

(No Model.)

2 Sheets—Sheet 1.

J. F. MAINS & B. C. CONVERSE.

ROLLER SKATE.

No. 338,993.

Patented Mar. 30, 1886.

Fig. 1.

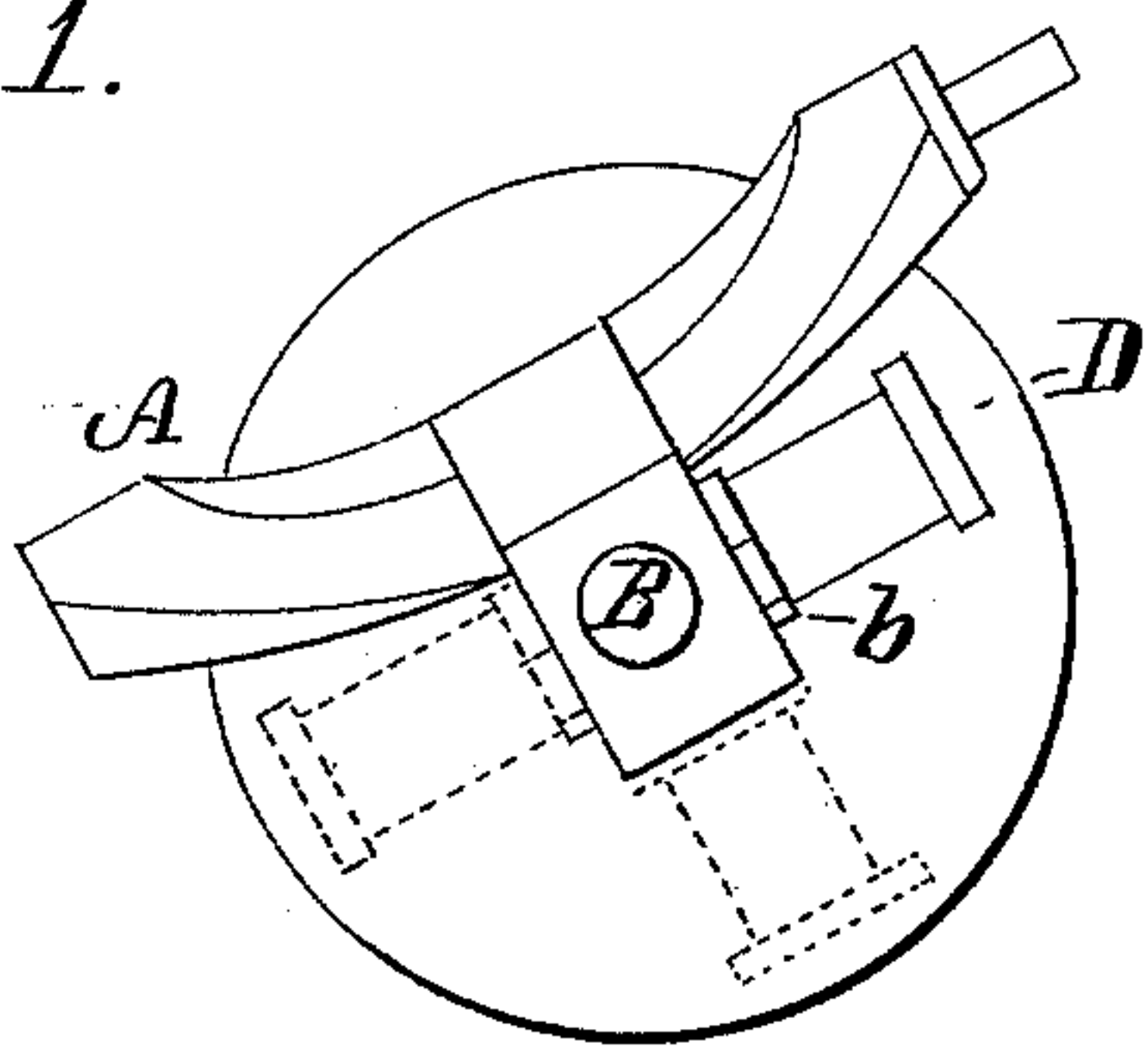


Fig. 2.

