmly attack the surface of the ice or snow, opposite barrels having opposite rotation and being reversible to advance or back the device, as desired.

The shell ends 5 are pendent from the deck 1 and are placed in advance of each end of the barrels 6 and formed with a pointed bow and a rearward conical form to protect the ends of the barrels from contact with protuberances on the ice and to plow a path in the soft snow when the device is employed as a sled and to split the water when it is used as a boat. These ends 5 form water-tight compartments, which serve to give buoyancy to the combined device when floating in the water, the end walls 16 thereof having suitable packing about the journals 12 to exclude the water from the compartments.

The deck 1 is preferably formed with twin ends 17 to provide support for the pendent shell ends 5 at the ends of each barrel 7, which barrels may be extended to meet the end walls 16, as indicated by dotted lines in Fig. 2, to avoid all possibility of the snow or ice entering between said parts.

In the construction of our self-propelling sled we may employ wood or metal, though in providing the shell ends 5 sheet metal is preferred, which is secured in a suitable manner to the deck portion 1 and affords support for bearings 13, which journal the barrels 6 and sustain the body of the device free from contact with the surface of the ice or snow, permitting the spiral threads 7 to serve as revolving runners which propel the device upon the surface of the ice or in the water.

While, as above stated, the device above described is principally designed and constructed for use as a sled on ice or snow, it is also capable, as has been indicated, of being used as a boat. For instance, in making overland trips streams and open water may be encountered, and these may be readily crossed by using the device as a boat.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A sled comprising a suitable deck having converging pointed end portions pendent therefrom, barrels journaled thereto underneath the central portion thereof between said end portions, helical ice-cutting runners about said barrels, and forming the sole support for the sled, and means for rotating said barrels, substantially as specified.

2. In a sled, a helical runner, having a concaved bearing or traction surface adapted to support the sled on ice or snow, substantially as specified.

3. In a sled of the character described, a deck portion formed with twin ends, and pendent ends thereunder, barrels journaled in said pendent ends, and having helical runners thereabout projected to raise said ends free of the traction-surface, and formed with a concaved bearing or traction surface, and means for rotating said barrels and thereby propel the sled by said runners, substantially as specified.

4. In a sled of the character described, a deck portion having pendent ends fixed thereto, and a barrel journaled in the said ends and provided with a helical runner surrounding the same and formed with a concave traction or bearing surface, together with means for rotating said barrel, substantially as specified.

5. A sled comprising the deck portion 1, having twin ends 17, and pendent shell ends 5, thereunder, opposite tubular barrels 6, journaled in said ends and having helical runners 7, thereabout and projected to raise said ends free of the traction-surface and means to rotate said barrels to propel the device by said runners; substantially as shown and set forth.

6. A sled comprising the deck portion 1, having twin ends 17, and pendent shell ends 5, thereunder, opposite tubular barrels 6, journaled in said ends and having suitable heads therein and helical runners 7, thereabout and projected to clear said ends free of the traction-surface and suitable means to rotate said barrels to propel the device by said runners; substantially as shown and set forth.

7. In a sled of the character described, the combination with the frame or deck, of the double rotatable runners consisting of barrels journaled to said deck or frame, underneath the central portion thereof and extending to points near each end thereof and having helical ice-cutting flanges of short pitch thereon, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN C. PETERSON.  
NILS B. PETERSON.

Witnesses:

JAMES BOTHWELL,  
T. L. SCRIBNER.