

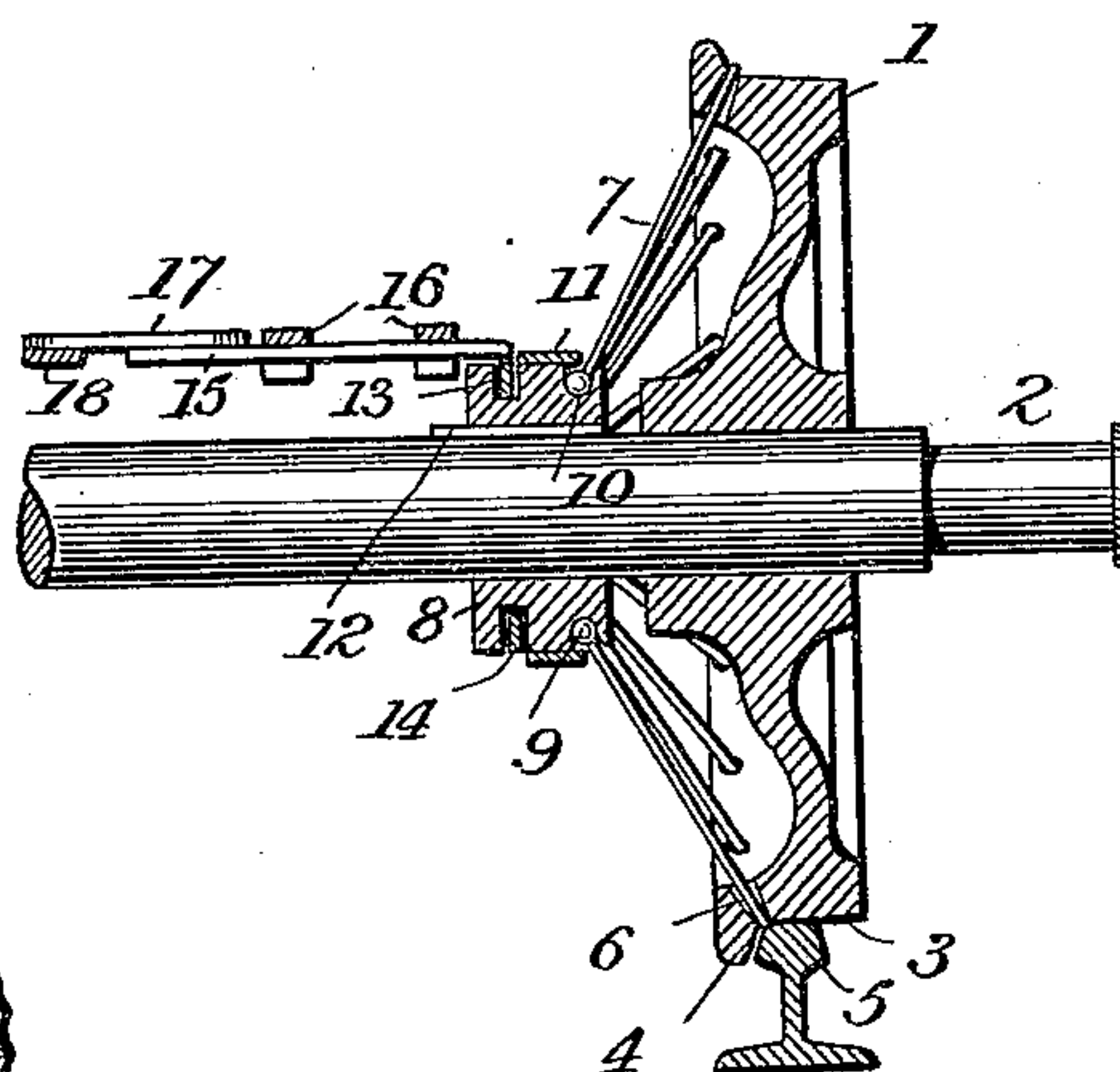