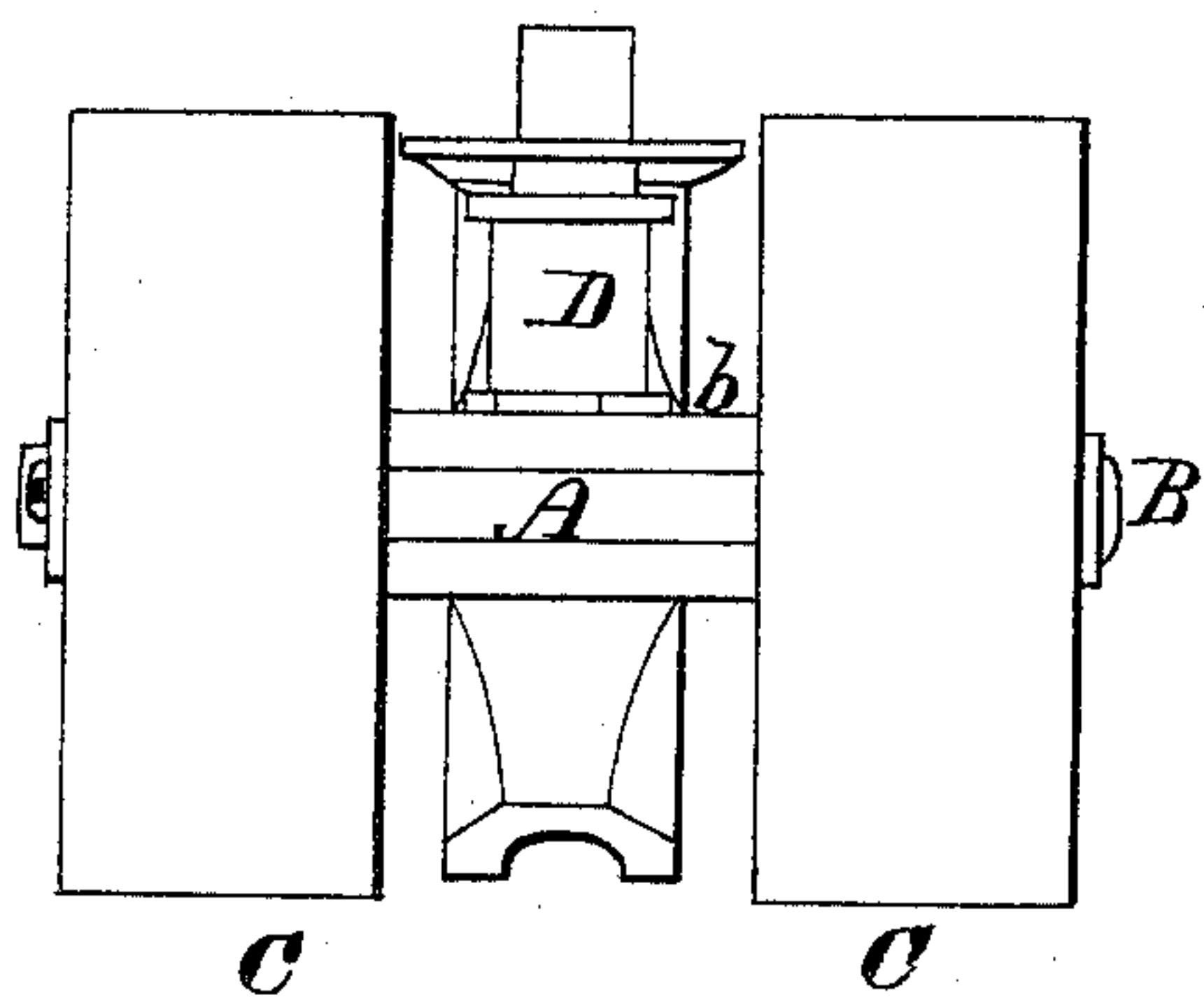


Fig. 3.

