

(No Model.)

J. E. MICK.
HYDRAULIC MOTOR.

No. 391,809.

Patented Oct. 30, 1888.

FIG. 1.

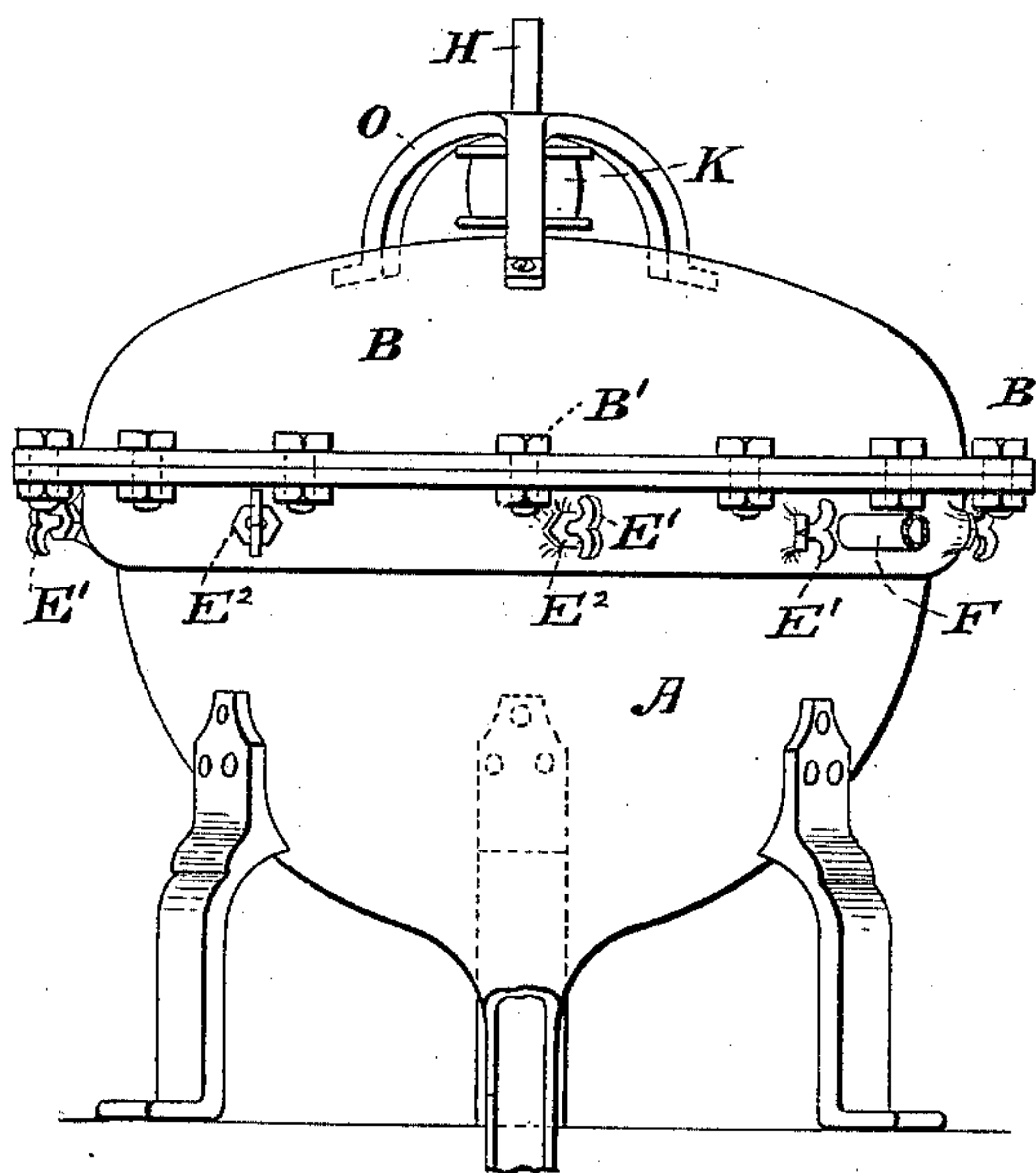


FIG. 2.

