(No Model.)

S. W. FINCH.

ROLLER SKATE.

No. 515,490. Patented Feb. 27, 1894.

Fig. 1.

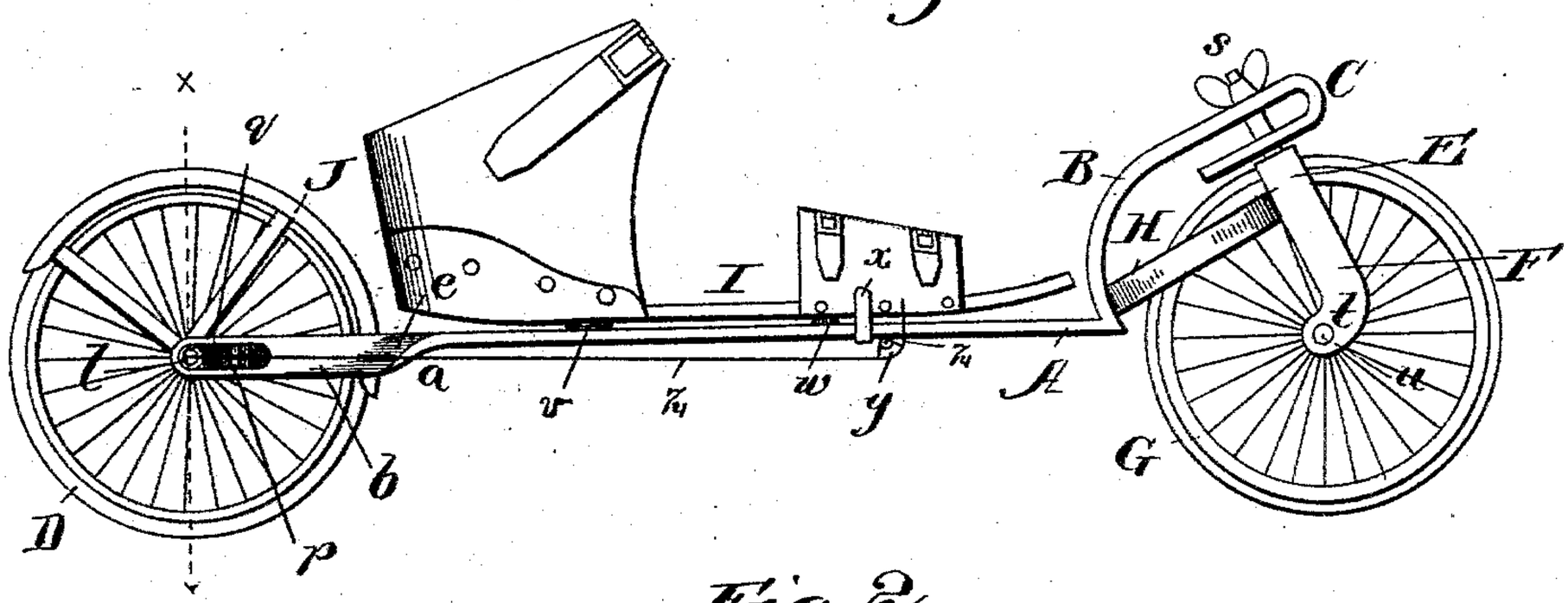


Fig. 2.

