(No Model.)

2 Sheets—Sheet 1.

H. D. CARRYL.

SKATE.

No. 572,500. Patented Dec. 1, 1896.

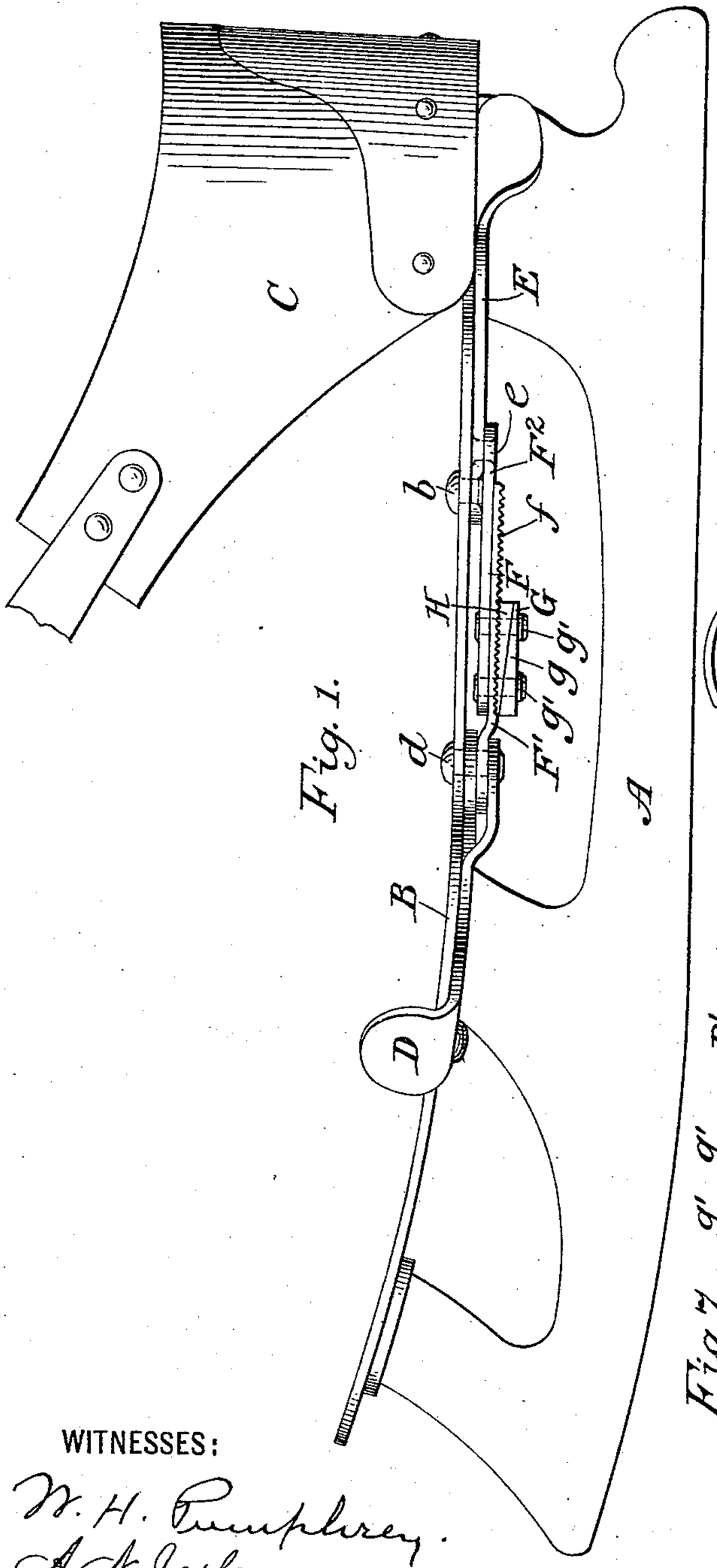

Fig. 1.

Fig. 4.

