

(No Model.)

2 Sheets—Sheet 1.

W. P. GREGG.

ROLLER SKATE.

No. 275,482.

Patented Apr. 10, 1883.

FIG. 1.

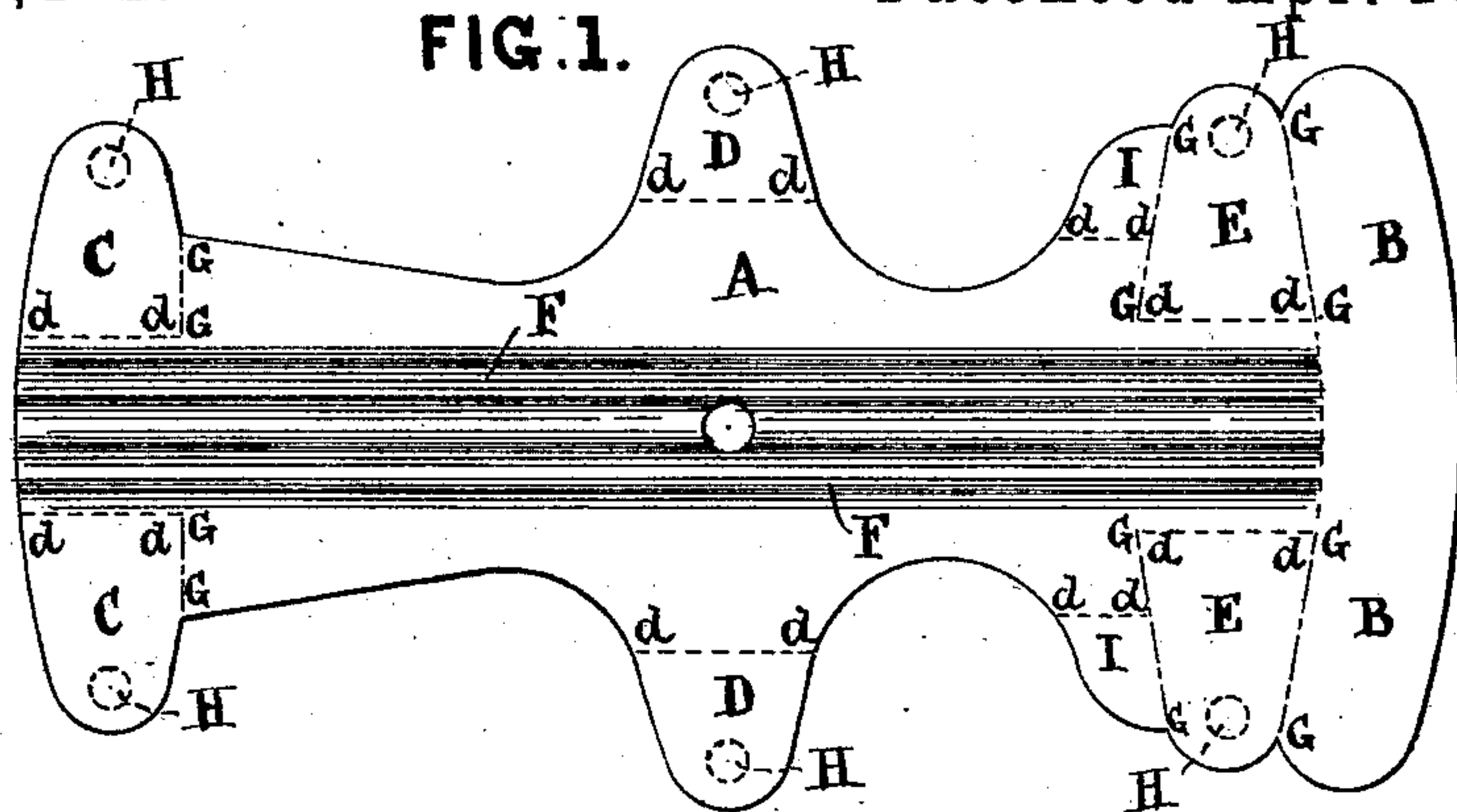


FIG. 2.

