

(No Model.)

F. D. OWEN.
REAR DRIVING SAFETY BICYCLE.

No. 589,852.

Patented Sept. 14, 1897.

Fig. 1.

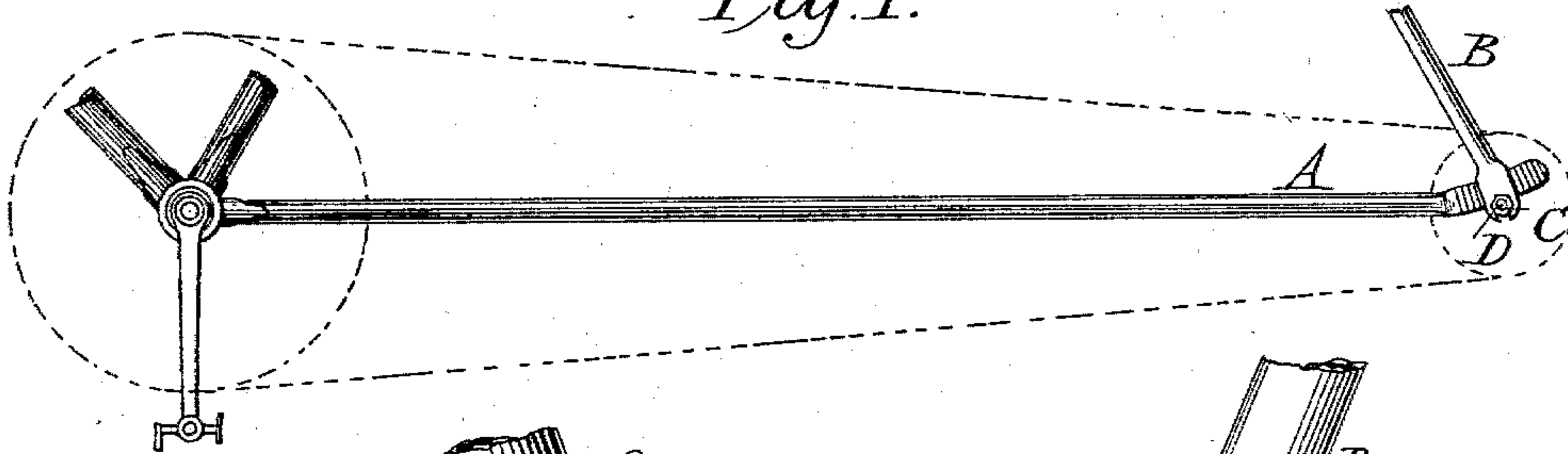


Fig. 2.

