

(No Model.)

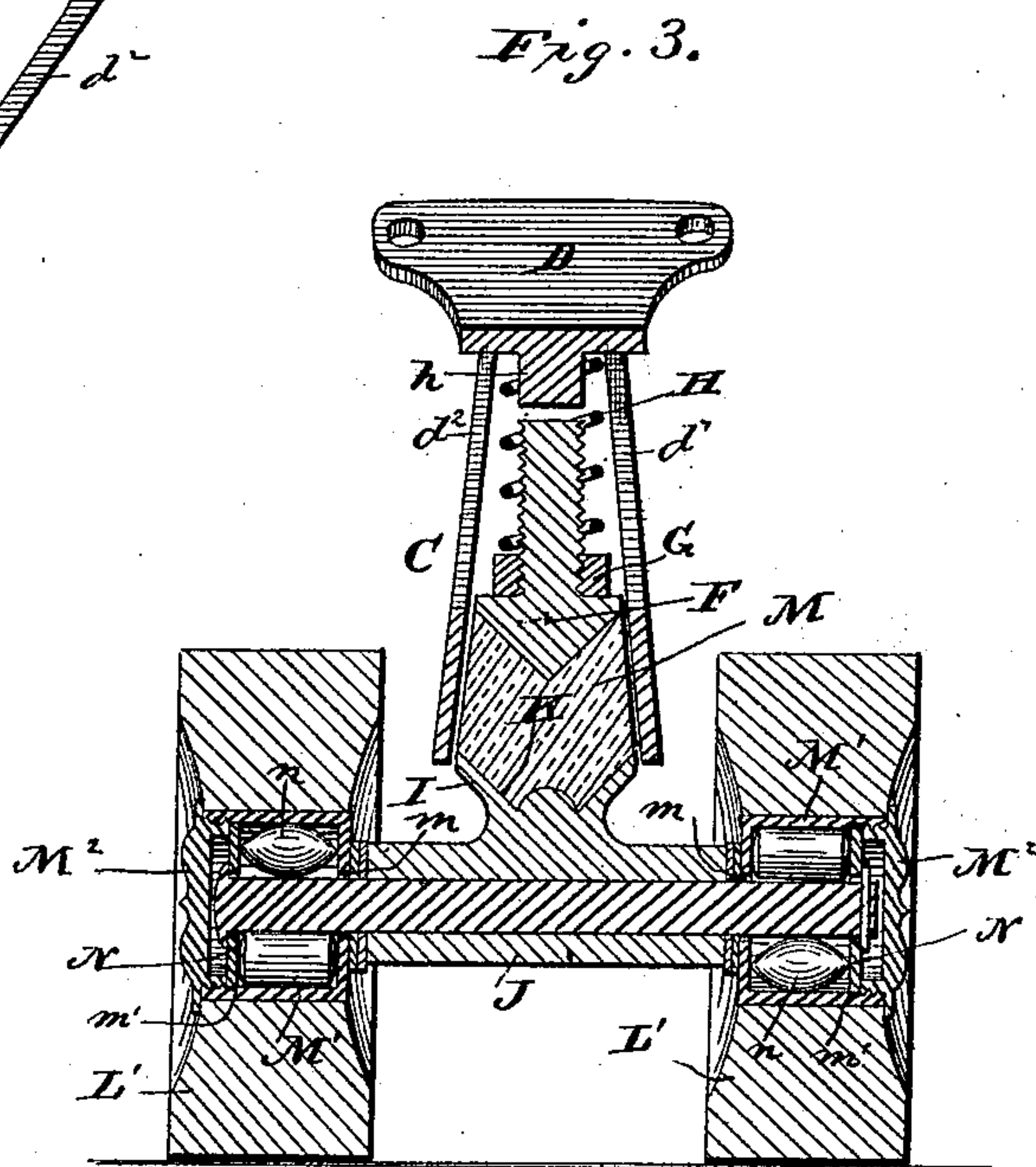
