

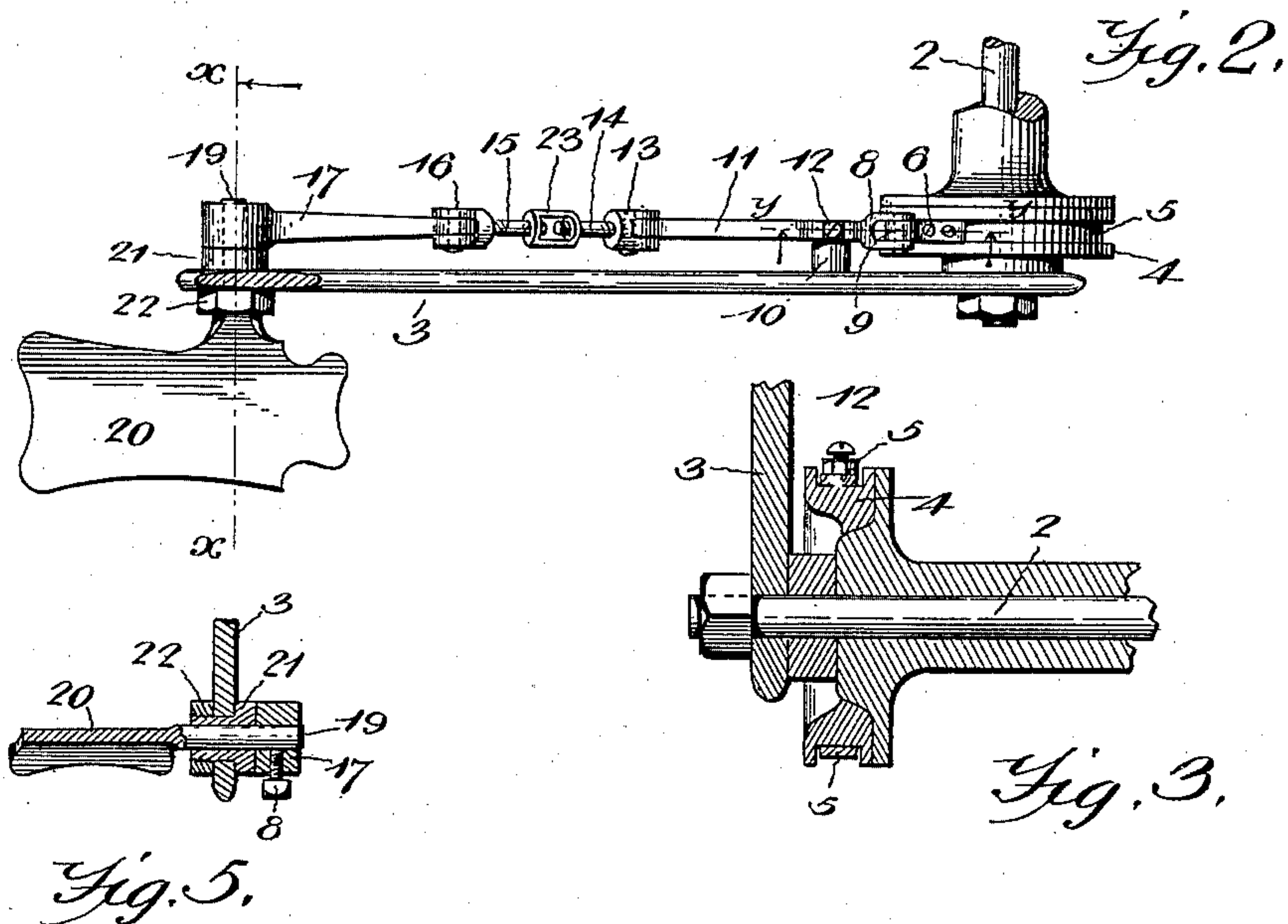
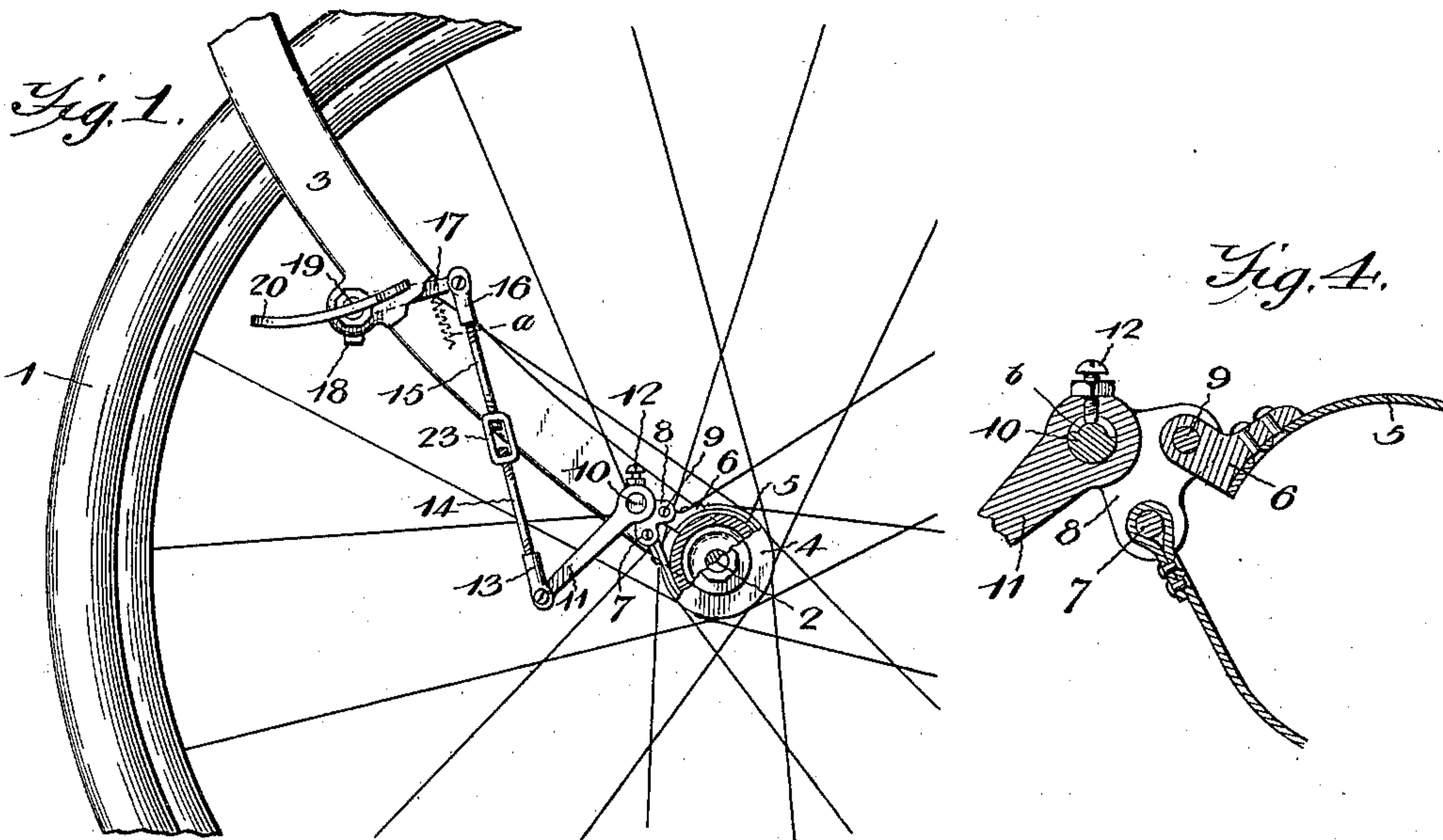
No. 612,893.

