

(No Model.)

2 Sheets—Sheet 1.

O. V. & E. E. FLORA.

ROLLER SKATE.

No. 331,192.

Patented Nov. 24, 1885.

Fig. 2.

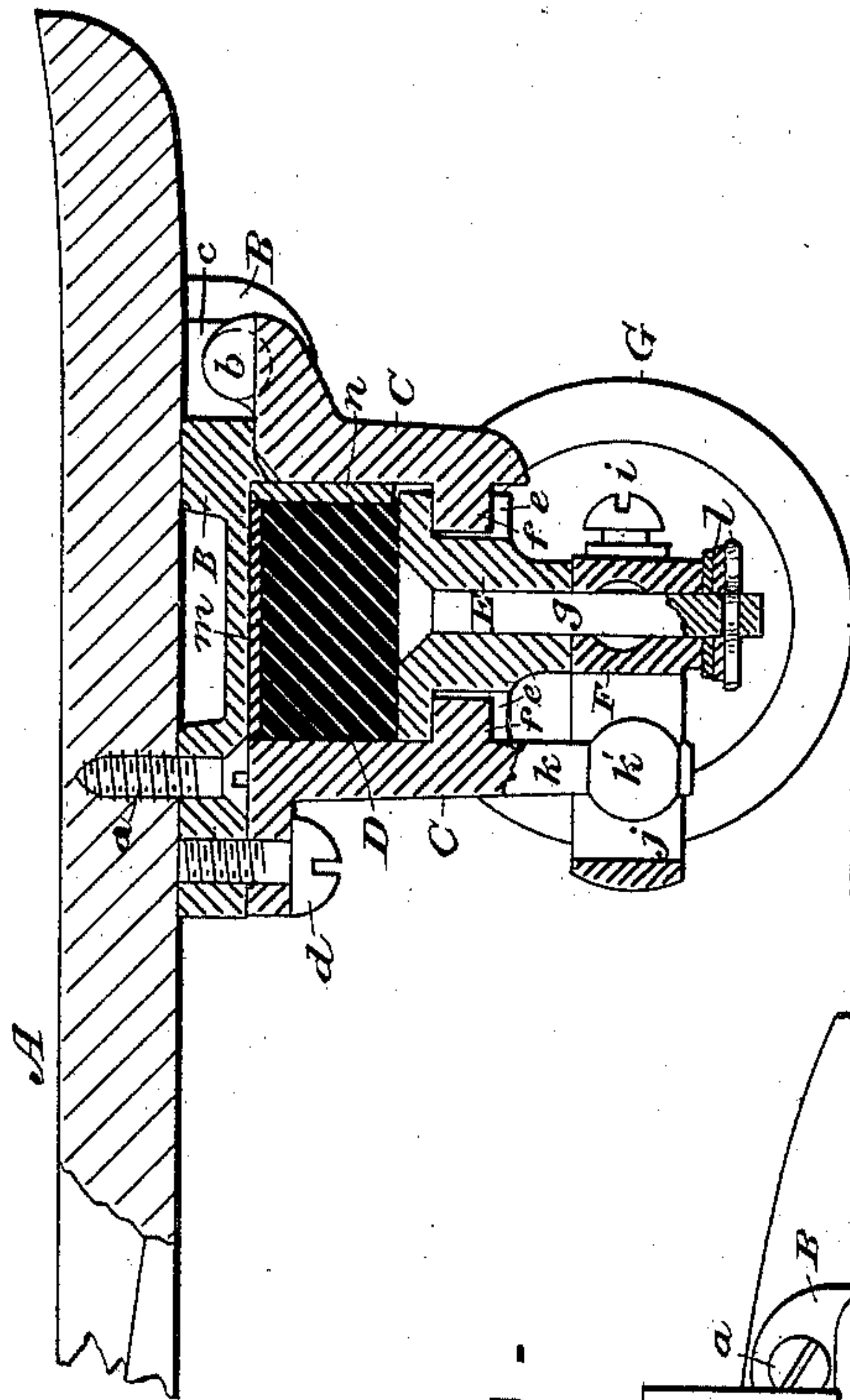


Fig. 3.