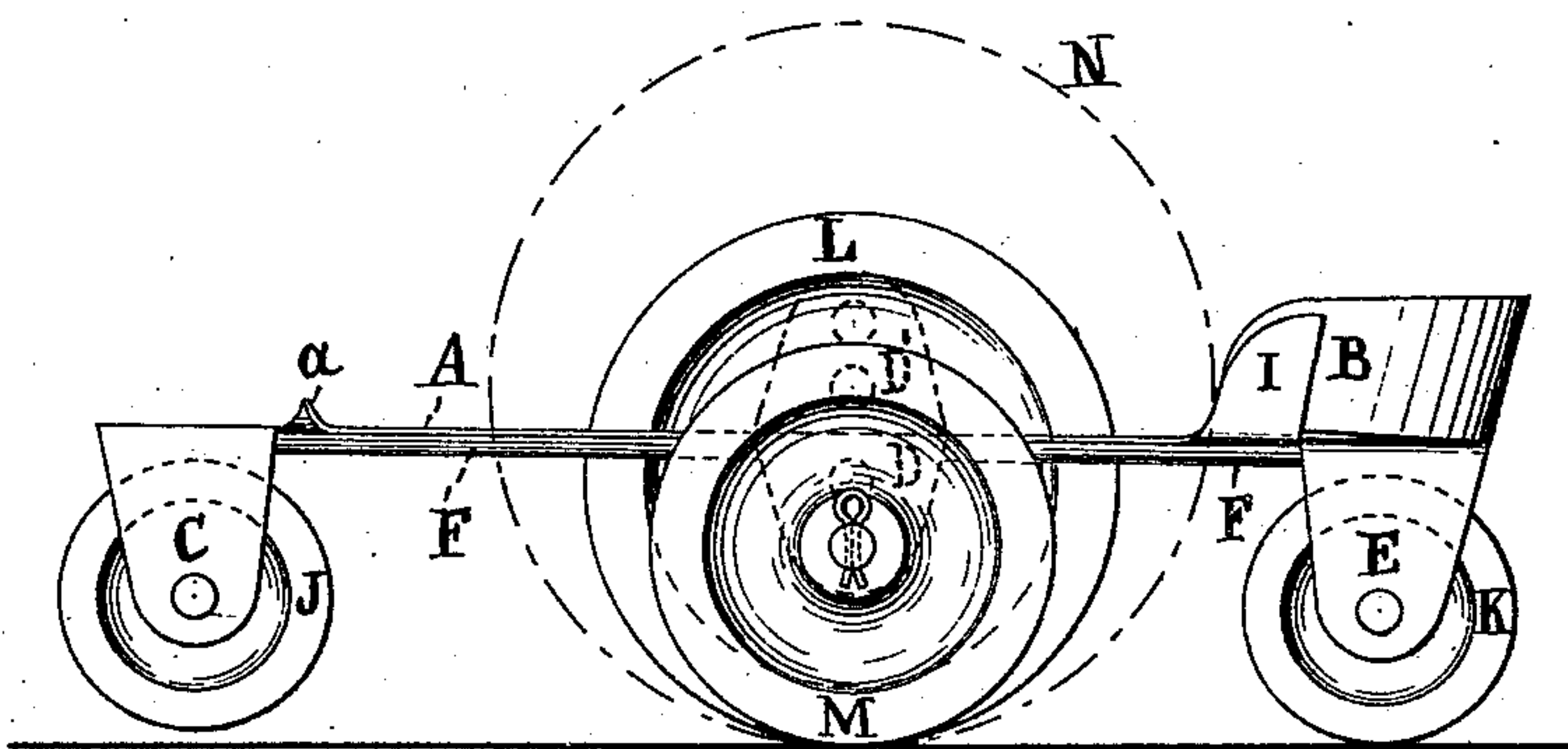


FIG. 3.

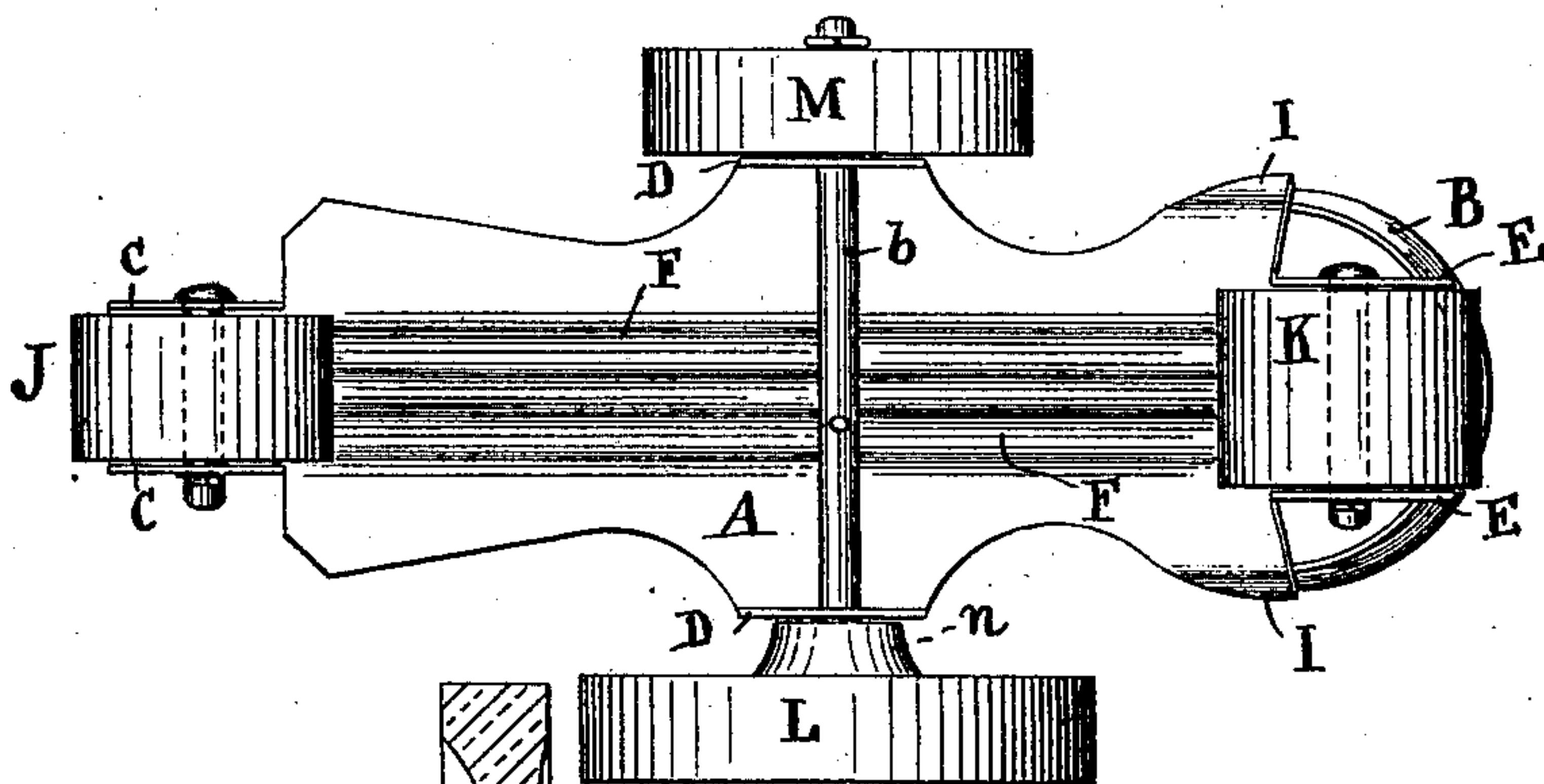
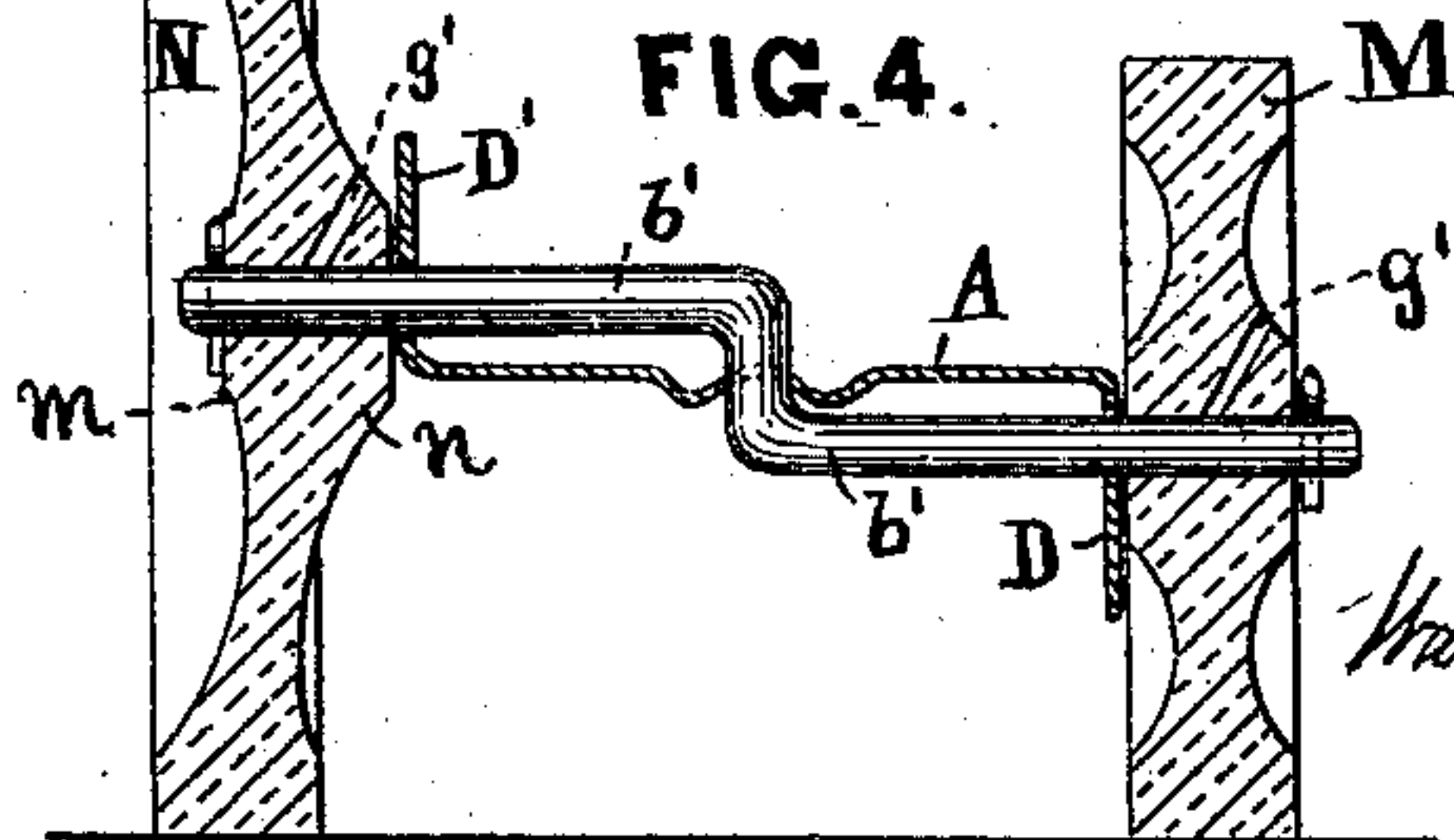