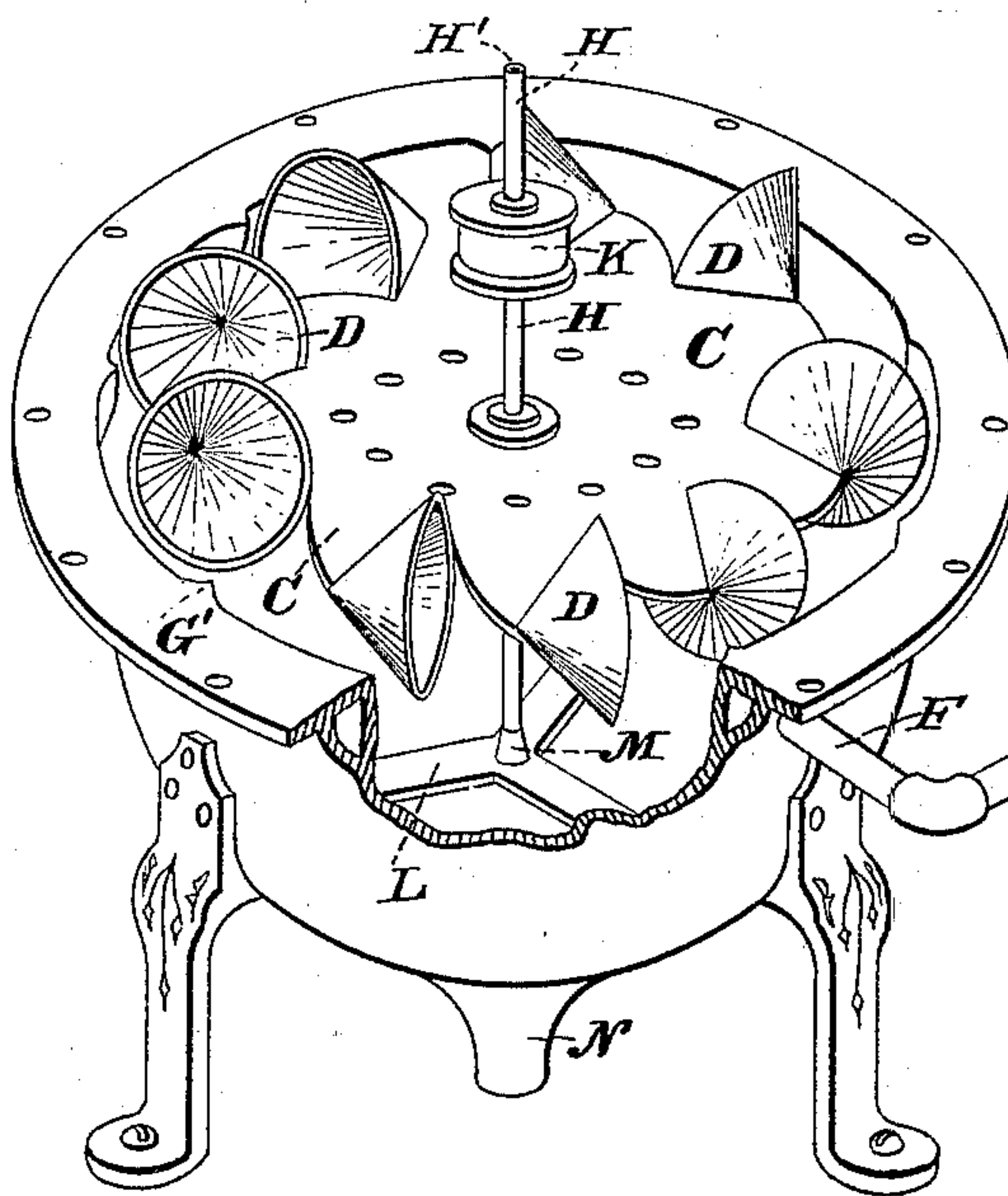


FIG. 4.

