(No Model.)

# O. H. C. VOIGT.

## SLED PROPELLER.

No. 519,596. Patented May 8, 1894.

*Fig. 1.*

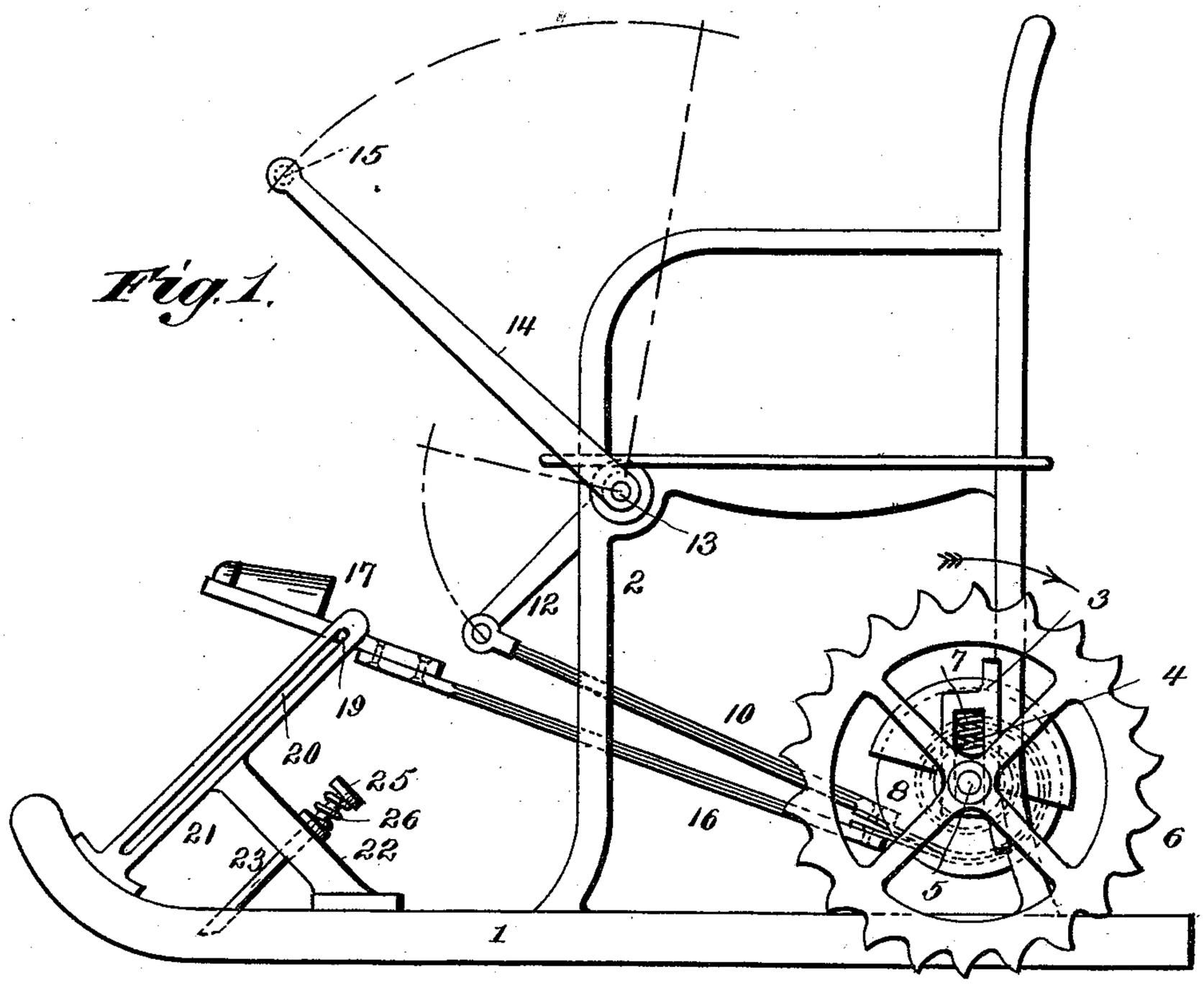



