

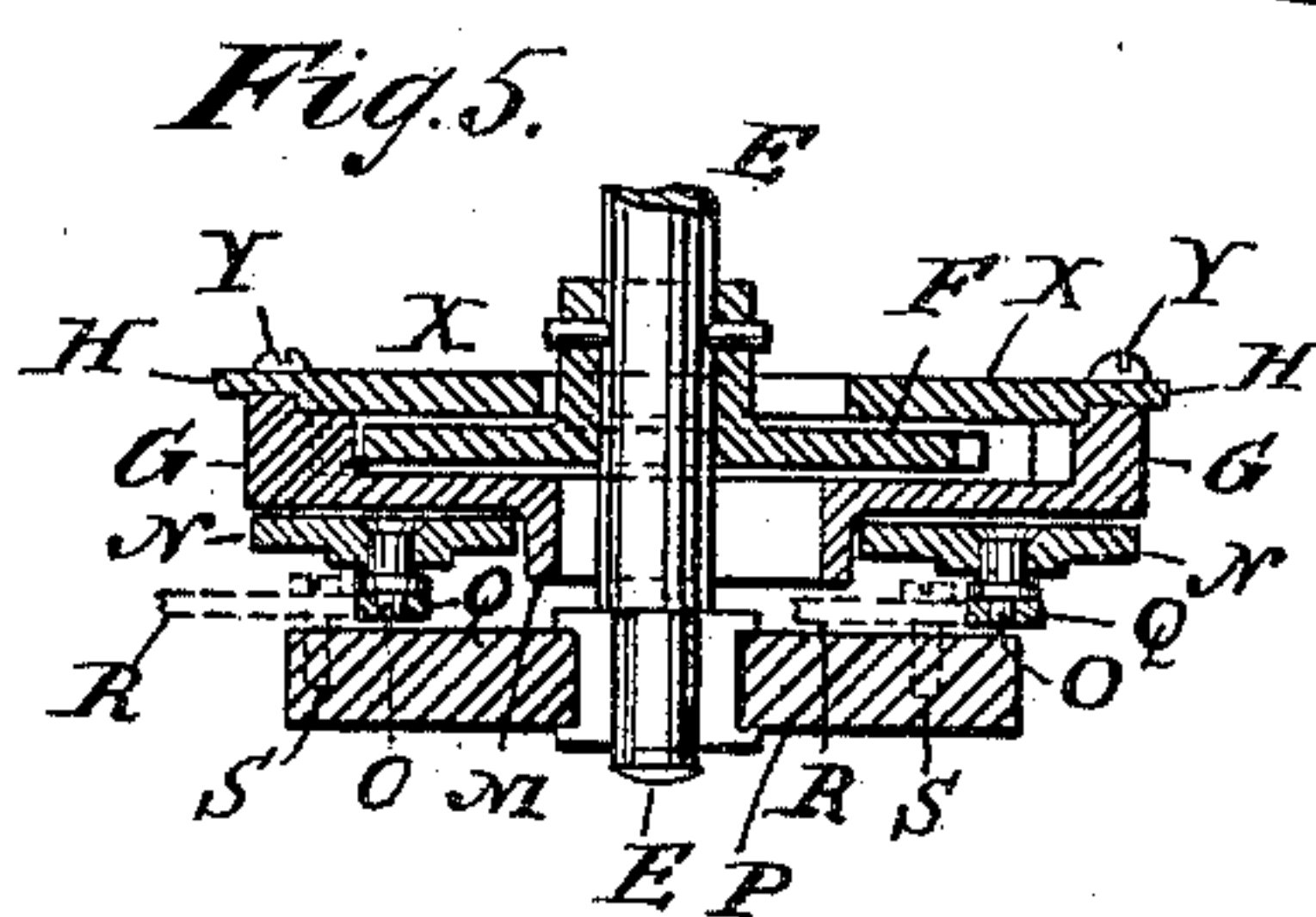