FIG. 4.



Witnesses.

Benj. Hall, Clerk
Geo. O. Cramer

Inventor.

Washington Parker Gregg

(No Model.)

2 Sheets—Sheet 2.

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No. 275,482.

FIG. 5. Patented Apr. 10, 1883.

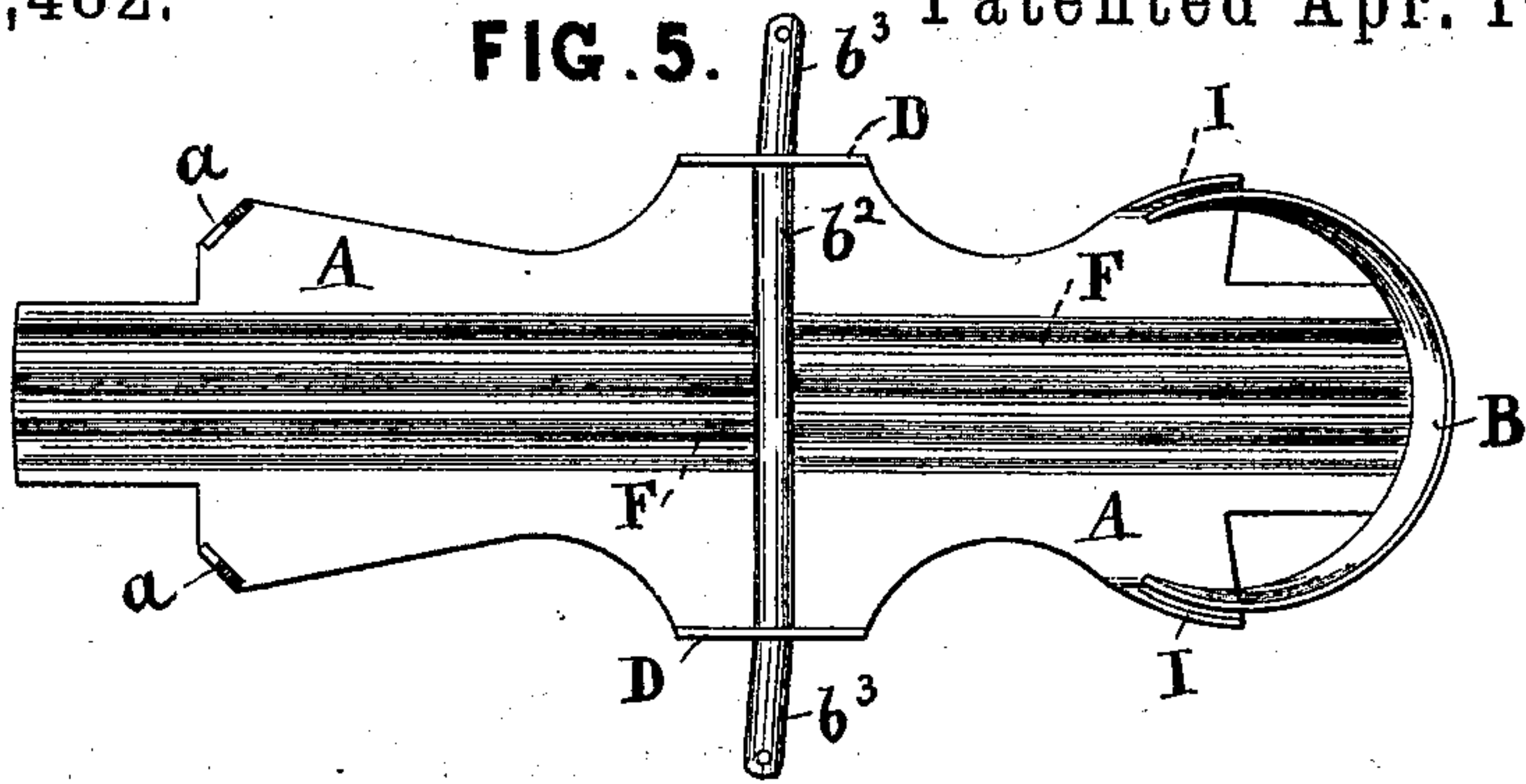


FIG. 7.