*Fig. 2.*

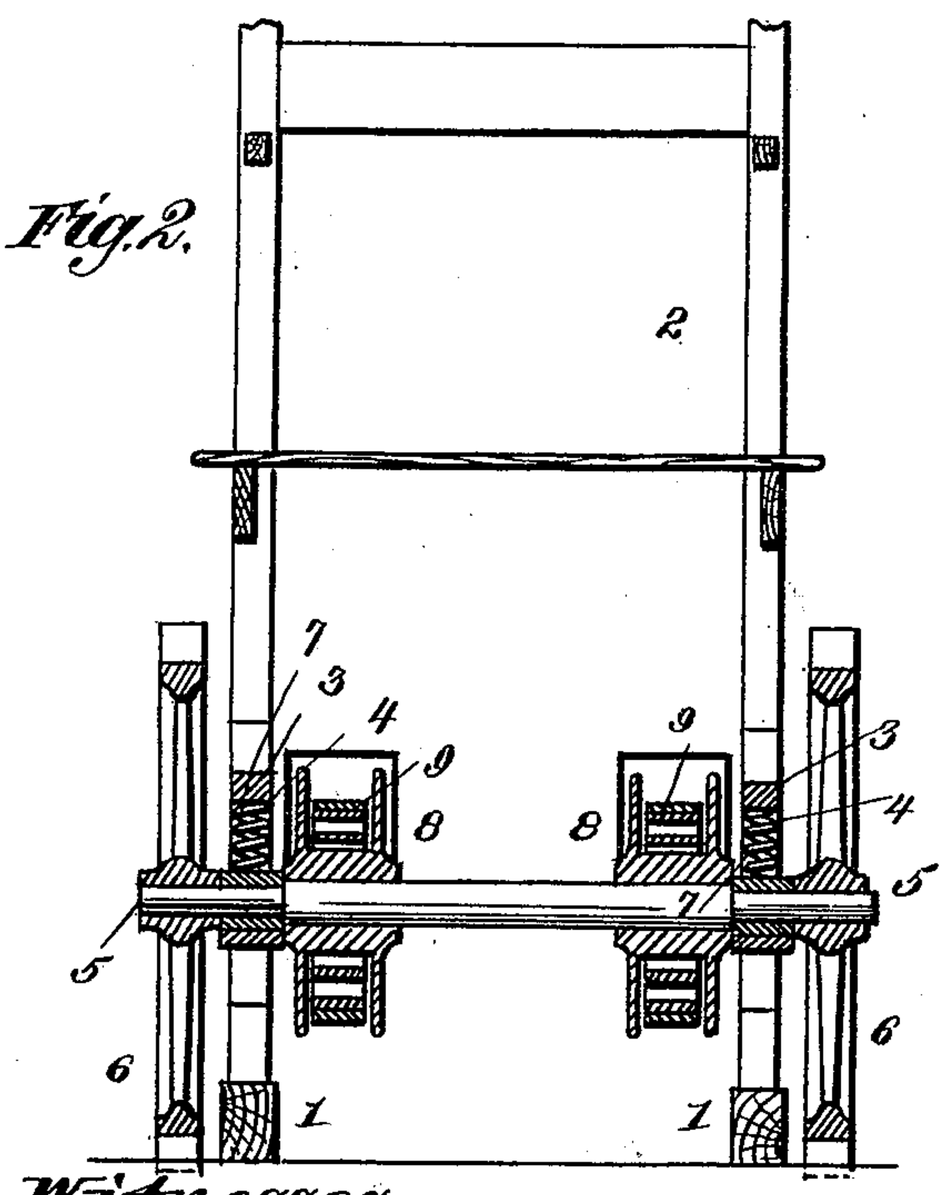
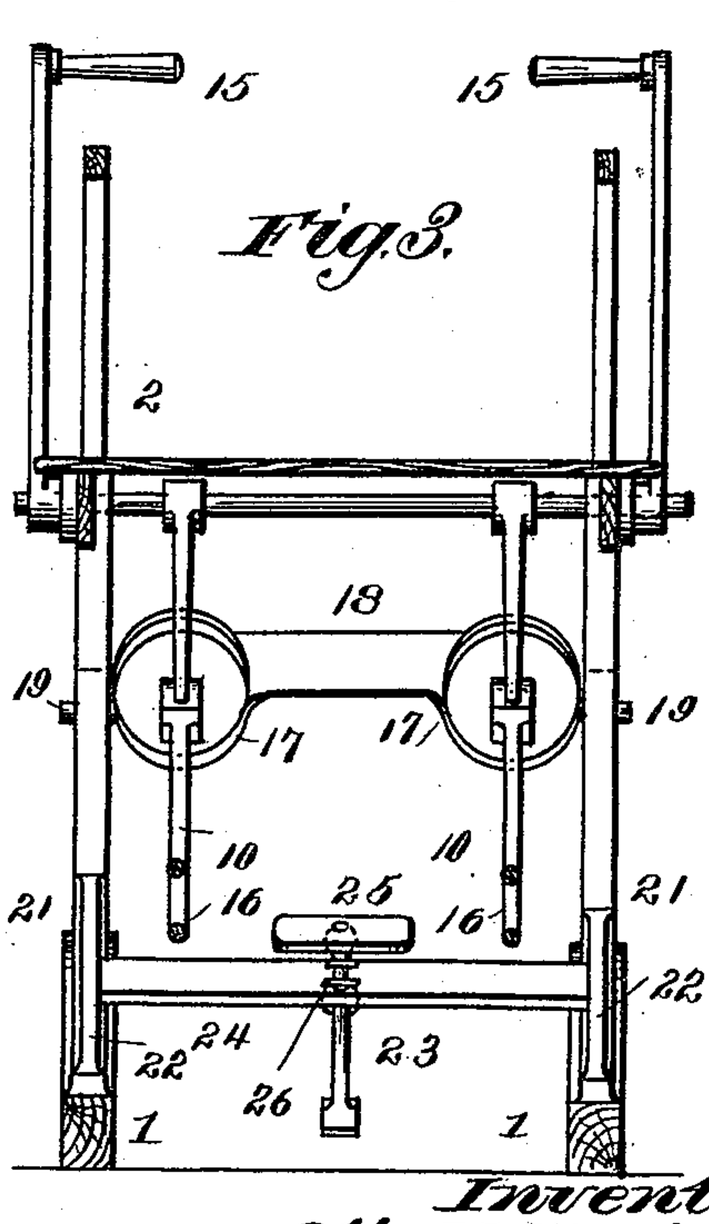