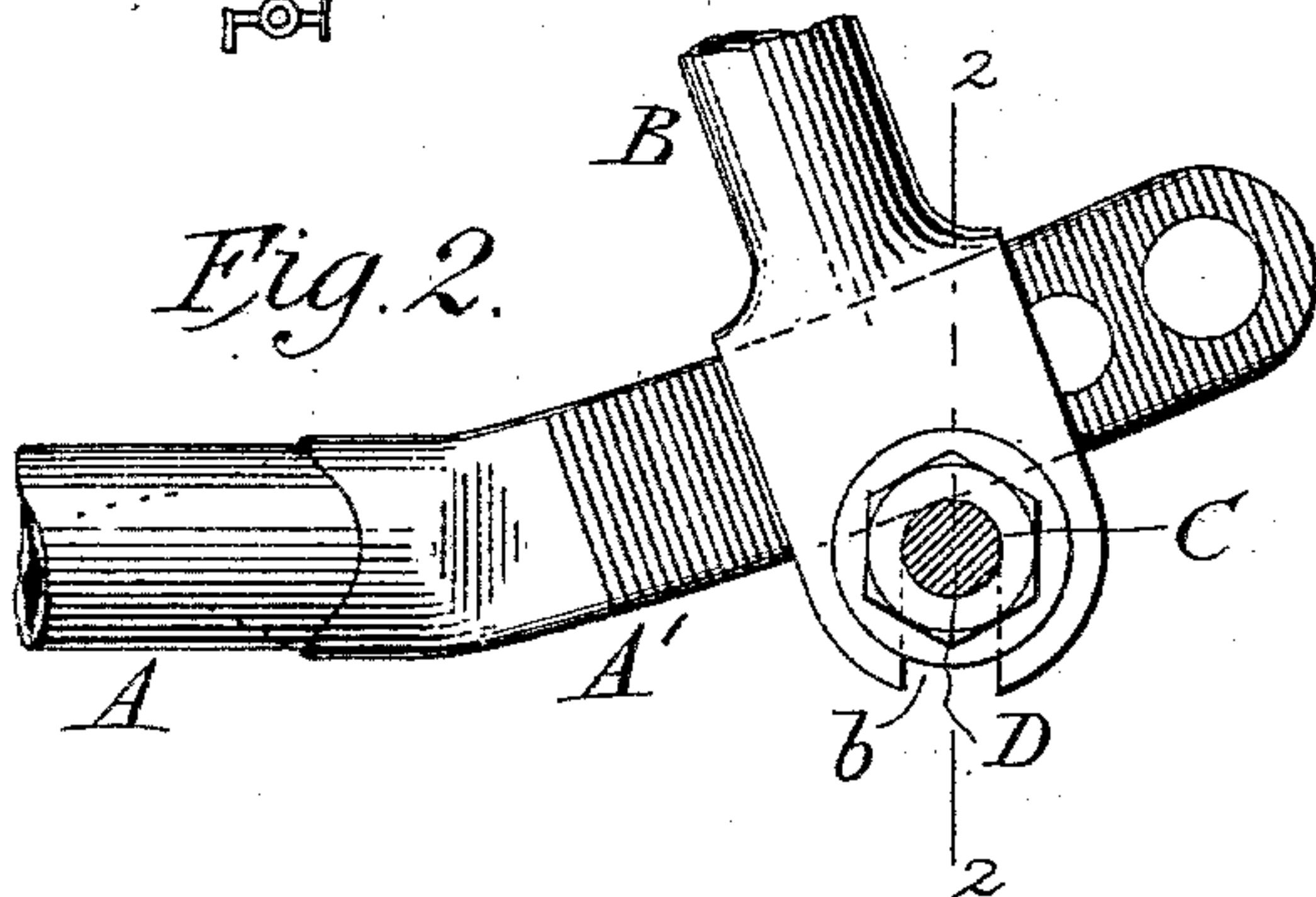


Fig. 3.