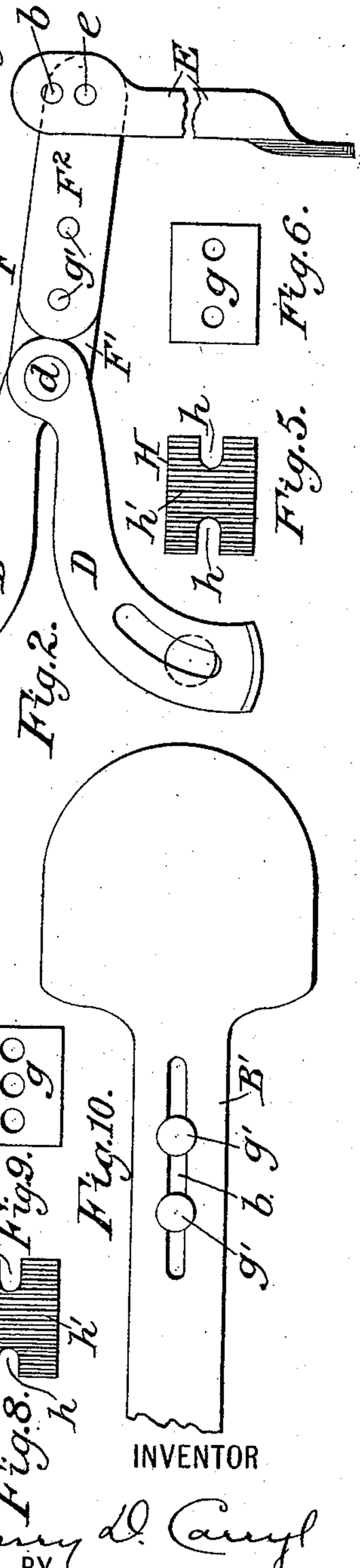

Fig. 2.

Fig. 3.

Fig. 5.

Fig. 6.

Fig. 8.

Fig. 9.

Fig. 10.

WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

H. D. CARRYL.

SKATE.

No. 572,500. Patented Dec. 1, 1896.

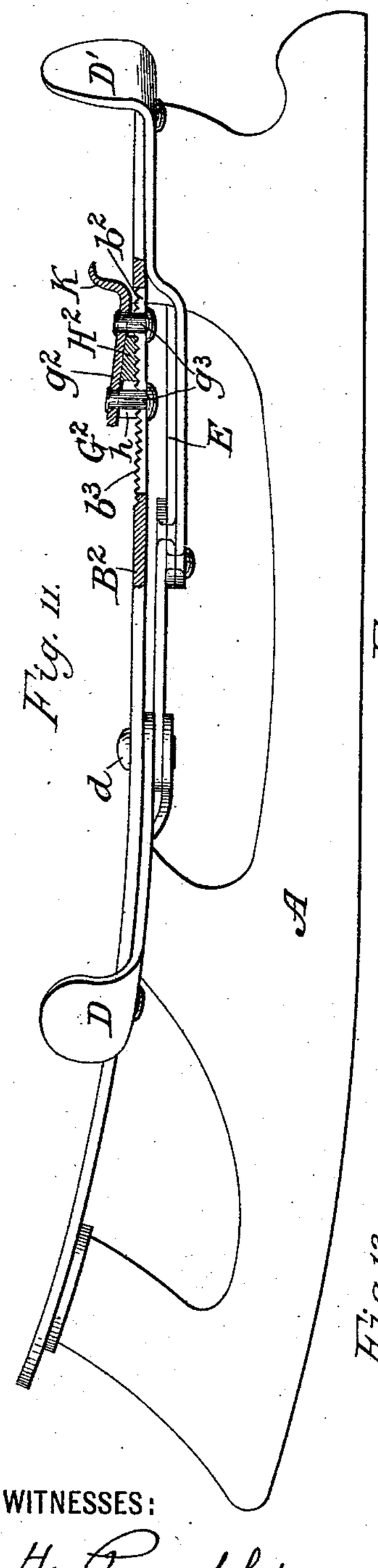

Fig. 11.