*Fig. 3.*




Witnesses.
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# UNITED STATES PATENT OFFICE.

OTTO HEINRICH CHRISTIAN VOIGT, OF LUBECK, GERMANY.

## SLED-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 519,596, dated May 8, 1894.

Application filed October 26, 1893. Serial No. 489,243. (No model.)

*To all whom it may concern:*

Be it known that I, OTTO HEINRICH CHRISTIAN VOIGT, merchant of Lubeck, 11 Fleischhauerstrasse, a subject of the Emperor of Germany, residing at Lubeck, in the free state of Lubeck and Empire of Germany, have invented certain new and useful Improvements in Automatic Hand-Sleds; 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.

My invention relates to mechanically propelled sleds, or sledges, and the purpose thereof is to provide a simple and easily operated mechanism whereby a suitably rapid propulsion may be effected by the hands and feet of the rider, and to make provision for a yielding movement of the driving apparatus, when rough or uneven surfaces are encountered.

The invention consists in the several novel parts and features of construction and in the new combinations of parts hereinafter fully described, and then particularly pointed out and defined in the claims.

To enable others to understand and to make, construct and use my said invention, I will now describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a sledge in which my invention is embodied. Fig. 2 is a transverse vertical section taken in the line of the axis of the propelling shaft. Fig. 3 is a similar section taken immediately in rear of the rock-shaft, or fulcrum, upon which the hand-levers are mounted.

