

No. 662,007.

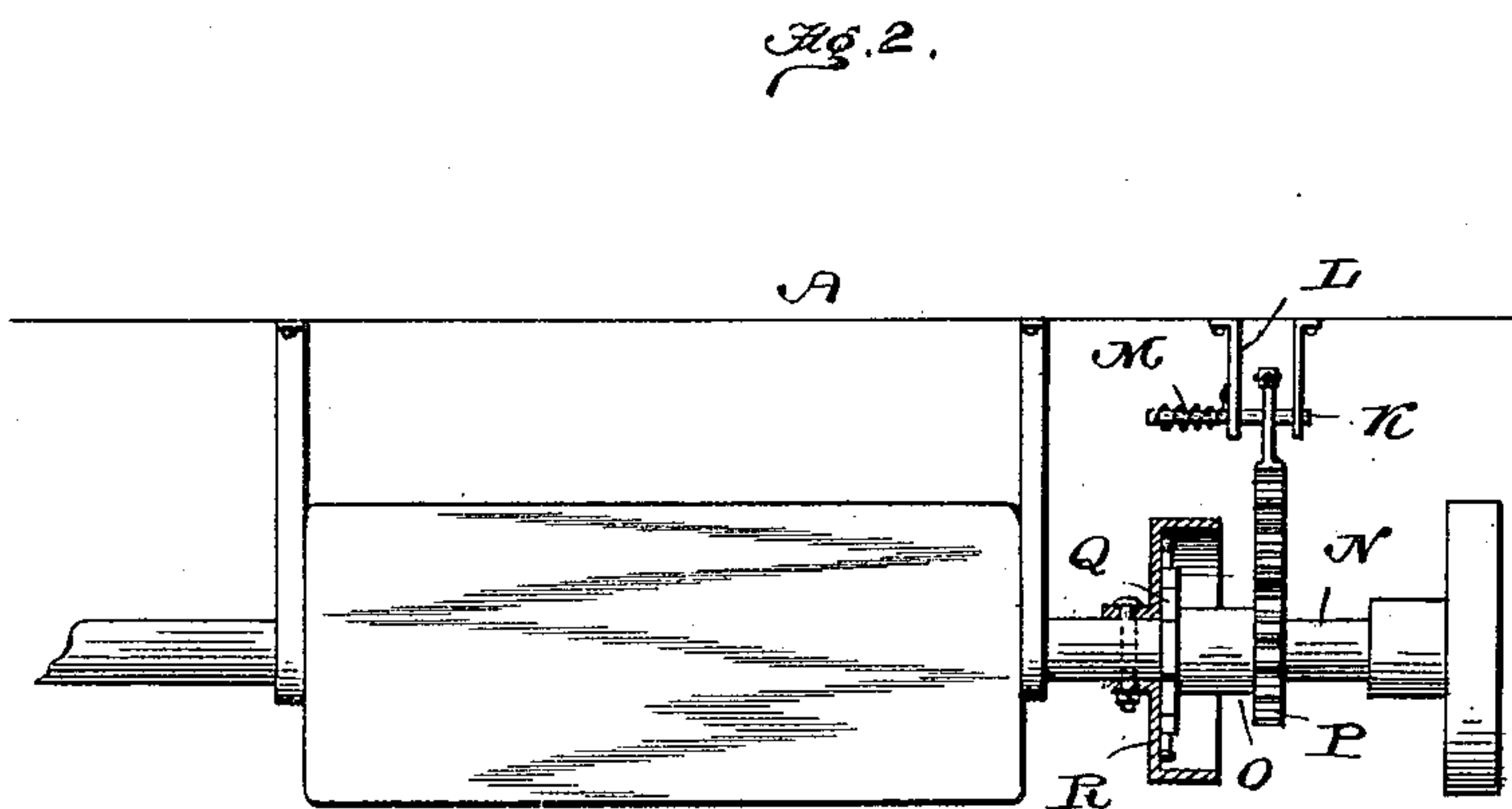
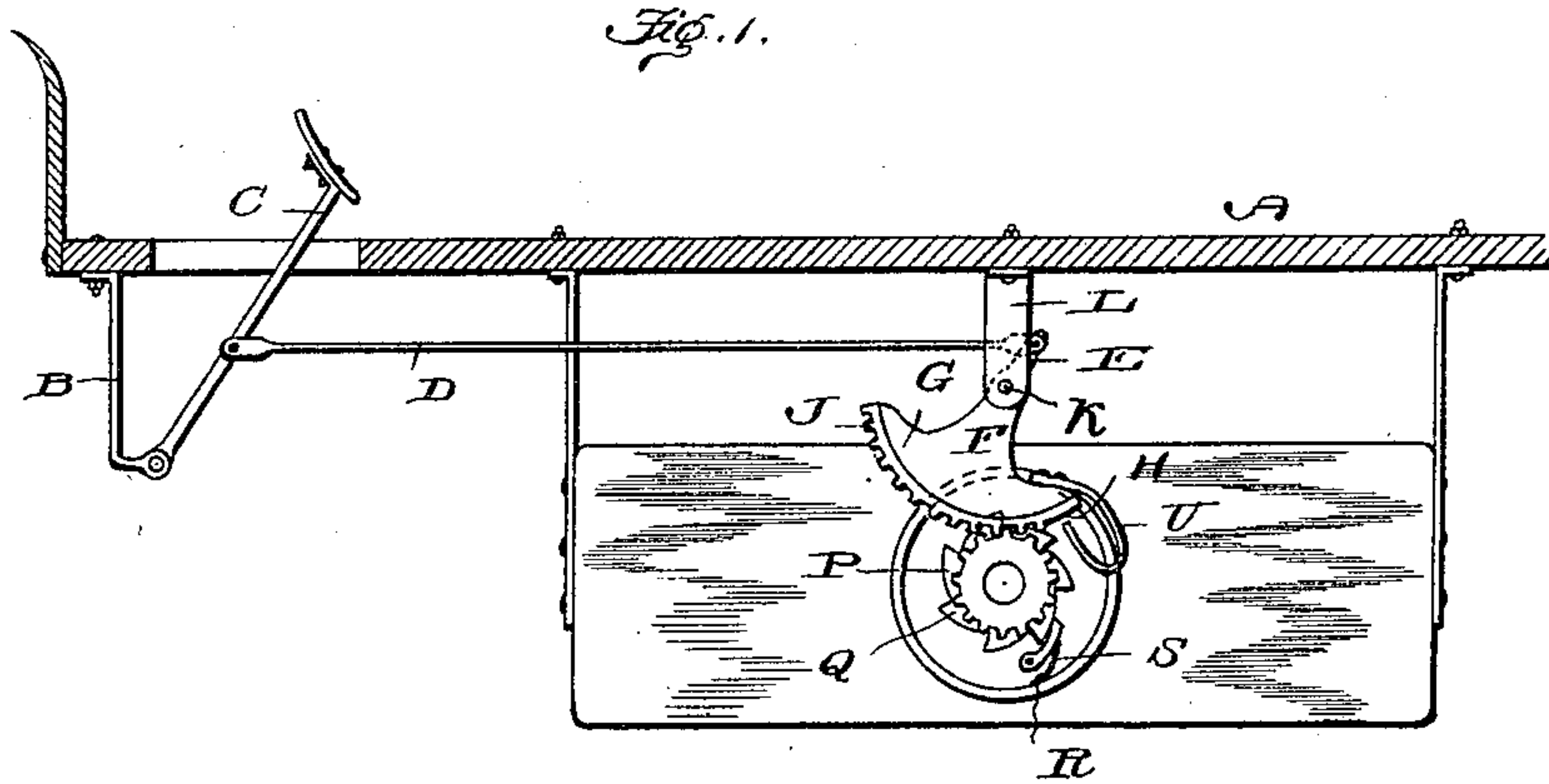
Patented Nov. 20, 1900.