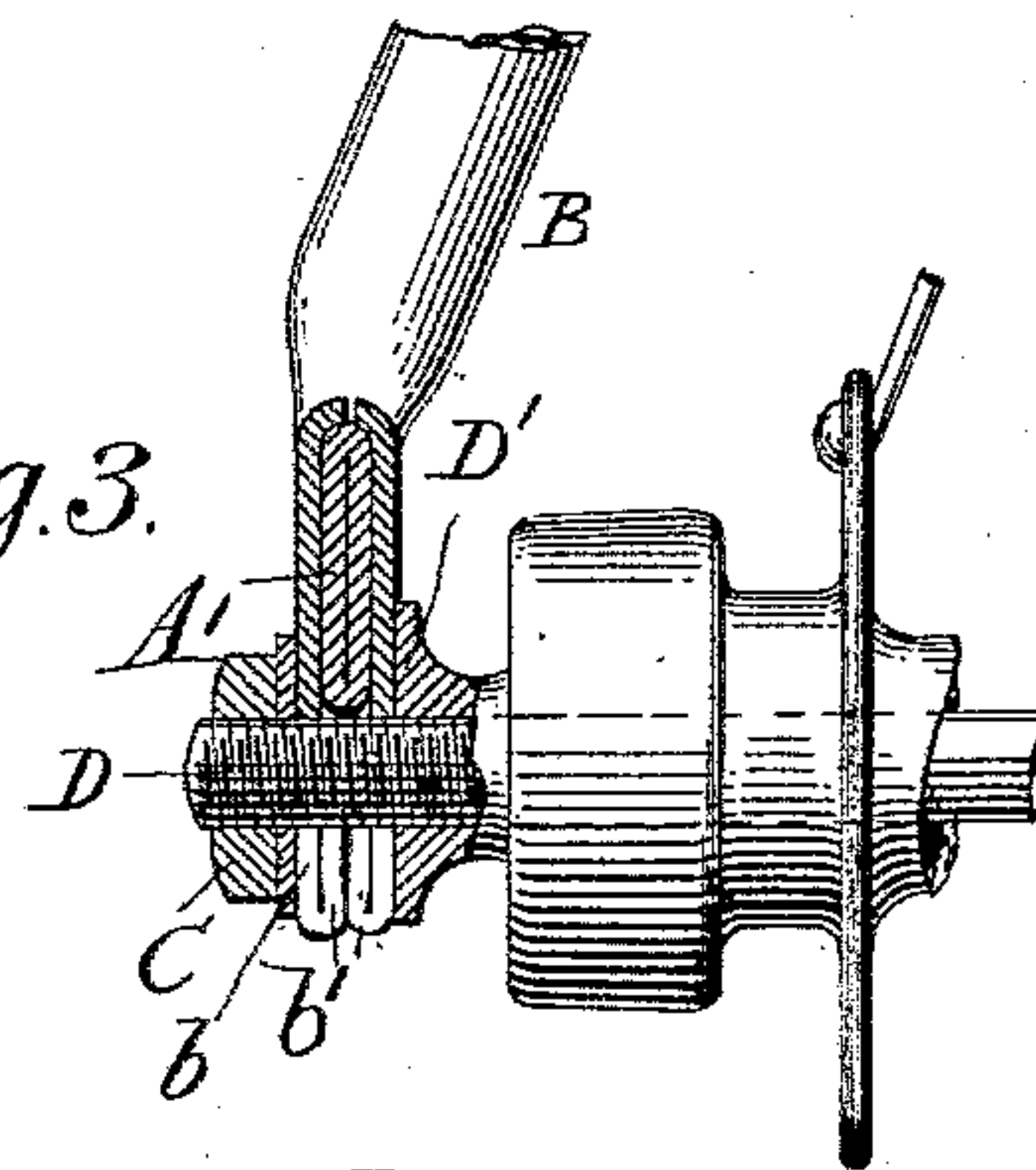


Fig. 4.