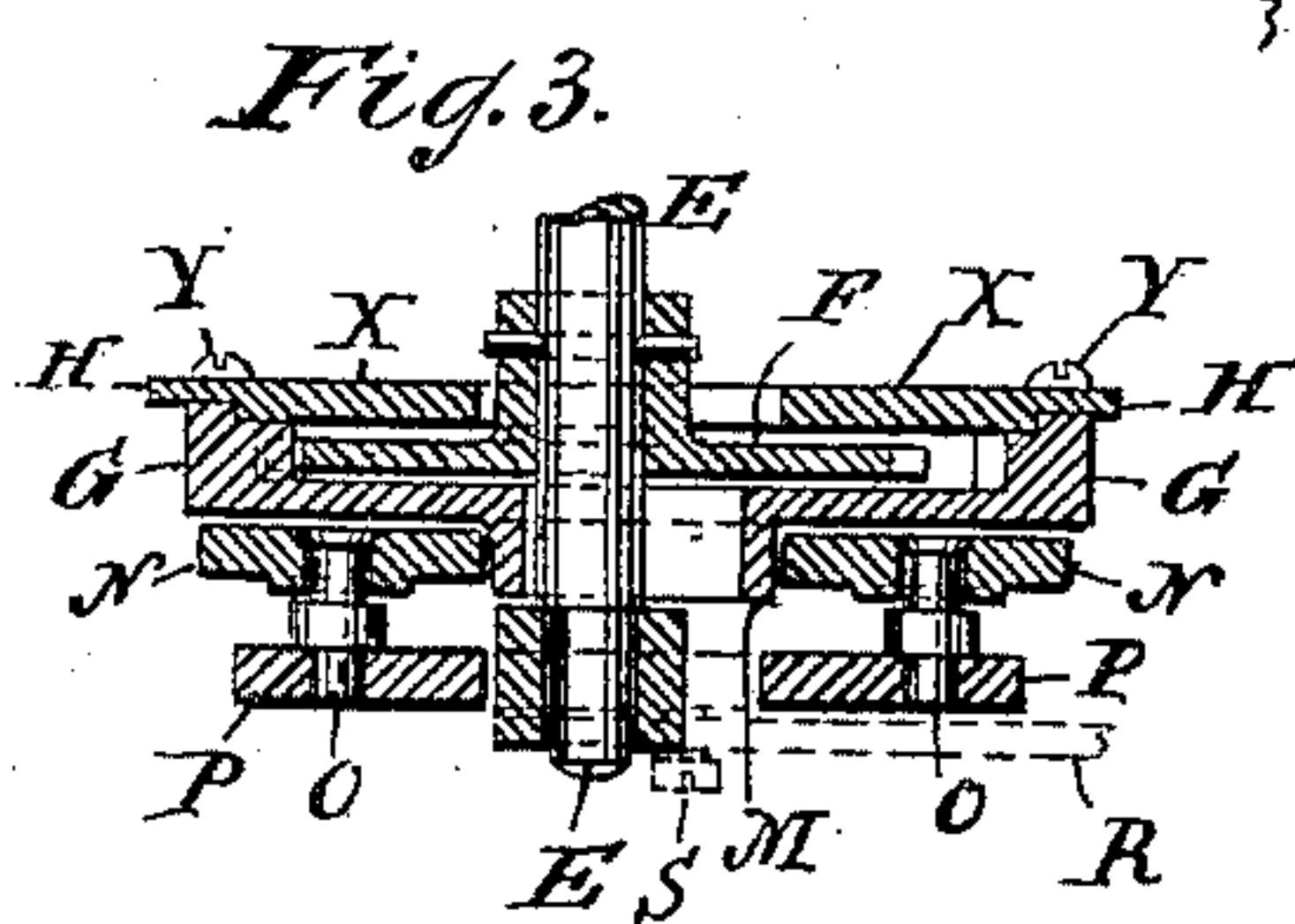
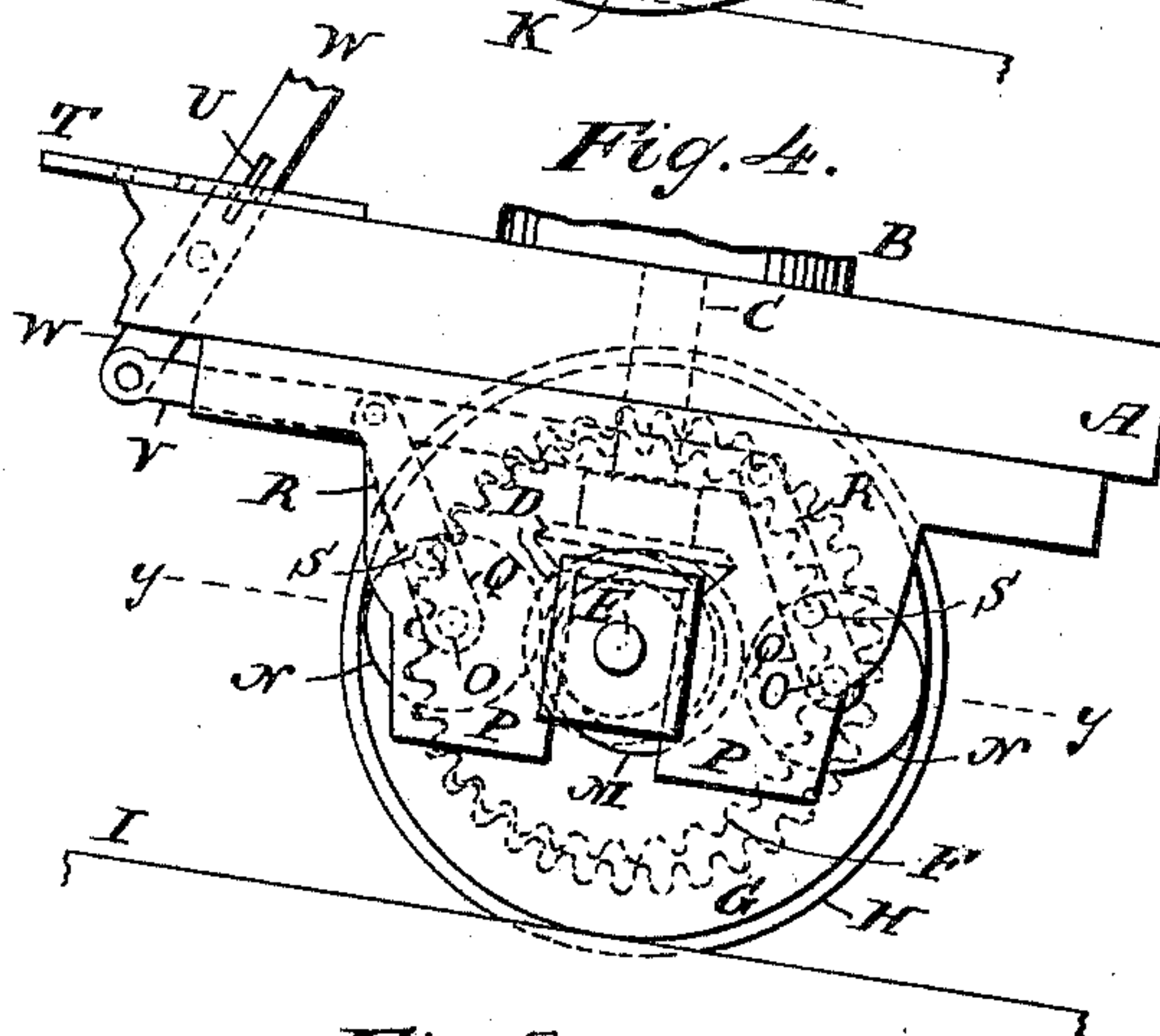