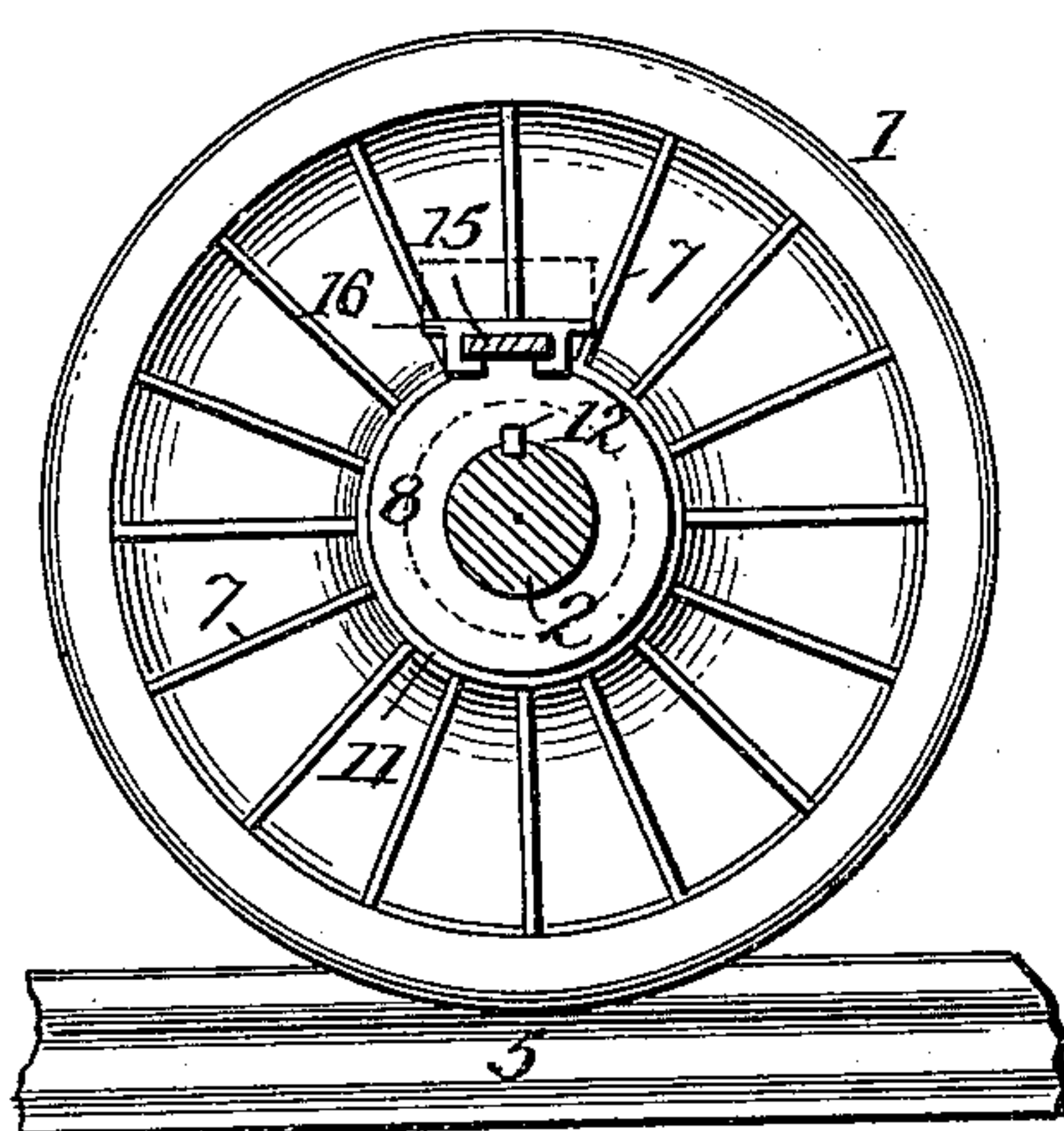
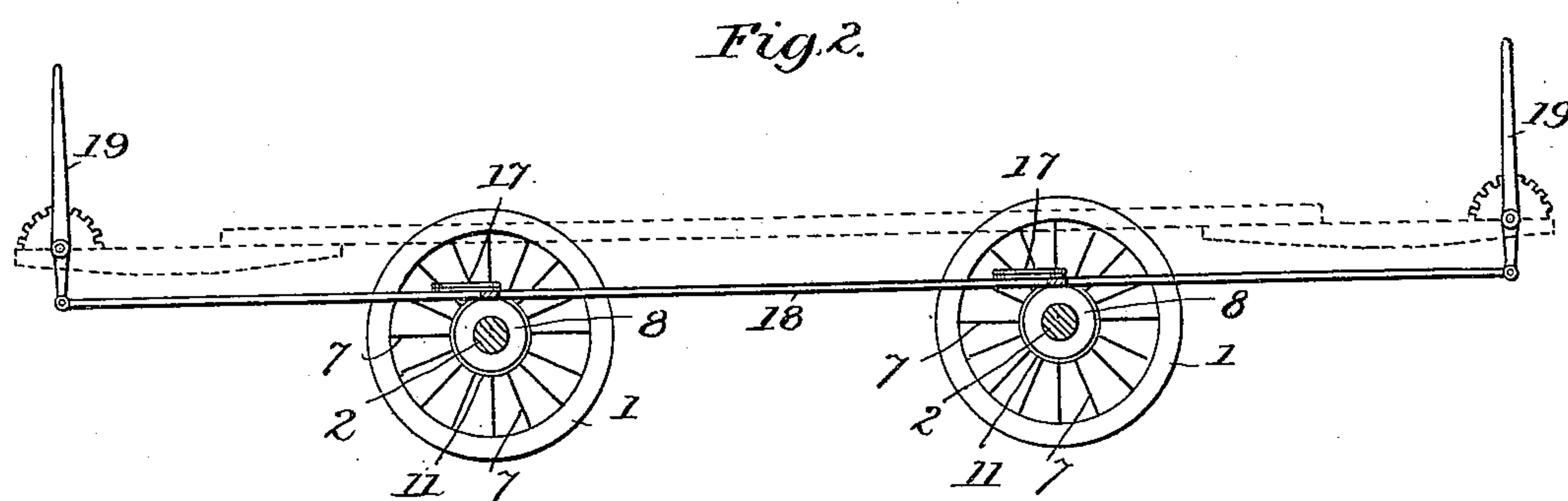