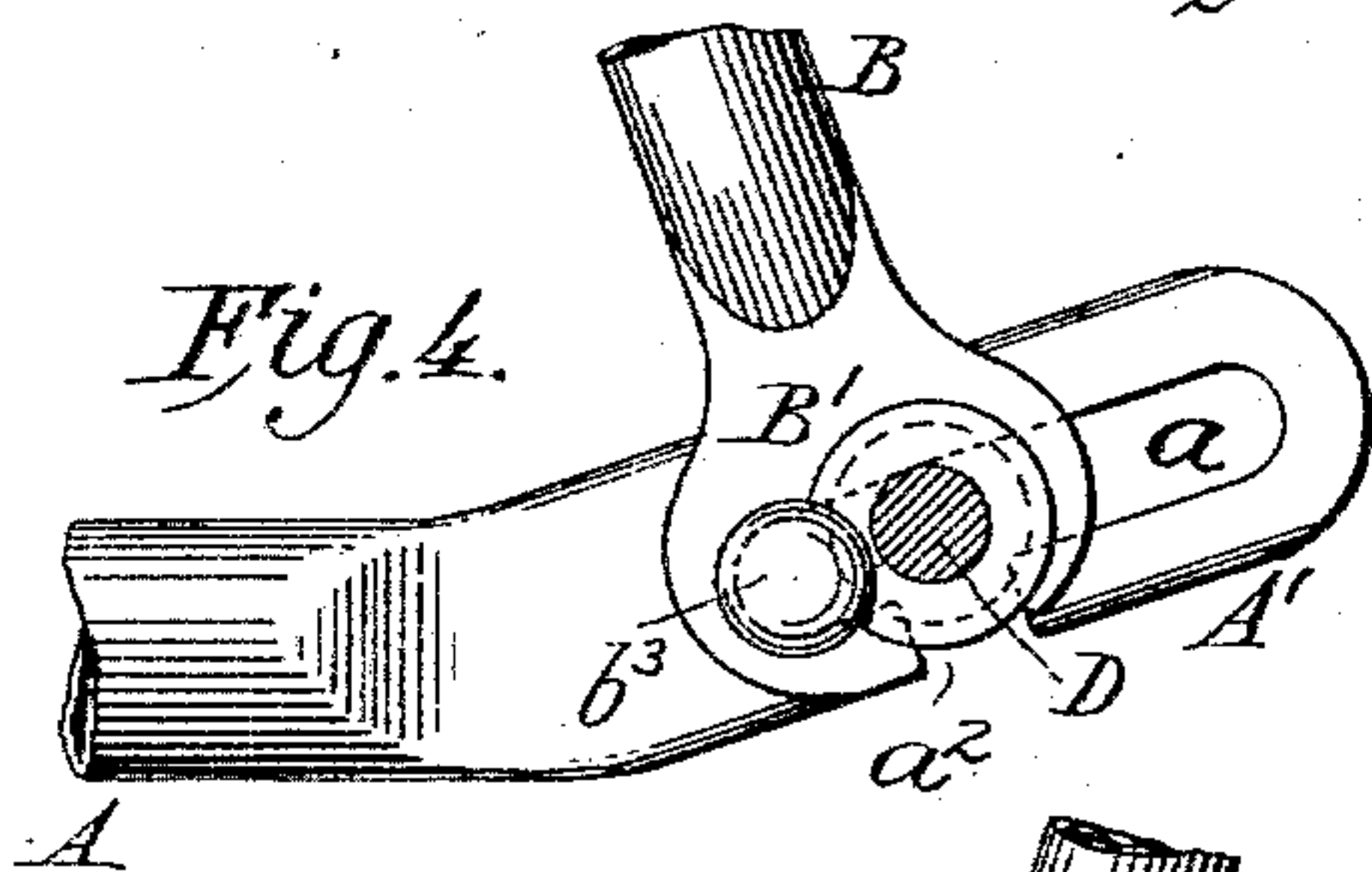


Fig. 5.

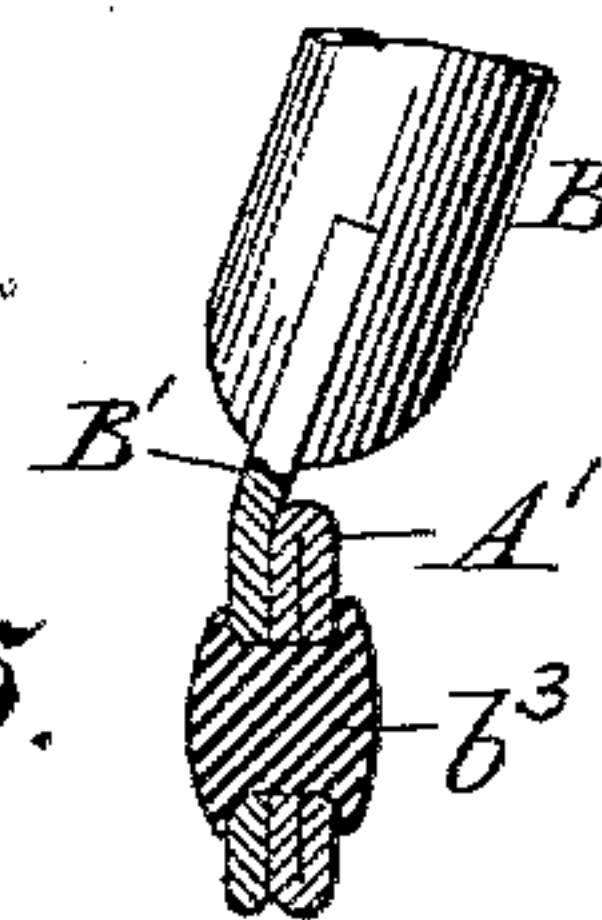


Fig. 6.

