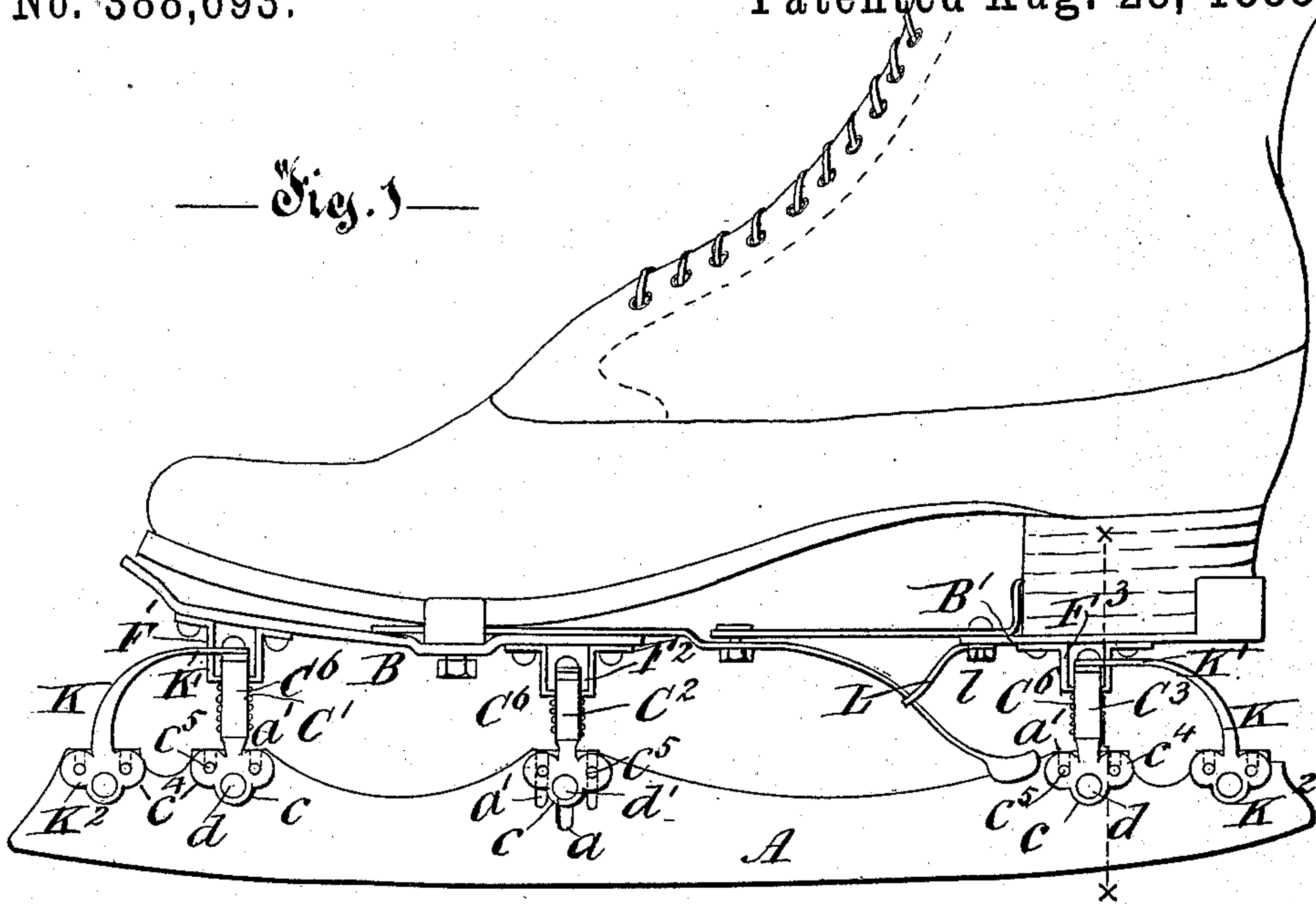


(No Model.)