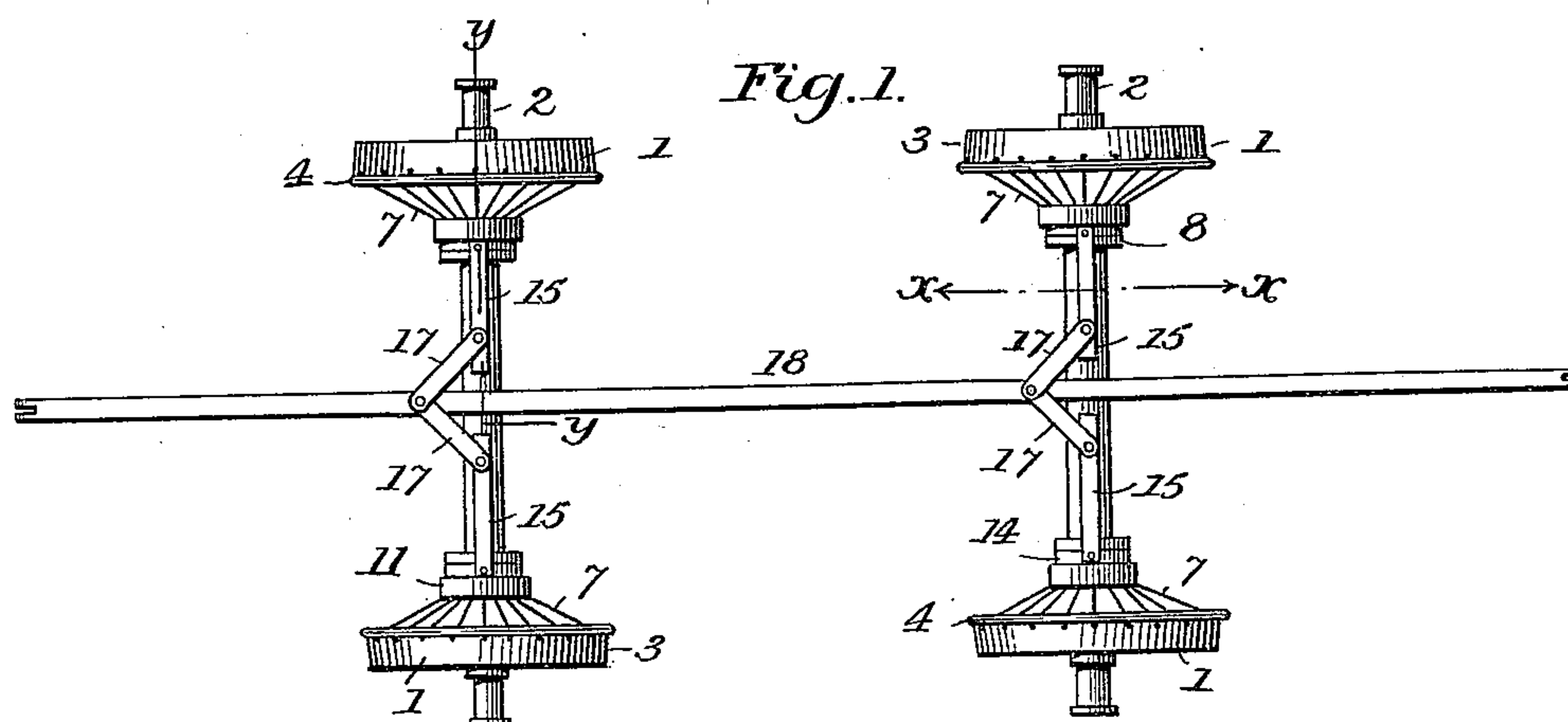
(No Model.)

