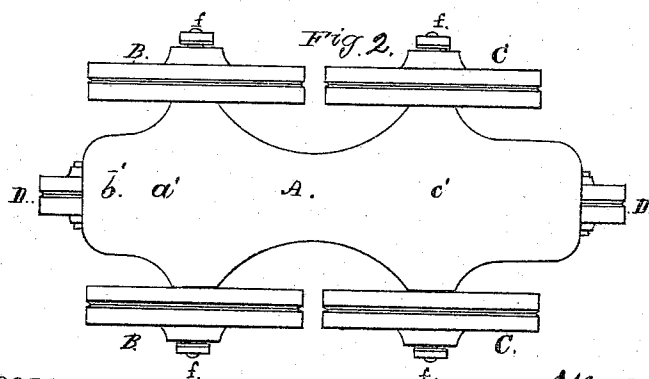
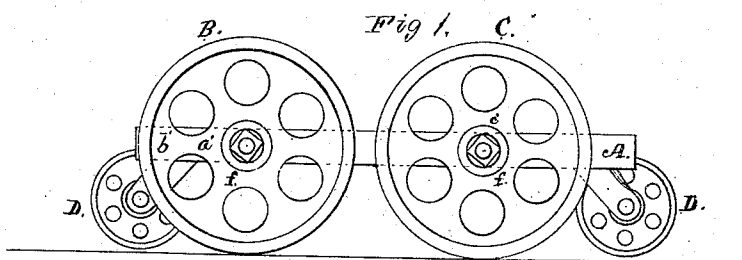
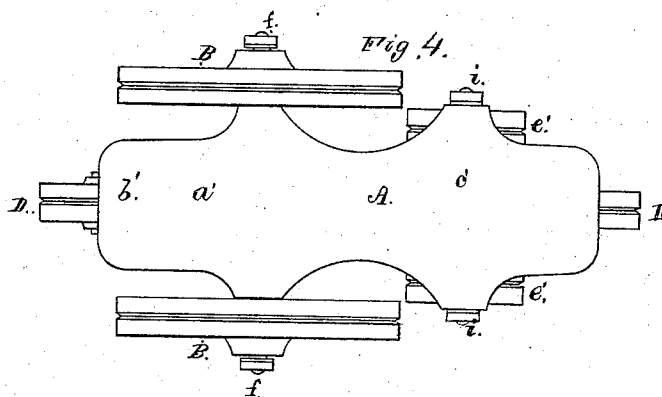
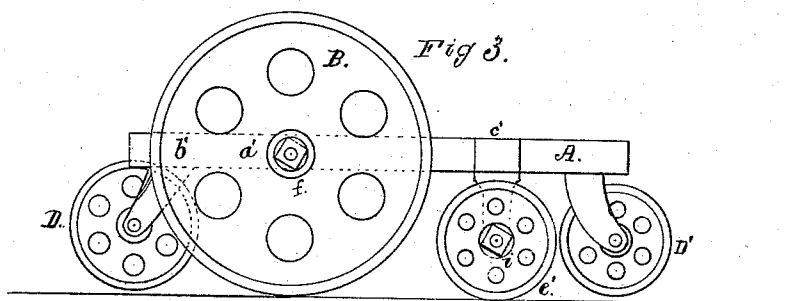


W. P. GREGG.
Roller-Skates.

2 Sheets--Sheet 1.

No. 153,945.

Patented Aug. 11, 1874.



Witnesses.

H. M. Rouby
Geo. Gray

W. P. Gregg.

by his attorney.