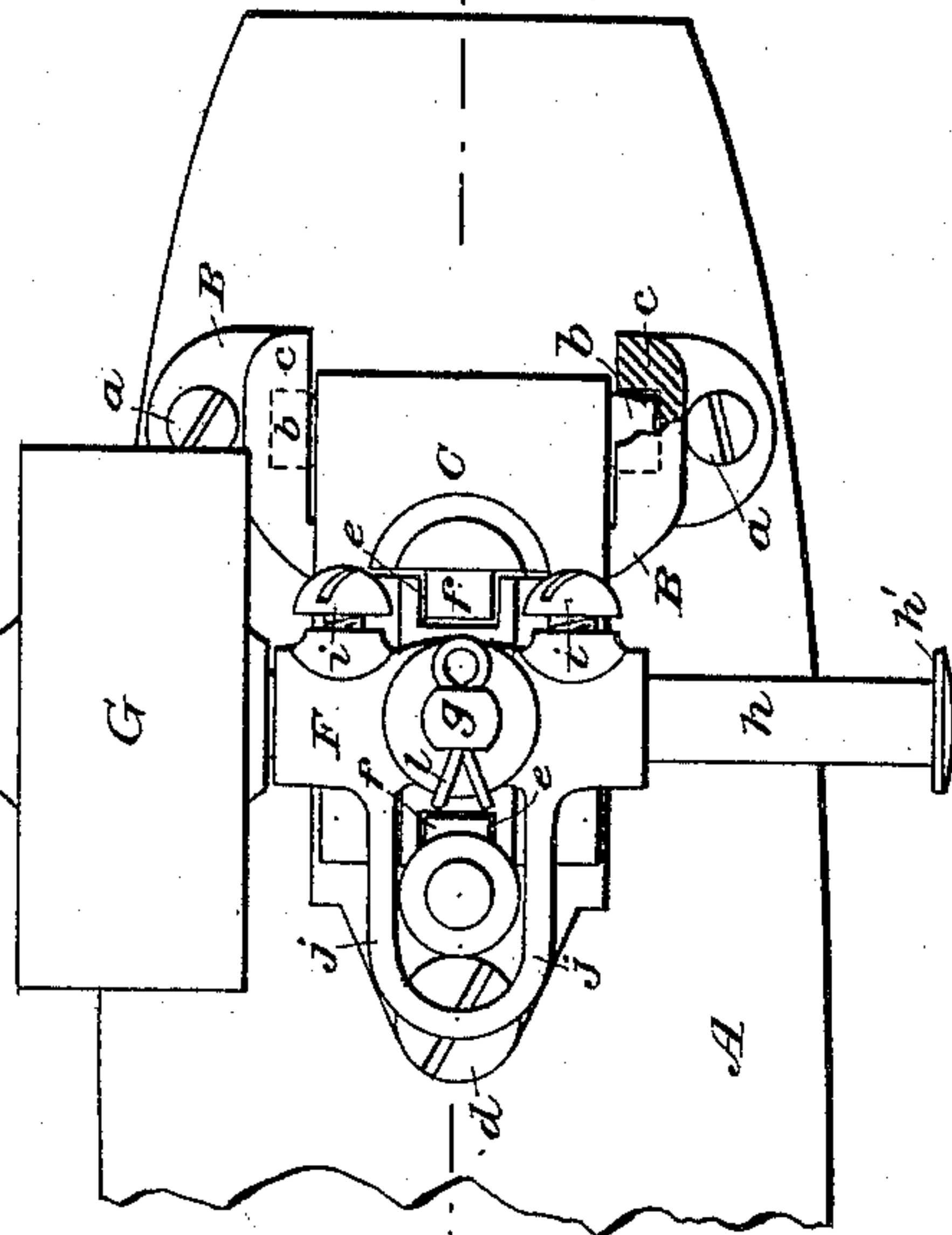
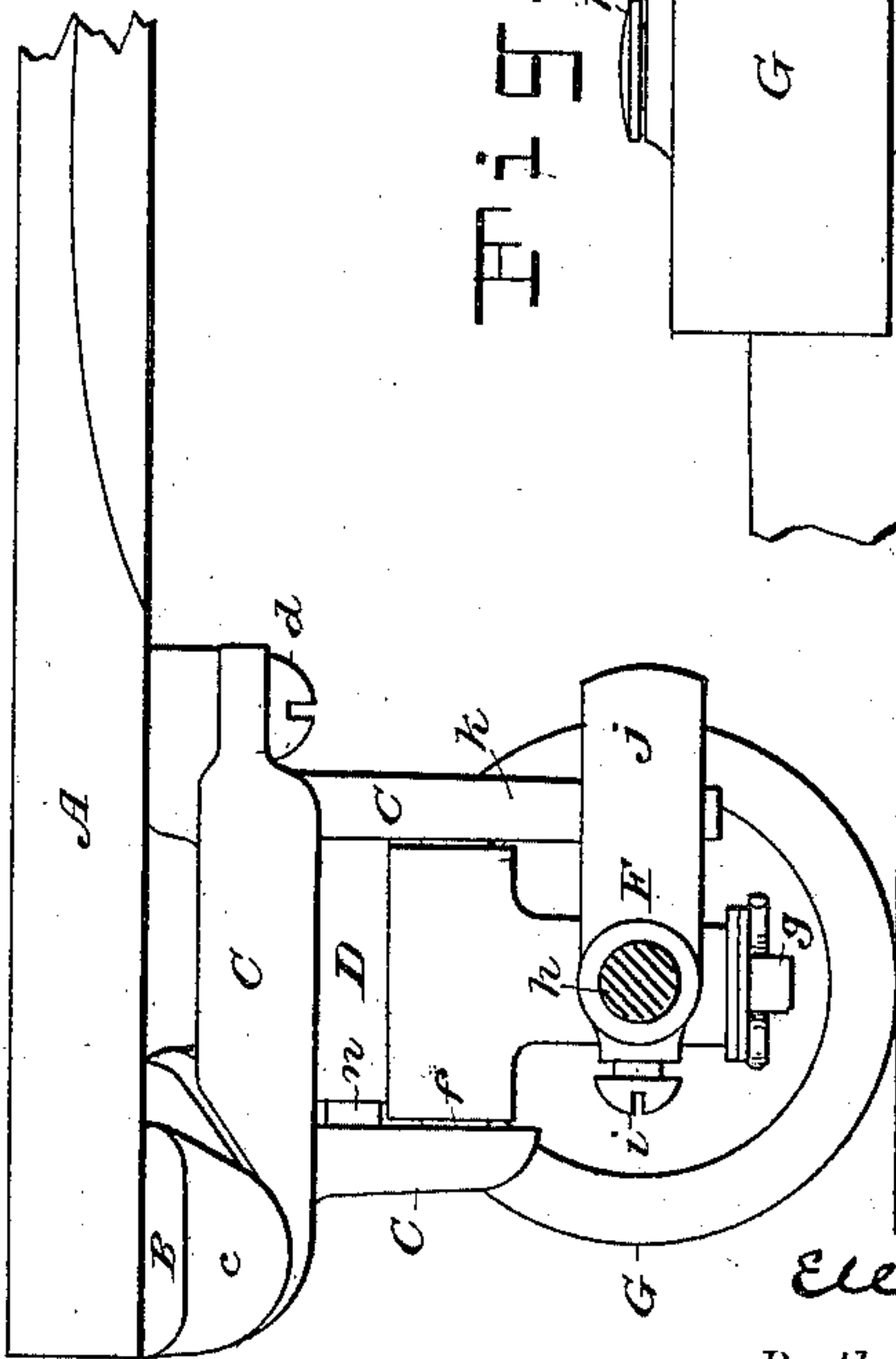