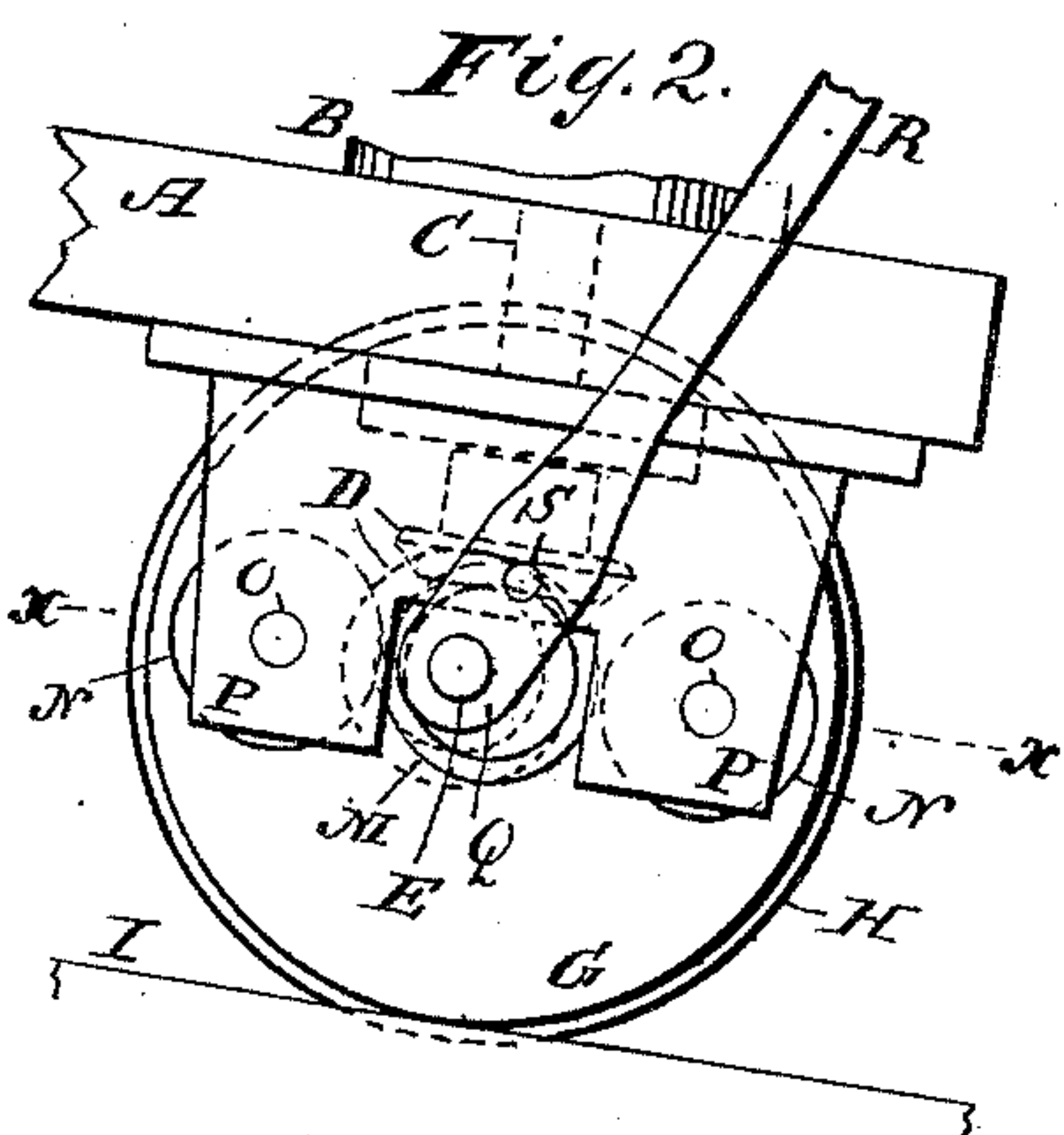