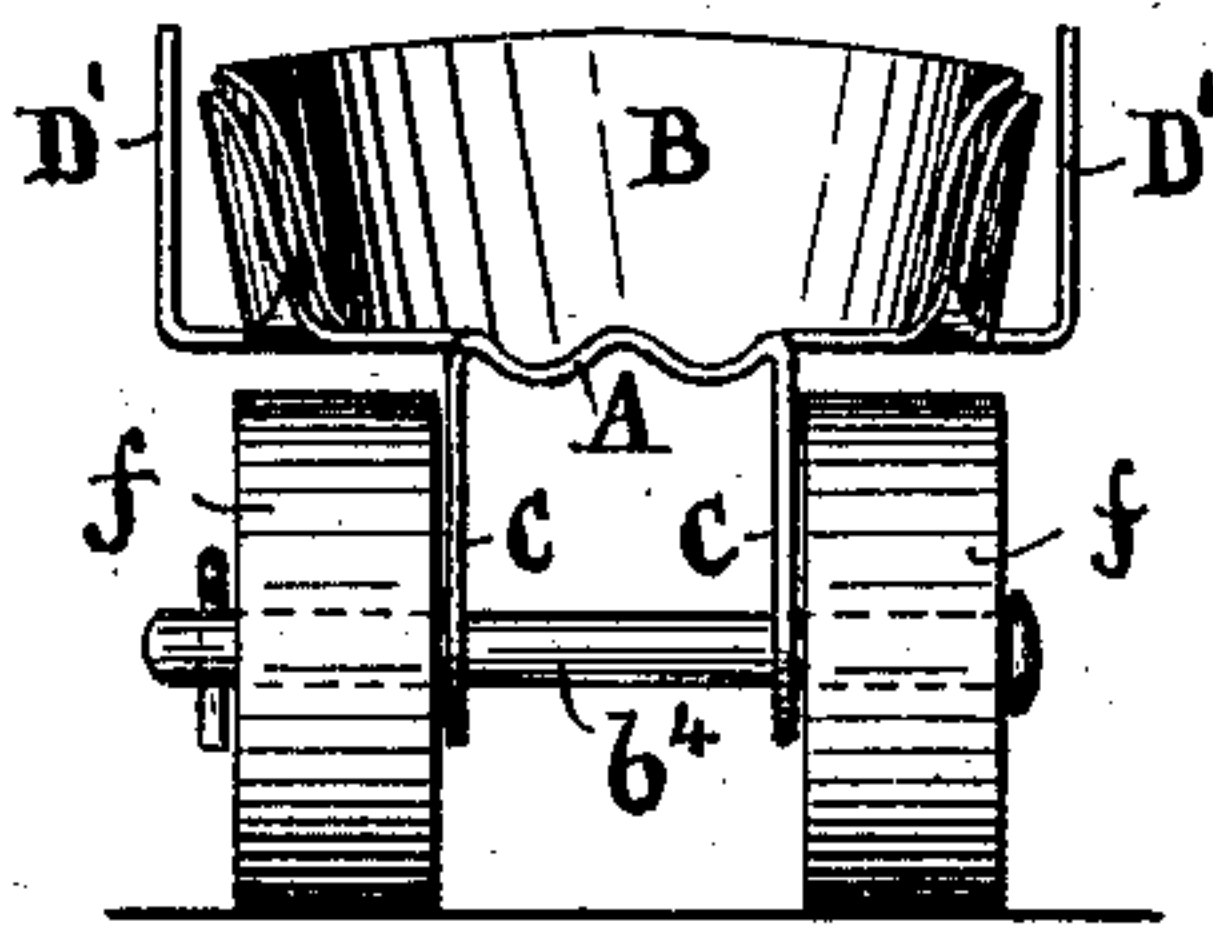


FIG. 8.

