

(No Model.)

R. F. BARTEL.
BICYCLE.

No. 594,773.

Patented Nov. 30, 1897.

Fig. 1.

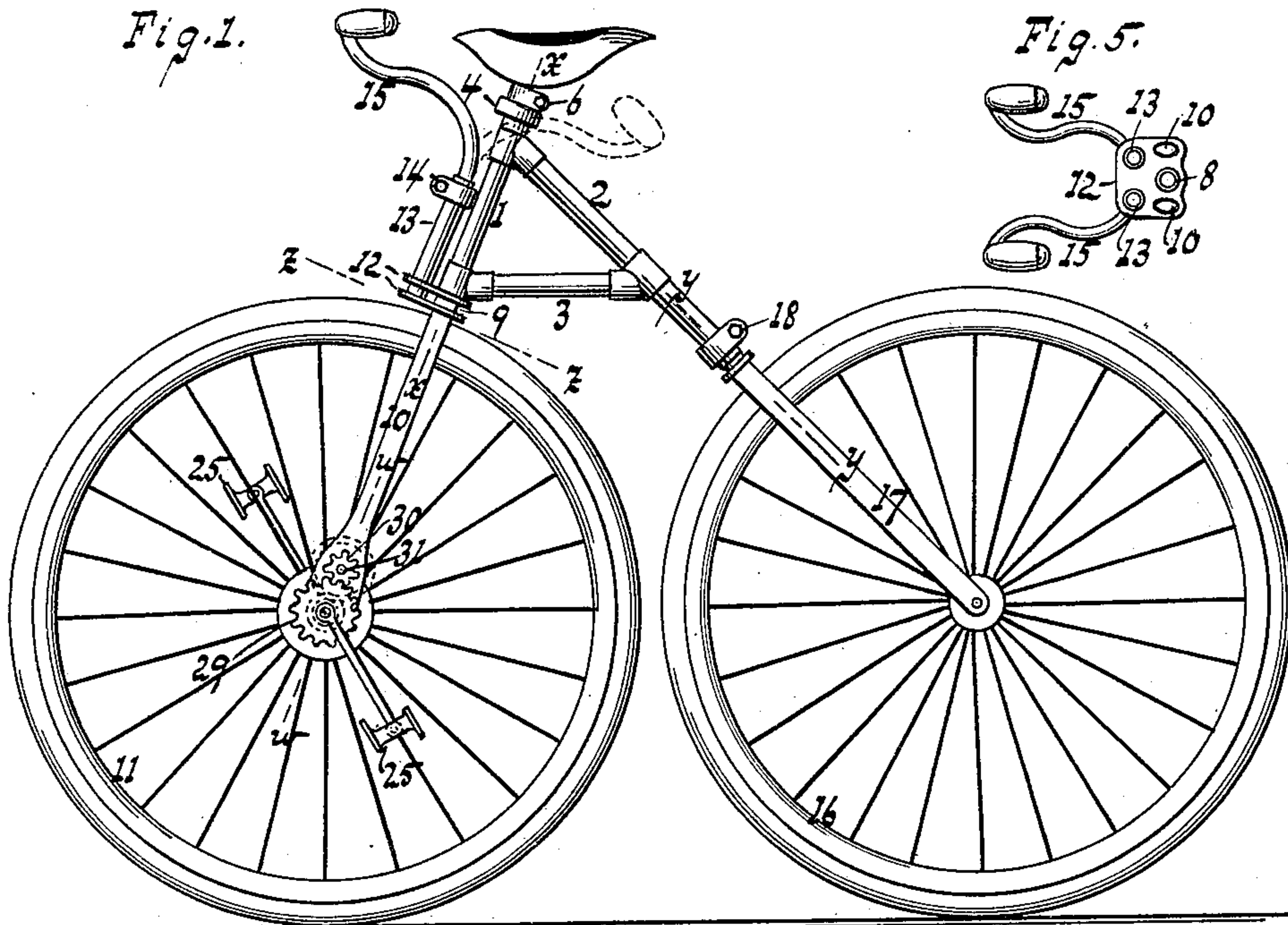


Fig. 5.