Fig. 1.



WITNESSES:

E. B. Bolton
Geo. Bainion

INVENTORS:

Olando V. Flora

Ellsworth E. Flora

By their Attorneys,

Burke, Faser & Connell

(No Model.)

O. V. & E. E. FLORA.

2 Sheets—Sheet 2.

ROLLER SKATE.

No. 331,192.

Patented Nov. 24, 1885.

Fig. 4-

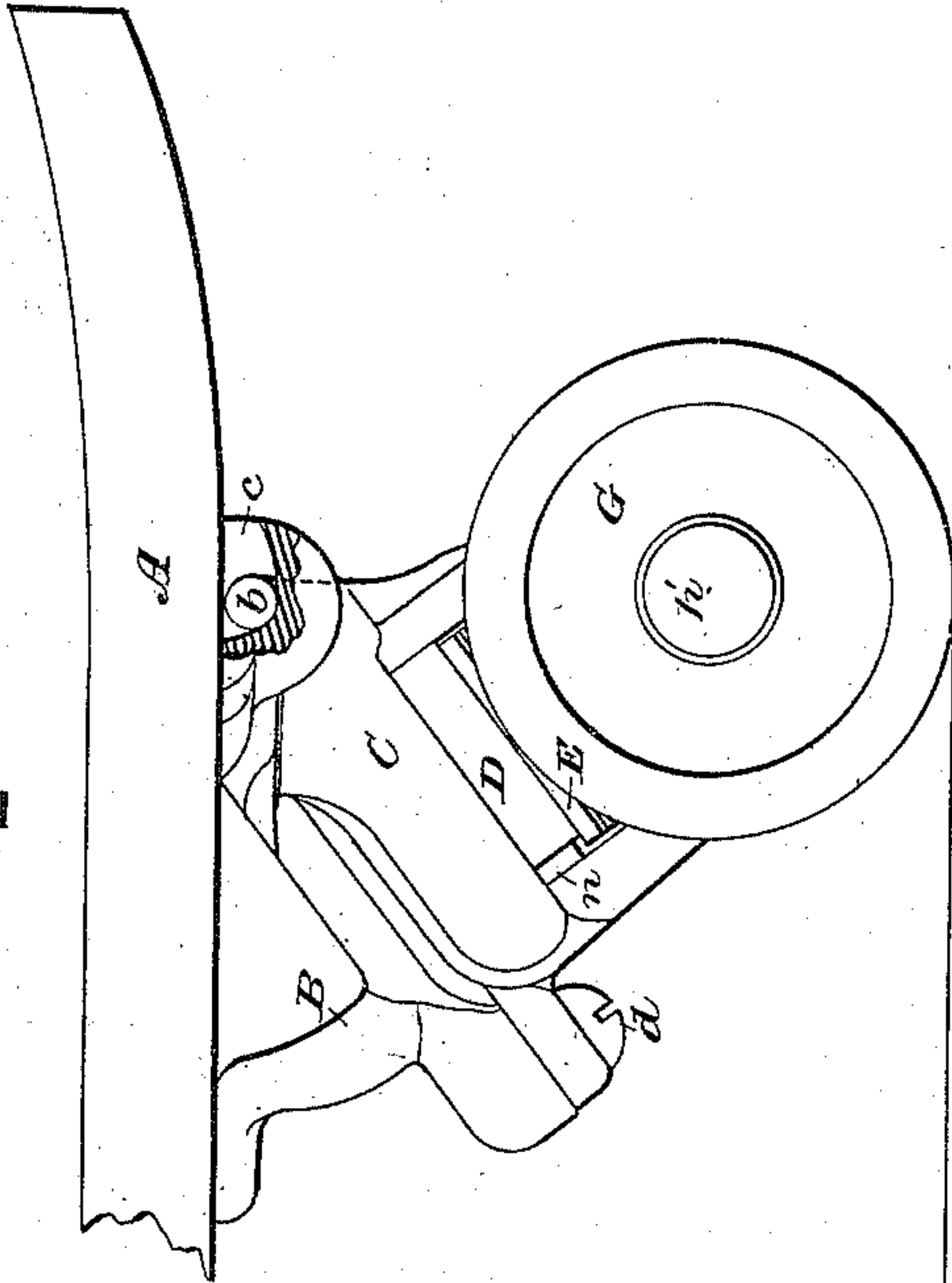
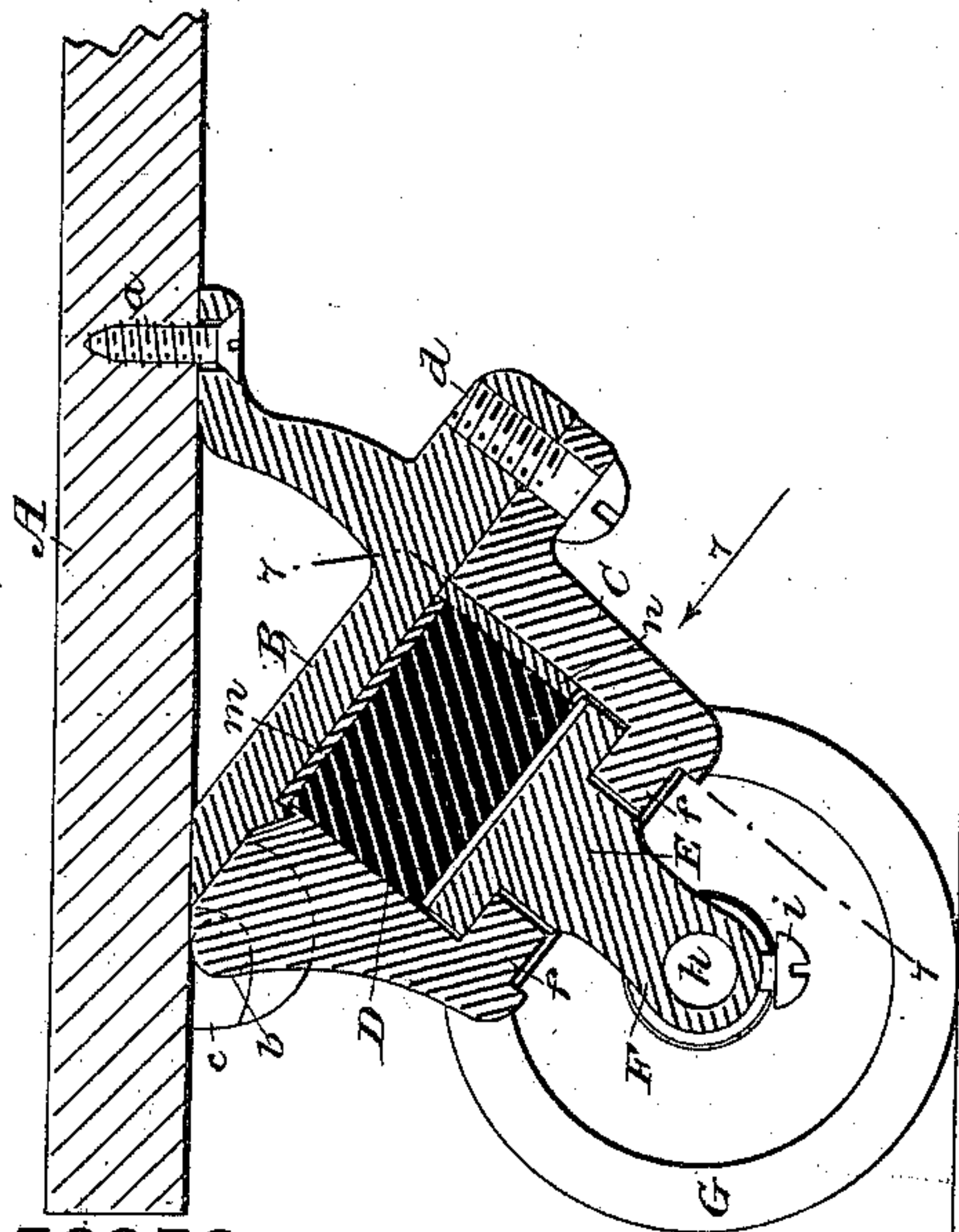