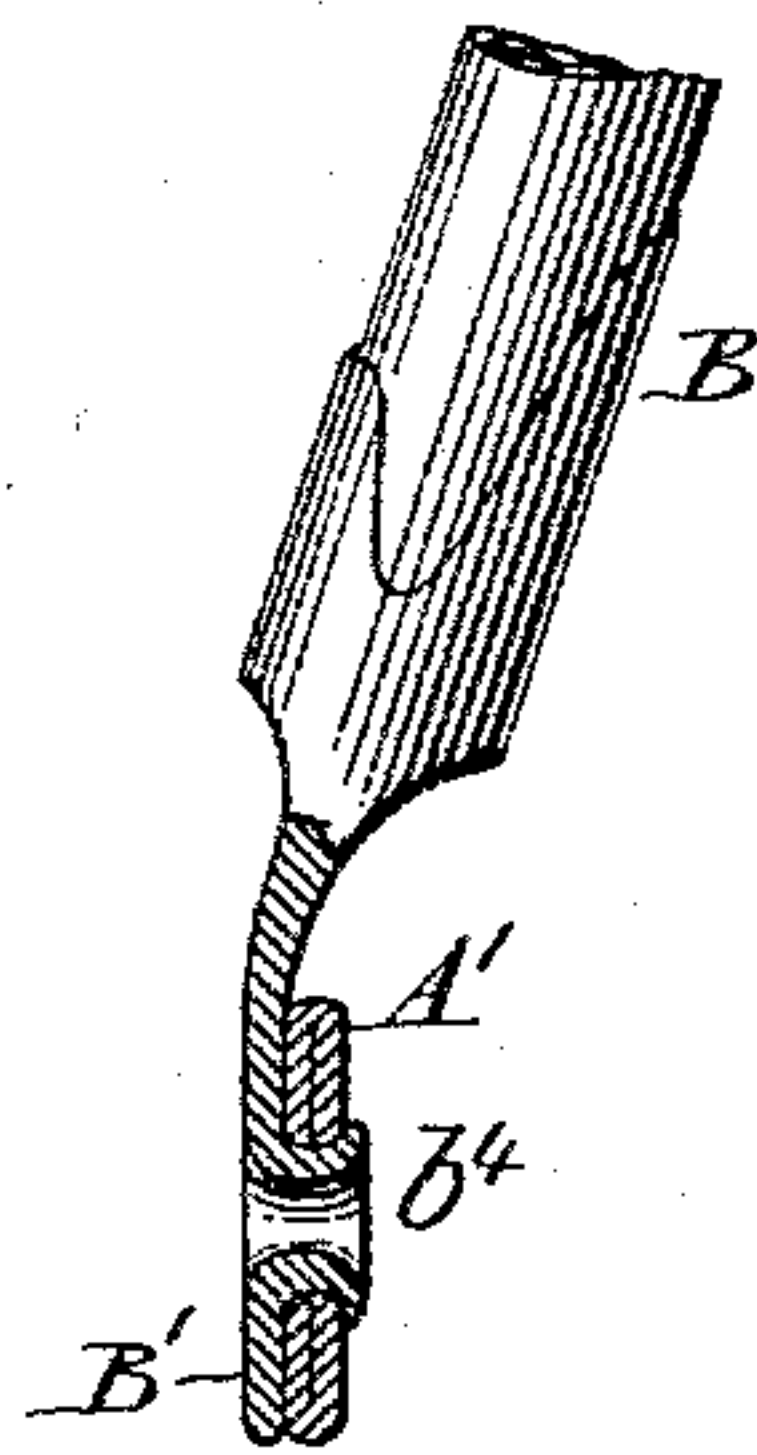
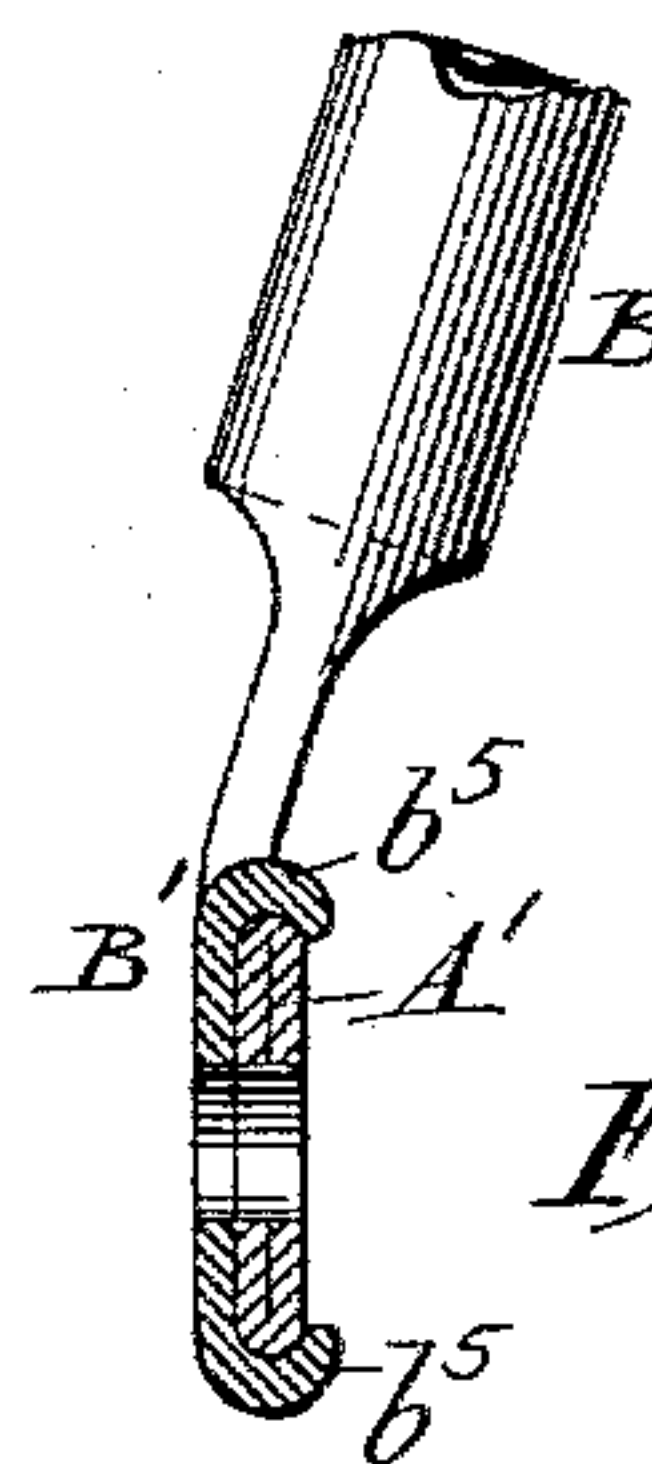