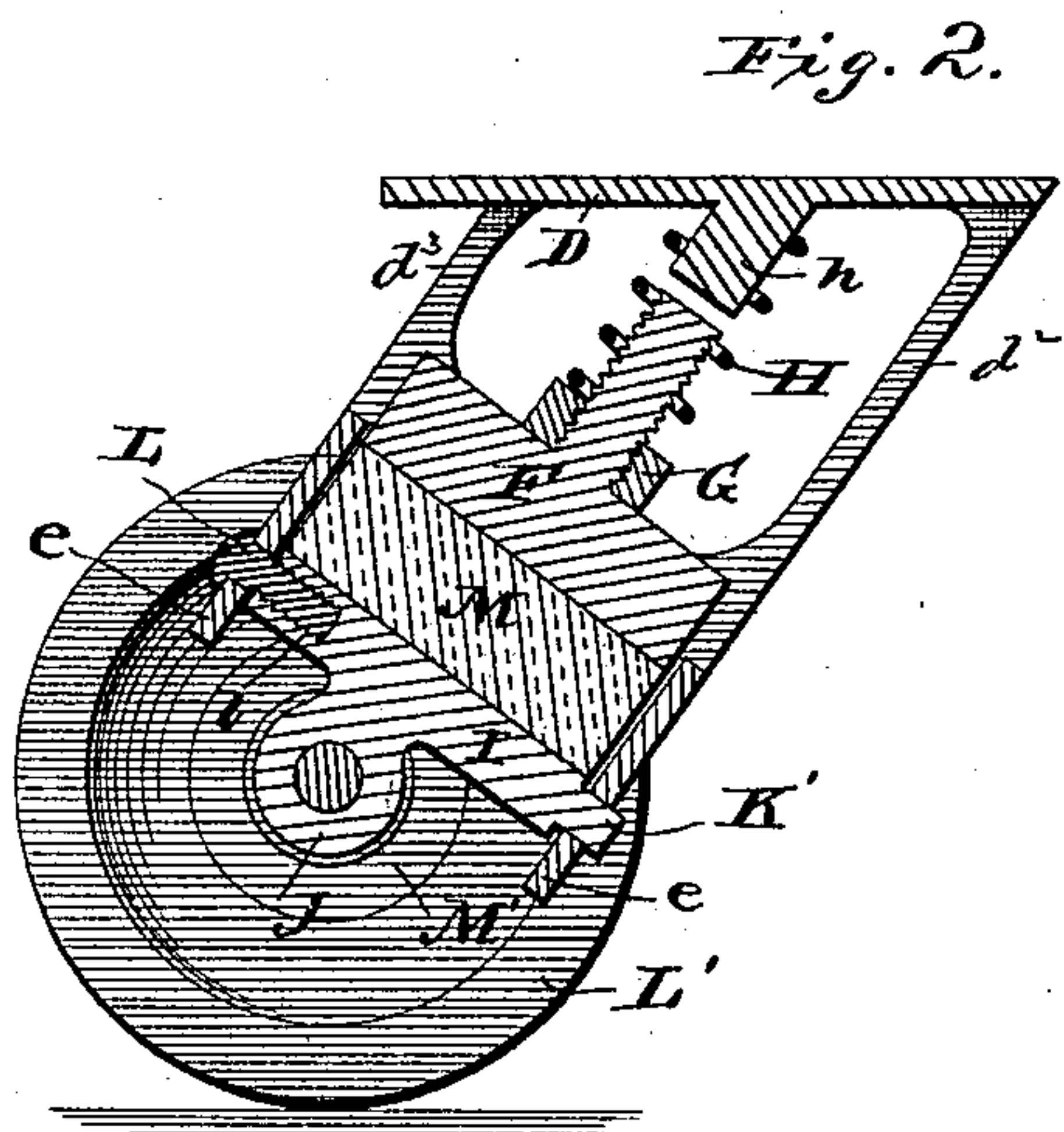