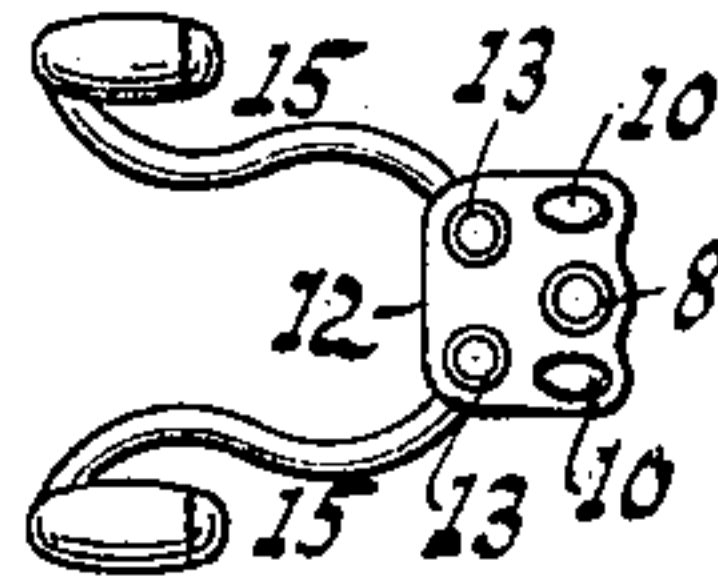


Fig. 3.

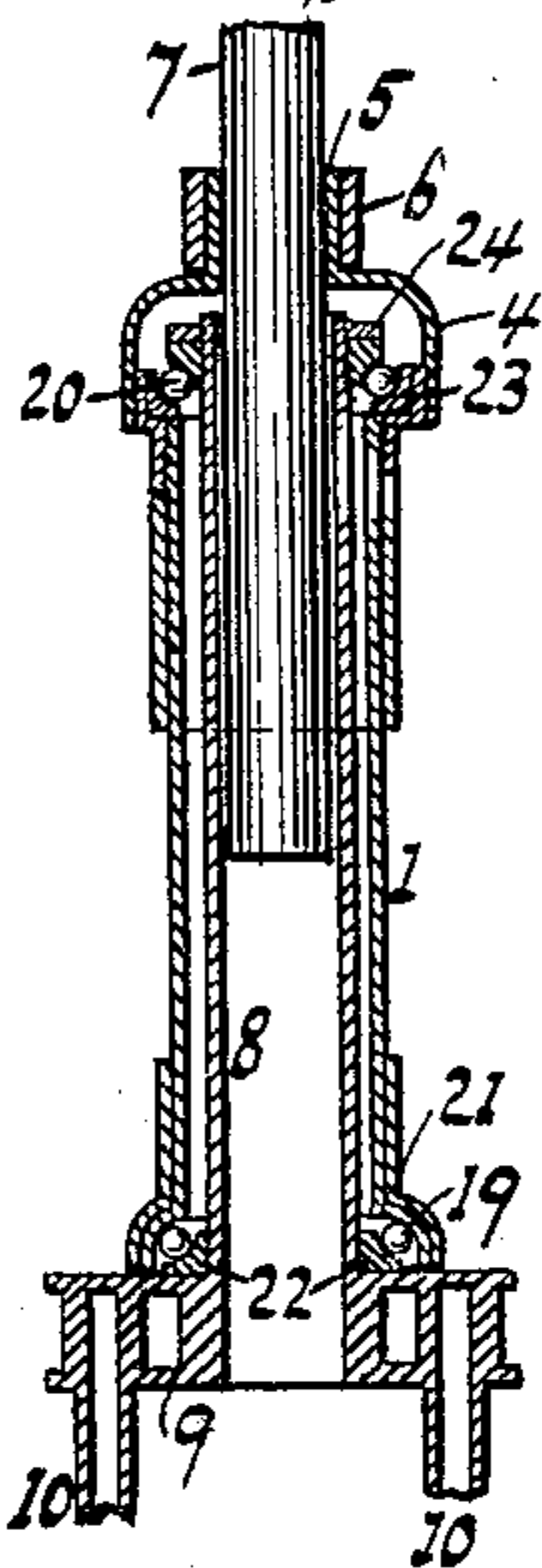


Fig. 2.