Fig. 5-



WITNESSES.

E. B. Bolton
Geo. Bainson

Fig. 7-

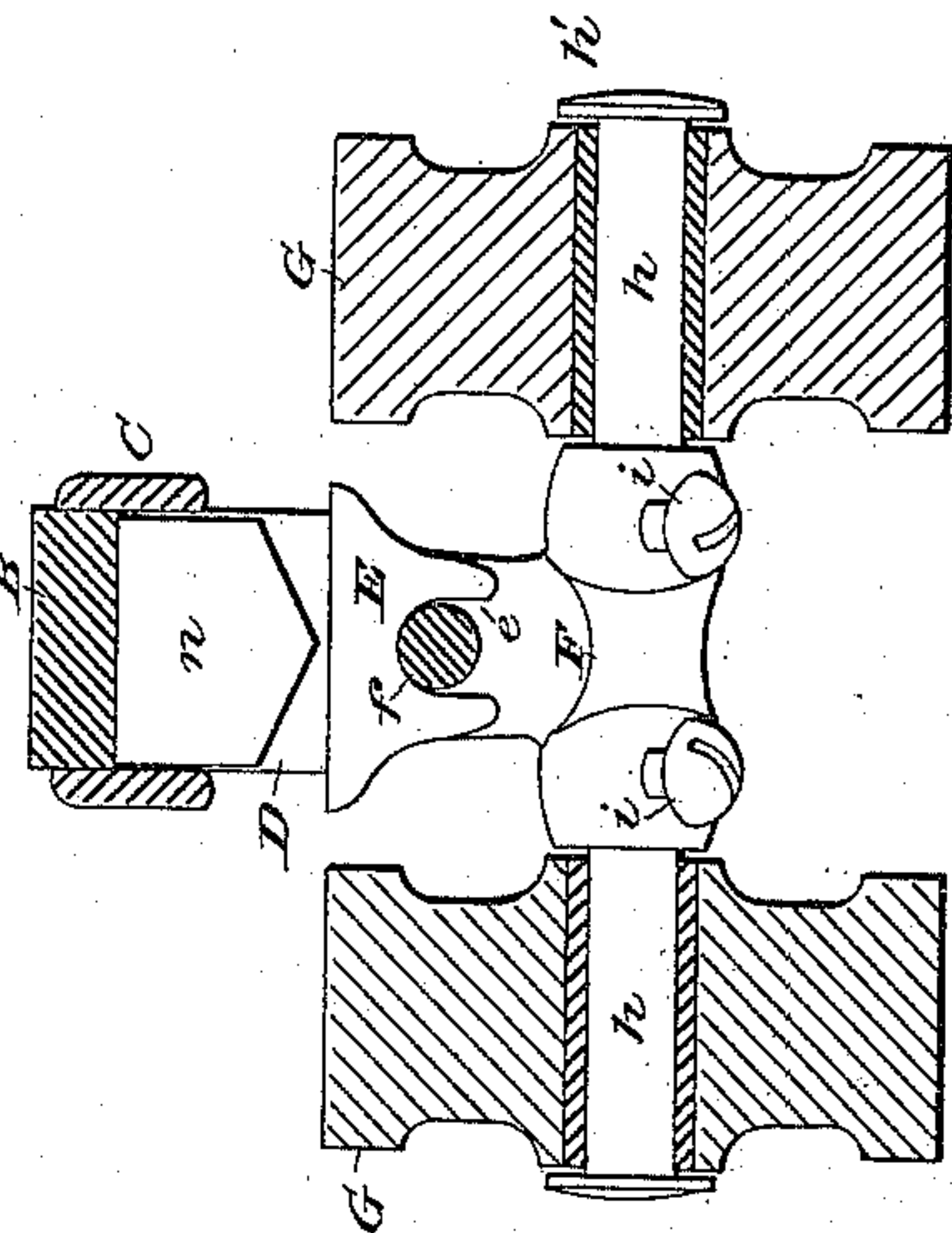
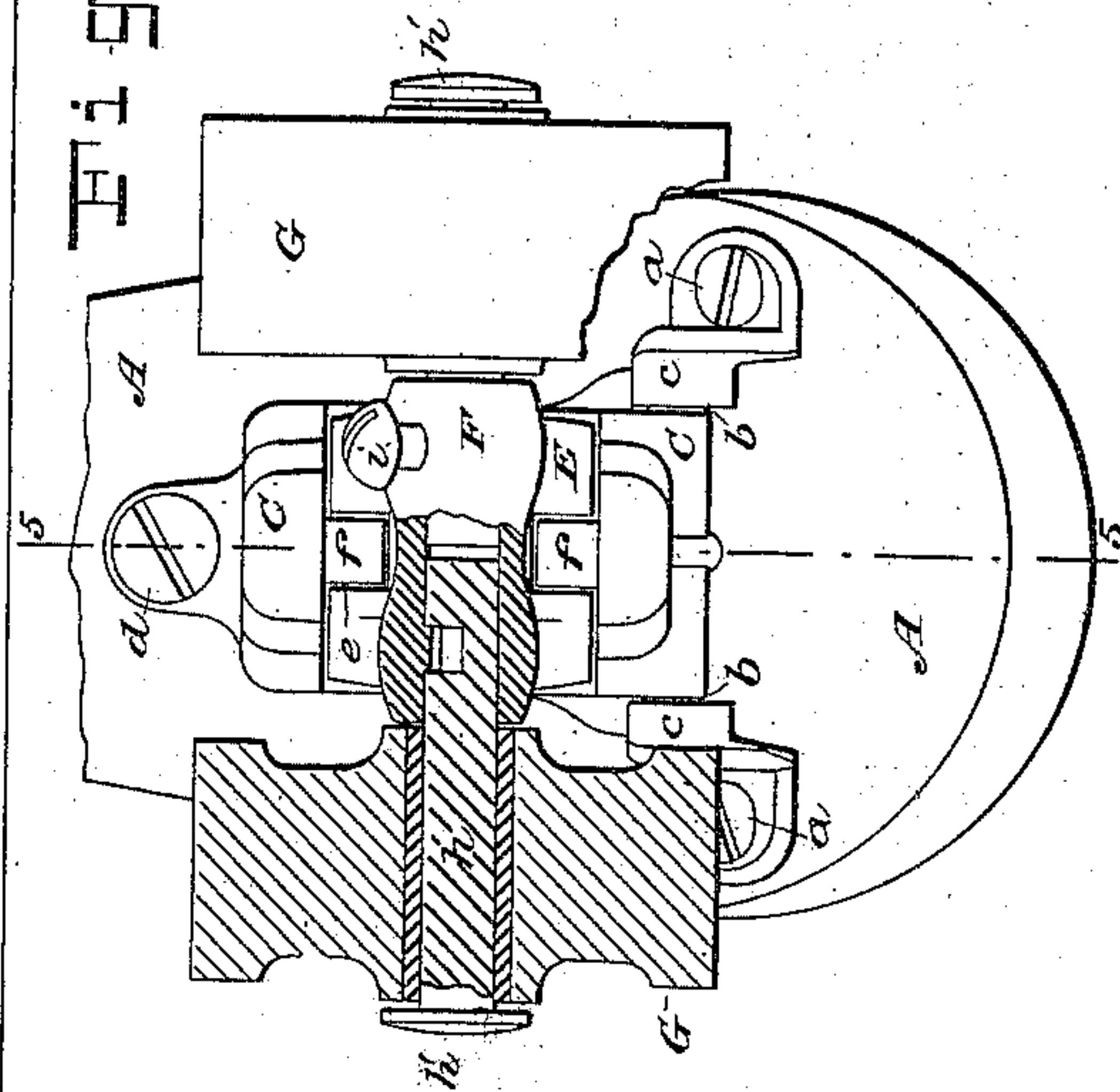


Fig. 6-



INVENTORS:

Orlando V. Flora
Ellsworth E. Flora
By their Attorneys,

Burke, Fraser & Connell

UNITED STATES PATENT OFFICE.

