

(No Model.)

2 Sheets—Sheet 1.

C. BERNHARD.

VELOCIPEDE.

No. 302,090.

Patented July 15, 1884.

Fig. 1.

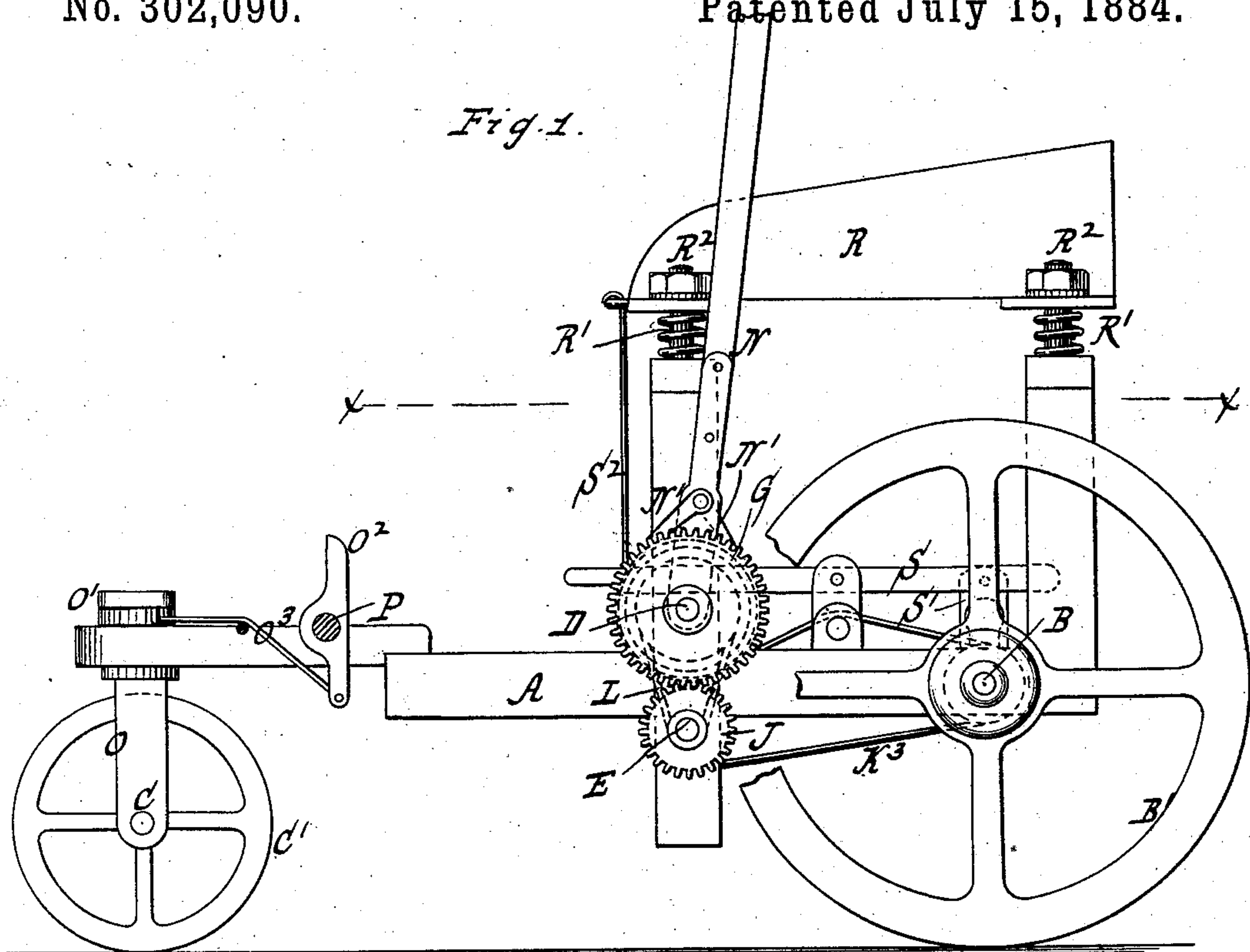
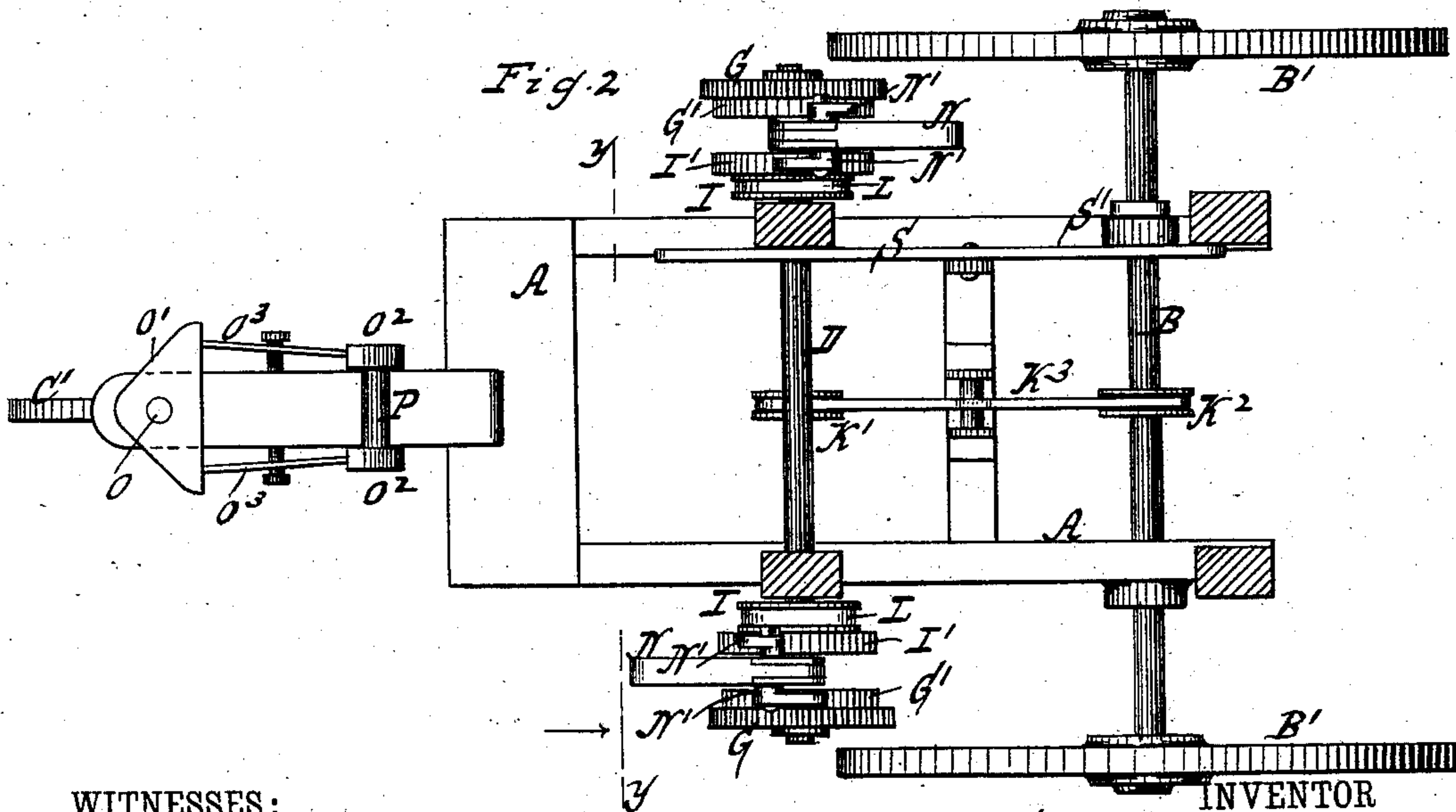