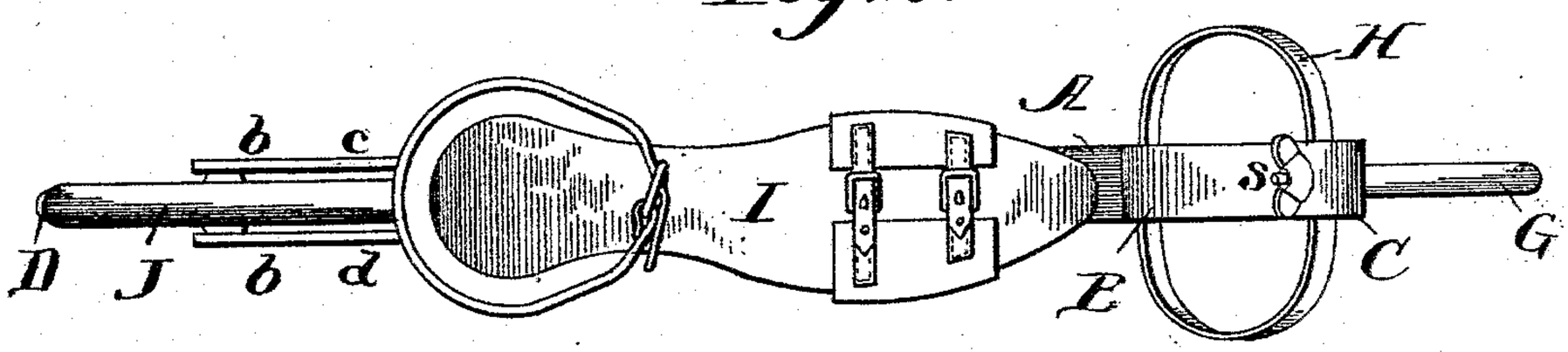
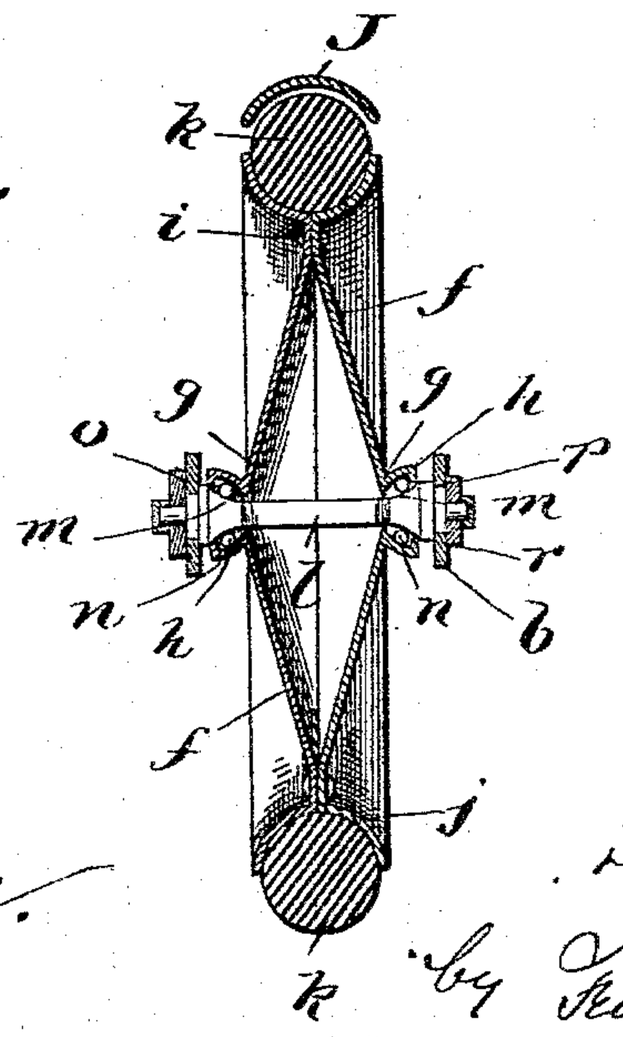


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

STANLEY W. FINCH, OF WASHINGTON, DISTRICT OF COLUMBIA.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 515,490, dated February 27, 1894.

Application filed December 4, 1893. Serial No. 492,735. (No model.)

To all whom it may concern:

Be it known that I, STANLEY W. FINCH, a citizen of the United States, residing at Washington, in the District of Columbia, 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, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to various new and useful improvements in roller skates, designed particularly for use on ordinary streets and roads but well adapted for use in prepared rinks and on smooth surfaces.

The objects of my invention are to provide a roller skate which will be of light weight, which will be attractive in appearance, which will be durable in use, which can be steered readily, and easily at the will of the user, and which can be effectively stopped when necessary with ease and dispatch. These objects are accomplished in the construction of the improved roller skate illustrated in the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation of my improved roller skate; Fig. 2, a plan view, and Fig. 3, a sectional view taken on the line *x*—*x* of Fig. 1.

In all of the above views corresponding parts are designated by the same letters of reference.

A, is the main or supporting frame of the skate, made preferably of sheet steel of the desired thickness to obtain the necessary strength, but which may be conveniently made of wood, aluminum or other materials. I consider steel to be preferable however, since it is light and strong and is capable of being easily worked, and I shall describe the use thereof herein, although I do not limit myself to such material unless so specified in my claims.