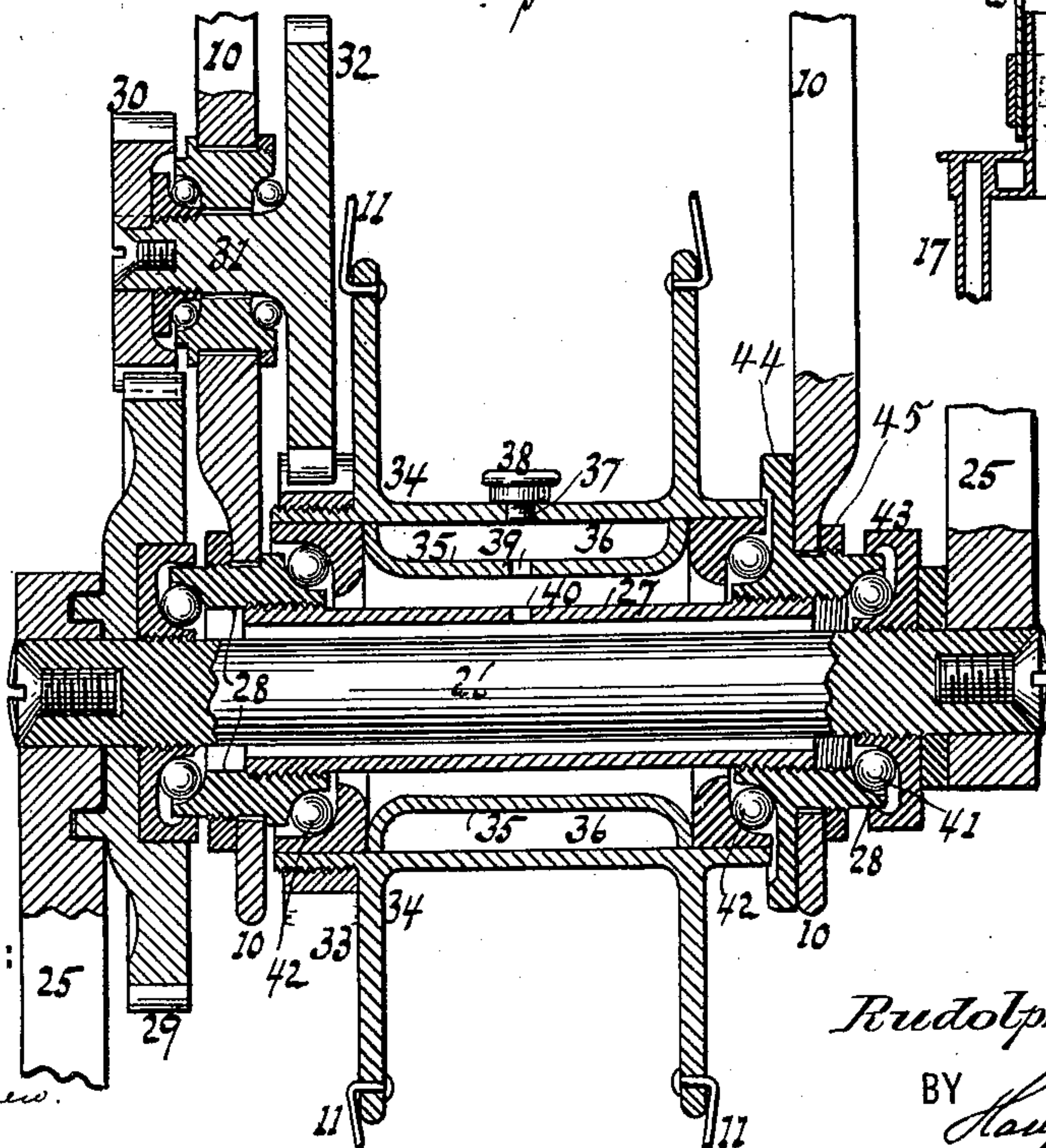
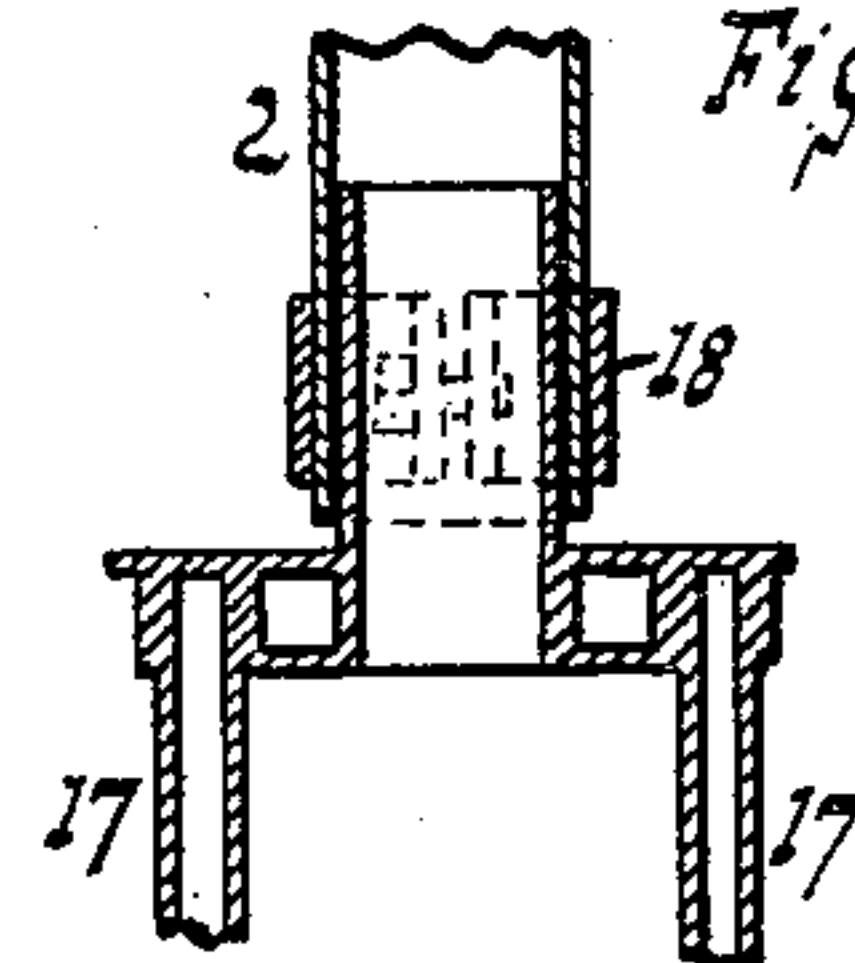