Fig. 2.



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Fig. 3.

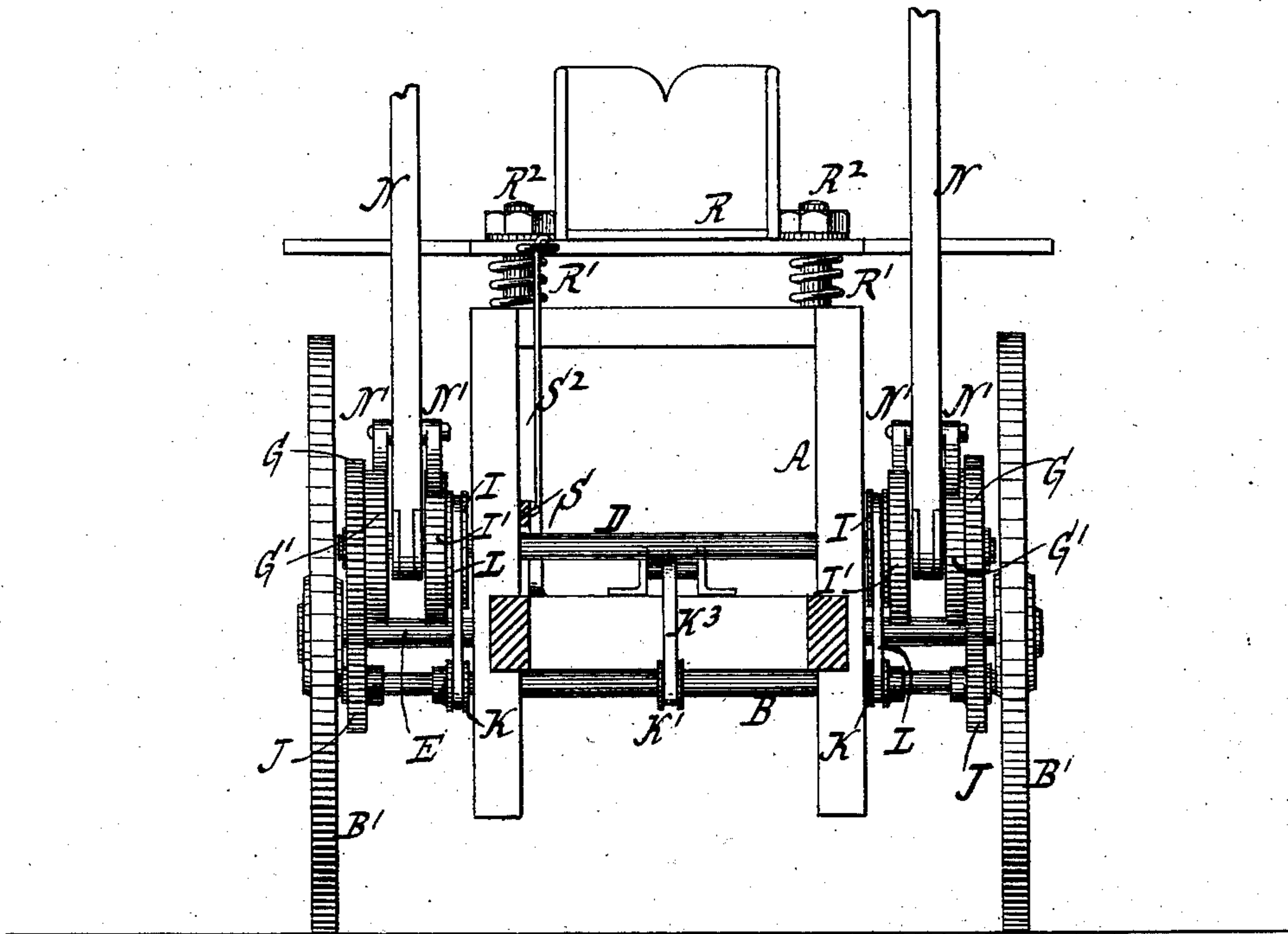
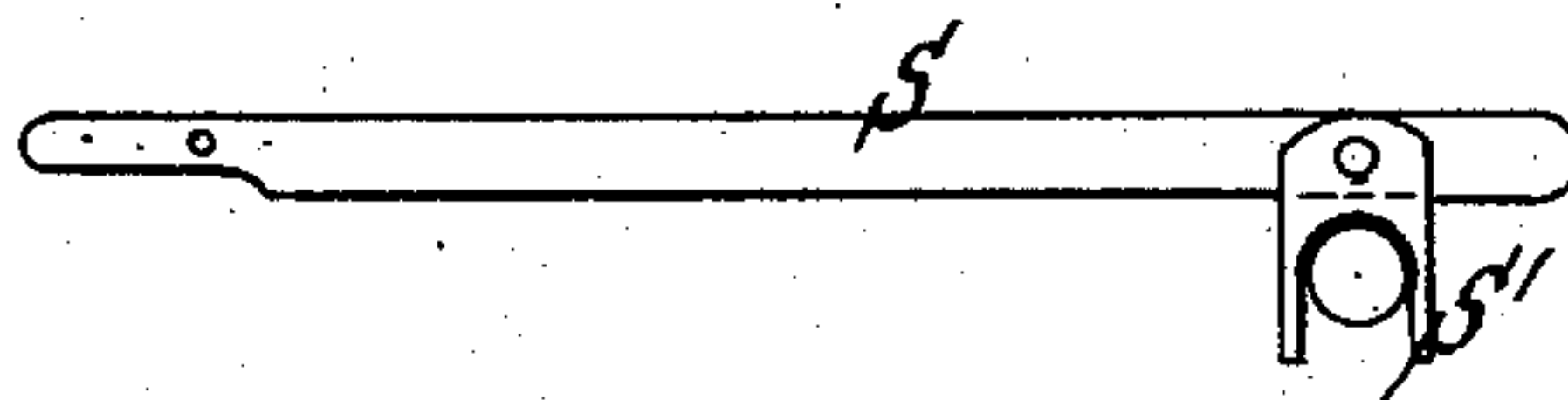