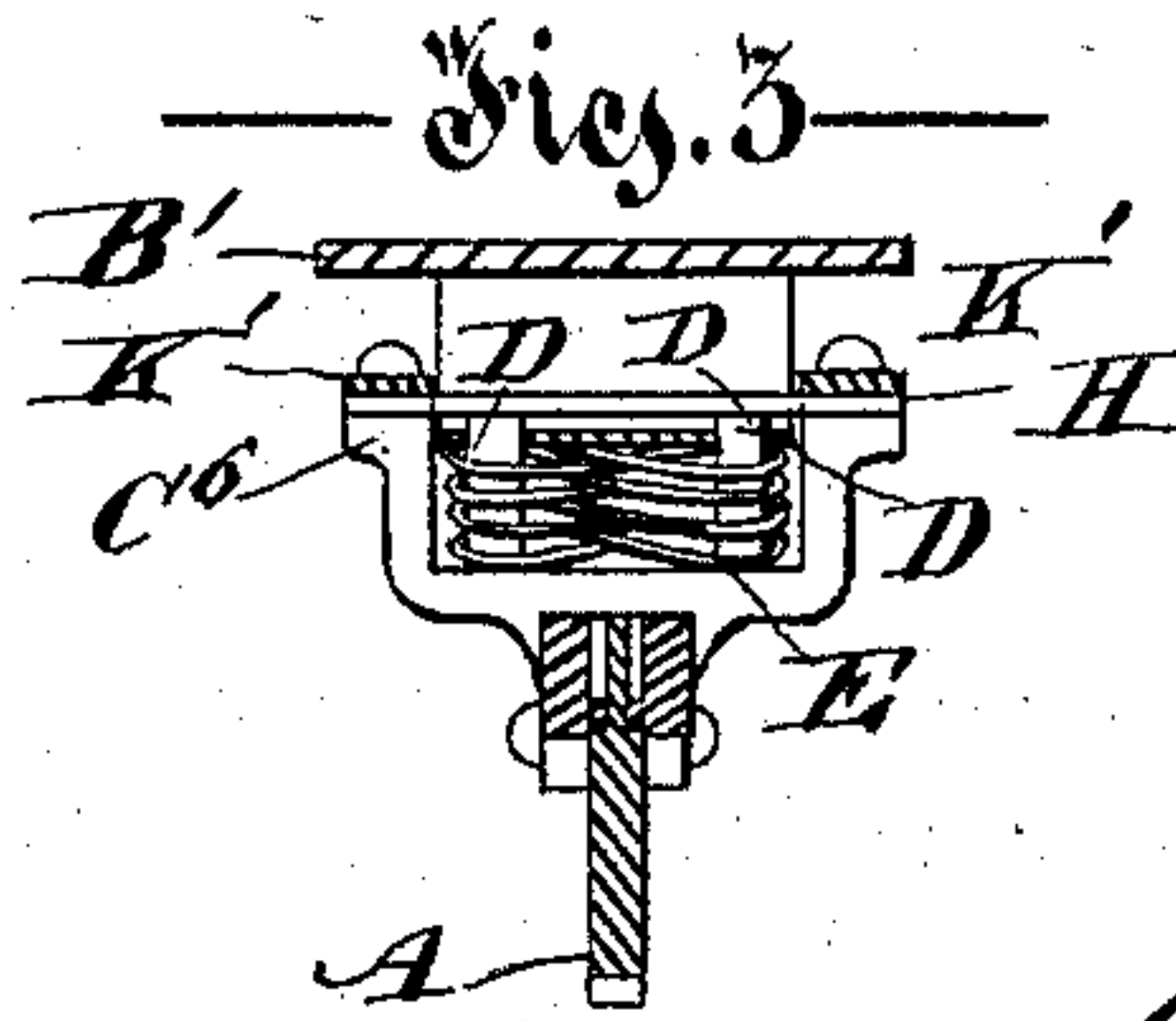
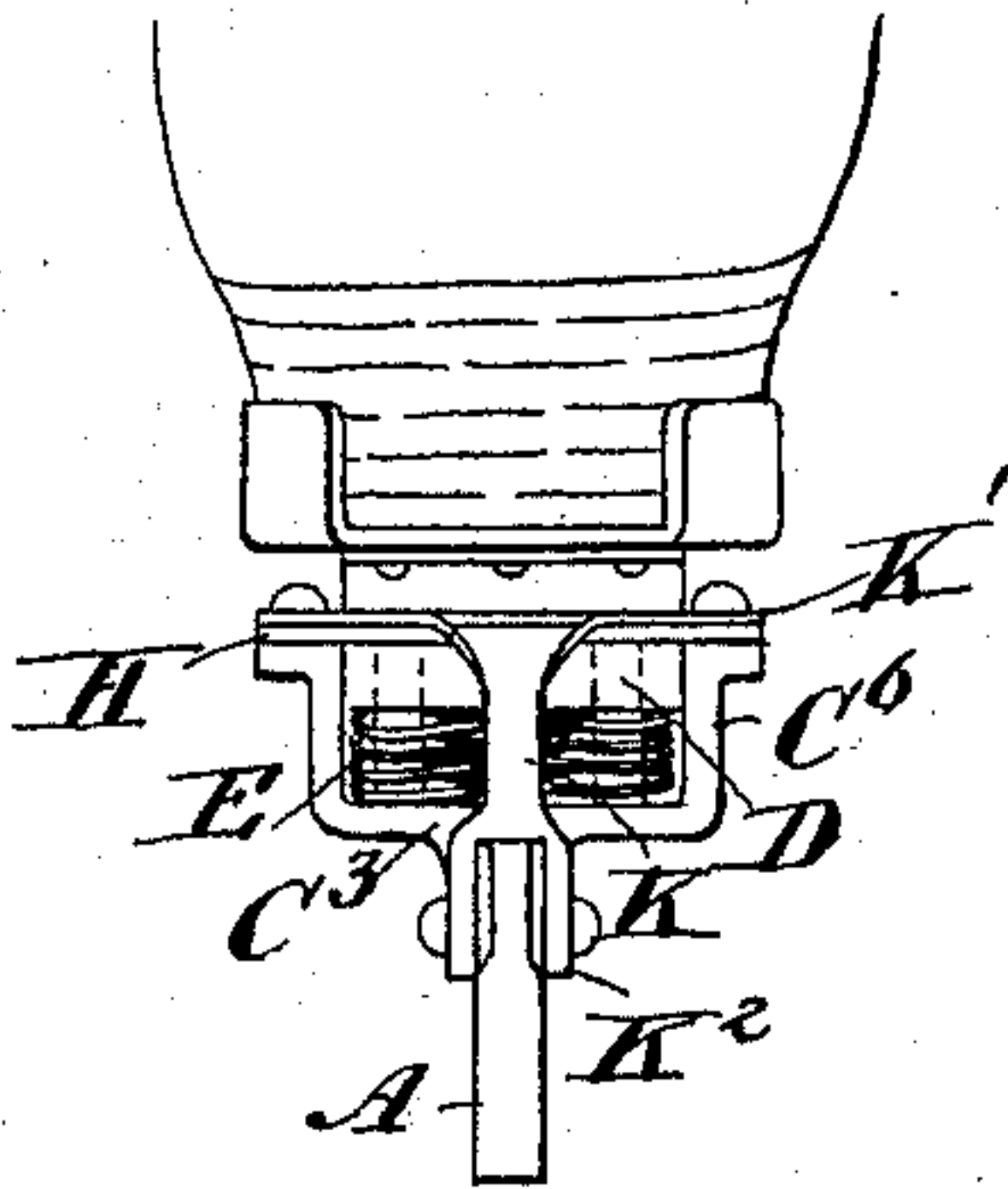
J. A. LA CHAINE.
SKATE.