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK D. OWEN, OF WASHINGTON, DISTRICT OF COLUMBIA.

REAR-DRIVING SAFETY-BICYCLE.

SPECIFICATION forming part of Letters Patent No. 589,852, dated September 14, 1897.

Application filed July 3, 1895. Serial No. 554,911. (No model.)

To all whom it may concern.

Be it known that I, FREDERICK D. OWEN, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Rear-Driving Safety-Bicycles; 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.

This invention relates to rear-driving safety-bicycles, and more particularly to the construction and assemblage of the rear frame members thereof.

In bicycles of this class as at present constructed the shaft-hanger is brazed or otherwise fixed to or held rigidly at or near the junction of the lower front and rear frame members and the tension of the driving chain or device is regulated by the forward or rearward adjustment of the rear or driving wheel axle. Provision has also recently been made in this class of wheels for releasing and taking out the rear axle and wheel from the rear frame without separating the chain and for adjusting the tension of the chain without disturbing the adjustment of the rear-wheel bearings, as described in my United States Patent No. 535,261, issued March 5, 1895.

The object of my present invention is to simplify the construction of this class of wheels at the junction of the rear forks and rear brace-rods, thereby facilitating adjustments and also reducing the cost of production, as well as reducing weight of the parts at this point.

To this end the invention consists in the matters hereinafter described in detail, and then set forth in the claims at the close of this specification.

In the accompanying drawings, Figure 1 illustrates in side elevation one construction of parts embodying my present invention. Fig. 2 is a side elevation of the rear forks, brace-rods, and rear-wheel axle. Fig. 3 is a section on line 2 2 of Fig. 2. Fig. 4 is a side elevation showing a modification of the preceding figures. Fig. 5 is a section thereof. Figs. 6 and 7 illustrate modifications of the devices shown in Figs. 4 and 5.

In carrying out my present invention the usual rear fork A and brace-rods B are so

constructed and arranged with relation to each other as to require but one clamp-nut or binding-nut C to secure together the rear forks, brace-rods, and rear-wheel axle D, thus materially lessening the cost of manufacture, as well as lightening the structure and simplifying the manipulations necessary to effect an adjustment of the driving-chain or an adjustment of the rear-wheel bearings or the release and removal of the rear wheel and axle.

To give a clearer understanding of the present invention, I have illustrated different specific constructions or arrangements of the parts by which the invention can be carried into practical effect, all, however, involving the principle of the employment of a single nut to adjustably secure together the rear ends of the rear forks and brace-rods and the rear-wheel axle.

The ends of the rear forks A and the brace-rods B may be finished in any usual or preferred manner—that is to say, they may be of tubing pressed flat and appropriately shaped or may be provided with appropriately-shaped forged ends or fittings or steel stampings applied thereto by brazing or other suitable processes.

Referring to Figs. 2 and 3, the rear fork A has sleeved and brazed thereon a fork end A', consisting of a short length of tubing, the rear end of which is flattened. The lower end of the brace-rod B is split or bifurcated to straddle or embrace the flattened fork end A', (see Fig. 3,) the lower extremity of the legs of said bifurcated end being provided with transverse slots b to receive the axle D of the rear wheel, whereby the rear fork end and brace-rod may be clamped tightly between the rear-wheel cone D' and axle-nut C, thus locking the rear-wheel bearings and rear frame members by a single nut and effecting a material saving in material, labor of construction, and weight.