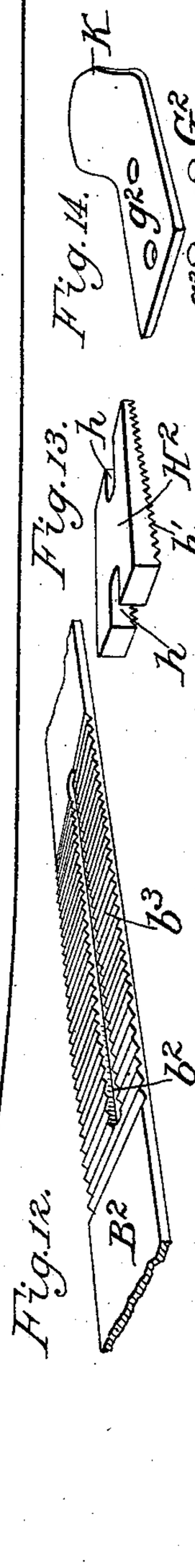

Fig. 12.

Fig. 13.

Fig. 14.

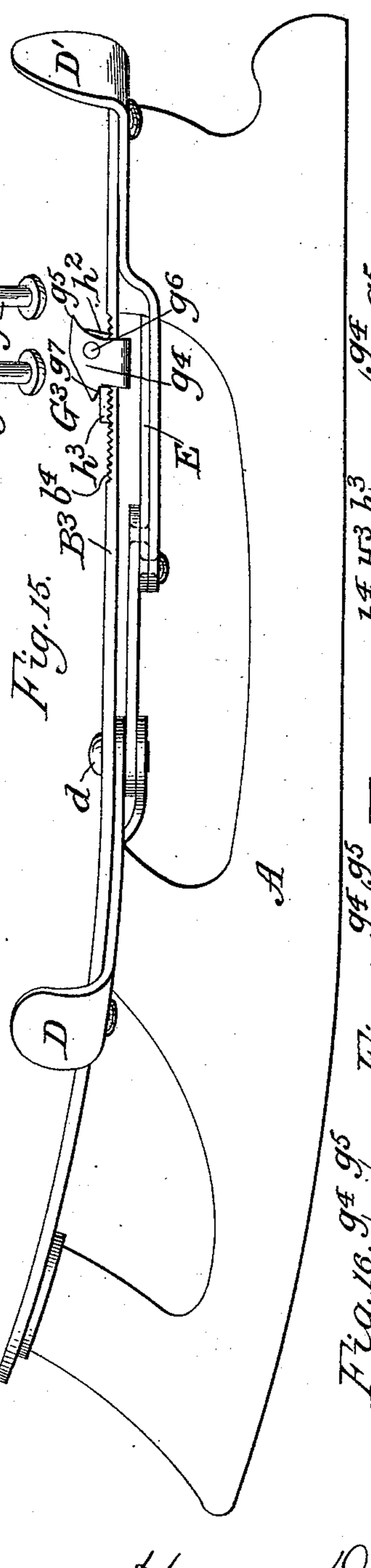

Fig. 15.

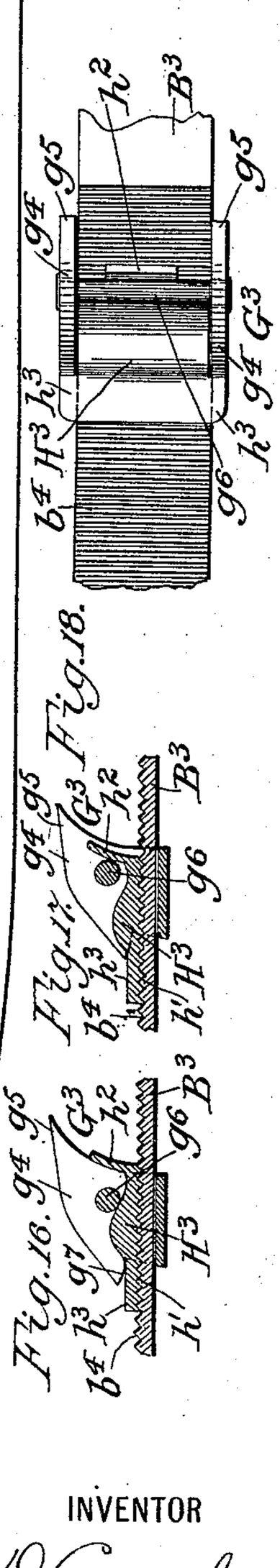

Fig. 18.