A. L. McCAULEY.

TRACTION WHEEL FOR MOTOR CARS OR LOCOMOTIVES.

No. 547,152.

Patented Oct. 1, 1895.



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ALPHONSUS L. McCAULEY, OF EXETER, PENNSYLVANIA.

TRACTION-WHEEL FOR MOTOR-CARS OR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 547,152, dated October 1, 1895.

Application filed March 22, 1895. Serial No. 542,830. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSUS L. McCAULEY, a citizen of the United States, residing at Exeter, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Traction-Wheels for Motor-Cars or Locomotives, of which the following is a specification.

The object and purpose of this invention is to produce a traction-wheel for motor-cars, and particularly for electric cars and locomotives, which shall prevent the slipping of the wheels when the tracks are wet or coated with snow or ice or when for any other reason they would tend to slip upon the rails.

The invention consists in a wheel having a tread and flange adapted to run on railway or tramway rails, and having a series of perforations in its tread adjacent to the flange, through which a series of movable steel rods may be projected to engage the head of the rail. The movable steel rods are connected with and radiate from a sliding head or collar upon the axle and are controlled by the movement of said head.

The invention further consists in the details of construction of the wheel and the traction-rods above mentioned and in the mechanism for operating the rods on a series of wheels simultaneously, all of which will be herein-after more fully described.

In the accompanying drawings, which form a part of this specification, and in which like reference signs refer to similar parts throughout the several views, Figure 1 is a plan view showing two pairs of wheels provided with traction devices according to my invention. Fig. 2 is a longitudinal central section of a car, showing the manner of operating the traction devices from the platform. Fig. 3 is a rear view of a wheel, taken on the line $x x$ of Fig. 1; and Fig. 4 is a section taken on the line $y y$ of Fig. 1.

