

(No Model.)

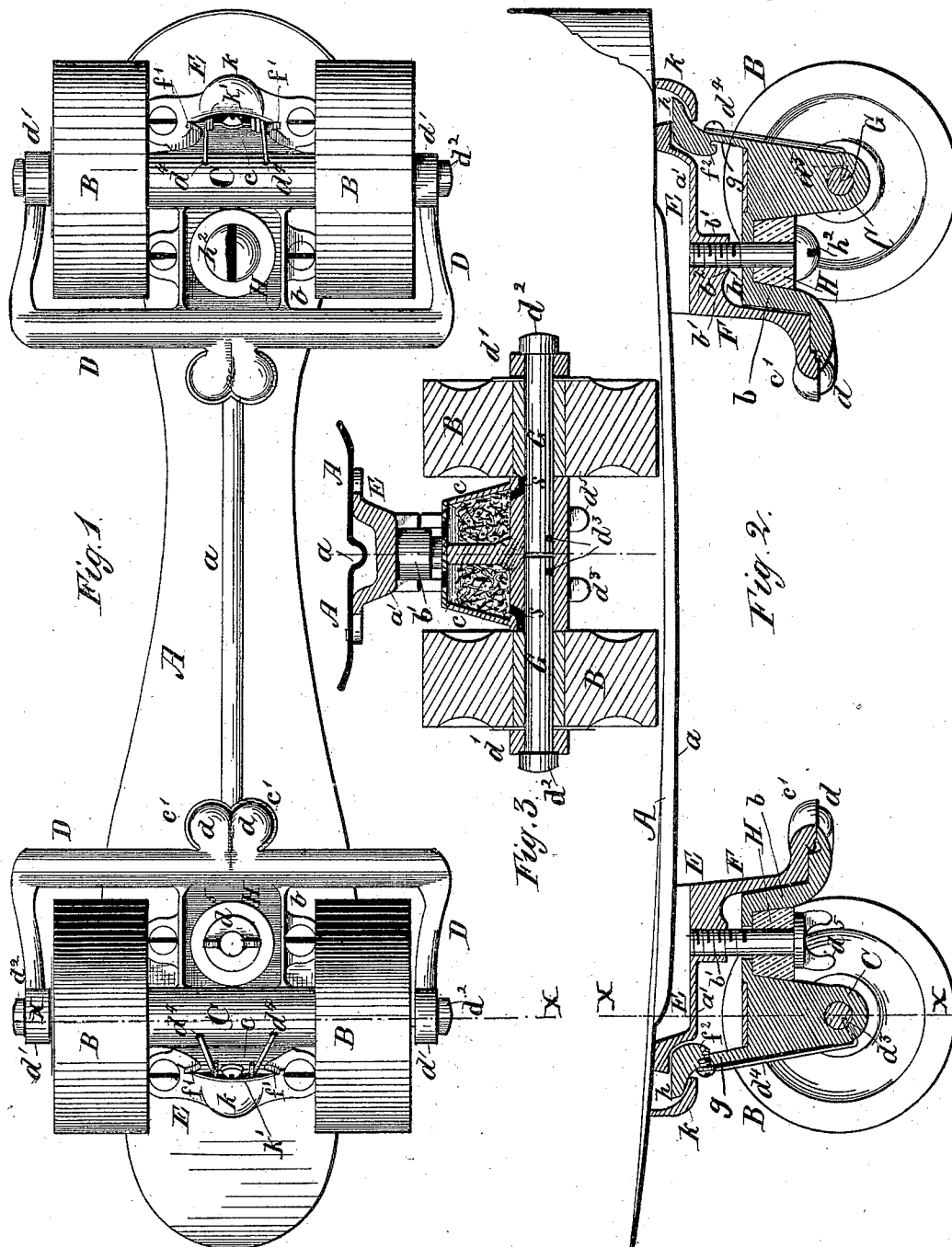
2 Sheets—Sheet 1.

C. E. FLAGG.

ROLLER SKATE.

No. 298,838.

Patented May 20, 1884.



Witnesses  
G. B. Towles.  
W. A. Daniels

Inventor  
Charles E. Flagg  
By W. M. Burris  
Atty

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2 Sheets—Sheet 2.