Fig. 4.



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RUDOLPH F. BARTEL, OF BAYONNE, NEW JERSEY.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 594,773, dated November 30, 1897.

Application filed July 9, 1896. Serial No. 598,577. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH F. BARTEL, a citizen of the United States, residing at Bayonne, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Bicycles, of which the following is a specification.

The object of this invention is to provide a simple construction of bicycle; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a bicycle. Fig. 2 is a sectional view of parts on an axle, the section being taken along line *ww*, Fig. 1. Fig. 3 is a section along line *xx*, Fig. 1. Fig. 4 is a section along line *yy*, Fig. 1. Fig. 5 is a section along line *zz*, Fig. 1.

The frame comprises the parts 1 and 2, with brace or connecting part 3. The part 1 is tubular and has secured thereto a collar 4, carrying a split collar 5, Fig. 3, which by clamp 6 can be made to fix or secure the saddle-post 7. In the part 1 turns a stem or tube 8, extending from cross-head 9 of fork 10, in which is mounted the steering and driving wheel 11. Secured to fork 10 or to its cross-head 9 are lugs or plates 12, forming a projecting support in which are fixed tubes 13, Fig. 1, in which by clamps 14 can be adjustably fixed the handles 15, which are provided with stems or arms which curve toward the head-sleeve and then into substantial parallelism with the same, so that the parallel portions of each handle 15 can be set into its respective tube 13. The handles 15 can be set in convenient position for traveling either with the handles in front of or behind the rider or at the sides of the rider, as desired. This is effected by loosening the clamps 14 and turning the handles into the position required, after which the said clamps are again tightened. The wheel 16 is mounted in fork 17, the stem of which can be adjustably secured in tubular frame part 2 by a clamp or collar 18.

The rotation of stem 8 in tube or frame part 1 is eased by balls 19 and 20, placed into suitable races formed by the part 21 of frame part 1 and by race part 22 on cross-head 9 and by the race parts 23 and 24 on collar 4 and stem 8.

The wheel 11 is rotated by pedals or cranks 25, which for speeding are not connected directly to wheel 11. These pedals 25 are fixed to a rotary shaft 26, Fig. 2, turning in the sleeve or tube 27, which is fixed or non-rotary, being secured by screw-collars 28 to fork 10. The pedals 25 rotate the gear 29, meshing into gear 30, the stud 31 of which rotates in a tine of fork 10 and carries gear 32, engaging gear 33, fixed to hub 34 of wheel 11.