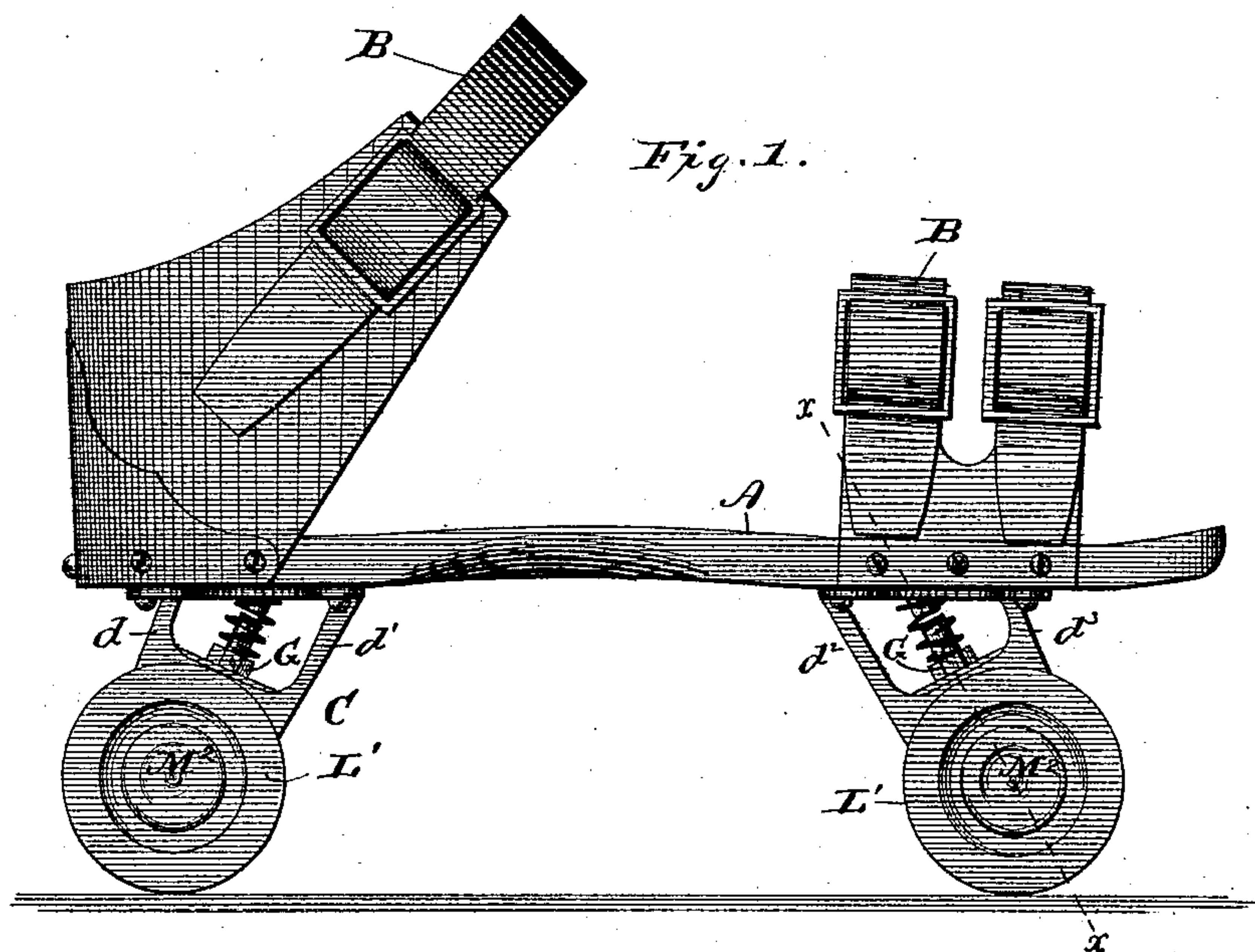
2 Sheets—Sheet 1.