The extremities of the bifurcated part of the brace-rod B are preferably provided with projections or filling-blocks b', which may be formed by folding the ends of the legs inward upon themselves, for the double purpose of affording a bearing for the lower halves of the cone D' and axle-nut C and to prevent the separation of the rear forks and brace-rods when the axle-nut C is removed. Upon loos-

ening the axle-nut C the cone D' may be rotated to adjust the wheel-bearings, or the brace-rod B may be moved backward or forward upon the fork end to adjust the tension of the chain, or the rear axle may be dropped from the slots b , thus removing the wheel from the frame. I prefer to serrate or roughen the rear-fork end either at bottom or top or sides, as indicated, to guard against the accidental slipping of the parts under unusual strains.

A slightly-modified construction is illustrated in Figs. 4 and 5, wherein the fork end A' is provided with a known form of elongated slot a , in the lower wall of which, near its front end, is formed a gap or opening a^2 of a width sufficient to permit of the passage of the rear-wheel axle to and from the elongated adjusting-slot a near its forward end in order that the wheel may be removed from or replaced in the frame without disconnecting the chain-links. The lower end of the brace-rod B in these figures is provided with a foot B', having a transverse slot b for the reception of the wheel-axle, as before described, said foot being extended at one side of said slot and provided with a projection to engage or embrace the fork end A' and prevent the accidental disconnection of the fork and brace-rod when the clamp-nut is removed. The projection shown in Figs. 4 and 5 for attaining this end consists of a headed bolt b^3 permanently riveted to the extension of the foot B' and designed to fit snugly but movably within the elongated adjusting-slot a of the fork end.

To assemble the fork and brace-rods, the bolt b^3 is passed upward through the gap a^2 of the fork end and then moved forward in the slot a to bring the slot b of the brace-rod to register with said gap a^2 , so that the wheel-axle may be passed upward through said gap and be then moved, together with the brace-rod, to such position within the slot a as to secure the desired adjustment of the driving-chain. The parts are then clamped tightly together by the clamp or axle nut C.

In Fig. 6 in lieu of the riveted bolt b^3 the metal of the extension is punched or pressed in to form a projection comprising two burs b^4 , the inner ends of which are bent down over a former, so that when the brace-rod and fork end are in proper position the burs b^4 of the brace-rod will project through the slot of the fork end and prevent a separation of these parts in the same manner as already described

with relation to the headed bolt b^3 . In Fig. 7 the same result is attained by making the extension of the foot B' slightly wider and bending its upper and lower edges b^5 to embrace the fork end, as shown.

The parts lettered b^3 , b^4 , and b^5 are described and illustrated as alternatives and are not essential to the operativeness of the devices herein described, but render the manipulations for adjustment, &c., more simple and expeditious to those unfamiliar with mechanical devices, and are therefore deemed important when considering the commercial value or success of this invention.

Any well-known chain-adjusting device may be used in conjunction with the fork ends herein shown.

What I claim is—

1. In a rear-driving safety-bicycle having a fixed crank-shaft, adjustable rear axle, and operative connecting devices, the combination of the rear forks, brace-rods provided at their lower ends with open-ended slots to receive the axle and with projections constituting a permanent but normally free-sliding connection with the rear forks, and a single nut to clamp the rear forks and brace-rod rigidly to each other and to the rear axle, substantially as described.

2. In a rear-driving safety-bicycle, the combination of the rear forks having longitudinal slots open at their forward ends, brace-rods provided at their lower ends with open-ended slots arranged to intersect the slots of the forks and receive the rear axle, nuts to clamp the rear forks, brace-rod and rear axle together, and means connected to the brace-rods to engage the rear forks and constitute a sliding connection between them, substantially as described.

3. In a rear-driving safety-bicycle, the combination of the rear forks, and the brace-rods pivoted at their upper ends and provided at their lower ends with projections constituting normally free-sliding connections with the rear forks, and with open-ended slots so proportioned as to receive the rear axle and permit of the rigid clamping of said brace-rods and rear forks between the cone and axle-nut of said axle, substantially as described.

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

FREDERICK D. OWEN.

Witnesses:

C. A. NEALE,
THOMAS A. HARRIS.