Fig. 17.

Fig. 16.

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UNITED STATES PATENT OFFICE.

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SKATE.

SPECIFICATION forming part of Letters Patent No. 572,500, dated December 1, 1896.

Application filed February 19, 1896. Serial No. 579,818. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. CARRYL, a citizen of the United States, residing in the city and county of New York, State of New York, have invented certain new and useful Improvements in Skates, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof.

Skates which are intended to be secured to the boot or shoe, either wholly or in part, by clamps which engage the sole or the sole and heel require some capacity for adjustment in order that they may be used with boots or shoes of different lengths or widths. Provision is usually made for such adjustability by supporting the heel-dog adjustably or by making the fulcrum of the clamping-lever adjustable or by making the link between such clamping-lever and the heel or toe clamps adjustable in length. Various means have been devised hitherto for securing the movable parts in adjusted position, but so far as known to me such devices are objectionable either on account of their insecurity or because they require the application of a key or other instrument. I have sought to provide means for retaining such parts in adjusted position which shall be certain in action under all circumstances and conditions of use, shall have no parts to become separated one from another, and shall require no key or other instrument to effect or permit the desired adjustment. The device which I have invented and which is referred to herein is capable of application in place of any of the devices above mentioned, and although I have herein illustrated it as applied to the heel-dog, to the fulcrum of the clamping-lever, and to the link which is connected to the clamping-lever it will be understood that I do not intend thereby to limit the application of the device to those particular uses nor to the exact construction and arrangement which I have shown in the accompanying drawings, in which—

Figure 1 is a side view of a lady's skate in which my device is applied to the link between the clamping-lever and the toe-clamp. Fig. 2 is a plan view of the clamping-lever, link, and toe-clamps removed from the skate shown in Fig. 1. Figs. 3, 4, 5, and 6 are plan views of the several parts of the link and adjusting device. Fig. 7 is a partial side view illustrating the application of my device to the fulcrum of the clamping-lever. Figs. 8, 9, and 10 are detailed plan views illustrating features of the construction shown in Fig. 7. Fig. 11 is a side view, partly in longitudinal section, illustrating the application of my device to the heel-dog. Figs. 12, 13, and 14 are detailed perspective views illustrating features of construction of the device shown in Fig. 11. Fig. 15 is a side view of a skate, illustrating also the application of my device to the heel-dog, but in a slightly-different form from that shown in Fig. 11. Figs. 16 and 17 are detailed views, in vertical longitudinal section, illustrating the mode of operation of the device shown in Fig. 15; and Fig. 18 is a detailed plan view of the device shown in Fig. 15.

In the several forms in which I have illustrated my invention the device in which it is embodied comprises a serrated or otherwise roughened plate, with respect to which the part to be adjusted is to have longitudinal movement, a slide which has formed therewith or attached or connected thereto the part which is to be adjusted, and a serrated wedge between which and said slide there is capacity for limited longitudinal movement and which is adapted to be pressed into engagement with said serrated or roughened plate by the movement of said slide with respect thereto. I have referred thus generally to the leading features of my device in order that the similarity of the several forms, as they are described in detail hereinafter, may be more readily appreciated. I will proceed now to describe each form or device separately.