At its forward end the plate A, is bent upward at B, to form the curved elastic portion shown and said plate then continues obliquely upward and is then bent back on itself to form the head portion C, of sufficient depth to offer a good bearing for the front fork. There is also to be more or less elasticity in this head C, to hold the front fork securely, as I shall more fully explain hereinafter. The plate A, from the point *a*, to the extreme rear end is bent downward at right angles on each side to form the flange *b*, which materially strengthens the frame directly under the foot, where the greatest strength is necessary.

The rear portion of the plate A, is bifurcated as shown to form two legs, *c*, and *d*, and these legs are curved outwardly, as at *e*, and then extend backward parallel to each other, to accommodate the rear wheel D, of the skate. The particular construction of wheel which I prefer to use is illustrated in Fig. 3, to which attention is now directed but I make no claim to the same. The body of the wheel is composed of two very thin disks *f*, which may be easily stamped in shape. At the central part of each disk, the cup-shaped hub *g*, is formed, the outer end of each of said hubs being flanged slightly inward at *h*, as shown. The outer edge of each disk *f*, is curved outward as shown, so that when the two disks are riveted together by rivets *i*, a well known rim or felly *j*, will be formed and the central part of each disk being arched outward as shown, a very light and rigid wheel will be produced. Such a wheel, owing to its great strength and excessive lightness, is well adapted for use with my improved roller skate, but I do not wish to be limited to the same, as a wooden wheel, or a wheel made like an ordinary bicycle wheel can be used. Secured in the rim or felly *j*, is a tire *k*, of any desired construction and composed of any desired material. A small pneumatic tire such as is now used on bicycles and tricycles can be used with good results. Extending through the hubs *g*, of the wheel is the axle *l*, having the bearing cones *m*, thereon, made adjustable on the axle toward each other. Hardened steel balls *n*, are placed within the cup-shaped hubs *g*, being held therein by the flanges *h*, and bear on the bearing cones *m*, thereby constituting a simple and effective ball-bearing. The axle *l*, is formed with a rectangular portion *o*, which bears within slots *p*, in the legs *e*, and *d*, being held firmly against the rear ends of said slots by blocks of rubber *q*, within the same or by heavy coiled springs. Nuts *r*, on the outside of the axle *l*, serve to retain the same firmly in place, and at the same time will allow said axle carrying the rear wheel

with it, to be moved against the tension of the rubber *q*, when necessary.

Extending down within the head C, of the plate A, is an oblique spindle E, held in place by a thumb screw *s*, or by other suitable means. By making the head C, with a considerable amount of elasticity, the spindle E, will be always held firmly in place and the tendency of the said spindle to be loosened by the constant jarring of the skate on rough surfaces, is practically obviated. Extending down from the spindle E, and in line therewith is the front fork F, of the skate, consisting, as heretofore, of two parallel metallic legs. Each of the said legs is provided with the small arm *t* at its lower end extending obliquely backward and downward and supported near the ends of these arms *t*, on the axle *u*, is the front wheel G, of the skate. In construction and in size the front wheel should be substantially the same as the rear wheel.

In order that the front wheel may be kept from accidentally turning pivotally on the spindle E, and be retained in its normal position in line with the rear wheel, I make use of the semi-circular springs H, secured rigidly to the plate A, directly beneath the curved portion B, and connected with the two legs of the front fork F. Instead of using two of such springs H, it might be advisable to make use of a single spring, made in the form of an almost continuous circle, secured to the plate A, near its center and to the front fork F, at each end. By making use of such spring or springs H, the front wheel G, will be kept always in line with the back wheel, unless it is desired to steer the skate, as will be presently explained.