J. G. MACPHERSON.
STARTING MECHANISM FOR AUTOMOBILES.

(Application filed June 25, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

Bernard M. Offutt,
[Signature]

Inventor
John G. MacPherson
- BY - David P. Moore
Attorney

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2 Sheets—Sheet 2.

Fig. 3.

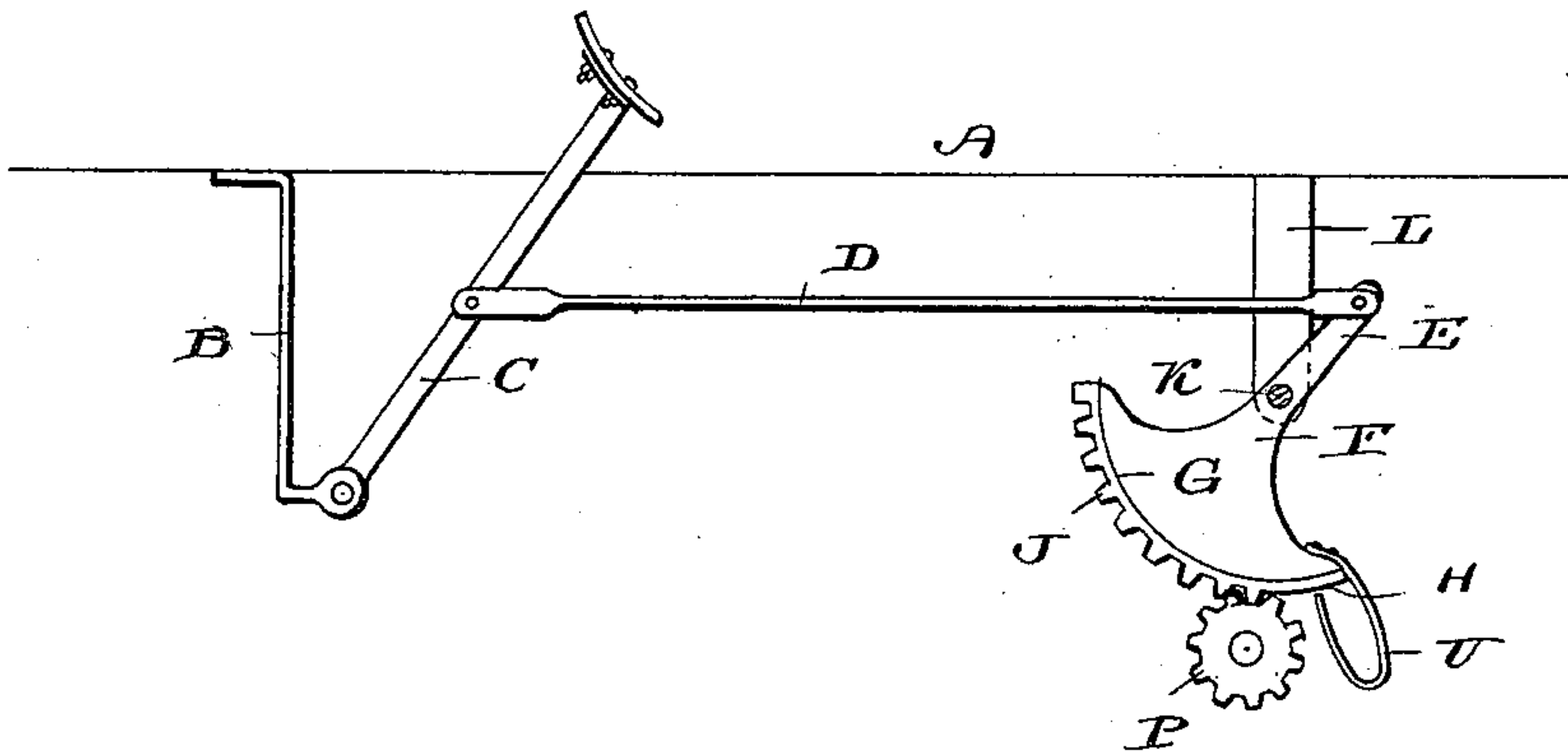
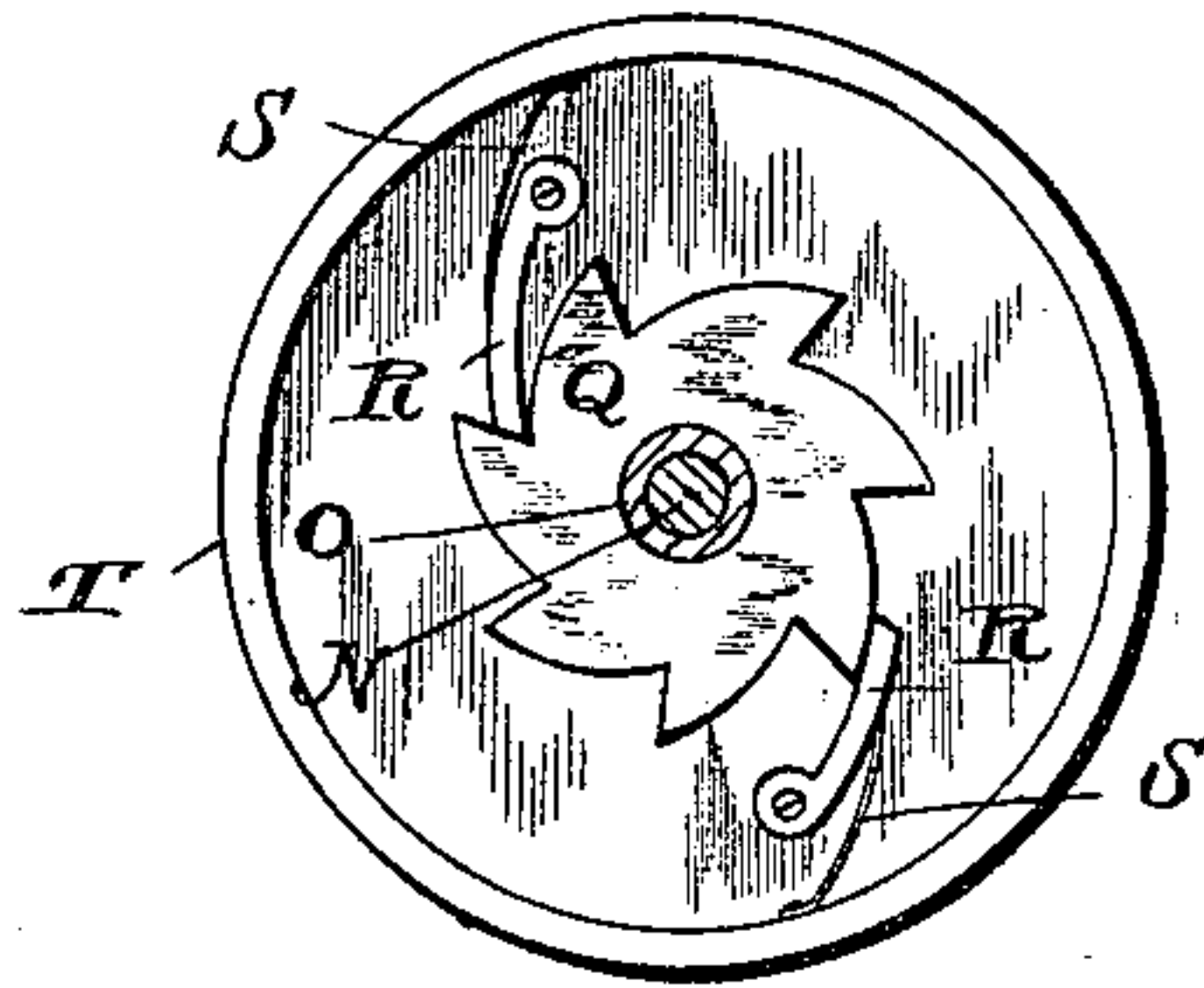


