

No. 772,595.

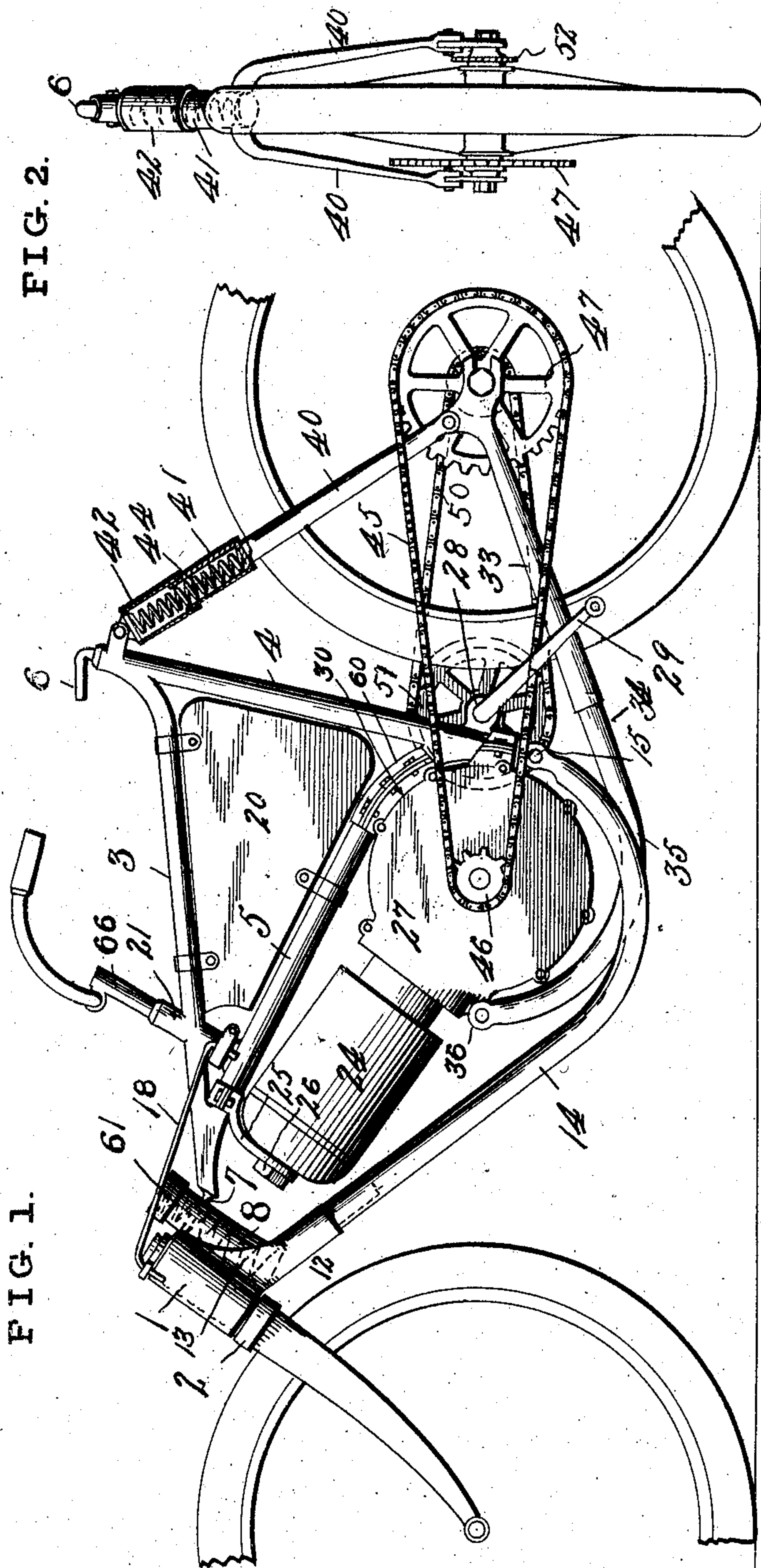
PATENTED OCT. 18, 1904.

