

No. 685,296.

Patented Oct. 29, 1901.

J. M. RANKIN.  
WHEEL.

(Application filed Feb. 21, 1901.)

(No Model.)

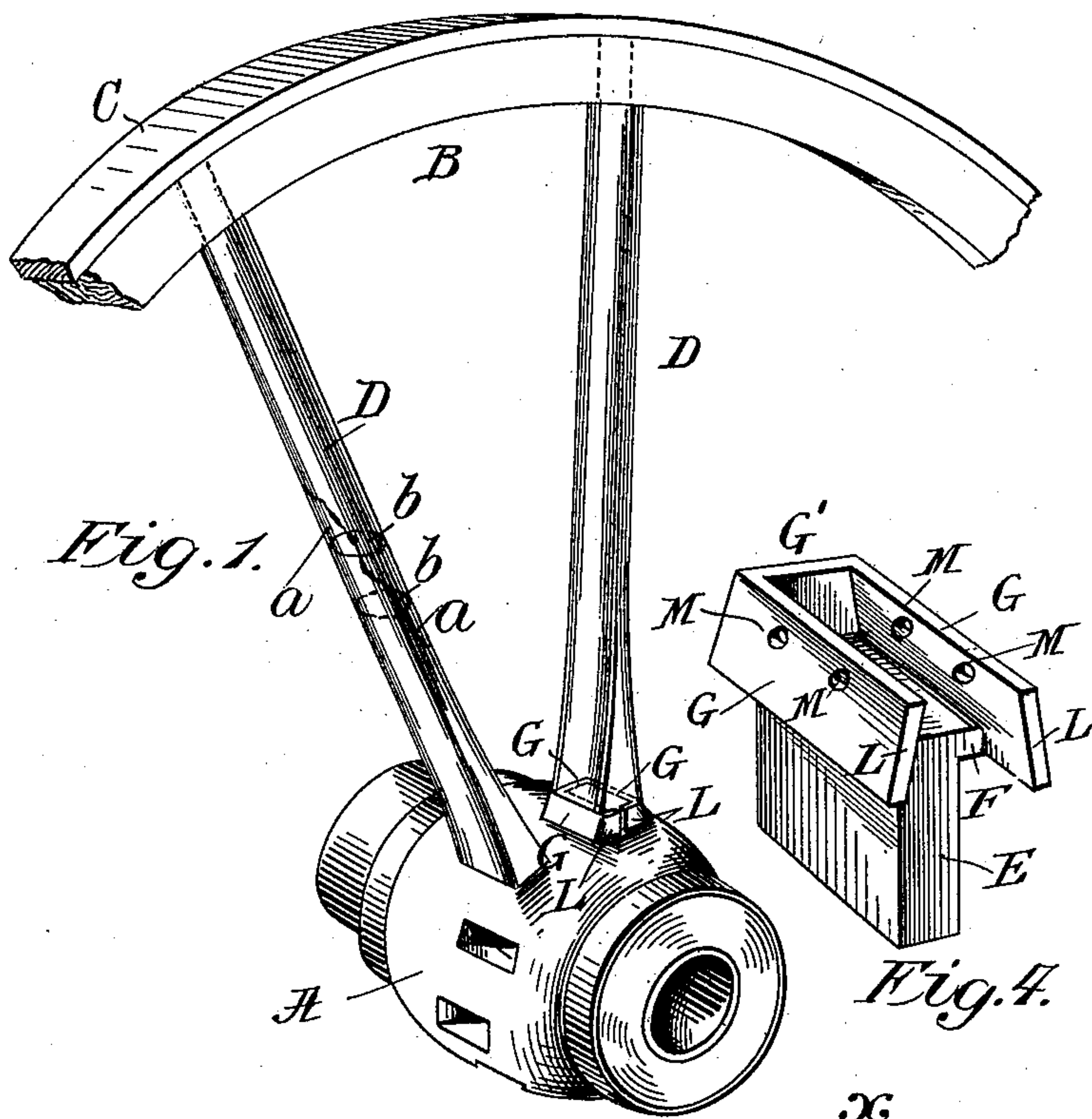


Fig. 2.