J. D. KEFUSS.

ROLLER SKATE.

No. 326,224.

Patented Sept. 15, 1885.



Witnesses.
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Fig. 4.

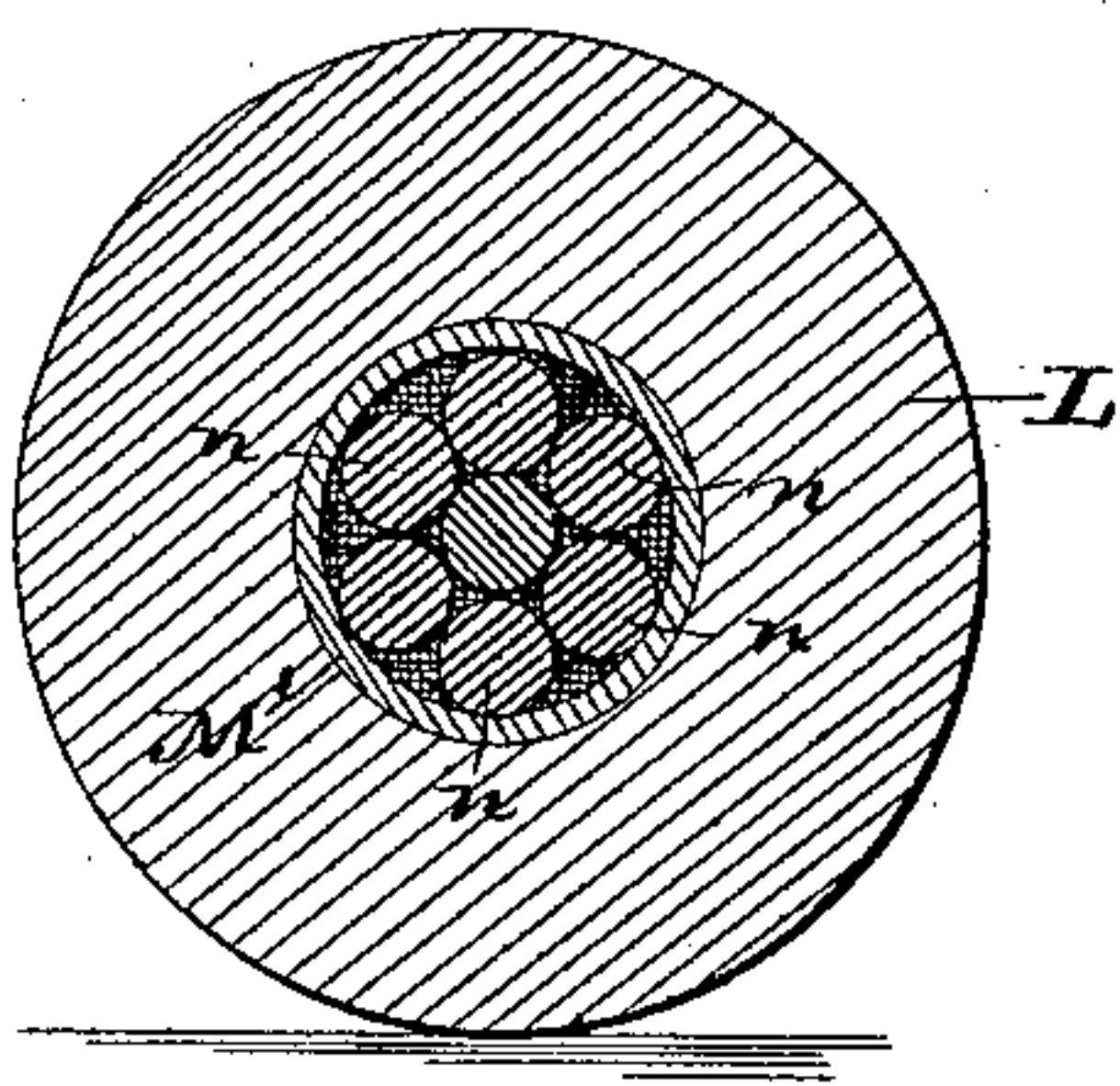


Fig. 5.