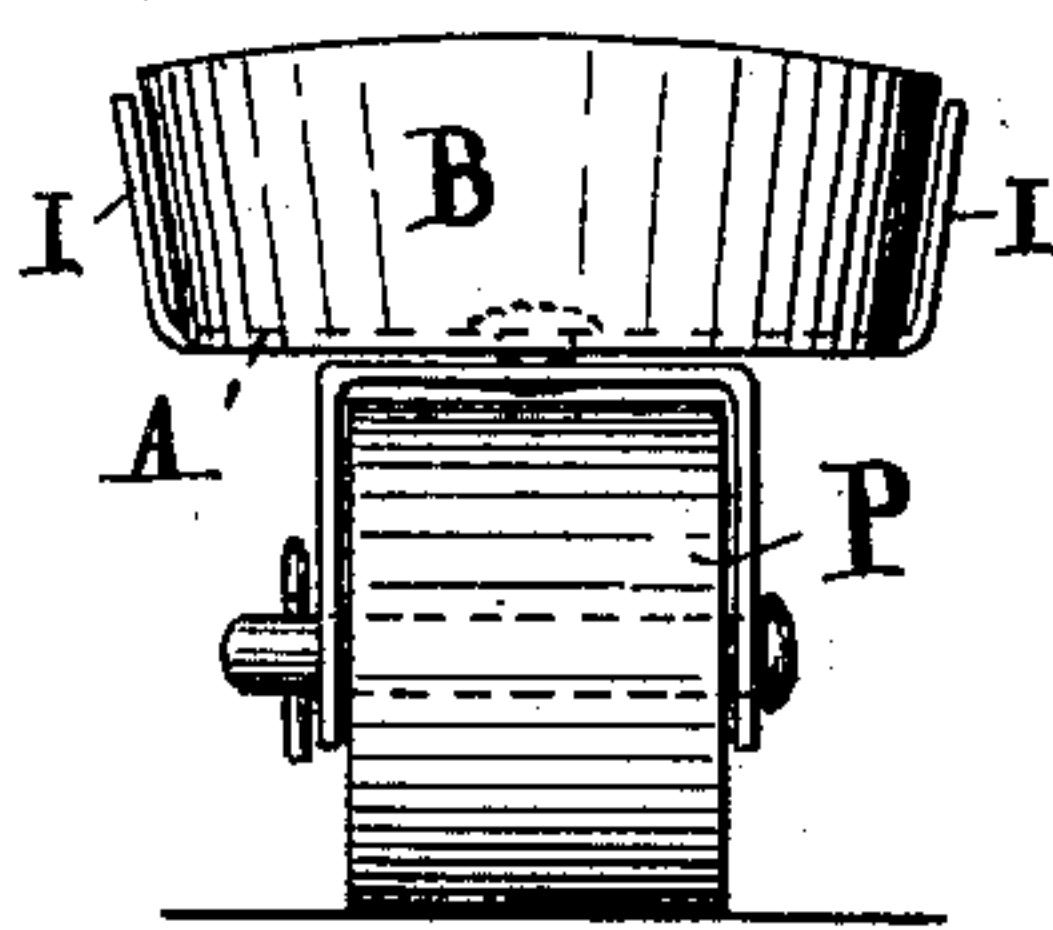


FIG. 9.

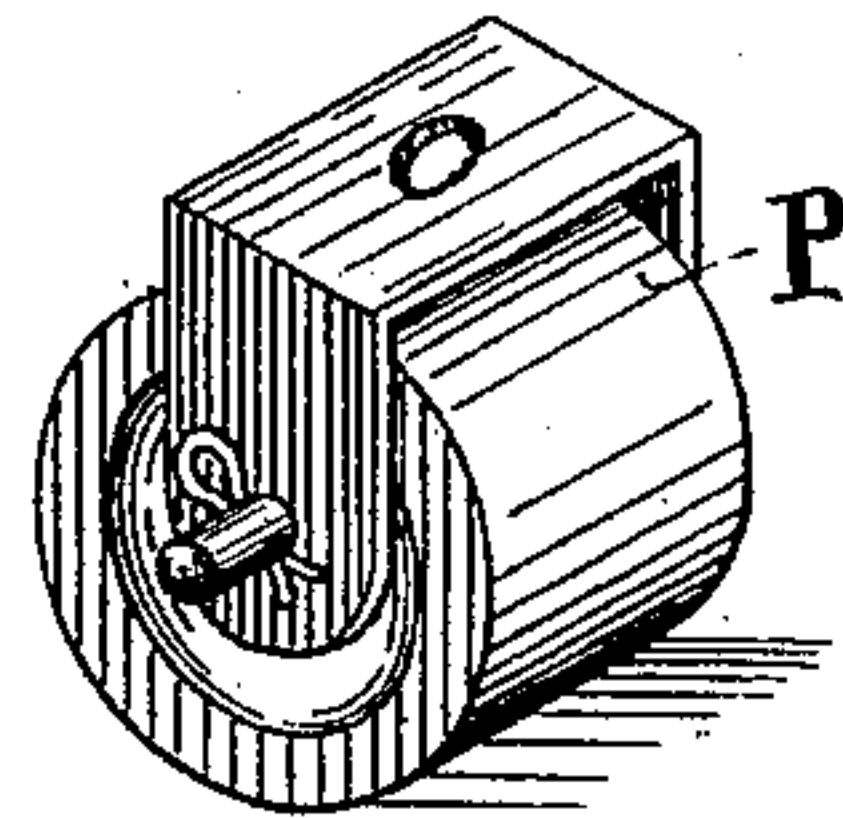


FIG. 6.

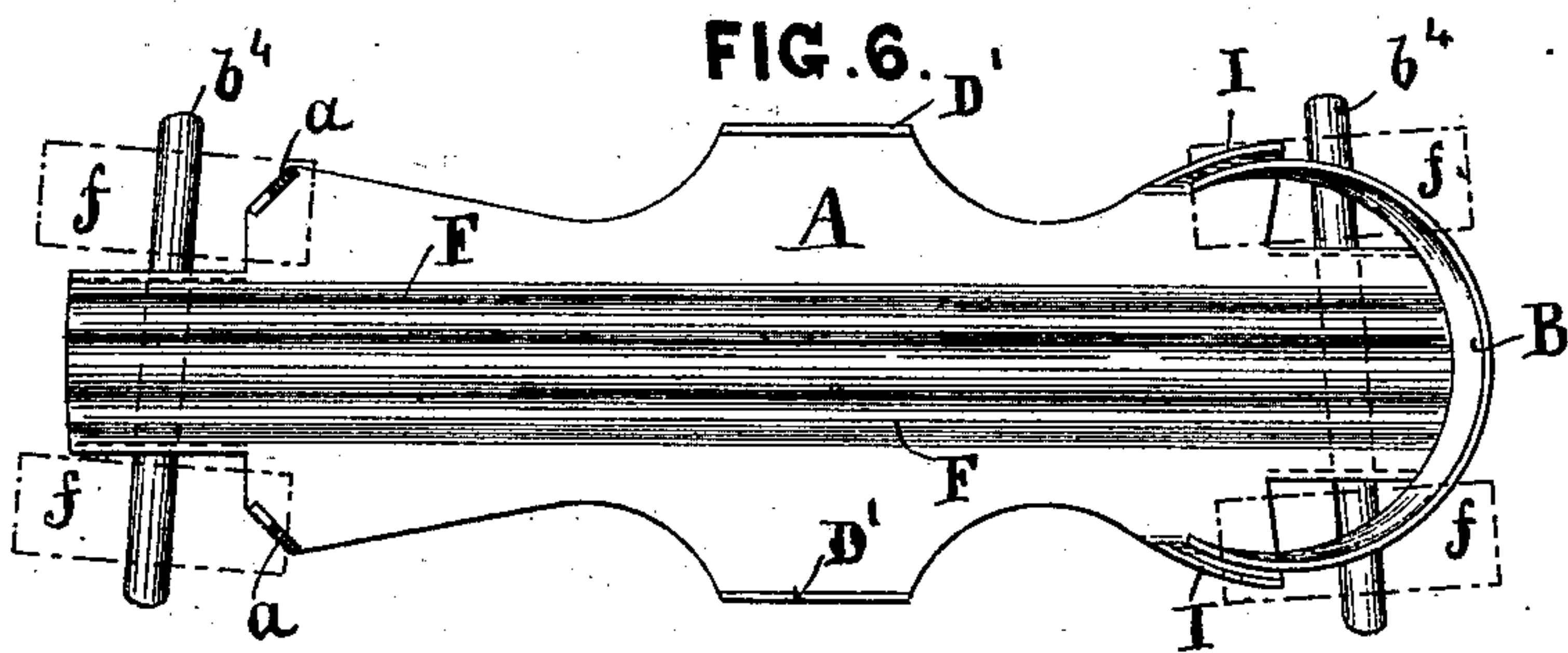


FIG. 10.

