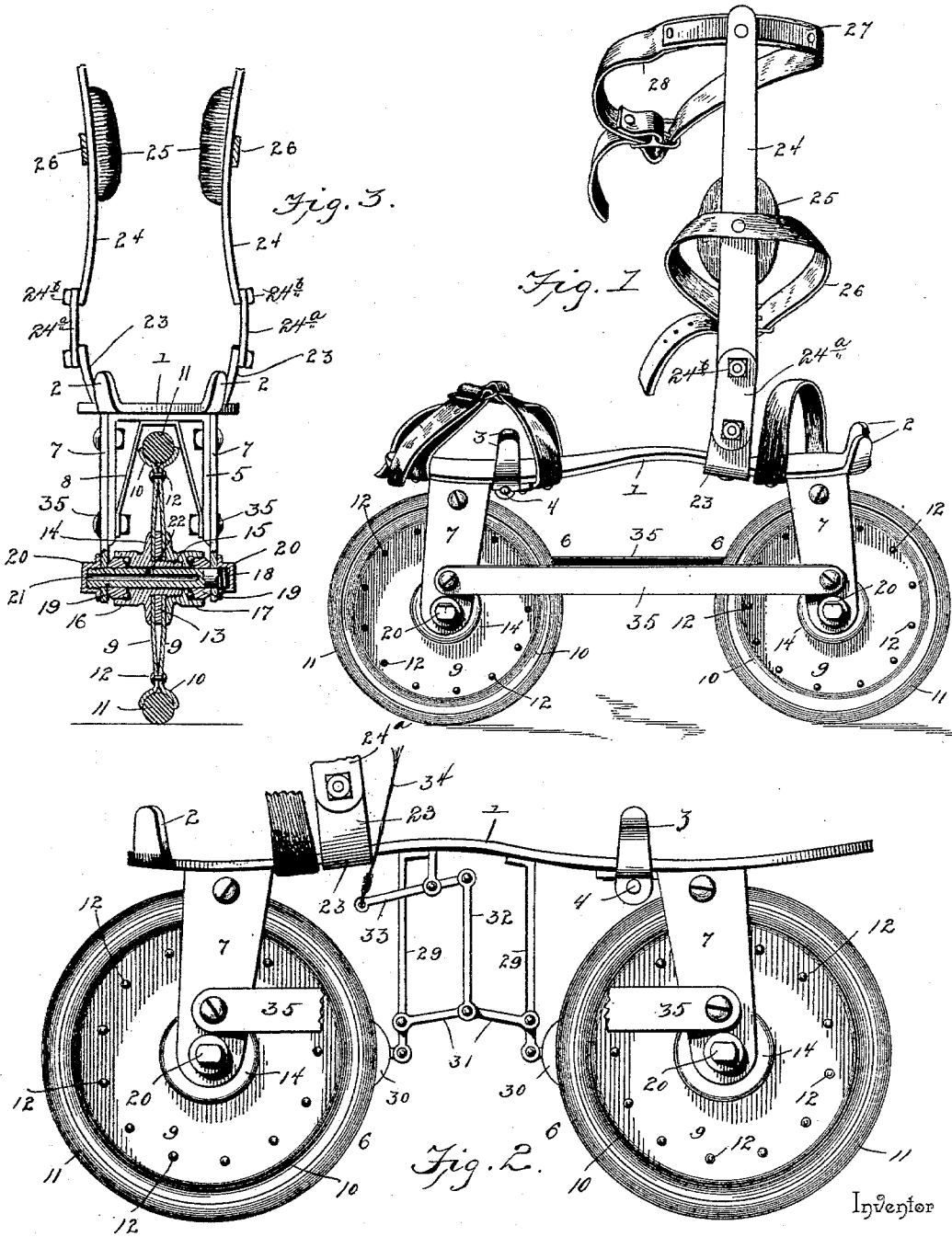


(No Model.)

E. C. MOULTON.  
SKATE.

No. 593,278.

Patented Nov. 9, 1897.



Inventor

Witnesses  
*E. H. Morrow*  
*R. M. Smith*

*Edward C. Moulton,*  
By *his* Attorneys,  
*C. A. Snow & Co.*

# UNITED STATES PATENT OFFICE.

EDWARD C. MOULTON, OF SAN JOSÉ, CALIFORNIA.