Patented Oct. 25, 1898.

F. W. CHADWICK.
BICYCLE BRAKE.

(Application filed Feb. 21, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK W. CHADWICK, OF QUINCY, ILLINOIS.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 612,893, dated October 25, 1898.

Application filed February 21, 1898. Serial No. 671,167. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. CHADWICK, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Bicycle-Brake, of which the following is a specification.

This invention relates to that class of bicycle and vehicle brakes which act in conjunction with the hub of the pilot or ground wheel, so as to check the speed of the machine or vehicle when it is required to bring the same to a state of rest.

The invention is designed to provide novel connections between the brake-band and a treadle which will admit of the brake being instantly and firmly set when required, the treadle being disposed so as to provide a foot-rest when coasting, and the connections being relatively arranged so that when released the brake will be unset by their weight.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is an elevation of the front portion of a bicycle, showing the brake in operative relation. Fig. 2 is a top plan view of the parts illustrated in Fig. 1, portions being broken away, showing the detailed construction. Fig. 3 is a sectional detail of the hub of the pilot-wheel, showing the elements associated therewith. Fig. 4 is a sectional detail on the line *y y* of Fig. 2, showing the brake-band and parts connected therewith on a larger scale. Fig. 5 is a section on the line *x x* of Fig. 2 looking to the left, as indicated by the arrow.

Corresponding and like parts are referred to in the following description and indicated in the views of the drawings by the same reference characters.

The pilot-wheel 1 is mounted upon the axle 2, which is supported at its ends in the side members of the front fork 3, these parts be-

ing of well-known construction and arrangement and illustrated to show the application of the invention.

A brake member 4 is secured to the hub end of the pilot-wheel, and, as shown, is an annulus peripherally grooved forming a seat for the brake-band 5, the latter being prevented from lateral displacement by the side flanges formed by grooving the said brake member. The brake-band 5 is a strip of leather, metal, or other suitable material of a length to pass around the annulus 4 and of a width to fit comfortably between the side flanges thereof. A block 6 is bolted, riveted, or otherwise firmly attached to one end of the brake-band, and the opposite end of the said brake-band is folded to provide an eye through which a pin or bolt 7 passes for connecting it to a plate 8 of approximately triangular form, the opposite end of said plate being pivotally connected by a pin or bolt 9 to the outer end of the block 6. A relative turning of the plate 8 will bring the ends of the brake-band together and cause the latter to grip the brake member 4 with greater or less force according to the power expended in turning the plate 8 upon its pivotal connection 9 with the block 6 to bring the end portions of the brake-band together.