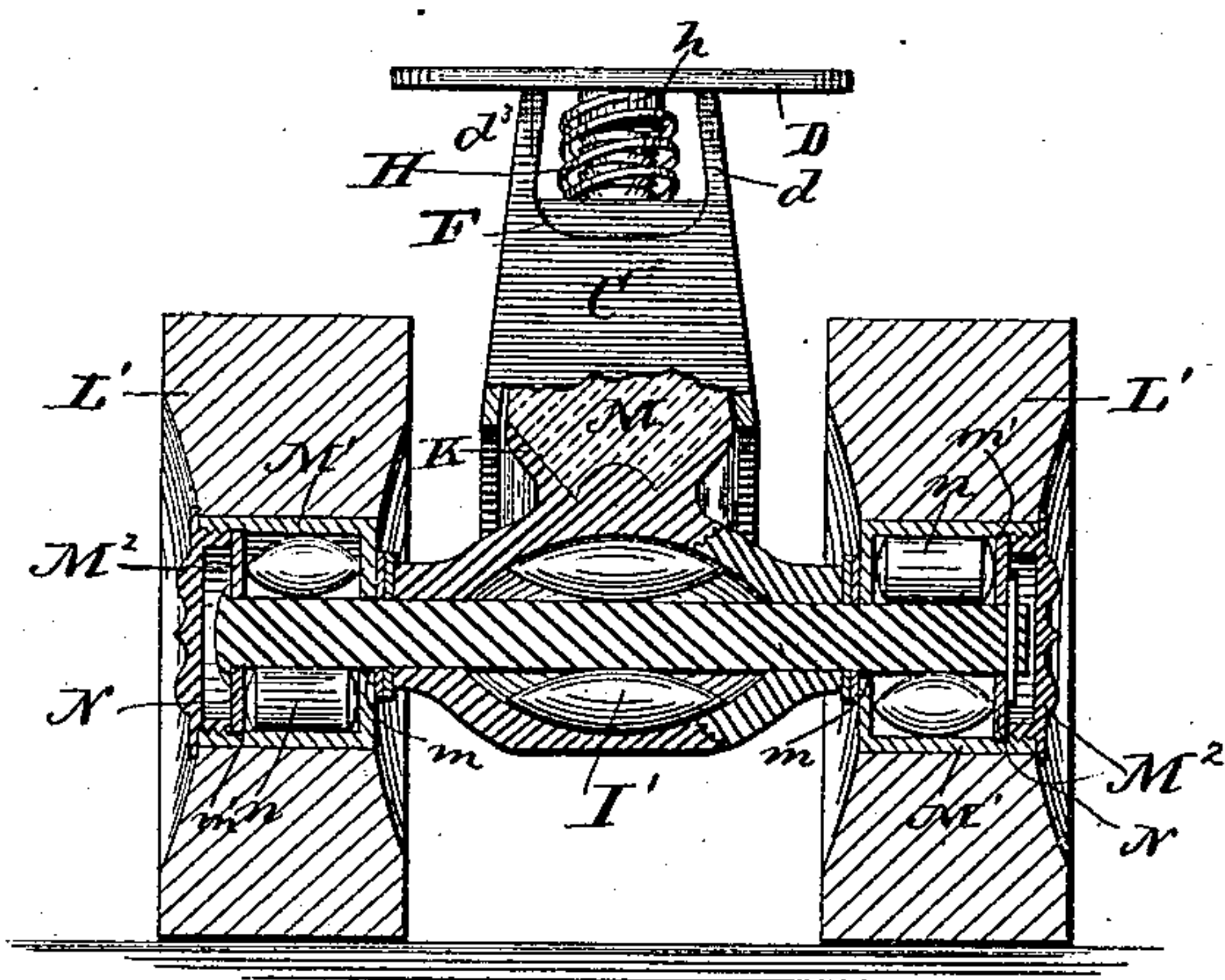
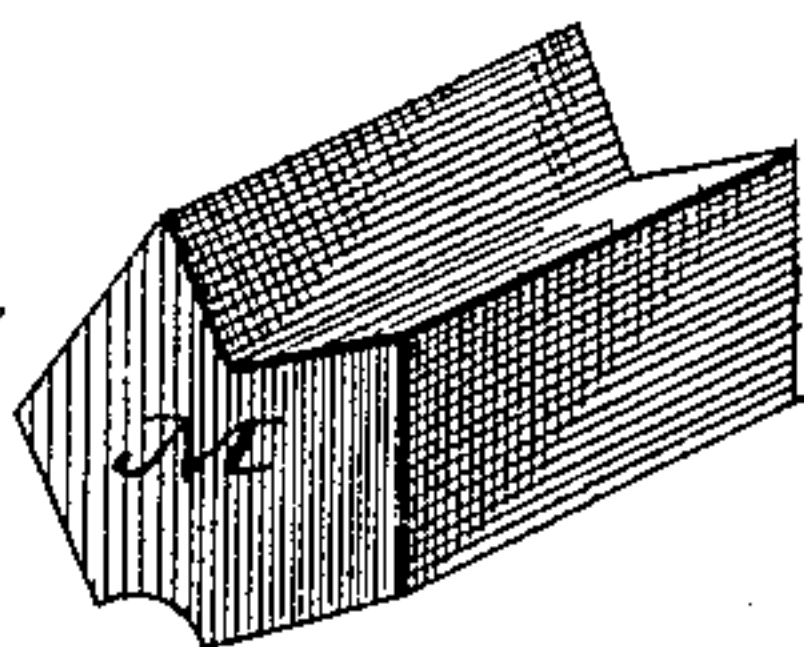