## SKATE.

SPECIFICATION forming part of Letters Patent No. 593,278, dated November 9, 1897.

Application filed June 20, 1896. Serial No. 596,322. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. MOULTON, a citizen of the United States, residing at San José, in the county of Santa Clara and State of California, have invented a new and useful Skate, of which the following is a specification.

This invention relates to skates, and refers particularly to that class of skates in which wheels are employed in lieu of runners, as ordinarily used on ice-skates.

The object of the invention is to provide a skate having wheels of novel construction, one pair of wheels for each skate, and located in longitudinal alinement with each other and beneath the longitudinal center of the foot-plate.

A further object of the invention is to mount these wheels in such manner that they may be readily removed and to provide ball-bearings therefor to enable the same to run with a minimum amount of friction.

The invention also has for its object to provide jointed ankle-braces and suitable brake mechanism for retarding the wheels when required.

Other objects and advantages will appear in the course of the subjoined description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a skate constructed in accordance with the present invention. Fig. 2 is a side elevation of the same, showing the brake mechanism applied thereto. Fig. 3 is an end elevation, partly in section, showing the construction of and the manner of mounting the wheels.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the accompanying drawings, 1 designates the foot-plate, similar to that of an ordinary skate, the same being provided with the heel-clips 2 and the toe-clamps 3, the latter being adjustable by means of a common shaft or spindle 4, having right and left hand threads, with which the toe-clamps are engaged and journaled under the plate 1.

Secured to the under side of the foot-plate

1, near the front and rear thereof, are forks 5, in which the carrying-wheels 6 are journaled. Each of said forks is of substantially U shape, as shown in Fig. 3, and is provided with auxiliary sides 7, bolted or otherwise secured thereto and made removable for enabling the axles of the wheels to be removed whenever occasion may require. Each fork is also stiffened by means of a U-shaped brace 8, secured to the crown of the fork near its center and having downwardly-diverging arms which connect rigidly at their ends to the fork sides.

Each of the wheels 6 comprises two thin metal disks 9, the peripheral edges or portions of which are splayed or spun outward in opposite directions, as indicated at 10, so as to form a crescent-shaped seat for a rubber tire 11, when the two disks or halves of the wheel are brought together and permanently united by means of a series of rivets 12 or other suitable fasteners. The disks 9 are spread or held apart at their central portions by means of a spacing washer or ring 13.

The hub of each of the wheels 6 is made in two sections, each comprising a circumferential flange 14, and one of them having a threaded central shank 15, upon which the other section or half of the hub is screwed.

The wheel 6 is mounted upon the shank 15, and the disks 9 are firmly clamped between the circumferential flanges 14, as clearly shown in Fig. 3. Each of the sections of the hub is also provided at its outer end with a laterally-projecting annular flange 16, forming a ball cup or race for a circular series of antifriction-balls 17. Upon the axle 18, at each side of the hub, are mounted ball cups or cones 19, which lie just within the fork sides 7. The ends of the axle extend through openings in the fork sides and are threaded at their extremities to receive nuts 20. By the construction described, upon the removal of either of the fork sides 7, the wheel and its axle, &c., may be readily removed from the skate for repairs.

In order to make the wheels self-lubricating, each of the axles 18 is provided with a central longitudinal bore 21, opening out at one end of the axle only, the mouth of such bore being closed by means of one of the nuts 20 referred to. From the central bore 21 a

branch perforation 22 extends to the bearing-surface of the axle, thus permitting the oil contained in the bore 21 to be distributed over the working surface of the axle. The distribution and even flow of the oil may be insured by placing a wick of fibrous material in the branch perforation 22, so that one end will contact with the bore of the hub and the other end lie in the oil in the bore 21.