E. Y. WHITE.
FRAME FOR MOTOR BICYCLES.

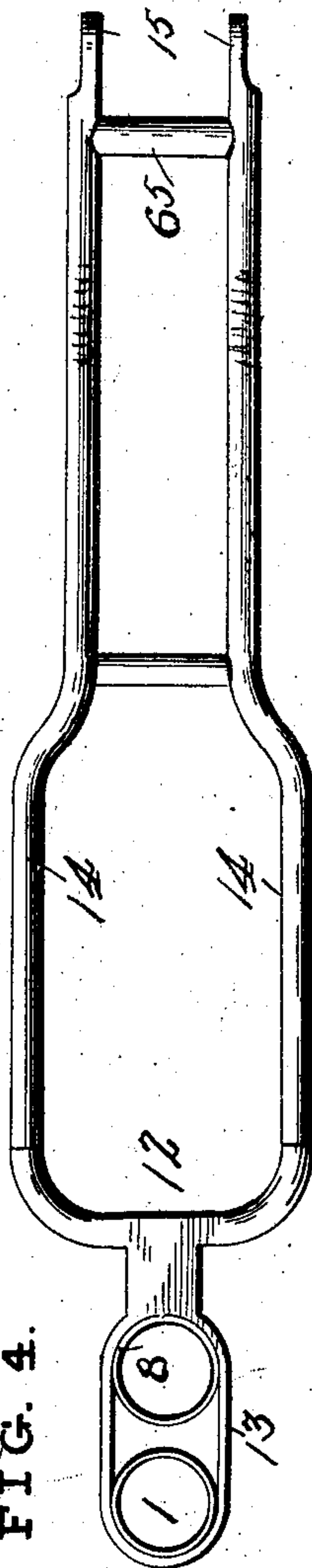
APPLICATION FILED MAR. 5, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

FIG. 3.

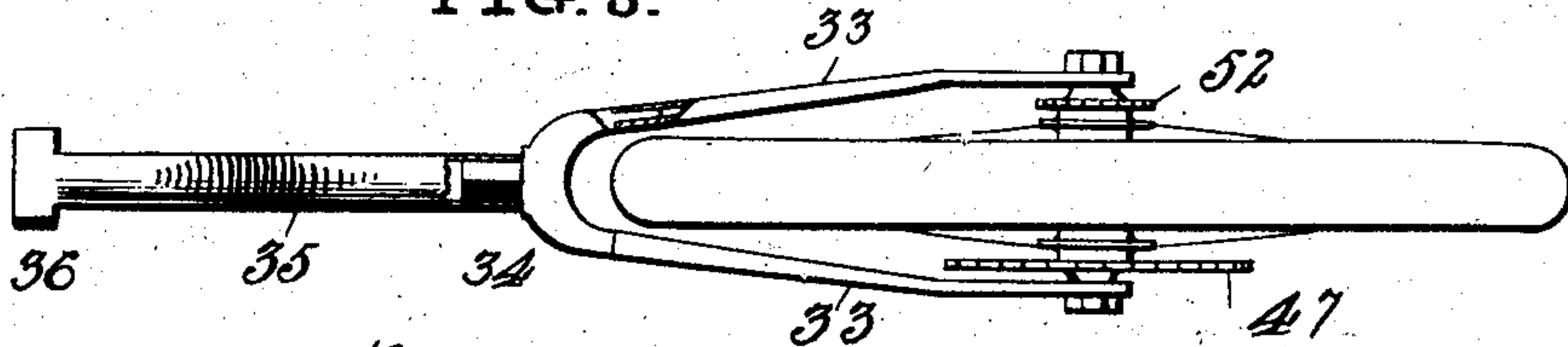


FIG. 5.