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN D. KEFUSS, OF QUINCY, ILLINOIS.

ROLLER-SKATE.

SPECIFICATION forming part of Letters Patent No. 326,224, dated September 15, 1885.

Application filed March 30, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. KEFUSS, of Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Roller-Skates; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention relates to that class of roller-skates having movable rollers hinged at an angle to the plane of the foot-plate; and it has for its object to improve their construction so that a more elastic and yet firm connection between the rollers and frame will be maintained, and also for a further object to improve the constructions of the bearings for the rollers or wheels; and to these ends it consists of certain novel details of construction and combinations of parts, which I will now proceed to describe.

In the drawings, Figure 1 is a side elevation of a skate with my invention applied thereto. Fig. 2 is a longitudinal sectional view of the movement of the skate; Fig. 3, a cross sectional view taken on the line *xx* of Fig. 1. Fig. 4 is a sectional view of the rollers of the skate; and Fig. 5, a view of a modification. Fig. 6 is a perspective of the rubber M.

Similar letters of reference in the several figures indicate like parts.

A represents the foot-plate of a roller-skate, and B the straps for securing the same to the foot of the wearer. Secured to the bottom of this foot-plate by means of small screws, as shown, or in any suitable manner, are two castings, to which the rollers or wheels of the skate are attached, as will be presently explained. As these two castings, and, in fact, the "movements" of the skate, are the same, I shall confine my description to one of them, it applying equally as well to both.

C represents the casting secured to the foot-plate of the skate, consisting of a plate, D, the depending legs *d d' d² d³*, and the receptacle E, at their lower ends, tapering slightly toward the top and inclined at an angle to the foot-plate, as shown, and at the ends of this

receptacle are two depending lugs or ears, *ee*, perforated and adapted to form the bearings of the casting in which the axle is secured. Within the space between the legs *d d' d² d³* is a plate, F, V-shaped on its under side, and having the stud on its upper side screw-threaded and provided with the nut G. A spiral spring, H, is placed around this screw-threaded stud, resting upon the nut G, and between it and the underside of the plate D, where it is held in place by a small stud, *h*.

I is a casting, having a tubular portion, J, in which the axle of the roller has its bearings, and it is further provided with a plate, K, placed at right angles to the tubular portion, with its upper portion V-shaped and provided at one end with a small lug, K', forming a trunnion, and at the other with a perforation, *l*, into which is inserted a small screw, L, forming a trunnion corresponding to trunnion K'. When the plate is to be attached to the portion C, the lug K' is inserted in the perforation in the lug *e*, the plate moved into position, and the screw inserted through the other lug *e* and into the plate, as shown.

A piece of rubber, M, is contained within the receptacle E of the casting C, and it is of the form shown in Fig. 6, and forms the cushion for the turning of the casting I on its trunnion.

The axle, as before mentioned, has its bearing in the tubular portion K of the casting I, and the rollers of the skate are mounted upon it so as to rotate freely, while the axle is also permitted to rotate, if desired, or it may be made stationary.

L' L' represent the rollers of the skate, constructed, preferably, of box-wood or of iron with rubber tires, or of any other suitable construction. Steel bushings or chambers M' are secured with the rollers L', and are provided with a perforation, *m*, at one end for the passage of the axle, and the other end is formed by the plate N, which rests against the collar *m'*, formed on the inside of the chamber, and this plate is perforated, as shown, for the passage of the axle. Within the chamber or bushing, and forming the bearing for the roller, are six small steel rollers, *n*, constructed of short cylindrical pieces of steel about three-

eighths of an inch in length and of a diameter about that of the axle, and each of the alternate rollers is made elliptical, so as to offer but a very slight surface for friction, and yet of sufficient length and breadth to keep the cylindrical rollers the proper distance apart. The axle on which the wheels of the skate are mounted is provided with a head or enlarged portion on one end, and at the other has a perforation through which is inserted a spring-pin; or any other suitable device may be employed for keeping the wheels in position.