Referring first to the construction shown in Figs. 1 to 6, inclusive, it will be seen that the skate to which the device may be applied may be of any ordinary or approved form or construction, having, as represented in Fig. 1, an ordinary blade or runner A, foot-plate B, and heel-strap C. Furthermore, the toe-clamps D D are supported substantially in the usual manner and are connected to and operated by the usual clamp-

ing-lever E through a link F, the latter being pivoted at one end by a common stud *d* to the toe-clamps D D and at the other end by an eccentric stud *e* to the clamping-lever E, which is itself pivoted to the foot-plate B by a stud *b*. In this embodiment of my invention the link is made in two parts F′ and F², one of which is to be adjustable longitudinally with respect to the other in order to vary the length of the link, and thereby to adjust the toe-clamps D D to suit a wider or narrower sole. The part F′ of the link is serrated or roughened upon one side, as at *f*, and is also slotted longitudinally, as at *f′*, as a convenient means for attaching the slide, hereinafter referred to, to itself with freedom for longitudinal movement. The other part, F², of the link in the construction represented is connected by two studs *g′ g′*, which pass through slot *f′*, with the plate *g*, the studs *g′* and the plate *g* together constituting the slide G, and the surface of the plate *g* adjacent to the part F′ being preferably inclined with respect thereto, substantially as represented. Between the plate *g* and the serrated or roughened bar or part F′ is interposed a wedge H, which is held to the slide loosely with capacity for limited longitudinal movement. For this purpose it may be slotted, as at *h*, to engage the studs *g′*. It will be obvious that if the wedge H is drawn in the direction of its thicker end it will be cleared from the roughened surface of the part or part F′ and will then permit the slide G to be moved freely in either direction and at the same time permitting the bar or part F² to be moved longitudinally with respect to said bar or part F′. It will also be obvious that as the slide G is carried with the part F² and acts against the inclined side of the wedge H any strain upon the bar or part F² in the direction of its length and toward the thicker end of the wedge H will only crowd the wedge harder against the roughened surface of the bar or part F′ and so lock the two parts F′ and F² together. In order to disengage the two parts, so as to permit the adjustment of one with respect to the other, the part F² is moved toward the part F′ in the direction of its length, carrying with it the slide G, and thereby releasing the wedge H. When this has been accomplished, the slide can be moved in either direction and secured in its new position by pressing the wedge H home in the direction of its length, after which any further tension upon the link will only serve to unite the parts more firmly, as already described.

In the construction shown in Figs. 7 to 10, inclusive, the fulcrum-stud *e′* (shown in dotted lines in Fig. 7) is the part which is to be longitudinally adjustable, and the foot-plate B′ is the bar or part with respect to which said stud is to be adjustable. The said stud *e′* is fixed to the slide G′, which, as before, is composed of a plate *g* and studs *g′ g′*, which are adapted to enter and move in the slot *b* of the foot-plate B′, whereby said slide G′ is mounted upon said foot-plate in a manner to permit free longitudinal movement, while preventing complete separation of the parts. Between the slide G′ and the foot-plate B′ is interposed a wedge H′, which is slotted, as at *h h*, to engage the studs *g′ g′* and to permit a limited longitudinal movement of the wedge with respect to the slide. The upper surface of the wedge is serrated or otherwise roughened to engage the corresponding serrated or roughened surface *b′* of the foot-plate B′. It is evident that when the parts are in the position represented in Fig. 7 any pressure upon the fulcrum-stud *e′* in a forward direction will crowd the wedge against the bar or part B′, and thereby hold the slide with certainty from movement forward, which is the direction in which the action of the clamping-lever B would tend to move it. The movement of the slide in the opposite direction, however, permits the wedge to be moved away from the roughened surface of the plate B′ and the wedge, slide, and fulcrum to be moved freely in either direction with respect to the foot-plate. As before, the reëngagement of the parts is effected by pressing home the wedge.