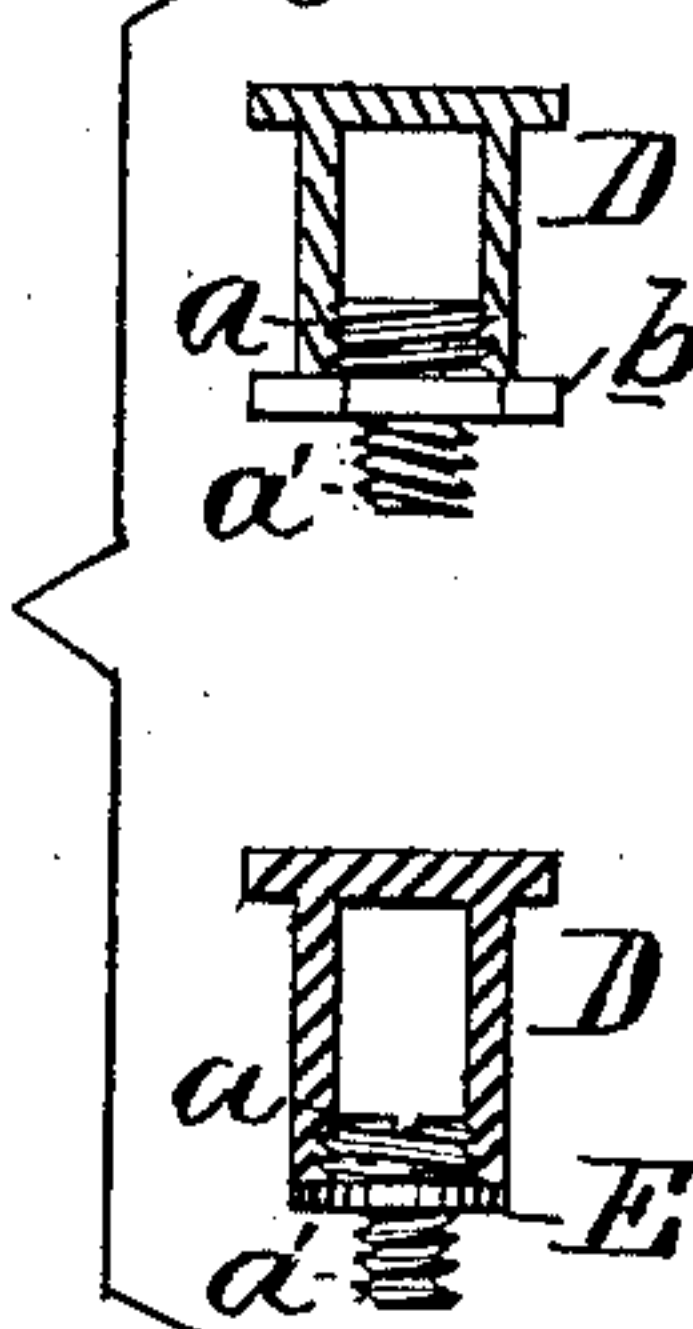
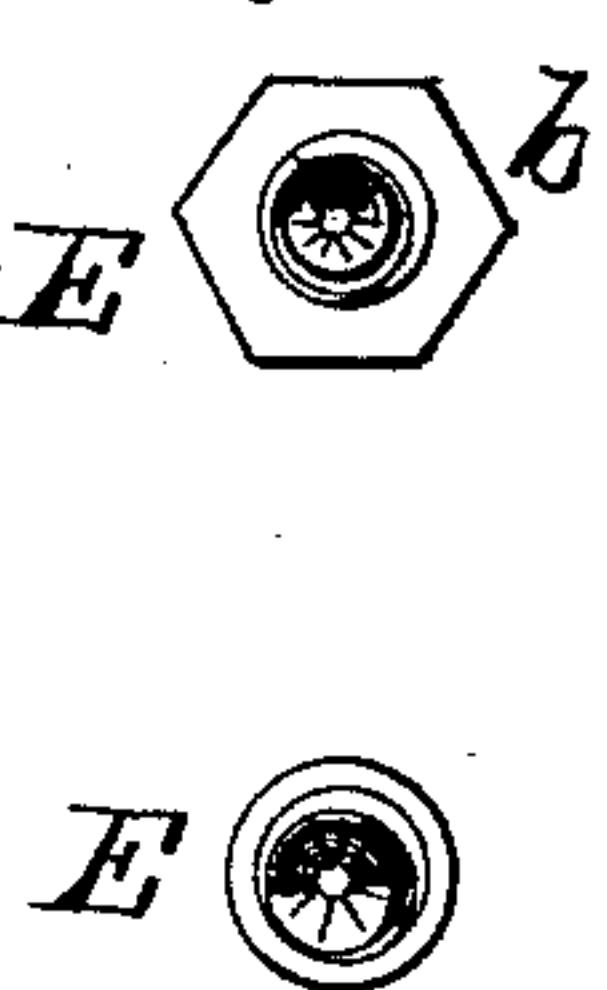