A journal 10 is secured to a fork side 3 and has the plate 8 mounted thereon, and an arm 11 is formed with or firmly attached to the plate 8 and is secured upon the journal 10 by means of the set-screw 12. A coupling 13, having one end cleft to receive the outer end of the arm 11, to which it is pivotally connected, has its opposite end formed with an internally-threaded opening to receive the threaded end of a rod 14. The arm 11 and plate 8 are practically one part and are secured upon the journal 10 against accidental displacement by having the inner end of the set-screw 12 enter a peripheral groove *b*, formed in the said journal. This groove *b* extends around the journal 10 a sufficient distance to give ample play to the arm 11 and plate 8, so as to insure a setting of the brake when the latter is applied and a release of the brake when not required for immediate use. A companion rod 15 makes screw-thread connection with a corresponding coupling 16, pivotally connected to the rear end of an arm

17, secured by means of a binding-screw 18 to a shaft 19, journaled in the same fork side with the shaft 10. The opposing ends of the rods 14 and 15 are oppositely threaded and
 5 are connected by means of a turnbuckle 23 or like device, which will admit of the connection between the parts 11 and 17 being lengthened and shortened as required.

The treadle 20 has the shaft 19 formed there-
 10 with or applied thereto, said shaft projecting laterally therefrom and passing through a bearing 21, fitted into an opening in the fork side 3 and secured in place by means of a nut 22, mounted upon its projecting thread-
 15 ed end. The arm 17 and treadle 20, having firm connection with the shaft 19, move in unison as a single part, and upon depressing the front end of the treadle 20 the rear end of the arm 17 will be correspondingly
 20 elevated and cause the arm 11, connected therewith, to move upward at its free end and turn the plate 8, connected thereto, in the manner set forth, so as to contract the brake-band and set the brake when required. When
 25 the foot is resting upon the treadle 20, the brake is under control and can be applied or set with greater or less force, according to the degree of pressure applied to the rear end of the treadle. When the foot is removed from
 30 the treadle, the connections 17, 15, 14, and 11 gravitating will turn the plate 8 and release the brake and hold it out of action under normal conditions. Obviously, if desired, a spring *a* may be provided for attaining the
 35 same end.

The treadle 20 is applied to the outer end of the shaft 19, and the arm 17 has connection with the inner end of said shaft. This disposition of the parts distributes the strain
 40 upon opposite sides of the frame-bar to which the shaft 19 is journaled. The bearing 21 can be readily replaced when worn and secures an extended surface for the shaft 19, so as to obviate binding of the said shaft,
 45 which would result if the bearing were of a short length.

By having the arm 17 adjustably connected by means of the binding-screw 18 with the inner end of the shaft 19 the pitch of the treadle
 50 20 may be adjusted to suit the convenience of the rider, and this adjustment may be effected without disturbing the relation of the connections between the arm 17 and the brake.

55 Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a brake mechanism for bicycles and road-machines of kindred construction, the

combination of a brake-band encircling the 60 hub portion of the ground-wheel, a plate having pivotal connection with the frame of the machine and having end portions pivotally connected with the terminals of the brake-
 65 band, an arm projecting from the plate and adapted to turn therewith, a shaft mounted between its ends in a bearing of the machine-frame, an arm applied to the inner end of the shaft and having connection with the arm
 70 springing from the plate, and a treadle applied to the outer end of said shaft, substantially as set forth.

2. In a brake mechanism for bicycles and machines of like nature, the combination of
 75 a brake-band encircling the hub of the ground-wheel, a lateral journal applied to the machine-frame in proximal relation to the hub coöperating with the brake-band and having a peripheral groove extending part
 80 way around it, a plate having the terminals of the brake-band pivotally connected therewith and mounted to turn upon said journal, a set-screw applied to said plate and having
 85 its inner end entering a peripheral groove of the journal to secure the plate in position thereon, an arm extending from the plate and adapted to turn therewith, and means for
 90 transmitting force to said arm to turn it and the plate upon the journal and effect an application or a release of the brake, substantially in the manner set forth.

3. In a bicycle or like road-machine, the combination of a brake-band encircling the
 95 hub of the front wheel, a journal applied to a fork member in proximal relation to said hub, a plate mounted upon said journal and having the terminals of the brake-band connected therewith, a pin-and-groove connection between the plate and journal to hold
 100 the plate in place and admit of its having a limited turning movement upon the said journal, an arm applied to the plate to turn therewith, a shaft journaled between its ends in
 105 a bearing removably applied to the fork member having the journal, a treadle applied to the outer end of said shaft, an arm having adjustable connection with the inner end of the said shaft, and connections adjustably connecting the outer ends of the arms, substan-
 110 tially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK W. CHADWICK.

Witnesses:

EDWARD JAHN,

CHAS. A. RENNAU.