In the construction represented in Figs. 11 to 14, inclusive, the heel-dog K is the part which is to be longitudinally adjustable, and the foot-plate B² is the part with respect to which or upon which the heel-dog is adjustable. As represented in Figs. 11 and 14, the heel-dog is made integral with the plate *g²*, which, together with the studs *g³*, composes the slide G². The studs *g²* are free to move in the longitudinal slot *b²* of the foot-plate B², and are preferably of unequal length, as represented, so that the under side of the plate *g²* shall be inclined with respect to the foot-plate. The wedge H², as before, is slotted, as at *h h*, to engage the studs *g³* with freedom for longitudinal movement, and is serrated or roughened, as at *h′*, to engage the correspondingly serrated or roughened surface *b³* of the bar or part B². The skate is represented as having the usual toe-clamps D and heel-clamps D′, both operated by the usual clamping-lever E to clamp the sole and to force the heel forward into engagement with the heel-dog J. It will be evident that the effect of pressure against the heel-dog in the manner described will be to crowd the wedge H² against the foot-plate, and thereby to lock the heel-dog firmly in its adjusted position. A slight movement of the heel-dog and plate *g²* in the opposite direction will release the wedge, and thereby permit the heel-dog, the slide composed of the plate B² and the studs *g³*, and the wedge to be moved together to any position upon the foot-plate B² between the extremities of the slot *b³*.

In the construction shown in Figs. 15 to 18, inclusive, I have illustrated a slightly-different form of the wedge and slide, although the principle of operation is in all respects the same as

of the form already described. In this case also the device is represented as applied to the adjustment of the heel-dog. The slide G^3 is represented as composed of a U-shaped piece of metal, which embraces the foot-plate B^3, the cheek-pieces g^4 of said U-shaped piece of metal being formed, as at g^5, with points to engage the heel. A cross-bar g^6 unites the cheek-pieces g^4 and affords a bearing-surface for coöperation with the wedge H^3, which may be formed with a lip or flange h^2 to prevent the complete separation of the wedge from the slide. The wedge is formed, as before, with a serrated or roughened surface to cooperate with the serrated or roughened surface b^4 of the foot-plate B^3. It is evident that when pressure is applied to the engaging points g^5 of the slide G^3 the latter will be moved with respect to the wedge H^3 sufficiently to cause the same to be crowded against the foot-plate and thereby to lock the slide against further movement, while a slight movement of the slide in the opposite direction will release the wedge and permit all of the parts to be moved together with respect to the foot-plate. I have represented the cheek-pieces g^4 of the slide as provided with the inclines or cam-surfaces g^7 to coöperate with lateral projections h^3 from the wedge H^3 to force the wedge into engagement with the foot-plate in the same manner as the cross-bar g^6 coöperates with the inclined surface of the wedge itself, and it is evident that either of these devices might be relied upon to effect the desired action.

I have herein illustrated and described my device in its application to different parts of a skate, although the general object and the mode of operation of the device are in all cases the same, and it will be evident that it might be applied to other specific uses than those herein described. I do not intend, therefore, to limit my invention to the precise construction shown nor to the particular uses referred to.

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

1. In a skate, the combination with a bar or plate having a roughened surface and having a longitudinal slot, of a slide composed of a plate and studs fixed thereto, said studs entering said slot and movable longitudinally therein with the plate, and a wedge interposed between said plate and said roughened surface and adapted to engage the latter, said wedge being slotted longitudinally to engage said studs loosely with freedom for longitudinal movement with respect thereto, substantially as shown and described.

2. In a skate, the combination with a foot-plate, serrated or roughened, of a slide mounted to move longitudinally on said foot-plate, a heel-dog formed on said slide, and a wedge interposed between said slide and said foot-plate and adapted to engage the serrated or roughened surface thereof, substantially as shown and described.

3. In a skate, the combination with a foot-plate, slotted longitudinally and serrated or roughened, of a slide, studs secured to said slide and engaging in said slot, a heel-dog formed on said slide, and a wedge interposed between said slide and said foot-plate and slotted to engage said studs with freedom for limited longitudinal movement, substantially as shown and described.

This specification signed and witnessed this 15th day of February, A. D. 1896.

HENRY D. CARRYL.

In presence of—

FRANK C. FLINT,

WALTER M. ALDEN.