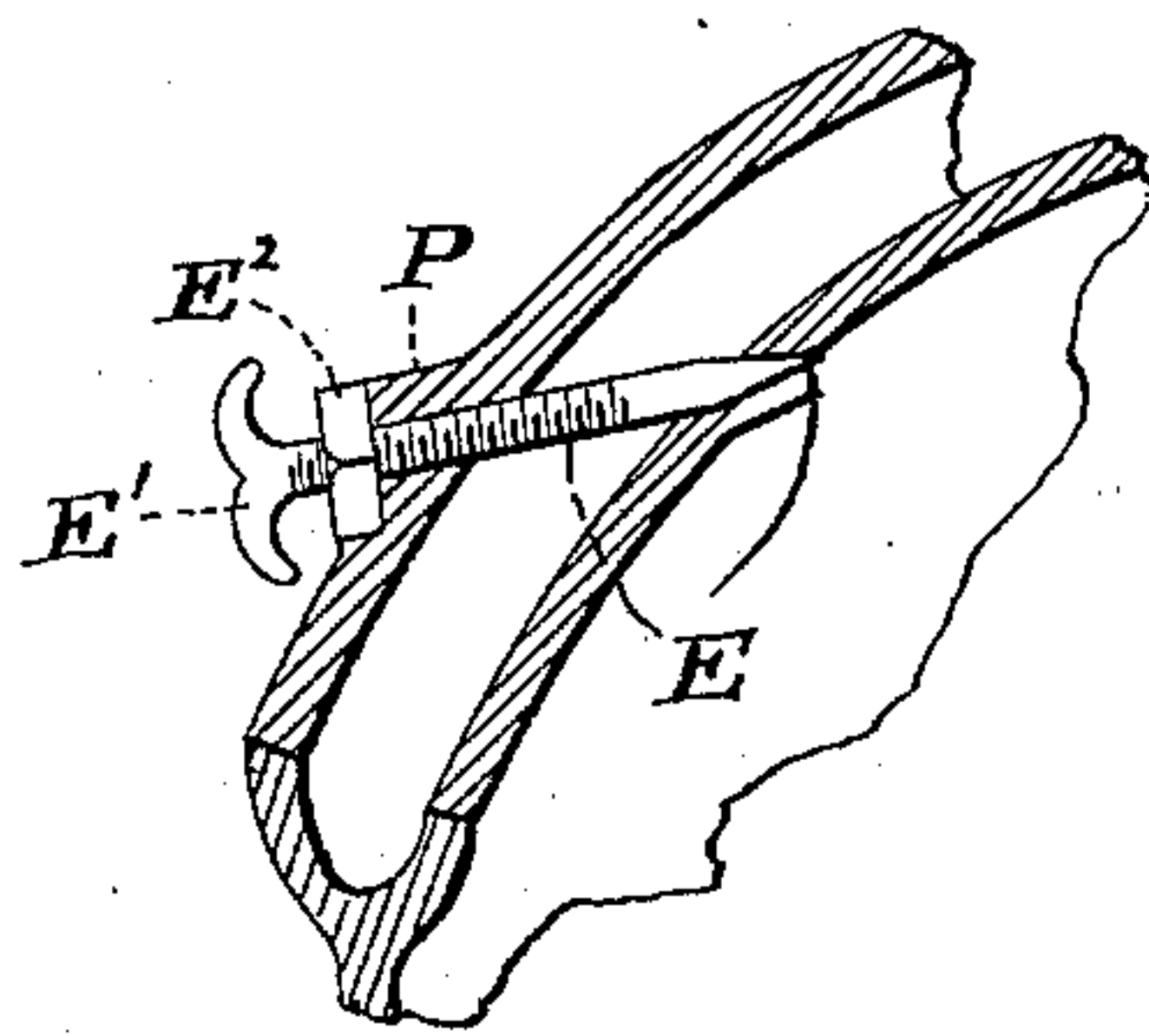
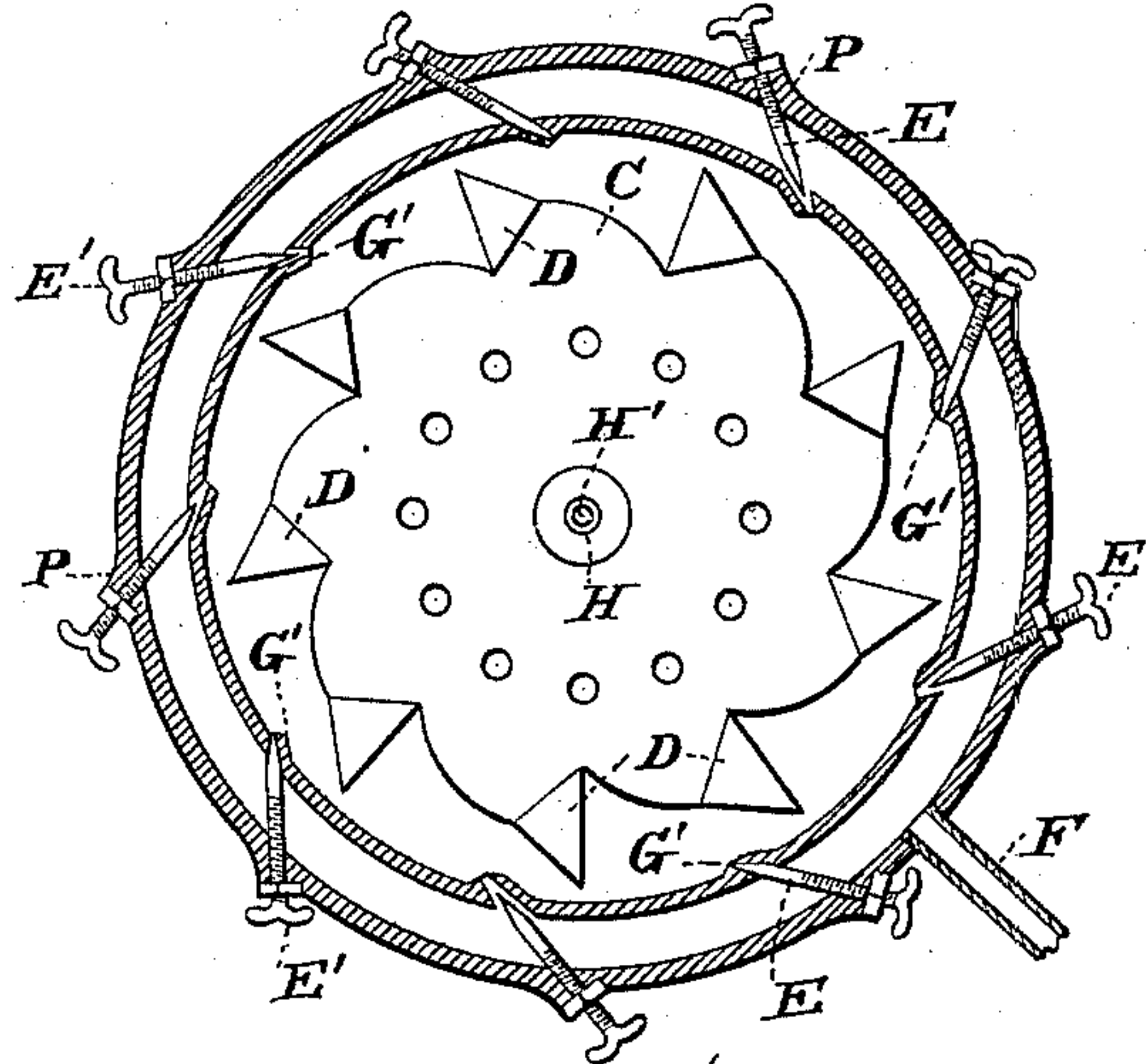