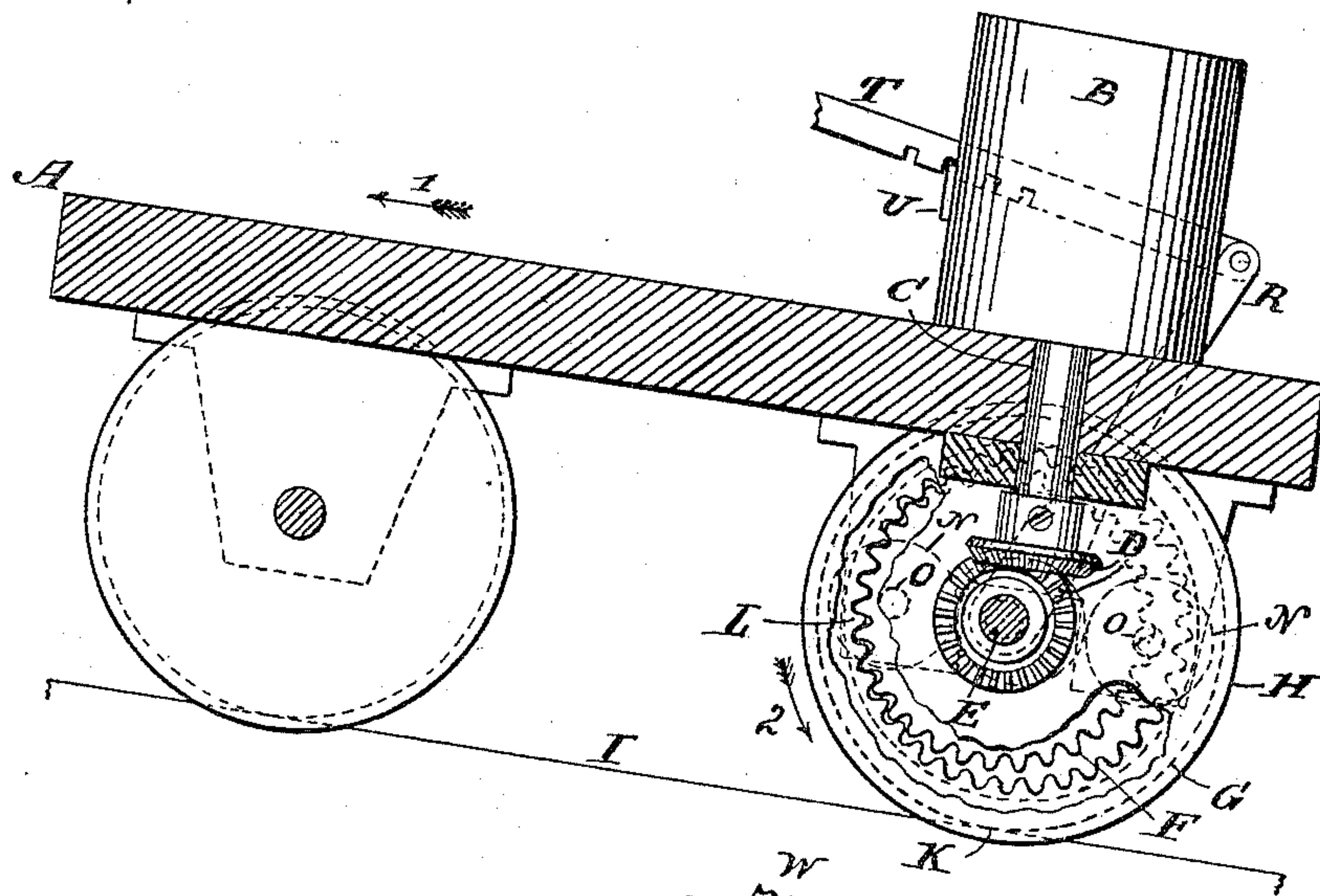
(No Model.)