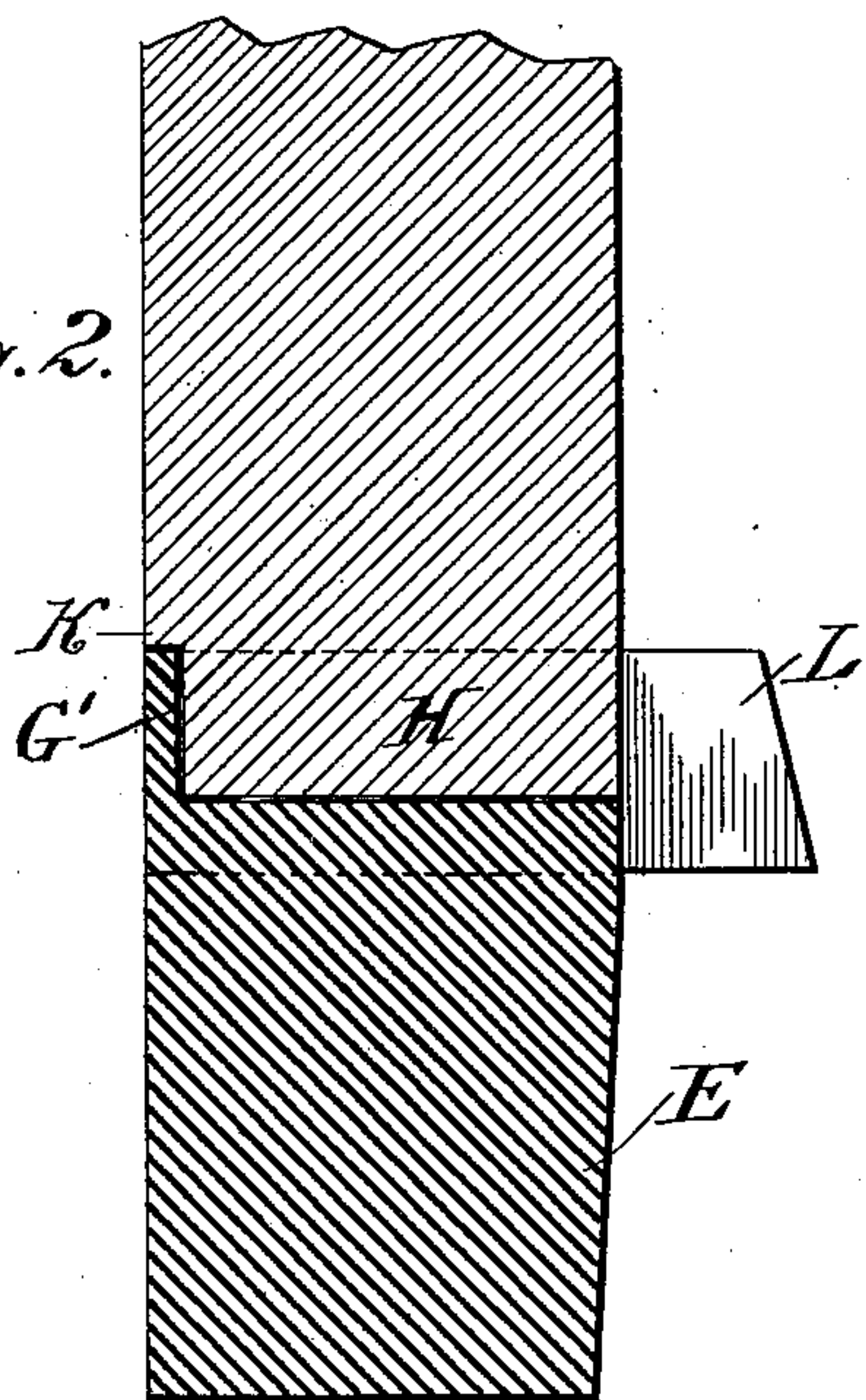
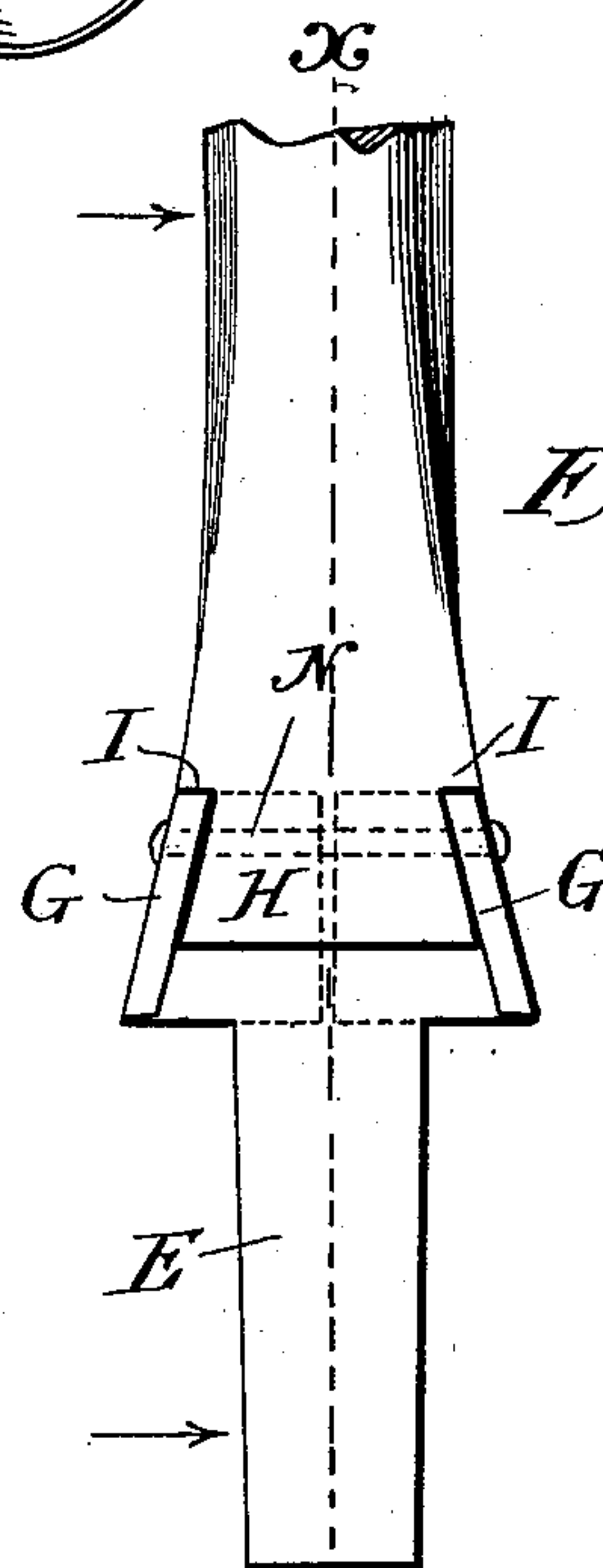