Fig. 4.



Attest.

C. W. Gray
John M. Kells

Inventors.
John F. Mains
B. C. Converse
B. C. Converse Atty

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Fig. 5.

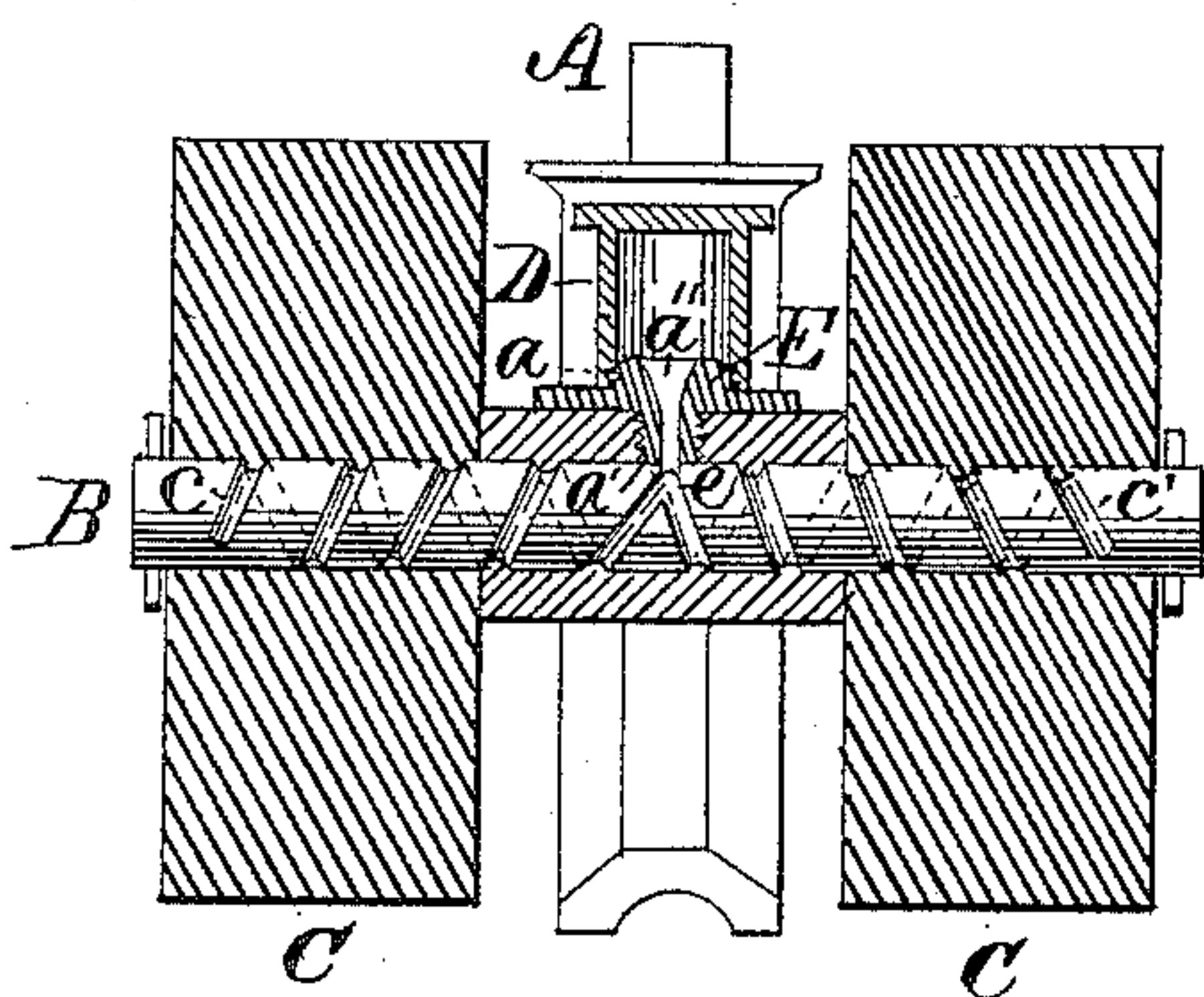


Fig. 6.

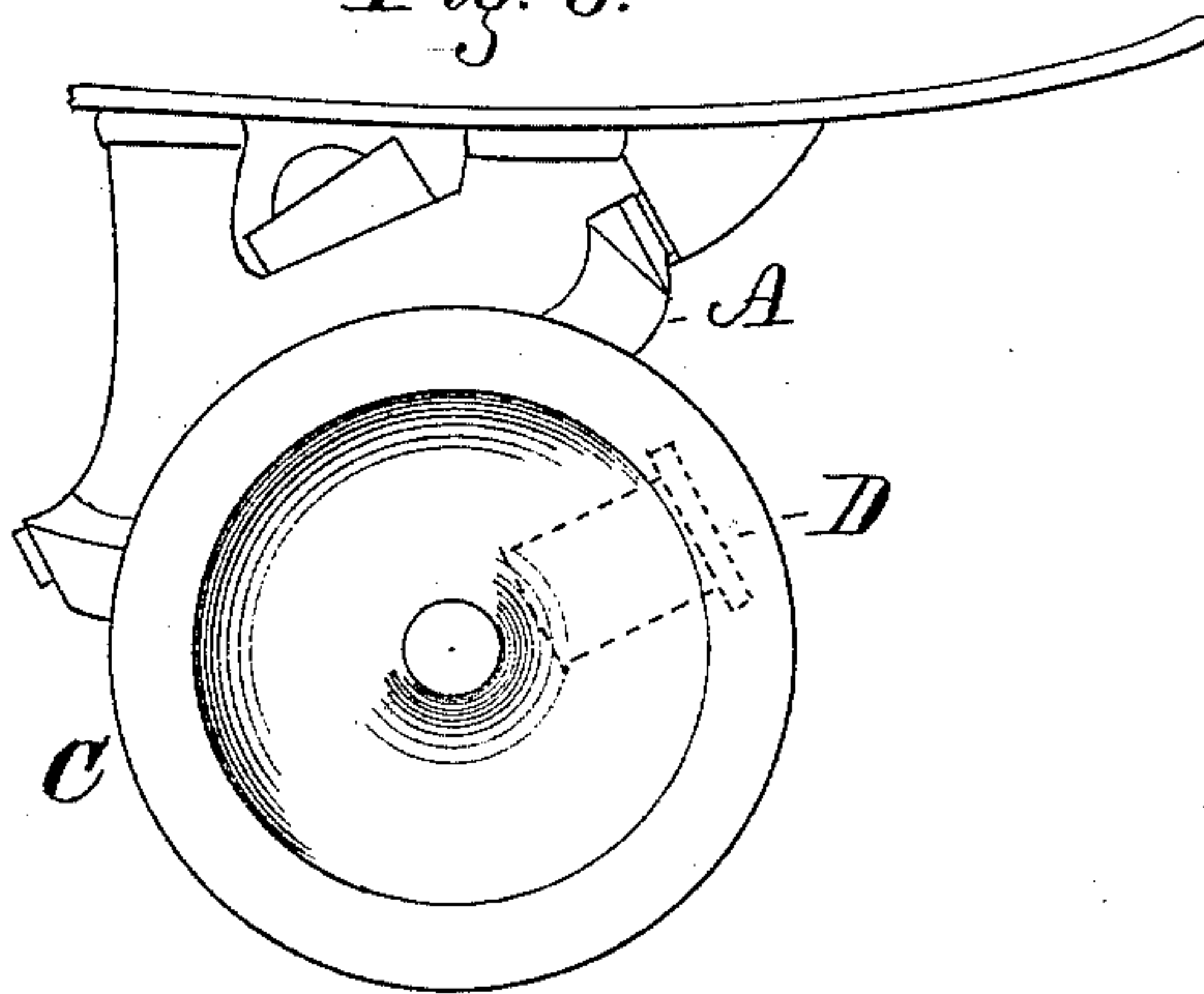
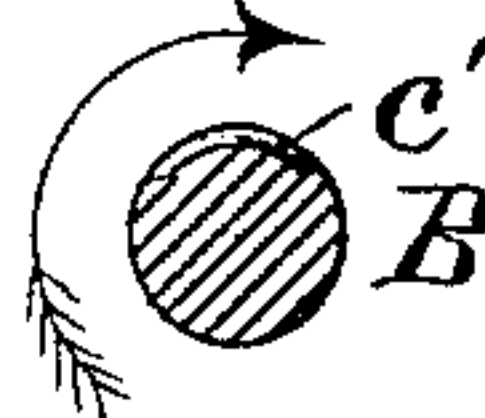