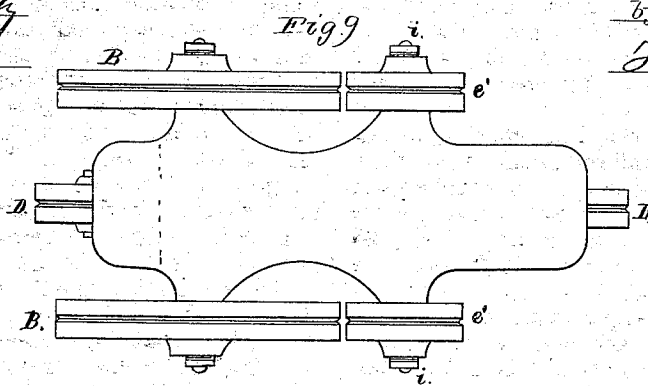
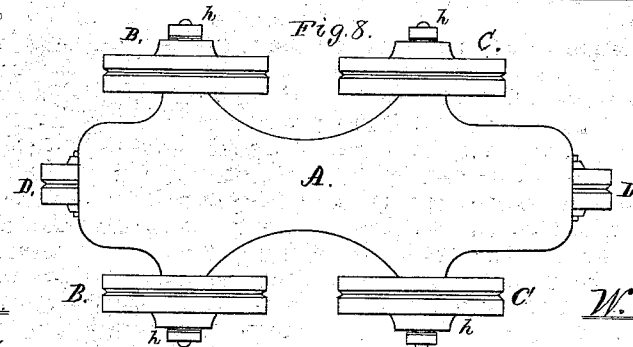
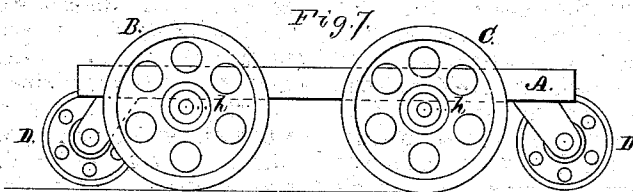
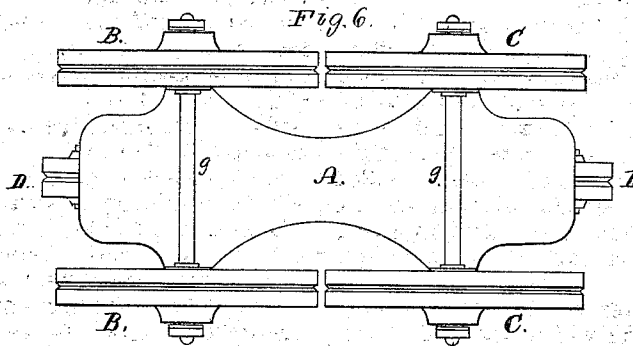
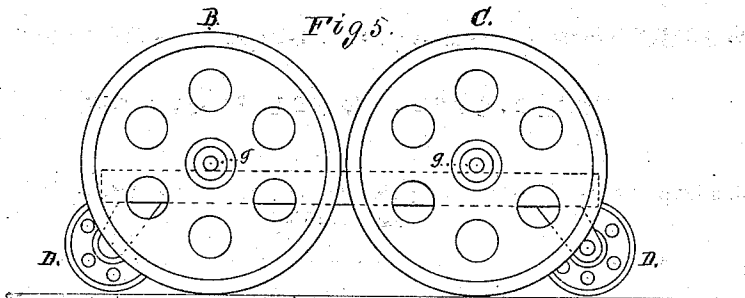
J. P. Hale.

W. P. GREGG.
Roller-Skates.

2 Sheets--Sheet 2.

No. 153,945

Patented Aug. 11, 1874.



Witnesses
Geo. Gray

W. P. Gregg.
by his attorney
J. P. Hale.

UNITED STATES PATENT OFFICE.

WASHINGTON P. GREGG, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ROLLER-SKATES.

Specification forming part of Letters Patent No. **153,945**, dated August 11, 1874; application filed April 23, 1874.

To all whom it may concern:

Be it known that I, WASHINGTON PARKER GREGG, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Roller-Skates; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to the class of roller-skates the patent for which was granted to me July 25, 1865, and the reissue December 23, 1873. It consists, chiefly, in having four outside driving-wheels, and also in novel arrangements of the wheels and rollers, relatively to each other, and the stock or foot-rest, the same being designed for varied exercises for recreation and health in halls and gymnasiums, and for traveling on suitable sidewalks and places.

Of the drawings, Figure 1 is a side view of the stock, two of its four outside wheels, and the two smaller rollers partially under the toe and heel. Fig. 2 is a top view of the stock and its four outside wheels and said two smaller rollers. Fig. 3 is a side view of the stock, one of two outside wheels, one of its two small side wheels, and the two small rollers partially under the toe and heel. Fig. 4 is a top view of the same. Fig. 5 is a side view of Fig. 1 with axles above the stock. Fig. 6 is a top view of the same. Fig. 7 is a side view of Fig. 1 with axles below the stock. Fig. 8 is a top view of the same. Fig. 9 is a top view of Figs. 3 and 4 with the two small side wheels outside of the stock upon their axle prolonged.

To carry my invention into effect, I, instead of having several small rollers under the stock, like those in common use, and to avail myself, when desirable, of more than the two outside wheels, as used under my patent of July 25, 1865, reissued December 23, 1873, attach to the stock or foot-rest A, in Figs. 1 and 2 of the drawings, two comparatively large outside wheels, B B, one at each side of the front *a'* of the heel *b'* of the stock A, the more easily to sustain each side of the foot between the