ORLANDO V. FLORA AND ELLSWORTH E. FLORA, OF MADISON, INDIANA.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 331,192, dated November 24, 1885.

Application filed August 11, 1885. Serial No. 174,150. (No model.)

To all whom it may concern:

Be it known that we, ORLANDO V. FLORA and ELLSWORTH E. FLORA, both citizens of the United States, and residents of Madison, in the county of Jefferson and State of Indiana, have invented certain Improvements in Roller-Skates, of which the following is a specification.

Our invention relates to that class of roller-skates wherein the rollers are mounted on rocking axes, with cushion-springs arranged between the said axes and the sole or platform of the skate, whereby the skater is enabled to rock the skate-platform from side to side, for reasons well understood.

The objects of our invention are in part to improve the roller-mountings and cushion-box, and in part to improve the means for giving the proper obliquity to the roller-axis when the skater desires to move in a curve, all of which will be hereinafter fully described, and carefully defined in the claims.

In the drawings we have shown our improvements embodied in two forms, one showing the two features of the invention, and the other showing one of the features combined with the ordinary oblique arrangement of the rocking axis.

Figure 1 is a side elevation of the heel portion of a roller-skate embodying both features of our invention. In this view the near roller is removed for purposes of illustration. Fig. 2 is a vertical longitudinal section of the toe portion of the same, taken in the plane indicated by the line 2 2 in Fig. 3. Fig. 3 is an under side plan view. In this view one roller is removed for purposes of illustration. Figs. 4, 5, 6, and 7 illustrate the application of one of the features of our invention to a roller-skate, wherein the rocking axes are set obliquely in the usual way. Fig. 4 is a side elevation of the toe portion of the skate, partly broken away to show the construction. Fig. 5 is a vertical longitudinal section of the heel portion of the skate, the plane of the section being indicated by line 5 5 in Fig. 6. Fig. 6 is a plan view taken from the point indicated by arrow 6 in Fig. 5. In this view one roller is shown in mid-section for purposes of illustration. Fig. 7 is a sectional view, the plane of which is indicated by the line 6 6 in Fig. 5, and the point of view by the arrow 7

in Fig. 5. In this view we have shown the rollers in section for purposes of illustration.

We have omitted all the means for attaching the skate to the foot, as these may be of any kind and form no part of our invention. We have also shown the rollers mounted on an ordinary wooden sole or platform, A, although a metal sole or plate may be employed as well.

Referring first to Figs. 1, 2, and 3, B is a base-piece, usually of metal, secured to the sole A by screws *a a a*, or by other equivalent means.

C is the cushion-box, which is provided with hinging-lugs *b b*, that engage sockets at *c c* in the base-piece B. This box C is secured to the base-piece at its other end by a screw, *d*.

D is the cushion, which we usually make of rubber, although a spring of other material might be made to serve.

E is the follower, which rests on the cushion D. This follower has recesses *e e* at its ends, which open outwardly or downwardly, and these recesses are engaged by rounded lugs *f f* on the cushion-box C, which project inwardly, as represented. These studs serve as abutments to take the tension-pressure of the cushion, and as axes on which the follower E may oscillate laterally. In the follower is fixed a vertically-arranged stud, *g*, on which is mounted, by a cross-bearing, the roller-carrier F, which is thus permitted to swing horizontally on its center between the rollers. This carrier has an axial bore to receive the roller-axes *h h*, which are fastened in place by screws *i i*.

G G are the rollers, which are rotatively mounted on their respective axes *h*. Each axis *h* has a head, *h'*, to keep the roller in place, where it is confined between the said head and the shoulder formed by the end of the carrier F. On the carrier F, and projecting horizontally therefrom toward the center of the skate, are two arms, *j j*, which for strength we usually connect together at their outer ends, as shown. On the cushion-box is formed a downwardly-projecting stud, *k*, on which is fixed or formed a ball or knob, *k'*, which stands between the arms *j j*, as clearly shown.

The carrier is or may be kept in place on its

stud by a spring-key and washers, *l*, as indicated.

The cushion-box is open at top and bottom, the cushion being clamped between the bed-piece B and follower E. To increase the tension from time to time, a thin plate or plates, *m*, may be inserted between the cushion and bed-piece. A plate, *n*, which will be hereinafter referred to, limits the compression of the cushion.

Having thus far described the construction, we will now describe the mode of putting together the parts and their operation, and also point out their advantages.

When the screw *d* is removed, the cushion-box C turns back on its hinging-lugs *b*, and the cushion D may then be readily taken out. Then by detaching the roller-carrier from the follower the latter may be removed. The rollers may be removed by simply loosening the screws *i*. The parts may be assembled by simply reversing these operations.