In the said drawings the reference numeral 1 indicates the runners of the sledge, upon which I mount a chair 2, or any suitable structure which will afford support to the body of the rider. Upon two of the legs of said chair, the rearmost legs being regarded as preferable, are mounted slotted brackets 3, in the slots 4 of which is arranged an axle 5, having ends which project outwardly upon each side of the sledge, to receive toothed wheels 6. The diameter of these wheels is such that their teeth project somewhat below the tread of the runners 1, and they are normally retained in this position by strong springs 7, arranged in the slots 4 of the brackets 3 and bearing upon the axle. Upon said axle at suitable points between the slotted brackets 3 are arranged drums 8, on which are coiled springs 9, having suitable power. These springs are made fast at one end to said drums and at their outer extremities they are connected to rods, or bars, 10 which extend forward and have their ends pivotally connected to the ends of lever-arms 12, mounted rigidly on a rock-shaft 13 which has support in the forward portion of the chair-seat. From the said shaft 13 rise hand-levers 14, provided at their ends with suitable handles 15 which project horizontally. The hand-levers are arranged at an angle of ninety degrees with the lever-arms 12, or thereabout. To the outer ends of the coiled springs 9 are also attached rods, or bars 16, which extend forward, with a moderate upward inclination, until they meet foot-brackets 17, to which their forward extremities are secured. These foot-brackets are connected by a rigid strip 18 (Fig. 3) and upon each one is a stud, or pin, 19 which lies in an inclined slot 20, formed in a bracket 21, mounted on the forward end of each runner and supported by a brace 22. By exerting downward pressure upon the foot-brackets the studs 19 will be caused to traverse the slots 20, thereby exerting a strong pull upon the rods 16, in addition to the force exerted by the band-levers.

The sledge is provided with a brake, consisting of a spring-raised, pointed bar 23, supported upon a cross bar 24 which is mounted upon the braces 22 supporting the slotted brackets 21. The brake-bar 23 has a forward and downward inclination and is provided with a cross-head 25, (Fig. 3) for the foot of the operator. By a suitable pressure the bar may be depressed against the pressure of the spring 26, by which it is raised, and its end being driven into the ice, or snow, over which the sled is moving, the speed will be retarded, or the sled stopped, according to the degree of pressure exerted.

The operation of the mechanism described is as follows:—When the hand levers 14 and the foot levers 16 are operated to place the spiral springs 9 under tension, the spring-drums 8 and the shaft 5 upon which they are rigidly mounted are revolved in the direction indicated by the arrow Fig. 1. The form of

the teeth upon the wheels 6 is such as to permit them to turn in the direction of the arrow in Fig. 1, without serious obstruction, their curved edges riding over the snow, or ice, and the wheels rising to escape, or ride over any unusual obstruction, by means of the springs 7, which permit the shaft or axle 5 to rise, but restore it to normal position. As the tendency of the spiral springs 9 is to again coil upon their drums 8, it will readily be seen that when the levers are released this natural action of said springs will communicate a rotary motion to the shaft 5 in the direction opposite to that indicated by the arrow in Fig. 1, whereupon the teeth upon the wheels 6 will engage the snow, or ice, and push the sled forward.

What I claim is—

1. In a sledge, the combination with a spring-depressed axle, or shaft, having propelling wheels, of drums mounted on said axle, springs coiled on said drums and attached thereto at one end, and a rock-shaft having lever-arms to which the other ends of said springs are connected, said shaft being also provided with hand-levers, substantially as described.

2. In a sledge, the combination with a spring-depressed axle, or shaft, having propelling wheels on its ends, of drums mounted on said shaft, spiral springs coiled on said drums and made fast thereto at their inner ends, a rock-shaft provided with hand-levers and having lever-arms to which the outer ends of said springs are connected, and rigidly connected foot-brackets having studs lying in downwardly and forwardly inclined slots in brackets which are mounted on the forward ends of the runners, said springs having a connection to said foot-brackets, substantially as described.

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

OTTO HEINRICH CHRISTIAN VOIGT.

Witnesses:
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