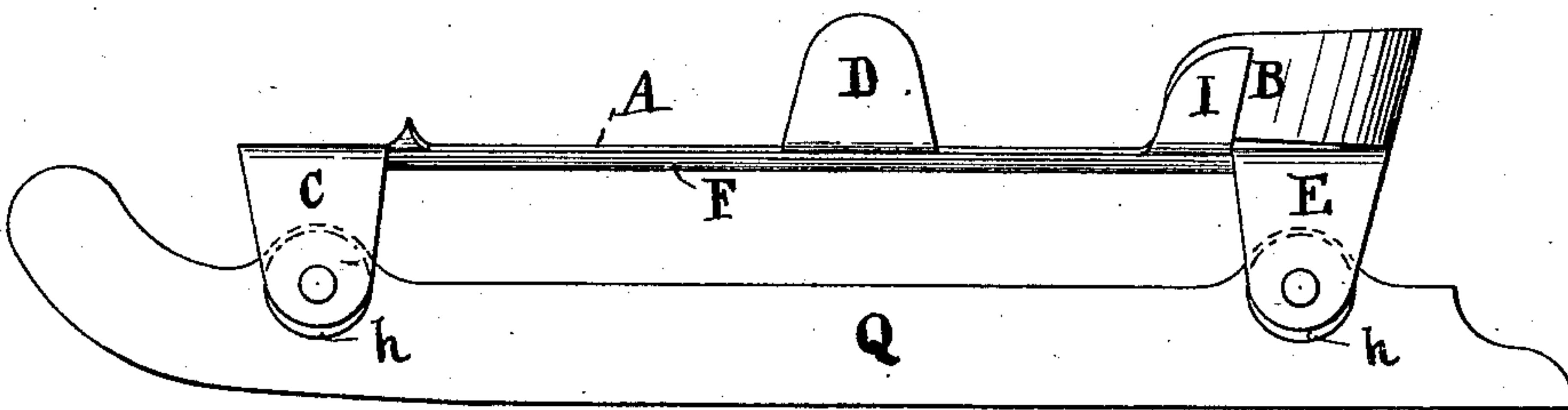
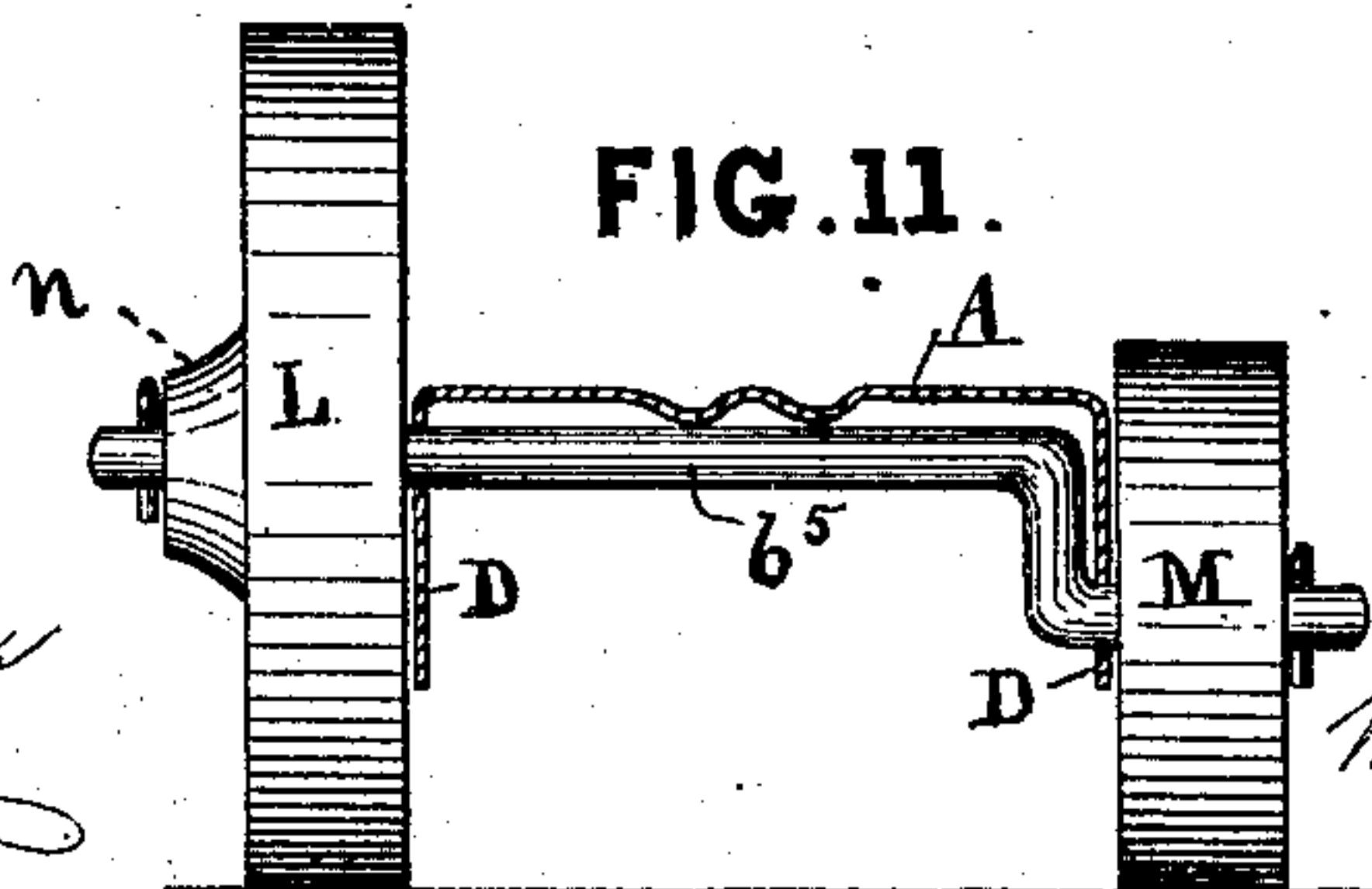


FIG. 11.