It will be observed that when any pressure beyond the normal cushion-tension is thrown on the skate the cushion D is compressed and the studs *f* move down and out of contact with the follower. Thus the entire pressure is thrown on the cushion. Compression of the cushion beyond the predetermined limit brings the follower in contact with the stop-plate *n*, which is V-shaped at its lower edge, as seen in Fig. 7, in order to allow the follower to rock thereon. This plate *n* might form an integral part of the cushion-box, but we usually make it separate therefrom. The lateral rocking motion of the follower on the cushion takes place on the studs *f* as axes. As the axes of studs *f* are horizontal or parallel with the floor in this construction, means are provided for giving the roller-axes the proper obliquity in order to bring the two inner wheels closer together than the outer wheels in turning curves. This is supplied by the pivoting of the carrier F on stud *g*, and providing it with arms *j* to embrace the ball *k'*. When the skater rocks the skate sidewise, so as to cant the cushion-box, the stem *k*, borne by said box, acts as a lever (through ball or knob *k'*) on one or the other of the arms *j*, and swings the carrier F on its cross-axis *g*. Normally the stem *k* prevents the carrier F from swinging or turning on *g*, and thus throwing the roller-axes out of their proper normal position at right angles to the skate-axis.

We are aware that it has been before proposed to mount the roller carrier or truck of a skate on a vertical axis, and to provide it with a horizontally-arranged stem to engage an aperture in a "regulator" pendent from the skate-sole, in order to enable the skater to turn a curve, and this we do not claim, broadly.

The rubber cushion may be readily removed and replaced by a new one, and should a roller be split or injured it is but a moment's work to replace it by a new one. The normal tension of the cushion may be readily increased,

and in a moment, by removing screw *d* and placing one or more plates, *m*, behind the cushion.

Referring now to the construction shown in Figs. 4, 5, 6, and 7, we will say that in general it is the same as that we have described, except in respect of the means employed for enabling the skater to turn a curve. In this construction the rocking axis of the skate on studs *f* *f* is placed obliquely to the floor or skating-surface in the usual manner with such skates, and the roller-carrier is formed in one with the follower, the part being indicated in these figures by the reference-letters E F. A more minute description of this construction will not be required.

It will be understood that the rollers and mountings are the same at both ends of the skate, the two sets being simply reversed in position, as clearly shown.

The loose or open engagement of the follower with the cushion-box, while it serves always to keep the follower in place, yet allows the fullest and freest movement possible of the latter. This permits the cushion to be compressed more at one end than the other, for example, which is very desirable.

We do not limit ourselves to the precise details of construction herein shown, as these may be varied to some extent without departing materially from our invention.

Having thus described our invention, we claim—

1. A roller-skate wherein the cushion-box C is hinged to the base-piece at its one end, and detachably secured at its other end by a screw, for example, substantially as described, whereby the cushion may be conveniently removed and replaced, substantially as set forth.

2. A roller-skate wherein the cushion-box C is hinged to the base-plate at its one end, and secured to said base-plate by a screw at its other end, and wherein said cushion-box is provided with inturned lugs *f* *f*, to take under the follower, whereby the cushion is compressed to the normal tension between said follower and the base-plate, substantially as set forth.

3. The combination, with the cushion-box provided with hinging-lugs, a securing-screw, and inturned lugs to take into recesses in the follower, of the base-plate provided with recesses to receive the hinging-lugs on the cushion-box, the follower provided with recesses to engage the inturned lugs on the cushion-box, and the cushion, substantially as set forth.

4. The combination, with the cushion-box hinged to the base-plate, substantially as described, and provided with a stop to limit the compression of the cushion and lugs to take under the follower, of the cushion and the follower provided with recesses to engage the lugs on the cushion-box, substantially as set forth.

5. The combination, with the base-plate and the open-topped cushion-box hinged thereto,

substantially as described, of the cushion and follower, and the plate *m*, placed between the cushion and the base-plate, whereby the tension of the elastic cushion may be increased, 5 substantially as set forth.

6. The combination, with the base-plate, cushion-chamber, cushion, and follower, all constructed substantially as described, of the stop-plate *n*, provided with a V-shaped lower 10 edge or end for the follower to impinge on, substantially as set forth.

7. The combination, with the skate sole or plate A, the plate B, and the holder C, hinged to plate B, and provided with lugs *f f*, of the 15 cushion D, the follower E, having recesses *e*,

which engage the lugs *f*, the axis *g*, fixed in follower E, the carrier F, mounted on axis *g*, and provided with rollers G G and arms *j j*, and the arm *k*, fixed to or forming part of the holder C, and projecting downward between 20 the arms *j*, substantially as and for the purpose set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ORLANDO V. FLORA.
ELLSWORTH E. FLORA.

Witnesses:

W. E. McLELAND,
W. O. McLELAND.