H. A. KINGSLAND.
DRIVING WHEEL FOR LOCOMOTIVES.

No. 436,711.

Patented Sept. 16, 1890.

Fig. 1.



WITNESSES:

Eduard Wolff.
William Miller

INVENTOR:

Hugh A. Kingsland.

BY *Van Santwood & Hauff*

ATTORNEYS

UNITED STATES PATENT OFFICE.

HUGH A. KINGSLAND, OF BELLEVILLE, NEW JERSEY.

DRIVING-WHEEL FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 436,711, dated September 16, 1890.

Application filed January 2, 1890. Serial No. 335,719. (No model.)

To all whom it may concern:

Be it known that I, HUGH A. KINGSLAND, a citizen of the United States, residing at Belleville, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Driving-Wheels for Locomotives and other Motors, of which the following is a specification.

This invention relates to an improvement in driving-wheels for such apparatus, for example, as locomotives or electric cars; and by means of this invention the climbing or ascending of a grade is rendered easy, as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a sectional side elevation of a vehicle or conveyance provided with the driving-wheel and ascending a grade. Fig. 2 is a side elevation of the driving-wheel. Fig. 3 is a section along $x x$, Fig. 2. Fig. 4 is a side elevation of a modification. Fig. 5 is a section along $y y$, Fig. 4.