Witnesses.

Sam. Hall Currier
Geo. O. Currier

Inventor.

Washington Parker Gregg

UNITED STATES PATENT OFFICE.

WASHINGTON P. GREGG, OF BOSTON, MASSACHUSETTS.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 275,482, dated April 10, 1883.

Application filed July 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, WASHINGTON P. GREGG, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Roller-Skates, of which the following is a specification.

Of the nature of my improvements and the manner of constructing and using the same the following is a specification, the accompanying drawings making a part thereof.

My principal purpose is to reduce the cost of making such skates, render them lighter, more durable and pliable, and so that they may be used with greater ease and safety.

Skates have been patented to me whose stocks were made separately, without heel-holders, toe, side, and heel axle holders, which in turn were made each by itself, and afterward fastened, each by itself, to the stocks by screws and rivets.

My present invention consists mainly in a novel construction of the stock, its heel and axle holders, in placing under the heel a roller having a periphery flat and wider than that of the toe-roller, in giving an inclination to the axles, and in side-wheel skates making one end of the heel of the outside driving-wheel longer than its other end, when combined or used with another driving-wheel upon the other side of the stock—not under it, nor having projected hubs—that said wheel may fit close to its side of the stock, said several improvements being designed to be used together or separately, as may be required in skates for middle wheels and end rollers, as well as in skates for toe and heel rollers.

Of the accompanying drawings, embodying my invention, Figure 1 is a top view of the skate-stock blank A, stamped into shape from homogeneous sheet-steel. The dotted lines from G to G indicate slits to be made to form the heel and axle holders, and dotted lines from d to d where they are to be bent at right angles, H H where axle-holes, and F F where corrugations, are to be. Fig. 2 is a side view of said skate-stock corrugated, and with its heel-holder B and axle-holders C D E formed and made from such steel or other suitable sheet metal, with one small roller, J, under its toe and another small roller, K, under its heel, and with its large driving-wheel, L, on one side

and its smaller driving-wheel, M, upon the other side of the stock; also, a view of the edges turned up at a and I, and in dotted lines its outside axle-holders, D', bent up, when required, for a larger driving-wheel, N. Fig. 3 is a bottom view of such skate-stock A, and of its axle b, extending from a driving-wheel, L, across half of the bottom of the stock, fastened there and then bent on an angle downward to and entering the axle-holder and smaller driving-wheel, M; also, of its heel-roller K, with its periphery flat and wider than that of the roller J under the toe. Fig. 4 is a vertical cross-section of such skate-stock A, showing an axle, b', for driving-wheels across about half of the bottom, then through it, and then across the other half of the top of the stock, also showing a driving-wheel, N, with a projected hub, n, on one side and a short hub, m, on its other side; also, a smaller driving-wheel, M, without projected hubs; also, the tubular passage g' g'. Fig. 5 is a top view of the skate-stock A for the right foot, showing the axle b² for driving-wheels across its stock, with the axle ends b³ b³ inclined laterally. Fig. 6 is a top view of a skate-stock, A, for the right foot, showing laterally-inclined axles b⁴ b⁴ of two toe and two heel rollers, f f, f f, which are in dotted lines. Fig. 7 is a front end view of said skate-stock A, with two toe-rollers, f f, one on each end of the axle b⁴, and with two side axle-holders, D' D', bent up. Fig. 8 is a view of the rear end of said skate-stock A, with a caster-roller, P, attached to its heel, and having its periphery flat and wider than that of the toe-roller. Fig. 9 is a perspective view of said caster-roller P. Fig. 10 is a side view of said stock A with its side axle-holders, D' D', turned up, and with a skate-runner, Q, affixed, with its washers h h, upon the toe and heel axles. Fig. 11 is a cross-section of a skate-stock, A, fitted with an axle for a large driving-wheel, L, with a projected hub, n, said axle being bent on one side for a smaller driving-wheel, M, without projected hubs.

The first part of my present invention relates to the stock, which I stamp with its heel-holder, its toe, side, and heel axle holders shaped in one piece from a sheet of what is known as "homogeneous steel," as shown in Fig. 1, which is a top view of the skate-stock blank A,

its component heel-holder B and toe axle-holders C C, side axle-holders, D D, and heel axle-holders E E. Any other suitable sheet metal may be used; but I prefer such homogeneous sheet-steel, about a sixteenth of an inch in thickness, on account of its comparative cheapness, strength, pliability, uniform texture, and other good qualities. If more stiffness be required, I corrugate the stock through its center, F F, in Fig. 1, from heel to toe; also, its heel and axle holders and in other parts, if desirable. I also turn the edges up or down, if required, for stiffness, or to aid in holding the foot, as at *a* and I, Fig. 2. I make slits in the edges of the stock to admit the forming of the heel and axle holders, as shown from G to G, Fig. 1. I make holes in the axle-holders for the different axles, as shown in dotted lines at H H, Fig. 1. The heel and axle holders are bent into place by formers or other convenient means, and dotted lines from *d* to *d* in Fig. 1 show where they are to be bent at right angles to form said holders. The two axle-holders D D, Fig. 2, side view, one at or near the middle of one side and the other at or near the middle of the opposite side of the stock A, may be bent above, as shown in dotted lines D', Fig. 2, according to the position of the axles of the driving-wheels to be held by them. The toe axle-holders C C, Fig. 2, side view, and heel axle-holders E E, Fig. 2, side view, are bent down to hold their axles. The heel-holder B, side view, Fig. 2, is bent up and curved forward to hold the heel. The ends of B are supported by two parts of the stock I I, bent up.

As one illustration of the application and use of said metal stock, and at the same time of said heel-roller, the second part of my invention, I arrange one comparatively small roller, J, Figs. 2 and 3, under the toe of said metal stock, and another comparatively small roller, K, with a wider periphery under its heel, to support the ends of the stock, and one comparatively large driving-wheel, L, with one of its hubs longer than the other, on an inclined axle, and at or near the middle of the outside of the stock, and another smaller driving-wheel, M, without projected hubs, on an inclined axle, at or near the middle of the other side of the stock, but not under it, to support its sides and for driving and turning. I make the peripheries of these end rollers flat, and that of the end roller, K, wider than that of the toe-roller J, because I find it affords greater certainty and firmness in the tread and movements of the skater, and on account of the general tendency of the weight of the body toward the heel.