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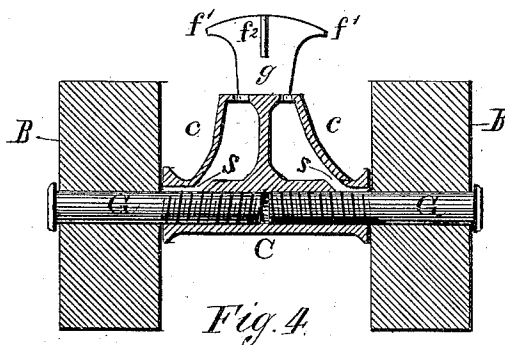


Fig. 4.

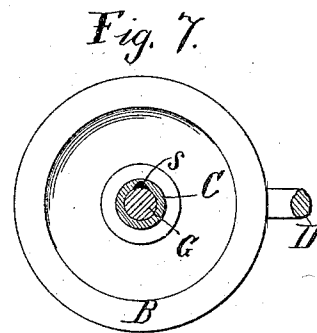


Fig. 7.

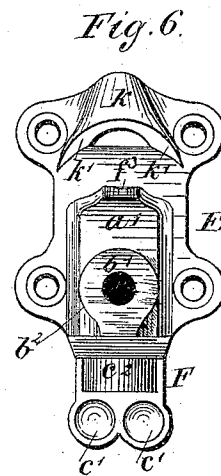


Fig. 6.

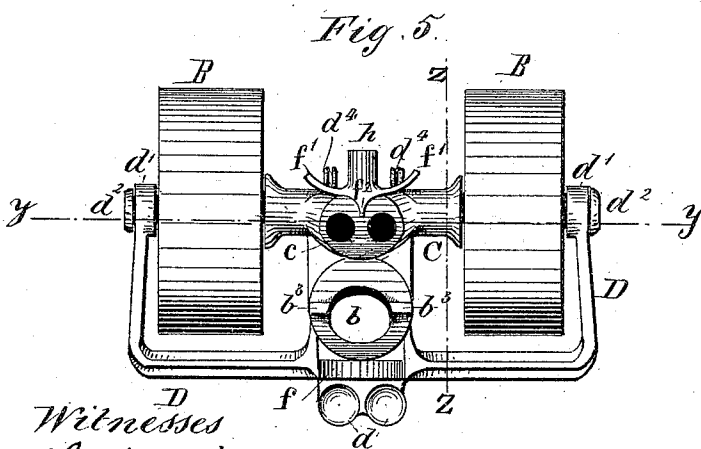


Fig. 5.

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# UNITED STATES PATENT OFFICE.

CHARLES E. FLAGG, OF BOSTON, MASSACHUSETTS.

## ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 298,838, dated May 20, 1884.

Application filed March 15, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. FLAGG, a citizen of the United States of America, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Roller-Skates, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to roller-skates; and it consists of the construction and combinations of the devices and parts by means of which the rollers are connected with the foot-rests, as hereinafter fully set forth and specifically claimed.

In the accompanying drawings, Figure 1 is a plan of the under side of one of the skates with my improvements. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a vertical section on line *xx* of Figs. 1 and 2. Fig. 4 is a vertical section on line *yy* of Fig. 5. Fig. 5 is a plan of one of the axle-frames detached. Fig. 6 is an under side view of bed-plate detached. Fig. 7 is a cross-section of one of the axle-boxes and axles on line *zz* of Fig. 5.

A designates a foot-rest made of any suitable material, preferably of steel, and is provided with a longitudinal strengthening-rib, *a*, which may be stamped on or riveted to the bottom of the foot-rest, or the foot-rest and the rib may be cast of malleable iron or other suitable material.

B are the rollers.

C designates central axle-boxes, which are formed of the same casting with the cushion-boxes *b*, the oil-boxes *c*, roller-frames D, the two ball-bearings *d d*, the segmental bearing *f*, the standard *g*, provided with the lugs *f' f'* and the head *h*.