Upon either side of the foot-plate, adjacent to the heel end thereof, are short standards 23, to which are pivotally connected the lower ends of ankle-braces. Each ankle-brace consists of two sections 24 and 24<sup>a</sup>, pivoted together at 24<sup>b</sup>. In this manner two joints are formed in the ankle-brace, one near the foot-plate and the other, 24<sup>b</sup>, opposite the ankle-joint. Adjacent to their upper ends the braces 24 are provided upon their inner sides with pads 25, which rest against the ankle upon each side. At this point a securing-strap 26 is secured to one of the braces 24, the same being adapted to pass around the ankle and be firmly secured. The braces 24 may be extended above the pads 25 and one or both of them provided with curved plates or stays 27, adapted to partially embrace the leg for preventing the shifting of the braces, and straps 28 may be secured to such plates or stays, the same being adapted to be passed around the leg at such point.

Owing to the presence of two joints in each of the ankle-braces the latter may be strapped tightly to the leg without interfering in any manner with the natural movement of the ankle, for the joints will permit the sections of the brace to move relatively to each other and to the foot-plate to correspond with the natural movements between the foot, ankle, and leg.

In order to provide for the safety of the skater in coasting long and steep inclines, a brake is provided, as shown in Fig. 2. For this purpose depending hanger-bars 29 are secured to the under side of the skate intermediate the wheels, the said bars carrying brake-shoes 30 at their lower ends. The bars 29 are sufficiently flexible to allow the shoes to move toward and away from the wheel-tires, and said bars are moved apart by means of toggle-arms 31, pivotally connected thereto and also to a vertically-disposed link 32, pivotally connected at its upper end to an intermediately-pivoted brake lever 33, from which an operating pull-cord 34 extends upward within reach of the skater, who by drawing upward on said cord may set the brake-shoes with any desired force.

35 designates a pair of longitudinal stays arranged upon each side of the wheels 6 and rigidly connecting the fork sides 7 and serving to materially stiffen and steady the skate.

It will be apparent that the skate may be made in different lengths and sizes, that the wheel-base may be lengthened or shortened as desired, that the sizes of the wheels may be varied, and that the brake mechanism may

be dispensed with or employed, as may be deemed expedient. It will also be apparent that other changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a skate, the combination with a foot-plate having means for securing the same to the foot, of depending supports for the wheels adjacent to the toe and heel supports of the plate, each support consisting of a U-shaped fork secured to the under side of the foot-plate, the prongs of which are provided at their lower ends with suitable bearings for the axle of the wheel, and a brace of substantially U shape secured at its looped end to the loop of the said U-shaped fork and the arms of said brace diverging downwardly on opposite sides of the wheel and secured to the forked prongs, substantially as described.

2. In a skate, the combination with the foot-plate having means for securing the same to the foot, of depending supports for the wheels adjacent to the toe and heel portions of the plate, each support consisting of a U-shaped fork secured to the under side of the foot-plate, side pieces removably connected to the prongs of the fork and extended below them, the lower ends of said side pieces being perforated to receive the ends of the axle, and a brace of substantially U shape secured at its loop end to the loop of the said U-shaped fork and the arms of said brace diverging downwardly on opposite sides of the wheel and secured to the fork-prongs, substantially as described.

3. In a skate, the combination with the foot-plate and depending fork secured thereto, of an axle mounted in said fork and a wheel journaled thereon, the hub of said wheel being formed separately from the wheel and made in two sections having a threaded engagement with each other and provided with circumferential flanges between which the wheel is clamped, ball-cups at the ends of the hub-sections, and the ball-cones and balls all arranged for joint operation substantially as described.

4. The combination with the foot-plate of a skate, of ankle-braces pivotally connected at their lower ends to the foot-plate, each brace consisting of two sections hinged together at a point to bring the joint in the brace opposite the ankle-joint, whereby the braces may move in either direction to correspond to the natural movements between the leg, ankle and foot, and a strap to securely hold said braces to the leg above the ankle, substantially as described.

5. The combination with the foot-plate of a skate, of ankle-braces pivotally connected at their lower ends to the foot-plate, each brace consisting of two sections hinged at a point opposite the ankle-joint, whereby the braces

may move in either direction to correspond to the natural movements between the leg, ankle and foot, ankle-pads secured upon the inner faces of the braces above said joint,  
5 curved plates or stays at the upper ends of the brace for partially embracing the leg above the ankle, and one or more securing-straps secured to one of the braces, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD C. MOULTON.

Witnesses:

WILLIAM A. BOWDEN,  
JOS. J. KENNEDY.