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES M. RANKIN, OF BROOKLYN, NEW YORK.

## WHEEL.

SPECIFICATION forming part of Letters Patent No. 685,296, dated October 29, 1901.

Application filed February 21, 1901. Serial No. 48,270. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. RANKIN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, (having my post-office address at No. 79 Wall street, New York, N. Y.,) have made a new and useful Invention Pertaining to Wheels, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 illustrates a perspective view of portions of a wheel, showing the invention. Fig. 2 illustrates a vertical sectional view of the parts involved in the invention looking in the direction of the arrow in Fig. 3. Fig. 3 is an endwise elevation of the invention as illustrated in Fig. 2. Fig. 4 illustrates a perspective view of the characteristic feature of the invention detached.

Heretofore in the event of a spoke being broken in a wheel it has been necessary in order to replace it to take off the tire, usually by cutting the same, loosen the felly, remove the broken spoke, drive in a new one, and then readjust the felly and tire, and in order that a good job may be made the tire is usually reset.

By my invention I am enabled to insert a new spoke or spokes in the place of broken ones in a practical and satisfactory manner and at a small part of the cost required under the former system, also without the defacement to the wheel which inevitably attends the operations formerly necessary.

In Fig. 1 of the drawings hereof I have shown a truck-wheel—that is to say, one in which the diameter of the hub is large as compared with the diameter of the wheel. It will be understood that the invention is applicable to all forms of vehicle-wheels of this general class.