heel *b'* and the ball *c'* of the stock, as well as the more easily to surmount obstacles, and for driving and turning; and I also attach two other comparatively large outside wheels, C C, in Figs. 1 and 2, one at each side of the ball *c'* of the stock, the more easily to sustain each side of that part of the foot, and to surmount obstacles, and for driving and turning; and, in combination with these four outside wheels B B C C, I also attach two smaller rollers, D D, one partly under the toe and the other partly under the heel of the stock, for the support of the heel and toe, and for more readily turning at the heel and toe. I vary the size of the diameter and position of the wheels of some of these skates for in-door use, and in order to vary in exercising at the heel and toe, and in practicing different feats and evolutions, and arrange them so that instead of having two driving-wheels C C, as in Figs. 1 and 2, at each side of the ball, I have two smaller wheels, *e' e'*, as in Figs. 3 and 4, one under each side of the ball *c'*, and so use them with the two large driving-wheels B B, one at each side of the front *a'* of the heel *b'* of the stock, in combination with two smaller rollers, D D, partly under the toe and heel of the stock, as seen in Figs. 3 and 4. The stock or foot-rest, with its wheels and rollers thus arranged, may be reversed, so that the skater may use the same either way. The two small side wheels may be applied as readily to the stock having the four larger driving-wheels at its sides as to the stock with only the two larger driving-wheels at its sides. Therefore some of these skates are made that way as well as the other. All that is required is to remove the two front outside driving-wheels in Figs. 1 and 2, with their axle, and then fasten under the ball, by screws or otherwise, the axle-holder, with its axle and two small side wheels, as seen in Figs. 3 and 4. So, when it is desirable to have the two small side wheels outside of instead of under the ball of the stock, I withdraw their axle and substitute for it a longer one, put upon its ends the same two small wheels, and they are then outside of the stock, as seen in Fig. 9. The axles of the four outside wheels may project from the edges or sides of the stock, as at *fffff* in Figs. 1, 2, 3, and 4. They may

be above the stock, as at *g g g g* in Figs. 5 and 6, or below the stock, as at *h h h h h h* in Figs. 7 and 8. They may be lower down, like the axles *i i i* of the small wheels under each side of the ball in Figs. 3 and 4, as well as higher than the top of the stock. Thus may be provided high or low journals for the largest and smallest four side wheels practicable, with the upper parts of their peripheries above, below, or on a level with the plane of the upper surface of the stock, as preferred. The outside wheels of some of these skates are made alike in diameter. In general, I prefer that the two rear outside wheels should differ in size from the two at the ball, for easier turning. I also prefer the largest wheels for outdoor use. The small rollers *D D* revolve on axles in common axle-holders under the toe and heel. I prefer that none of them should come down so low as the side wheels. I also prefer, especially for novices and the young, that the small rollers partially under the toe and heel should be used as set forth.

One or both can be dispensed with by experts or practiced athletes, and sometimes by others upon suitable level surfaces, when said other wheels may be driven with great rapidity and effect.

In turning at the toe, and in inclining forward, the bearing is designed to be more or less on the small roller under the toe and the two wheels at the side of the ball. In turning at the heel, and in moving backward, the bearing is designed to be more or less on the small roller under the heel, and on the two wheels at the sides of the front of the heel. In gliding, the bearing is designed to be mainly on the two wheels at the ball and the two at the front of the heel, upon which the skater may stand upright, and move alike with firmness and speed, owing to the relative position of these four wheels, as well as to their size and number, the small rollers under the heel and toe affording additional support when required.

When the heel and toe are supported by small rollers, as I prefer they should be, one of the side wheels can be dispensed with; but I prefer it should not be.

When desirable, particularly for the smaller skates, I sometimes use a caster for one or each of the heel and toe rollers, as shown at *D'*, Fig. 3.

The stocks or foot-rests, wheels, journals, and other parts may be of any suitable materials, size, or description, and be fitted to the foot, and fastened on in any convenient manner.

Thus is produced a wheel-skate, not only supported at the toe and heel, but at each side

from heel to toe for novices, and at the same time calculated for diversified exercises, feats, and evolutions by different skaters.

Having described my invention, I claim as follows:

1. A skate stock or foot-rest having four outside driving-wheels attached directly to it, one at each side of the front of the heel, and one at each side of the ball of the stock, substantially as described.

2. A stock or foot-rest with four outside driving-wheels, one at each side of the front of the heel, and one at each side of the ball of the stock, in combination with one smaller roller under the heel and another under the toe, substantially as described.

3. A stock or foot-rest with one small wheel under each side of the ball, and one larger outside driving-wheel attached at each side of the front of the heel of the stock, substantially as described.

4. A stock or foot-rest with one small wheel under each side of the ball, and one larger outside driving-wheel attached at each side of the front of the heel of the stock, in combination with one small roller under the heel and another under the toe, substantially as described.

5. In a skate stock or foot-rest having four outside wheels, one at each side of the rear part, and one at each side of the front part, of the stock, whether in combination or not with a smaller roller partially under the heel and toe, the arrangement of said four outside wheels, so that the upper portion of their peripheries shall extend above the plane of the lower surface of the stock.

6. In a skate stock or foot rest having one small wheel under each side of the front part, and one larger outside wheel at each side of the rear part, of the stock, whether in combination or not with a smaller roller partially under the heel and toe, the arrangement of said outside wheels, so that the upper portion of their peripheries shall extend above the plane of the lower surface of the stock.

7. In each of the several specified combinations covered by the foregoing claims, in which a small roller or caster is employed partially under the heel and toe, the attachment of the outside wheels to the stock in such position that their tread shall be on a plane lower than that of said small rollers or casters.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of April, 1874.

WASHINGTON PARKER GREGG.

Witnesses:

F. P. HALE,

GEO. B. BLODGETTE.