In the drawings, the letter A indicates the body or platform of a car, locomotive, or other motor. The source of power (indicated by B) may be either an engine or electric battery, from which motion is communicated to the shaft C, the bevel-gears D, and axle E. The axle E has secured to it a driving-gear F, which engages suitable gears on the inside of the rim of the outer shell or support G. The outer shell or support G may be shaped like a car-wheel, with a flange H to keep the wheel on a track or rail I. The driving-gear F and support or shell G are made adjustable with respect to one another.

When the vehicle is ascending a grade or moving in the direction of arrow 1, Fig. 1, which direction may herein be called "forward," the driving-gear does not engage the shell G at the point K, which is the contact-point between the shell G and rail I, but forward of said contact-point about at the point L. The driving-gear being then rotated in the direction of arrow 2 said rotation is imparted to the shell G, and the point of contact between the gear F and shell G, as already stated, being forward of the contact-point K the shell G is prevented from slipping on the

rail and the body A is propelled forward or up the grade.

In Figs. 1, 2, and 3 the gear F is shown adjustable and the shell G non-adjustable. The shell G has a flange or shoulder M turning between rollers N, having bearings O, fixed on suitable hangers P on the body A. The axle E of the gear F is engaged by the arm Q of the lever Q R, fulcrumed at S. By shifting the lever Q R the gear F can be adjusted forward or backward, as desired. A suitable latch or notched arm T, Fig. 1, engaging a stud U, can be made to lock the lever Q R in the proper position.

In Figs. 4 and 5 the axle E of the gear F is fixedly seated in the hanger P, so as to be non-adjustable. The rollers N have their bearings seated in the levers Q R, and as the levers Q R are shifted the rollers N, and with them the shell G, are adjusted so that the engagement between the gear F and shell G is adjusted either forward or backward, as desired. In Fig. 4 there are two levers Q R, connected to a link V, receiving motion from a lever or arm W, carrying a stud or stop U, which can be made to engage a notched arm or bar T, so as to fix the lever W and rollers N with the shell G in the desired adjustment.

In Figs. 3 and 5 the shell G is shown as having a cover X. By securing the cover with screws Y the cover can be readily removed when desired. By closing the shell with the cover X, said shell will inclose and protect the gear F, thus preventing the entry of grit, dust, or foreign matter, which might cause wear, friction, and heat and interfere (more or less) with the smooth working of the parts, especially if a dusty road is being traveled over. Of course the power can be transmitted from B by any suitable well-known means in place of the bevel-gears D. In place of the driving-gear F being a toothed gear said gear may be a friction-gear or any suitable gear. It will be noticed that as the driving-wheel enables the vehicle to readily ascend a grade, so also the driving-wheel can be made to prevent the vehicle descending the grade with excessive rapidity. It is evident that the lever Q R is not absolutely necessary, since in ascending a grade the driv-

ing-gear would of itself work so far forward or adjust itself so as to rotate the shell G; but the adjusting-lever Q R, I have found to be serviceable and convenient.

5 What I claim as new, and desire to secure by Letters Patent, is—

1. A driving-wheel consisting of an outer shell or support and an inner driving-gear, both mounted on the same axle, said driving-
10 gear and shell being adjustable with respect to one another to become engaged with each other forward of the point of contact between the shell and the roadway, substantially as described.

15 2. The combination, with the body or platform A, the axle E, and driving-gear F, of a shell or support G, engaged by said gear, and anti-friction-rollers N for said shell, said driv-

ing-gear and shell being adjustable with respect to one another, substantially as de- 20 scribed.

3. A driving-wheel consisting of an outer shell or support having gears on the inside of its rim and a driving-gear made to engage the gears of said shell, said driving-gear and 25 shell being adjustable with respect to one another, and said shell being closed so as to inclose and protect the driving-gear, substantially as described.

In testimony whereof I have hereunto set 30 my hand in the presence of two subscribing witnesses.

HUGH A. KINGSLAND.

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.