E designates the bed-plates, provided with the requisite holes to receive the rivets or bolts with which the plates are fastened to the foot-rests. These bed-plates have cast on them the projections *k*, having the inclined edges *k'*, the projection *a'*, and threaded sockets *b'*, having the shoulders *b''*, forming stop-bearings for the lugs *b''* on the cushion-boxes *b*. The pendants F of the bed-plates have formed on them the two inverted cups or concave sockets *c' c'* and the segmental concave recess *c''*, to receive the

balls *d d* and bearing *f*, above described, on the lower portion of the couplings. The roller-axles are made in two separate parts, G G, inserted through holes in the ends *d'* of the arms of the frame D and into the axle-boxes C. The outer ends of these axles are provided with heads *d''*, having bearing-shoulders, and the inner portions of the axles are provided with slots or holes *d'''*, to receive the ends of the spring-wires *d'*, for keying the axles in their boxes.

H designates the elastic cushions, secured in the cushion-boxes by means of the thumb-screws *d''*, inserted through the cushions and through openings in the cushion-boxes into the threaded sockets *b'*.

The oil-boxes *c* consist of two chambers, which are connected with the axle-bearings by means of the tubes *s s*, formed in or drilled through the bottom of the oil-boxes, into the interior of the axle-boxes, and extended horizontally along the interior of the axle-boxes, as shown in Figs. 3, 4, and 7 of the drawings. These oil-boxes are adapted and designed to receive packing, preferably raw cotton, to prevent the oil from flowing too freely to the axle-bearings.

The frame-arms may be dispensed with, and the separate sections of the axles may be tapped into the axle-boxes.

It is evident that ordinary slotted-head screws, *h''*, may be used instead of the thumb-screws *d''*; but I prefer the latter, for the reason that no screw-driver is required to adjust the tension of the screws upon the cushions.

My improved double socket and ball bearings afford steady, firm, horizontal support to the foot-rest when the pressure of the foot upon the rest is vertical and the movements are in direct lines, while at the same time they allow all requisite oscillating movements in turning or running on curved lines. Where the bearings are upon elastic cushions, there is little or no horizontal or side support, which allows too much strain upon the ankles, and in such skates very severe tension is required upon the elastic cushions, while with my improvement the bearing is not on the cushion, but on the ball-bearings and their sockets, and comparatively light tension is required upon the cushion, sufficient only to hold the bearings together.

It will be seen that the sockets or cups *c' c'*

are inverted, forming the upper portion of the bearings, and they are thus protected from liability of dirt lodging in them. In turning or running on curved lines the tilting of the foot-rests to one side causes the lugs  $f' f''$  on the standard  $g$  to slide along the inclined edges  $k'$  of the projection  $k$ , which produces the requisite backward and forward oscillatory movements of the roller-axles. The upper surface of the standard  $g$  and a portion of the head  $h$  have bearing upon the under side of the bed-plate. The edge of the lug  $f^2$  has bearing in a concave recess,  $f^3$ , on the projection  $a'$ , which aids in holding the standard and other bearings in place.

The roller-axles being made in the two separate parts and keyed separately in the axle-boxes, as set forth, each part may be removed for any required purpose without unkeying the other part.

What I claim as new, and desire to secure by Letters Patent, is—

1. The roller-skate bearings, consisting of the inverted cups or concave sockets  $c' c'$  and the segmental concave recess  $c^2$ , in combination with the balls  $d d$ , and the segmental convex bearing  $f$ , substantially as and for the purposes described.

2. The combination, with the bearings  $c' c'$ ,

$d d$ ,  $c^2$ , and  $f$ , of the cushion-boxes  $b$ , cushions  $H$ , and a set-screw adapted to hold the parts together, substantially as and for the purposes described.

3. The axles in two separate parts,  $G G$ , provided with holes or slots  $d^3$ , in combination with the arms  $d' d'$ , the spring-keys  $d^4$ , and the axle-boxes  $C$ , provided with holes to receive the ends of the keys, substantially as and for the purposes described.

4. The roller-skate axle-boxes  $C$ , provided with the oil-boxes  $c c$ , adapted to receive packing to retain the oil, and connected with the axle-bearings by means of the tubes  $s s$ , formed in and along the axle-boxes, substantially as and for the purposes described.

5. The combination of the roller-skate bearings  $c' c' d d c^2 f$ , the cushion-boxes  $b$ , and cushions  $H$ , the standards  $g$ , heads  $h$ , lugs  $f' f' f^2$ , the projections  $k$ , having the inclined surfaces  $k'$ , and the projections  $a'$ , having the concave recesses  $f^3$ , substantially as and for the purposes described.

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

CHARLES E. FLAGG.

Witnesses:

H. A. DANIELS,  
FRANK M. GREEN.