Fig. 7.



Fig. 8.



Attest.
C. W. Gray
John M. Kille

Inventors.
John F. Mains
B. C. Converse
B. C. Converse *Atty*

UNITED STATES PATENT OFFICE.

JOHN F. MAINS, OF JEFFERSONVILLE, AND BOLIVAR C. CONVERSE, OF SPRINGFIELD, ASSIGNORS OF ONE-HALF TO CHARLES W. GRAY, OF JEFFERSONVILLE, OHIO.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 338,993, dated March 30, 1886.

Application filed December 7, 1885. Serial No. 185,016. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. MAINS and BOLIVAR C. CONVERSE, citizens of the United States, residing at Jeffersonville and Springfield, in the counties of Fayette and Clark, respectively, and State of Ohio, have jointly invented certain new and useful Improvements in Roller-Skates; and we 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to lubricating devices for roller-skates; and it relates more particularly to a detachable reservoir communicating with the axle of the truck through a double-ended nipple, to allow the reservoir to be detached therefrom and to make it applicable to any skate-truck; and, second, to a spirally-grooved axle, the grooves of which pitch in opposite directions from the middle toward each end, the object being to cause the oil entering at the middle of the axle to be carried outward to the ends, or nearly so, of the axle, and thereby lubricate the rollers.

The nature of the invention will now be more particularly described and pointed out with reference to the accompanying drawings, in which—

Figure 1 represents one of the skate-trucks with a roller removed to give a view of the oiling device and its adaptation to different positions on the hanger, two of these positions being shown in dotted lines. Fig. 2 is a view of the truck from the under side. Fig. 3 shows the oil-reservoir in longitudinal section, the nipple being shown entire. Fig. 4 is a top view of the nipple seen in Fig. 3. Two modifications of Figs. 3 and 4 are shown below them, in which the nipple has a slot for a screw-driver in the upper part, to screw it into the hanger, instead of using the wrench before mentioned, the middle part being round. Fig. 5 is a vertical section of the truck, reservoir, and connections. Fig. 6 shows the forward

truck in side elevation, with a portion of skate-bottom. Fig. 7 is an enlarged view of the axle in side elevation. Fig. 8 is a cross-section through line *x*, Fig. 7.