FIG. 3.



Attest:
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UNITED STATES PATENT OFFICE.

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HYDRAULIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 391,809, dated October 30, 1888.

Application filed March 10, 1888. Serial No. 266,835. (No model.)

To all whom it may concern:

Be it known that I, JOHN EDDY MICK, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in a Hydraulic Motor; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to hydraulic motors and provides a noiseless economical impact water-wheel adapted to mechanical and domestic uses.

The object of my invention is to construct a water-wheel in such a manner that the full amount of power residing in a given supply of water may be utilized, and to regulate the amount of water needed for a given amount of power and by the arrangement of its parts to render it noiseless and clean in operation, so that it may more particularly be used in the domestic arts. I attain these objects by constructing a metal casing in two parts provided with flanges, which permit of their being bolted together. The lower part is made with feet, on which the whole may stand, and has a supply-chamber extending the entire distance around the casing under the flange, the said supply-chamber communicating with the outside by an inlet-pipe and having nozzles communicating with the inside of the turbine, through which the water issues from the supply-ring in streams, impinging on the buckets carried by the wheel. The nozzles which lead the water to the buckets are provided with stop-rods having screw threads and extending to the outside of the casing. Each nozzle having a separate stop-rod, it will be easily seen that any one nozzle may be closed or opened at will, and as the water cannot issue except by these nozzles a greater economy is attained, while the full amount of power is used.