The hub has an inner wall 35, forming an oil-chamber 36, and oil can be introduced through the opening 37, usually closed by cap or closure 38. From chamber 36 oil can pass through aperture 39 to sleeve 27, and through the aperture 40 in this sleeve oil can pass to pedal-shaft 26. The balls between hub 34 and collar 28 and between this collar and gear 29, as also the balls about the stud 31, ease the running of the parts.

Each collar 28, it is noticed, serves as a race-section for the balls 41 between the collar and the axle 26, as also for a race-section for the balls 42 between the collar and the hub 34, the balls 41 and 42 being located on opposite sides of each collar.

The saddle-post 7, as seen in Fig. 3, projects into the tubular steering-post 1.

The handles 15 being adjustable up and down, as well as rotatively, in the tubes 13, said handles are universally adjustable—that is to say, adjustable up or down or adjustable rotatably—so as to throw the handle portions or free ends to the front, the sides, or to the rear of the saddle, as desired, each handle being adjustable by itself.

While mentioning bicycles it is of course understood that velocipedes or vehicles with three or more wheels, as well as bicycles, may embody the invention.

If seen fit, one of the wheels can be used only for driving and the other wheel only for steering.

The collar 28 can be screwed more or less home as required to form a snug race for the balls 42, and collar 43 can be tightened more or less to snugly seat the balls 41.

By inserting the tubular stem 8 in the steering-post 1 and the saddle-post 7 in both, as shown in Fig. 3, I not only reduce the expense of construction, but simplify the frame and make it lighter as well as stronger in pro-

portion to its weight. Moreover, I am able by this arrangement to use ball-bearings between the tubular stem and the steering-post and between the saddle-post and stem to great
 5 advantage, since any binding between the stem and saddle-post will merely shift the bearing-point to the ball-bearings 19 or to the ball-bearings 20, or to both.

By having a collar 28 provided with a
 10 flange 44 of such width or diameter that the rim of the flange extends or lies beyond the hub 31 such collar 28 can be readily adjusted, as its flange 44 offers ready means for the engagement of a wrench or tool or for grasping
 15 by hand, as the flange 44 is usually milled. When adjusted, the collar 28 can be fixed in position by a jam-nut or screw-collar 45, adapted to be set or jammed against a tine of
 20 fork 10, the collar 28 being externally threaded to receive such lock-nut 45.

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

1. A bicycle-frame having a tubular head, a fork having a tubular stem which enters
 25 the lower end of the tubular head, a saddle-post which enters the upper end of the said head and passes downward into the tubular stem of the fork, said tubular head having at its upper end a clamp or collar for detachably fixing or securing the saddle-post and
 30 said saddle-post being made to extend or sit loosely in the tubular fork-stem so as to be movable or adjustable on the loosening of the clamp and to leave the tubular head and
 35 fork-stem undisturbed relatively to one another as the post is adjusted, substantially as set forth.

2. In a bicycle, the combination with a

tubular frame-head or head-sleeve of a fork having a tubular stem entering the lower end
 40 of the frame-head, a saddle-post entering the upper end of the latter and passing down into the tubular stem, steering-handles having arms curved toward and then into substantial parallelism with the frame-head and lugs
 45 or plates rigidly mounted on the fork and provided with rigid tubes extending upward in substantial parallelism with the frame-head, in front and on opposite sides of which
 50 said tubes are arranged, the parallel parts of the arms on the steering-handles being inserted in said tubes and fastened by clamps, substantially as described.

3. A driving or rotary axle, a fixed sleeve through which said axle extends, a rotary
 55 hub made to surround the sleeve and connected or geared to the axle, and supporting collars for the sleeve, each collar having race-sections for interposed balls between the collar and hub and between the collar and axle,
 60 and one of the collars being screw-threaded or adjustable so as to also serve for tightening or loosening ball-races, said adjustable collar having a flange made to extend beyond
 65 the hub whereby the collar may be readily adjusted, and a jam or lock nut upon the exterior of said collar, substantially as described.

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

RUDOLPH F. BARTEL.

Witnesses:

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 E. F. KASTENHUBER.