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES BERNHARD, OF NEW YORK, N. Y.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 302,090, dated July 15, 1884.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BERNHARD, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Velocipedes, of which the following is a specification.

This invention is especially adapted to three-wheeled velocipedes; and it consists in certain novel features of construction whereby various important advantages are gained, as hereinafter fully set forth, the whole being illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section. Fig. 2 is a horizontal section in the plane of the line *xx*, Fig. 1. Fig. 3 is a vertical section in the plane of the line *yy*, Fig. 2. Fig. 4 is a detail view of the brake.

Similar letters indicate corresponding parts.

The letter A designates the frame of the vehicle; B C, the axles; B' B', the wheels of the rear axle, and C' the wheel of the forward axle.

In the vehicle-frame A are mounted two shafts, D E, one of which, D, is a driving-shaft, and the other, E, a main shaft for imparting motion to the rear axle, B, as follows: The driving-shaft D carries two cog-wheels, G—one at each end—and two pulleys, I—one adjacent to each of the cog-wheels—while the main shaft E carries two cog-wheels, J, gearing with the cog-wheels of the driving-shaft, and two pulleys, K, connecting with the pulleys of the driving-shaft by means of belts L. The cog-wheels G J of both shafts and the pulleys K of the main shaft are fixed, the pulleys I of the driving-shaft being loose, and to both cog-wheels of the driving-shaft is secured a ratchet-wheel, G', while to both pulleys of the same shaft is secured a ratchet-wheel, I', these ratchet-wheels being on the opposed sides of adjacent cog-wheels and pulleys and in reverse positions. Intermediate of each two adjacent ratchet-wheels G' I' the driving-shaft D carries a hand-lever, N, on which are mounted two pawls, N', in the proper positions to engage the ratchet-wheels, respectively, so that if an oscillating motion is imparted to these levers they act on the ratchet-