The third part of my invention relates to the axles. For ordinary use those for the driving-wheels are under said stock. If required above it, the side axle-holders can be turned up, as shown in dotted lines D', Fig. 2. Fig. 5 shows an axle across the top of the stock. Fig. 3 shows an axle for a large driving-wheel extending across the bottom of the

stock, fastened there, and then bent on an angle downward to and entering the axle-holder, to hold a smaller driving-wheel, M, upon the other side of the stock. Fig. 4 shows an axle *b*, extended half way across the bottom, then through it, at or near its center, and then across the other half of the top of the stock into the axle-holder. Fig. 11 shows a skate-stock with an axle, *b*⁵, bent to hold a driving-wheel, L, on one side, differing in diameter from the driving-wheel M at the other. This axle may be used above or below the stock. The axles may be fastened by any convenient means. The bearings of the axles of the driving-wheels I usually affix at right angles with the stock or axle holders. As novices are apt to proceed with one foot almost directly in front of the other, which is thereupon led or disposed to slide back almost as directly in the rear, I give to the axle of each driving-wheel an inclination laterally of about a sixteenth of an inch, that of the outside wheel toward the heel and that of the inside wheel toward the toe of the stock, as at *b*³ *b*³, Fig. 5. This inclination is devised to enable novices to strike out at once, as it were, almost involuntarily to the right and to the left, and to execute at the very outset one of the first, if not the most important, of skating movements, which is no sooner acquired than duly followed by other skating movements. Therefore I prefer axles so inclined to straight axles for the driving-wheels.

I make one end of the hub *n* of the outside driving-wheel to project more than its other end, *m*, Fig. 4, that its longer end may be next to the stock or axle holder for a wide foot or its short end there for a narrow foot, when combined or used with a stock having upon its other side a driving-wheel, M, without projected hubs, Fig. 4. When I use said metal stock without driving-wheels, but with two rollers at each end, I either stamp it without the two driving-wheel-axle holders or bend them up above the stock, to prevent the foot sliding sidewise, as at D' D', Figs. 6 and 7, and put longer axles *b*⁴ *b*⁴ *b*⁴ *b*⁴ instead of short ones into the toe and heel axle holders and a small roller, *f*, on the end of each of those two longer axles, as in Fig. 8, and thus provide said stock with two rollers instead of one at each end. When I thus use toe and heel rollers, I give to their axles an inclination, as shown at *b*⁴, Fig. 6, to produce the same effect as is produced by the inclination of the axles of the driving-wheels. Through the outside of the hubs of roller-skates to their axles I make a tubular passage for lubrication, as at *g*' *g*', Fig. 4. With said metal stock, whether combined with side wheels and rollers or end rollers alone, I use for small rooms, instead of the heel-roller K, a caster-roller, P, Figs. 8 and 9, with its periphery flat and wider than that of the roller under the toe of the stock, the heel axle-holders being bent up and fastened against the bottom of the stock for more strength there, and so that said caster-roller may be properly

riveted and held in place. For ice-skating I remove the wheels and rollers from said metal skate-stock, put a suitable ice-skate runner, Q, in place of the toe and heel rollers, using the same axles, and fastenings with washers *h h*, as shown in Fig. 10.

What I claim as my invention is as follows:

1. A skate-stock blank, A, shaped for the stock, heel, and axle holders in one piece from a sheet of homogeneous steel or other suitable sheet metal, substantially as set forth.

2. A skate-stock with a heel-holder and axle-holders all in one piece, stamped, formed, and made from a sheet of homogeneous steel or other suitable sheet metal, substantially as and for the purposes described.

3. A sheet-metal skate-stock corrugated substantially as and for the purposes described.

4. A sheet-metal skate-stock blank provided with slits G G, substantially as and for the purposes described.

5. In a sheet-metal skate-stock, each component heel and axle holder bent into position substantially as and for the purposes described.

6. A sheet metal skate-stock provided with a roller under each end, with flat peripheries, that under the heel being wider than that under the toe, in combination with two driving-wheels, one upon each side (not under) of the stock, the inside wheel being smaller in diameter than the outside wheel, substantially as and for the purposes described.

7. In driving-wheel skates, a roller under the toe with a flat periphery and a roller under the heel with a periphery flat and wider than that of the roller under the toe, substantially as and for the purposes set forth.

8. In combination with a sheet-metal skate-stock, a roller under the toe with a flat periphery and a roller under the heel with a periphery flat and wider than that of the roller under the toe, all substantially as and for the purposes set forth.

9. In combination with a sheet-metal skate-stock without driving-wheels, a roller under the heel and two rollers under the toe with flat peripheries, that under the heel wider than that of either of the two rollers under the toe, all substantially as and for the purposes described.

10. In roller-skates, the bent axle *b⁵* for the

driving-wheels, substantially as and for the purposes described.

11. In driving-wheel skates, the combination, with the driving-wheels, of an axle extending at right angles across the stock, having each projecting end bent laterally at an angle with the main portion of the axle, all arranged and operating substantially as and for the purposes described.

12. In roller-skates having driving-wheels, the end of the hub of one driving-wheel made to project more than the other end of its hub, when used in combination with an opposite driving-wheel whose hubs are short and equal, substantially as described and shown.

13. A sheet-metal skate-stock with its central axle-holders turned up, and having two rollers under the heel and two rollers under the toe of the stock, and without driving-wheels, all constructed and arranged substantially as described.

14. In roller-skates having two rollers at each end of the stock, one axle with its ends bent at an angle laterally with the main portion of the axle for the two toe-rollers and another axle with its ends similarly bent for the two heel-rollers, arranged and operating substantially as and for the purposes set forth.

15. In roller-skates, the passage *g'*, extending from the outside of the hubs to the bearings of the wheels and rollers, substantially as and for the purposes described.

16. In a sheet-metal skate-stock without driving-wheels, the combination of a caster under the heel with two rollers under the toe, the peripheries of the toe-rollers being flat and that of the caster being flat and wider than the periphery of either of the rollers under the toe, all constructed and arranged substantially as set forth.

17. A sheet-metal skate-stock constructed with the axle-holders C and E, adapted for the substitution of an ice-skate runner, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WASHINGTON PARKER GREGG.

Witnesses:

BENJ. HALL CURRIER,
GEO. O. CURRIER.