Fig. 4.



Witnesses

Bernard M. Offutt,
Murphy & Ashlee

Inventor
John G. MacPherson
By David T. Moore
Attorney

UNITED STATES PATENT OFFICE.

JOHN G. MACPHERSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THE MACPHERSON AUTOMOBILE COMPANY, OF SAME PLACE.

STARTING MECHANISM FOR AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 662,007, dated November 20, 1900.

Application filed June 25, 1900. Serial No. 21,429. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. MACPHERSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Starting Mechanism for Automobiles; and I do hereby 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.

My invention relates to improvements in starting mechanism for automobile-engines; and the main object of my invention is the provision of a device by which a gas or gasoline engine can be set in operation without the operator leaving the automobile, and by a simple contrivance I insure against the breakage of any part of the machinery should a back motion be imparted to the engine.

Another object of the invention is the provision of a simple, durable, and inexpensive device which is very useful and practical.

To attain the desired objects my invention consists of a starting mechanism for automobile engines embodying novel features of construction and combination of parts, substantially as disclosed herein.

In the drawings, Figure 1 is a longitudinal section of the floor of an automobile with my starting mechanism in elevation. Fig. 2 is a front view of a portion of the mechanism, the bell or cup being in section to clearly show the ratchet and pawls. Fig. 3 is a detail view of the swinging lever and connections, and Fig. 4 is a detail view of the ratchet-wheel and pawls.