In the accompanying drawings, forming a part of this application, and in which like letters of reference indicate like parts, Figure 1 is an outside view of the impact water-wheel. Fig. 2 is a perspective view showing the in-

terior. Fig. 3 is a sectional view showing the supply-chamber, the stop-rods, and the wheel provided with buckets; and Fig. 4 is an enlarged view of part of the supply-chamber.

A represents the lower part of the outer casing; B, the upper part; B', bolts for holding together the upper and lower parts of casing; C, the wheel; D, the cone shaped buckets on the wheel; E, the stop-rods, having screw-threads cut on them; E', the heads of the stop-rods to be actuated from the outside; E², jam-nut; F, the inlet-pipe bringing water to the circular supply-chamber; G', nozzles on the inside of the supply-ring, closed by the stop-rods; H, the shaft, rigidly attached to the wheel; H', hollow core in shaft to oil bearings; K, belt-pulley; L, step to receive the end of the shaft; M, apron to protect oil-box; N, the waste-pipe; O, bracket providing the upper bearing of shaft, and P boss or shoulder.

The casing may be constructed of cast or malleable iron and has a circular supply-chamber, G, from which the water issues by the nozzles G', the direction of which should be so as to direct streams of water against the buckets at right angles to their faces. The stop-rods have pointed ends, which fit accurately into the nozzles, and their shanks are provided with screw-threads engaging in female threads made in apertures in the outside of the casing. Their heads are formed flat to facilitate their being turned by the hand and their being adjusted from the outside. To prevent any outside leaking from these threaded apertures, the casing is made with bosses P P and the stop-rods are provided with jam-nuts E², which may be set up tightly against the bosses, thereby forming tight joints. The wheel may be made of any suitable material and is attached to the shaft H, which has bearings in the step L and in the bracket O. The central opening to the shaft permits of the lubricating of the lower bearing. The pulley is placed under the bracket O for apparent mechanical reasons. The buckets D D are constructed cone-shaped and are attached to the wheel in any well-known manner. Instead of cones, any other shaped buckets may be used; but the former are better, as their form presents a larger surface to the impinging streams of water.

For putting the casing together, I provide

bolts and nuts B', which, with a slight packing, will allow of the formation of a tight joint between the upper and lower halves of the casing.

The impact water wheel having been connected to whatever it is intended to actuate by means of a belt running over the pulley K, the operation is as follows: The water having been turned on through the inlet-pipe F, the whole of the supply-chamber will be filled with it. By unscrewing one of the stop-rods the water will issue by the nozzle that was closed by its point, and, impinging on the buckets carried by the wheel, will rotate it, and the quantity of water by this means can be graduated to a greater or less amount through each nozzle. Should the wheel remain stationary on opening one of the nozzles, it will be necessary to unscrew another stop-rod and continue opening others until the desired amount of power is obtained. The water, after impinging on the buckets and rotating the wheel, will escape by the waste-pipe N, to which may be attached a rubber hose or any convenient receptacle. To lubricate the bearings, a few drops of oil may be introduced into the core of the shaft, from which it will descend to the lower bearing in the step L, the apron M tending to prevent the water from getting to an oil-box, which may be added to the said lower bearing. The advantages possessed by my turbine are the greater facility for obtaining the necessary power required for the work it has to accomplish. For instance, should it be desired to run a light sewing-machine with it, and should it be necessary to economize the amount of water, it will be readily seen that a less number

of nozzles may be opened than in the case of the heavier machine, requiring the full force of water obtainable through the supply-pipe. Another advantage is the ease with which the water-supply may be regulated and the necessary amount allowed to impinge on the buckets, the noiselessness of the movement and its general cleanliness adapting it to household purposes.

I do not limit myself to the form of buckets shown in the drawings and herein described, nor to the number of nozzles and stop-rods.

I am aware that impact water-wheels have been constructed with a ring-supply, and also with a number of apertures between the ring-supply and the wheel; but the nozzles provided with threaded stop-rods and the circular supply chamber having no other outlet than the nozzles I believe to be new.

What I claim as my invention is—

An impact water-wheel having the lower section of a flanged case provided with an annular inclosed supply-chamber and internal radial nozzles, the adjustable stop-rods adapted to close or regulate the influx of water through said nozzles, a pipe for supplying water to said annular chamber, a series of cone-shaped impact buckets arranged on the periphery of a rotative disk, a hollow shaft therefor, and a covering section, all as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN EDDY MICK.

Witnesses:

J. F. STRAYER,
J. E. VOLGEUR.