wheels pertaining to the cog-wheels G to impart a rotary motion to the driving-shaft, and on the ratchet-wheels pertaining to the pulleys I to impart a like motion to these pulleys, but in an opposite direction to the driving-shaft. The motion of both the driving-shaft D and its pulleys I is imparted to the main shaft E through the cog-wheels G J and the belts L, respectively, and since the motion thus imparted by the driving-shaft is in a reverse direction to its own motion, it corresponds to the motion imparted by the pulleys, and consequently the motion derived by the main shaft from both sources is in one and the same direction. The main shaft E carries a third pulley, K', which is fixed and is connected with a corresponding pulley, K², on the rear axle, B, through a belt, K³, and consequently both hand-levers N act on the axle to propel the vehicle. It is evident that in lieu of the belts and pulleys, chains and chain-wheels may be employed. One of the wheels B' B' of the rear axle is left loose for the purpose of facilitating the steering of the vehicle, and in the motion of the axle under the impulse of the propelling-gear it acts on this wheel by friction, while it acts directly on the other or fixed wheel. The forward wheel, C', is mounted in a steering-post, O, having a head, O', to which are connected foot-levers O² by means of cords or links O³, so that the steering-post, together with the forward wheel, can be set for steering the vehicle by means of the foot-lever. The foot-levers O² are mounted on a pivot-bar, P, in vertical planes on the forward part of the vehicle-frame, and the cords O³ are connected to the lower ends of the levers, so that by pushing the upper ends of the levers in a forward direction the steering-post may be set to the desired position, the left foot being used for steering to the left, and vice versa, which, obviously, is a source of convenience to the rider.

The seat R is supported on the vehicle-frame by means of spring-cushions R'—in this example four in number—which are fitted on posts R², passing through the seat, and are thereby retained in position, while being capable of yielding to the downward pressure of the seat.

On one side of the vehicle-frame is a brake-lever, S, having one end provided with a shoe, S', which is opposite to the hub of one of the rear wheels, B' B', so that if this lever is set
5 to the proper position the shoe is brought in contact with the hub and exerts the desired action thereon. At the end opposite to the shoe S' the brake-lever S is hung to the seat by means of a strap, S², so that the lever may be
10 set by simply taking hold of this strap and without perceptibly changing the position of the body of the seat.

If desirable, the cog-wheels G J of the shafts D E, together with the ratchet-wheel G' and
15 the hand-levers N, may be used independently of the other parts of the propelling-gear, one of the pawls N' being omitted, and instead of the belts L, connecting the pulleys I K, an intermediate cog-wheel may be used.

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

1. The combination of the rear axle, the counter or main shaft E, having end cog-wheels J, and geared to the rear axle, the driving-shaft D, journaled above the counter or
25 main shaft, and having end cog-wheels G, engaging the cog-wheels on the counter-shaft, a ratchet-wheel, G', adjacent to each cog-wheel on the driving-shaft, and hand-levers N, loose
30 on the driving-shaft beside the ratchet-wheels, and provided with pawls to engage the latter for transmitting motion from the main driving-shaft to the rear axle through the medium of the counter or main shaft, substantially as
35 described.

2. The combination, with the rear axle, of

the main shaft E, having a fixed pulley connecting with a corresponding pulley of the axle, the driving-shaft D, the fixed cog-wheels G J of both shafts, gearing with each other, the
40 loose pulleys I of the driving-shaft, the ratchet-wheels G' I', secured to adjacent cog-wheels and pulleys of the driving-shaft, the oscillating hand-levers N of the driving-shaft, and the
45 pawls N' of the hand-levers, engaging the ratchet-wheels, substantially as and for the purpose described.

3. The combination of a frame, A, the front wheel, C, carried by a vertical steering-post swiveled in the forward end of the frame, a
50 head, O', rigidly secured to the upper end of the steering-post, the pivot-bar P, the vertical foot-levers O², and cords or links O³, connecting the foot-levers with the opposite ends, respectively, of the head on the steering-post,
55 substantially as described.

4. The combination with the frame, the front and rear supporting-wheels, and the seat above the frame, of a horizontal lever, S, pivoted between its ends on the frame, and pro-
60 vided at its rear end with a brake-shoe, S', and a strap or connection, S², connecting the other end of the lever with the seat, substantially as described.

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

CHARLES BERNHARD. [L. S.]

Witnesses:

CHAS. WAHLERS,
WILLIAM MILLER.