A is the hanger, which incloses the axle B between the rollers C C, and in which the axle turns freely. In the truck shown in the drawings the axle turns also in the rollers. Reservoir D contains the oil, is detachable, and can be applied at any position on the hanger over the middle of the inclosed axle B, though the position shown in Figs. 1 and 6 (the latter in dotted lines) is that usually adapted. This reservoir and the nipple which forms its connection with the axle can be used on skate-trucks in which the axle is fixed in the rollers and rotates loosely only in the hangers; but loosely-pivoted axles being most common, the lubricating device is shown entire as applied to this class of skate-trucks.

The reservoir D consists of a short tube closed at the outer end, and large enough to contain sufficient oil to last for a considerable time. Its inner chamber is of the same caliber throughout its length. Its inner end is threaded, to engage the upper end of the nipple E, which latter can either be screwed first into the chamber of D or into the hanger-sleeve A and the reservoir afterward attached, as the nipple is provided at each end with a screw, *a* and *a'*, one being a right and the other a left thread. Midway between the two ends *a* and *a'* is a hexagonal part, *b*, integral with the nipple, to apply a wrench to the latter in securing it in place. This construction is shown in the upper Figs. 3 and 4, while in the lower figures, instead of the hexagonal part, *b*, the nipple is cylindrical, and, the upper screw being slotted, a screw-driver is used to insert it into the hanger, where it can remain permanently, if desired. The reservoir is first filled and held with its open end up and the screw in the hanger engaged with it.

By reference to Fig. 5 it will be seen that the end of the oil-duct debouches into the spiral grooves *c* and *c'* at the point where they unite. These grooves pitch in opposite directions toward the ends of the axle B. As

the oil enters at the angle e , it is conveyed by the rotation of the axle in each direction (in the direction of the arrows, Figs. 7 and 8) until it reaches the roller-bearings. The grooves c and c' are not cut to the ends of the axle, but terminate within the roller-bearings, so as to prevent any excess of oil from oozing out at the ends of the axle.

By reference to Figs. 5 and 7 it will be seen that the ends of grooves c and c' end inside of the outer extremity of each roller-bearing.

As the air is entirely excluded from the reservoir D, (it being filled when applied,) there is no pressure upon the oil, which is conveyed to the roller-bearings only in a sufficient quantity to lubricate them.

We are aware that a closed reservoir for oil as applied to roller-skates is not new, and we do not claim that part of the lubricating device, broadly, as our invention; but the intermediate reverse-threaded nipple, which permits of the easy attachment and detachment of the reservoir, and allows of its application to any roller-skate of this class, we believe to be new in the combination shown.

We are aware that such a nipple has been used in lubricators combined with an external closing-piece; but we are not aware that it has been used with a reservoir external to the bearing, such as the closed reservoir D, hereinbefore described.

We are aware, also, that horizontal journals have been heretofore used provided with spiral grooves, which convey and return the oil in both directions along the bearing-journal. It is our object, however, to combine with a closed oil-reservoir, which, by reason of atmospheric pressure, will deliver but a

very limited quantity of oil, horizontal skate journal and rollers, the former being grooved spirally in such manner that it will convey said quantity of oil one-half in each direction along the axle to each roller, and continually supply the axle and its journals with a limited quantity of fresh oil, without returning any of the oil to the reservoir.

We therefore claim as our invention—

1. In a roller-skate, the combination, with the hanger and the axle, of the double-ended reversely-threaded nipple tapped into the bearing, and the closed reservoir D, having an internal oil-chamber and screwed upon the outer end of the nipple, substantially as set forth.

2. In a roller-skate, the combination, with the hanger and the rollers, of the horizontal axle, spirally grooved in one direction only from the middle toward the journal of one roller, and spirally grooved in the same direction only from the middle toward the other roller, the grooves terminating within the rollers, and a closed oil-reservoir communicating with the middle of said axle, and adapted, by reason of atmospheric pressure, to deliver but a limited quantity of oil to said grooves, whereby each roller may receive continually a limited supply of fresh oil, substantially as set forth.

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

JOHN F. MAINS.
BOLIVAR C. CONVERSE.

Witnesses:

C. W. GRAY,
H. S. SHOWERS.