Referring to the drawings, 1 indicates the traction-wheels of an electric or other motor, and 2 the axles, upon which the wheels are mounted in the usual manner. These wheels are provided with the usual tread 3 and inner flange 4, which adapts them to run on rails 5 of ordinary construction. At the inner edge of the tread adjacent to the flange are a series of perforations 6, which are substantially radial, but inclined slightly to the rear. These

perforations are also preferably tapered, being larger at their inner ends. A series of steel rods 7 extend from the outer ends of the perforations through the same and have their inner ends pivotally connected in some suitable manner with a sliding collar or head 8. As shown, the inner ends of the rods have knobs or enlargements 9, (see Fig. 4,) which are confined in an annular groove 10 in the head 8. A band or ring 11 prevents the heads of the rods from being withdrawn from the groove, and said rods are therefore united to the head with what may be called a "toggle-joint," enabling them to be thrust out with great power through the perforations in the wheels when the head is moved toward the hub of the wheel and to be readily withdrawn when the head is moved in the opposite direction.

I preferably provide each of the traction-wheels of a motor-car or locomotive with traction devices consisting of rods adapted to be projected through perforations in the wheels, as above described, and provide mechanism for simultaneously operating traction devices of all of the wheels. As shown, the collars 8 are free to slide, within limits, lengthwise upon the axles, and they are caused to turn with the axles by means of splines or feathers 12. In the periphery of each head is a groove 13, in which there is a collar 14, which is rigidly connected to a rod 15. The rod 15 is arranged parallel with and above the axle, and it is free to slide longitudinally in suitable guides 16, attached to the frame of the car or car-truck. The rods 15 are connected by links 17 with an operating-rod 18, which extends to one or both ends of the car. As shown in Fig. 2, the rod 18 is operated by hand-lever 19; but, if desired, it may be operated by a foot-lever convenient to the motorman or in any other suitable manner. Each pair of links 17 forms a toggle-lever, which operates to thrust out and draw in the traction-pins of opposite wheels simultaneously.

The traction pins or rods 7 are preferably made of steel and hardened at their outer ends. The pins are of such size as to fit rather closely in the perforation 6, and there is comparatively little strain put upon them for the reason that they are required to project a very

slight distance beyond the tread of the wheel. By arranging the perforations close to the flange the brakes may be applied to the tread in the usual manner. In fact, in cases of
5 emergency the brake and traction-pins may both be applied, in which case the pins prevent the wheels from skidding or slipping upon the rails and aid in stopping the motor quickly in addition to preventing the wheels
10 from being flatted.

My invention may be embodied in forms differing somewhat in mechanical details from that shown in the drawings. Thus the inner ends of the traction - pins 7 may be
15 hinged or pivoted in other ways to the head, and other mechanism may be devised for simultaneously moving the sliding collars or heads of the wheels.

Therefore, without limiting myself to the
20 precise construction and arrangement of parts shown and described, I claim—

1. The combination with a car or locomotive wheel having a tread and flange, and a series of radial perforations at or near the
25 junction of the tread and flange, of a collar arranged to slide longitudinally upon and turn

with the axle, and a series of radially arranged traction rods having their outer ends in the perforations of the wheel and their inner ends jointed to said collar, whereby said
30 traction rods may be projected or withdrawn by the longitudinal sliding movement of the collar upon the axle, substantially as described.

2. The combination with a series of car or
35 locomotive wheels, each having a tread and flange and radial perforations adjacent to the flange, of collars arranged to slide on the axles adjacent to the wheels, radial traction rods jointed to the collars, a rod extending length-
40 wise of the car, a lever for operating said rod, and connections from said rod to the sliding collars, whereby all of the traction rods may be projected and withdrawn simultaneously
45 by the motor man, substantially as described.

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

ALPHONSUS L. McCAULEY.

Witnesses:

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W. H. McCAULEY.