A illustrates the hub; B, the felly; C, the tire; D, the spokes. In the event that one of the spokes becomes broken, as indicated by the irregular line *a*, a section is sawed out of it, if necessary, as shown by the dotted lines *b b*, and then the two remaining parts are worked loose from the felly and hub, as the case may be, without disturbing any of the other spokes or any other part of the wheel. I then employ a casting (shown best in Fig. 4) which embodies a rectangular or

otherwise shaped piece E, adapted to enter snugly within the mortise in the hub from which the broken spoke has been removed. 55

At the upper end of the part E there are laterally-extending shoulders F, adapted to rest upon the surface of the hub adjoining the mortise-hole therein, and above these shoulders F, but cast integral with them, are inclined or dovetailed side plates G G and an end plate G'. The end plate is usually not beveled, but on the same plane as the rear end of the part E. The dovetailed side plates G G extend beyond the part E, so that the dovetail recess or space inclosed by them in conjunction with the end plate G' is open-ended. 60 65

A new spoke is fashioned the same in all respects as the spokes in the wheel, excepting that the hub-tenon is removed and it is made to terminate at the hub end in a dovetailed portion H, which coincides in all respects with the dovetailed space within the side plates G, and it is preferably provided with shoulders I I, adapted to rest upon the upper edges of the side plates G G, also with another shoulder K, (see Fig. 2,) adapted to rest upon the upper edge of the rear plate G'. These shoulders I I and K are not absolutely essential; but I prefer that they be present, so as to add strength and to improve the appearance. The parts being prepared as stated, the casting referred to is driven into the mortise in the hub until the shoulders F come down solidly upon the hub adjoining the said mortise. Thereupon the spoke, which has had the felly-tenon suitably prepared upon its outer end, is worked up into the hole in the felly until it is snugly home therein, care being taken that the dovetailed tenon or extremity H on the spoke bears a proper relation to the dovetailed recess in the casting between the side plates G and end plate G', so that when the tenon at the felly end has been forced home the dovetailed terminal H at the hub end of the spoke may be driven back into the corresponding recess in the casting, as shown best in Figs. 2 and 3. Thereupon the projecting ends L of the side plates G G are bent over in front of the inserted spoke, as shown best in Fig. 1, thus securely holding it in place. 70 75 80 85 90 95 100

It will be observed that if the work is per-



formed with proper accuracy the inserted spoke will be held with great rigidity and strength, and after the parts have been painted it will be difficult to notice the difference between the inserted spoke and the others. It will be understood, of course, that the metal of which the casting is made is suitably annealed, so as to permit of the bending over of the projecting ends L L.

I sometimes make holes M M in the side plates, so that cross-rivets N may be employed to additionally hold the spokes in place. When such rivets are used, there is no necessity for bending the projecting ends L on the side plates over the face of the inserted spoke, and in this case it is not essential that the casting be annealed or made malleable. I prefer, however, in all instances to make the casting of malleable iron in order that it may have the proper strength.

The castings or sockets are made in a variety of sizes to coincide with the prevailing sizes of spokes and mortises as now made commercially. If there should be a slight variance in the inserted spoke as compared with the others, it will not be noticed.

It will be obvious to those who are familiar with this subject that bolts, screws, or other devices may be substituted for the rivets N; also, that it is not essential that the space between the plates G G be dovetailed, particularly if the rivets or their equivalent be employed. Nor is it essential that there should be an end plate. The two side plates G G will serve the purpose, provided the rivets or their equivalent be employed. Also instead of being an iron or steel casting the part referred to may be made of brass or equivalent non-corrosive metal. I contemplate making them of such metal for fine work.

I do not limit myself to the details of the invention shown, since they may be somewhat

departed from and yet the essentials of the invention be employed.

Having described my invention, I claim—

1. As a new article of manufacture, a socket for the purpose stated, embodying a part adapted to enter a mortise in a hub, and inclined or dovetailed side pieces projecting radially beyond the hub and adapted to embrace, support and radially hold the hub end of a spoke.

2. As a new article of manufacture, a socket for the purpose stated, embodying a part adapted to enter a mortise in a hub, side plates and an end plate adapted to embrace and support the hub end of a spoke, and projecting portions of the side plates adapted to be folded over the face of the inserted spoke.

3. As a new article of manufacture, a socket for the purpose stated, embodying a part adapted to enter a mortise in a hub, shoulders on said part adapted to rest against the surface of the hub, side plates adapted to embrace the hub end of a spoke, and means to confine the end of the spoke between said side plates.

4. The combination of a hub, a socket embodying a part adapted to enter a mortise in the hub, said socket having side plates adapted to embrace the hub end of a spoke; a spoke having at one end a tenon adapted to engage with the felly, and shaped at the hub end so as to engage with the socket; and means to hold the hub end of the spoke in proper engagement with the socket, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of February, A. D. 1901.

JAMES M. RANKIN.

Witnesses:

PHILLIPS ABBOTT,  
EDGAR R. MEAD.