A metal cap, M^2 , is provided for the purpose of keeping the plate N in place should the spring-pin become loosened, and also for the purpose of giving the skate an ornamental appearance.

The bearings just described will require no oil for lubricating, and the friction produced will be so slight that it will not be noticeable, hence is particularly adapted to the roller-skates, as when oil is used in the bearing of a skate it is apt to get on the surface of the rink and is very objectionable for several reasons.

In the movements of roller-skates now in use the rubber cushion employed is necessarily formed of soft spongy rubber, so as to permit of the motion incident to the turning of the wheels on their inclined axis, and this rubber wears out very soon, and, as no adjustment is provided for, has to be replaced by a new piece; but in my device good solid rubber can be employed, and any degree of elasticity can be provided for by simply adjusting the nut G on the plate F , compressing or loosening the spring, as desired.

In Fig. 5 I have shown a modified arrangement of my improved roller-bearings, applying them to the axle of the device within the casting I , so that the axle is free to revolve on the surface, where it is subjected to the least friction. The casting I is divided near the center, as shown, and the two parts are united by a screw-thread forming an elliptical recess in the center of the casting, in which are inserted the elliptical rollers I' , revolving around the axle, which passes longitudinally through the recess, and has the wheels or rollers of the skate on its ends.

I claim as my invention—

1. The combination of the casting secured to the foot-plate of the skate and containing the rubber, the plate pivoted to said first-mentioned casting, to which the rollers are attached, the rubber, the plate resting on the rubber, and the spring and adjusting-nut, substantially as described.

2. The combination of the casting secured to the foot-plate of the skate, the casting to which the rollers are attached, pivoted to it, and having the plate, the trunnion on one end of the plate and the screw forming a trunnion

on the other end, the rubber, the plate resting upon the rubber, and the spring, substantially as described.

3. The combination of the casting secured to the foot-plate, the casting to which the rollers are attached, pivoted to it, and having the plate bearing against the rubber, the trunnion formed on one end of the plate, and the screw forming the trunnion on the other end, the rubber, the plate resting upon the rubber, and the spring and adjusting-nut, substantially as described.

4. The combination of the casting secured to the foot-plate of the skate, and the casting to which the rollers are attached, pivoted to the former, and having the plate bearing against the rubber, the rubber, the plate resting upon the rubber, and having the screw-threaded stud, the spiral spring, and the adjusting-nut, substantially as described.

5. The combination of the casting secured to the foot-plate of the skate, and the casting to which the rollers are attached, pivoted to it, and having the plate bearing against the rubber, the rubber, the V-shaped plate resting upon the rubber and having the screw-threaded stud, the adjusting-nut, and the stud on the casting attached to the foot-plate for holding the spring in position, substantially as described.

6. The combination, with the axle, of the bushing secured in the wheel or roller having the perforation in its end for the passage of the axle, the rollers forming the bearing for the axle, the plate or washer for confining said rollers within the bearing, and the cap M^2 , substantially as described.

7. The combination, with the axle, of the bushing secured within the wheel or roller, the series of rollers forming the bearing for the axle, consisting of cylindrical and elliptical rollers, an elliptical roller being placed between each pair of cylindrical rollers, substantially as described.

8. The combination, with the casting secured to the foot-plate of the skate, the casting pivoted to it, made in two parts, recessed, as shown, and united by the screw-thread, the series of rollers mounted in the recess and bearing on the axle of the rollers or wheels, and the axle, substantially as described.

9. The combination, with the casting secured to the foot-plate of the skate, the casting pivoted to it, made in two parts and united by screw-threads, as shown, the series of elliptical rollers mounted in the recess and forming the bearing for the axle, the axle and the rollers or wheels mounted thereon, substantially as described.

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Witnesses:

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C. F. KEFUSS.