No. 388,693.

Patented Aug. 28, 1888.



— Fig. 2 —



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JOSEPH A. LA CHAINE, OF ST. MARTIN, QUEBEC, CANADA.

SKATE.

SPECIFICATION forming part of Letters Patent No. 388,693, dated August 28, 1888.

Application filed January 24, 1888. Serial No. 261,783. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ANTOINE LA CHAINE, of St. Martin, in the county of Laval and Province of Quebec, Canada, have invented certain new and useful Improvements in Skates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is intended to reduce the strain upon the muscles of a skater by interposing between the plate on which the foot rests and the blade proper yielding resistances which will receive the weight and force of the stroke, or, in other words, to secure the plate to the blade by movable (spring) connections placed at the toe, heel, and under the ball of the foot.

My invention also consists in the special construction of these connections by which any lateral movement of the parts is entirely prevented.

The invention consists, further, in the application of an auxiliary spring-holdfast to bear upon the spring proper of the well-known spring-skate when my invention is applied thereto, so as to prevent accidental unfastening.

The improvements may be thus briefly described: Upon the blade proper I arrange, preferably at three points, frames or standards, either made in two parts or slotted at their lower ends, so as to fit astride the blade to which they are connected, extra means being provided to prevent any movement from a set vertical position in the direction of the blade. The upper part of these frames widens out to nearly the width of the foot-plate, and in a central space in them are set two vertical pins, around which is wound alternately a single spring. To the under side of the foot-plates are secured boxes corresponding in position to the frames on the blade, of width sufficient to fit down in the central space of the frames, perforated to allow the pins to pass up into them, and, finally, resting on the springs wound round the pins. A transverse bar secured to the top ends of each frame or standard and passing through the boxes from the foot-plate serves to connect all the parts of the skate together. The toe and heel frames may be further secured against displacement by curved forked arms with their forked ends secured to the top of the frames and their other ends riveted to the blade. The auxiliary

spring-holdfast is in the shape of a bent strip of steel, secured at one end by one of the nuts found in all spring-skates and bearing upon the spring-holdfast proper with its free end.