I, is the foot support of the skate, made of a well known shape and preferably of wood and of sufficient width and length to accommodate the foot of the user, it being understood that the plate A, may be made of much less width. The foot is secured to the foot support I in any suitable way, ordinary heel and toe straps being shown, but clamps adapted to grasp the sole of the shoe are well adapted for the purpose. This foot support I, is hinged near its rear end to the plate A, by an ordinary hinge *v*, and rests near its forward end on a block *w*, made preferably of rubber. Said foot rest is held in its proper position by guides *x*, *x*, secured to the plate A. At the back of the plate A, is a guard J, made preferably of metal and securely braced in any desired manner as shown, the rear wheel, in its normal position, being adapted to rotate entirely clear of said guard, but adjacent to the same. This guard J, serves to protect the trousers or skirts of the user from coming in contact with the rear wheel and in getting soiled or torn thereby. The said guard J, also serves as an effective brake for the rear wheel, as I shall now describe.

Pivoted beneath the foot rest I on the under side of the plate A, is a bell lever *y*, the end of which is connected to the foot rest by means of a short wire or link, as shown. The said bell lever is also connected with the ends of the axle *l*, of the rear wheel by means of wires *z*, *z*, means being provided, such as a turn buckle for tightening up said wires. By means of this construction it will be evident that when the forward end of the foot rest I, is moved slightly upward, which can be easily done when skating, the bell lever *y*, will be moved and by means of the wires *z*, the rear wheel will be forced against the tension of the rubber blocks *q*, into contact with the guard J, and the friction thus produced will tend to arrest further movement of the skate. In this way a very effective and satisfactory brake will be obtained.

The operation of my improved roller skate will be readily understood without detailed explanation, it being found in practice that the action of the improved skate is closely analogous to that of ordinary ice skates. The manner of steering the improved roller skate depends entirely upon the fact that the point of contact of the front wheel with the ground is in advance of the pivotal point thereof, so that when the skate is inclined toward one side or the other by the foot of the user the front wheel will be turned to the side of inclination to a greater or less extent according to the angle of inclination. By making use of the springs H, the front wheel will be returned to its normal original position in line with the back wheel, when the skate is returned to its practical vertical position, as will be understood.

In practice I prefer to arrange the foot support I, above the axis of the wheels for the reason that the skate steers better by doing so, and the feet of the user will be sufficiently elevated to prevent the sides of the foot support I, from striking stones and obstructions when the skate is inclined to either side for the purpose of steering.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. An improved roller skate, comprising a plate A, a foot support I, on said plate, a rear wheel mounted on said plate and a front wheel pivotally mounted on said plate, substantially as described.

2. An improved roller skate, comprising a plate A, a foot support I, on said plate, a rear wheel mounted on said plate and a front wheel pivotally mounted on said plate, said foot support being arranged on a line above the axis of the supporting wheels, substantially as described.

3. An improved roller skate, comprising a plate A, a foot support I, on said plate, a rear wheel mounted on said plate and a front wheel pivotally mounted on said plate with the point of contact with the ground in advance of the pivotal point, substantially as described.

4. An improved roller skate, comprising a plate A, a foot support I, on said plate, a rear

wheel mounted on said plate, a front wheel pivotally mounted on said plate with the point of contact with the ground in advance of the pivotal point and springs H, for normally keeping the front wheel in line with the rear wheel, substantially as described.

5. An improved roller skate, comprising a plate A, a foot support hinged thereon, a rear wheel mounted on said plate, and capable of longitudinal movement, a front wheel pivotally mounted on said plate, a guard J, rigidly mounted on said plate adjacent to the rear wheel and connections between the foot support and the rear wheel, substantially as described.

6. An improved roller skate comprising a plate A, a foot support I, hinged thereon, a rear wheel mounted on said plate and capable of longitudinal movement; a front wheel pivotally mounted on said plate; a guard J, rigidly mounted on said plate adjacent to the rear wheel; a bell lever mounted on the under side of the plate A, connections between said foot support and said bell lever, and wires *z*, between said bell lever and the axle of the rear wheel, substantially as described.

7. An improved roller skate comprising a plate A, a foot support I, hinged thereon; a rear wheel mounted within slots in the plate A, and capable of longitudinal movement therein; a rubber block *q*, in each slot for the purpose mentioned; connections between the foot support I and the axle of the rear wheel; and a front wheel pivotally mounted on said plate, substantially as described.

8. An improved roller skate, comprising a plate A, having the flanges *b*, at its rear portion and being bifurcated at such rear portion, said plate being provided with the curved portion B and head C, and front and rear wheels mounted on said plate substantially as described.

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

STANLEY W. FINCH.

Witnesses:
FRANK L. DYER,
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