Referring by letter to the drawings, A designates the flooring, having depending from its forward portion the depending bracket B, to which is swingingly connected the foot-lever C, which passes upward within the automobile, so as to be readily accessible to the operator. Pivoted to this lever intermediate of its length below the flooring is the long rod or connection D, movably connected at its other end to the arm E of the pivoted lever F, having the segment G upon its lower end, said segment being provided with the smooth portion H and the ratchet or cog teeth J upon its lower surface. The axle or shaft K of this

lever is mounted in the depending brackets L, and upon one side thereof is placed the coiled or spiral spring M, which is so tensioned as to cause the segment to be normally forward. Below these parts is located the main shaft N of the engine, upon which is loosely mounted the sleeve O, provided with the cog P and the odd number of ratchet-teeth Q, which is adapted to be normally in engagement with the dogs or pawls R, actuated by the flat springs S and mounted in the bell or cup T, secured or pinned rigidly to the shaft. The teeth J are adapted to be engaged by the cog P, and it will be seen that by a forward movement of the foot-lever the sleeve O is caused to rotate, thus rotating the main shaft of the engine, and should the main shaft slip and start backward the curved flat spring U, carried by the segment at its smooth end, prevents the segment from passing back farther and also presses the segment, in connection with the spiral spring, back to its normal position, where a new start may be given the foot-lever.

From this description, taken in connection with the drawings, the operation of my starting mechanism is readily understood, and, briefly stated, it is as follows: The foot-lever is pushed forward quickly and to its farthest point. The teeth of the segment then impart motion to the sleeve O, whose ratchet-teeth engage the pawls and cause the main shaft to be revolved, when the foot-lever is released and the parts assume their normal positions. The main shaft revolves so rapidly that by centrifugal force the pawls are kept from engagement with the ratchet-teeth, and thus the noise of their click is dispensed with. Should the main shaft get a back-motion start, the curved flat springs guard against the cog of the sleeve breaking any teeth and, in conjunction with the spiral springs, returns the levers to their normal positions ready for a new start.

It is evident that I provide a very simple, durable, and cheap starting mechanism for automobile engines which is very useful and practical.

I claim—

1. In combination with an automobile, a starting mechanism for the motor thereof,

consisting of a foot-lever journaled below the floor of the automobile, a spring-actuated lever in operative connection with the foot-lever, a loosely-mounted sleeve having a cog and a ratchet integral therewith, means to make the sleeve rigid with the main shaft of the motor to start the same, and a curved flat spring having one end connected to the lower end of the spring-actuated lever to prevent the lever from becoming injured when any back motion is imparted to the motor.

2. In a starting mechanism for automobile-engines, a foot-lever pivoted below the floor of an automobile, a long rod connected to said lever intermediate of its length, a pair of brackets depending from the floor of the automobile, a lever journaled in said brackets and having the upper end of the arm connected to the rod, a coiled spring surrounding one side of the lever's axle to hold the foot-lever in its normal position, a segment provided with teeth and a smooth surface formed integral with the lower end of the lever, a sleeve having a cog-wheel and a ratchet-wheel formed thereon loosely mounted upon the main shaft of the engine, and a bell or casing carrying spring-actuated pawls pinioned upon the shaft and adapted to surround the ratchet-wheel end of the sleeve so as to make the loose sleeve rigid with the shaft when the foot-lever is pushed forward.

3. In a starting mechanism for engines, a foot-lever, a spring-actuated pivoted lever carrying a segment provided with teeth and a smooth surface operated by said foot-lever,

a loosely-mounted sleeve having a cog and a ratchet, said cog adapted to be engaged by the teeth of the segment, and means upon the main shaft of the engine to engage said ratchet of the sleeve when the foot-lever is pushed forward.

4. In a starting mechanism for gas or gasoline engines, a foot-lever, a rod connected to said foot-lever, a pair of brackets, a lever having an axle or shaft about midway of its length journaled in said brackets and having one end of the axle extended outside the bracket, a coiled spring surrounding said extended portion of the axle and having its ends secured to one of the brackets and the axle, respectively, a segment formed integral with the lower portion of the lever and provided with teeth and a smooth surface in same line with the bottom of the teeth, a curved flat spring having an end connected to the segment near its smooth-surfaced end, an engine-shaft, a sleeve loosely mounted upon said shaft and having a cog and a ratchet, said cog adapted to be engaged by the teeth of the segment, and a cup or bell carrying pawls rigidly secured to the shaft of the engine said pawls being adapted to engage the ratchet when the foot-lever is pushed forward.

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

JOHN G. MACPHERSON.

Witnesses:

DAVID P. MOORE,

BERNARD M. OFFUTT.