For full comprehension of the invention reference must be had to the annexed drawings, forming part of this specification, in which—

Figure 1 is a side view of a spring-skate with my improvements added; Fig. 2, a rear view of same; and Fig. 3, a transverse sectional elevation on line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A is the skate-blade, of any usual shape; and B B', the sole and heel plates. These are shown as those of the well-known "Acme" or spring skate, and the fastening devices, as shown, belong to such skate, (with the exception of my auxiliary spring-holdfast, to be described farther on,) for securing it to the boot. The invention can be applied to other patterns of skates.

C' C² C³ are frames or standards, formed as shown in Figs. 2 and 3, C' and C³ being rigidly secured to the blade at points below the toe and heel of the wearer, and C² arranged beneath the ball of the foot, but not rigidly secured to the blade like the others, it being preferably movable up and down in a vertical position. These frames may be formed in two parts, but are made preferably in one, with a slot cut centrally up their lower parts to allow them to bestride the blade. The lowermost ends, *c*, of these lower parts are flattened into the shape shown in Fig. 1, and those of C' and C³ are fastened centrally by a rivet, *d*, passing through the blade and holding these frames rigidly in position. The frame C², however, is allowed to work up and down in a vertical position by means of a vertical slot, *a*, cut in the blade, in which the rivet *d'* works. The adjacent wings or side pieces, *c'*, of the ends *c* of frames C' C³ are provided with small dogs or projections *c⁵ c⁵*, sliding down in vertical grooves *a'* in the blade and preventing any movement on the rivet; but in the case of C² it is preferable to substitute dovetails for the dogs or projections. In the central space between the upper side arms, C⁶, of the standards are set the vertical pins D, of the same height as C⁶, and round these pins is wound in alternate twists or coils a spring, E. To the under side of the foot-

plates are attached at points corresponding to $C' C^2 C^3$ boxes $F' F^2 F^3$, of a width sufficient to allow them to enter the space between the arms C^6 , perforated so as to fit over the pins D and resting on the spring E . The blade and parts secured to it are connected to the foot-plates by means of a bar, H , secured to the ends of C^6 and passing through the projections $F' F^2 F^3$, open for the purpose.

To more firmly secure the frames $C' C^3$ under the toe and heel to the blade, I propose to secure to the ends C^6 of each the forked ends K' of a curved forked stay, K , with its other or lower end, K^2 , shaped and secured to the blade in a manner precisely similar to those of the standards $C' C^3$. The auxiliary spring-holdfast is shown in Fig. 1 and lettered L . It is simply a bent strip of steel secured, as shown, at one end by the nut l to the heel-plate, and its free end is forked to fit the spring-holdfast proper. It will be seen that by this construction the foot is, so to say, cushioned on the skate, that lateral movement of the foot-plates cannot take place, and that the front and back standards in which the springs are carried are rigidly secured to the blade.

What I claim is as follows:

1. In a skate, the combination, with the blade and foot-plates, of standards set on and secured to the blade and fork-shaped, so as to extend outward and upward on each side of same, vertical pins carried between sides of and on cross-piece of standard, a single spring

coiled alternately around each of such pins, boxes projecting downward and secured on the under side of the foot-plates and perforated to fit over such pins and resting on said springs, and a connecting-bar passing through such projecting boxes and secured to the tops of the sides of the standards, all as shown and described, and for the purpose set forth.

2. The combination, with the front and rear standards, $C' C^3$, rigidly secured to the blade A and carrying pins D , mounted on them, and springs E , wound around said pins alternately, of curved forked stays K , secured to the ends C^6 of the standards and to the blade A , as and for the purposes set forth.

3. The combination, with the blade A and standards $C' C^3$, and stays $K K$, with flattened ends $c K^2$, riveted to such blade, of dogs or projections formed on inner side of such flattened ends, and vertical grooves a' in blade, in which such dogs fit, as and for the purposes set forth.

4. The combination, with the blade and foot-plates of a skate, and, in combination, the standards $C' C^3$, secured rigidly to the blade, with stays $K K$, to prevent longitudinal movement, of the standard C^2 , carrying pins $D D$ and spring E , and secured to blade so as to allow of vertical movement, as shown.

Montreal, 18th day of January, A. D. 1888.

J. A. LA CHAINE.

In presence of—

OWEN W. EVANS,
WM. P. McFEAT.