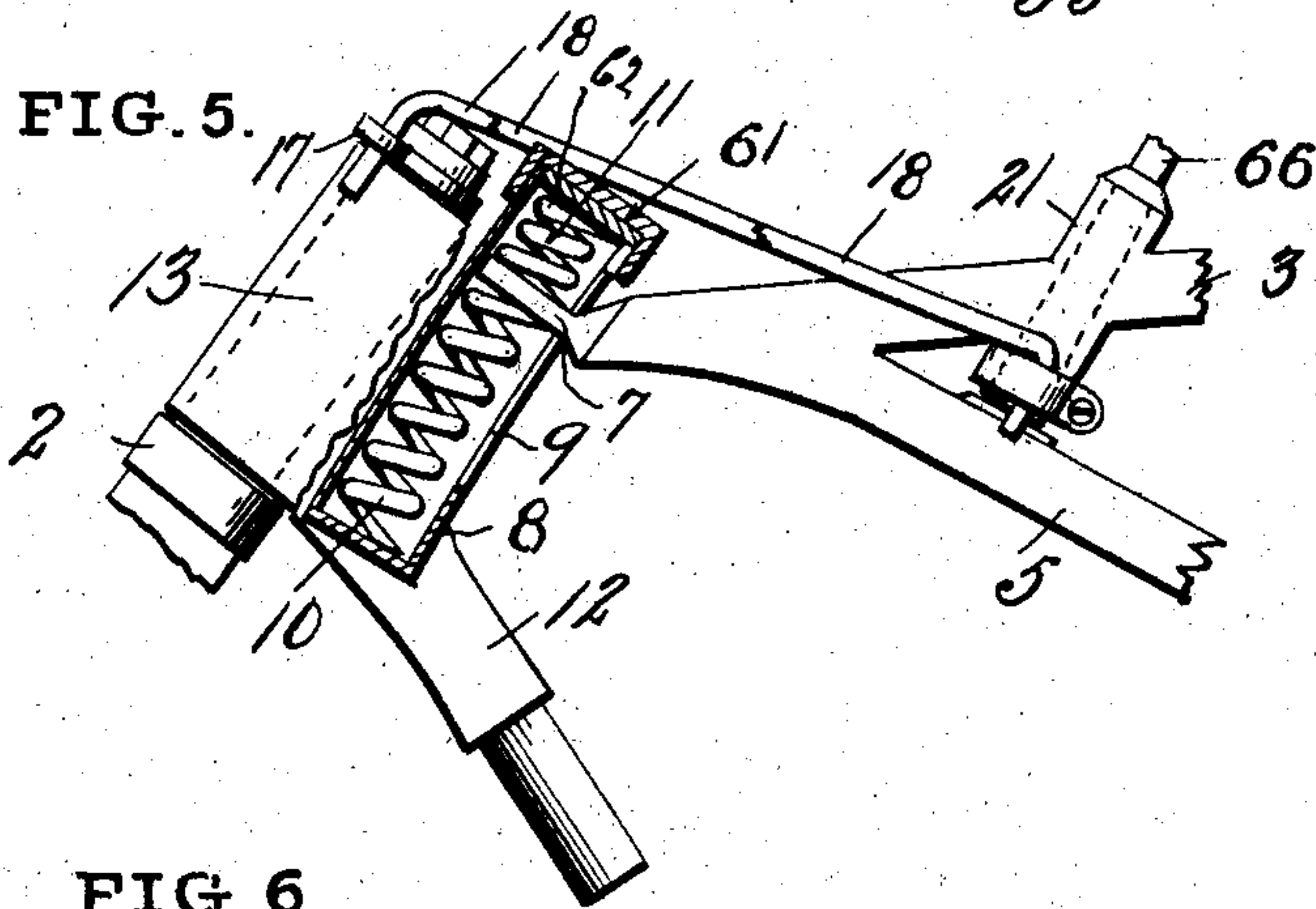


FIG. 6.

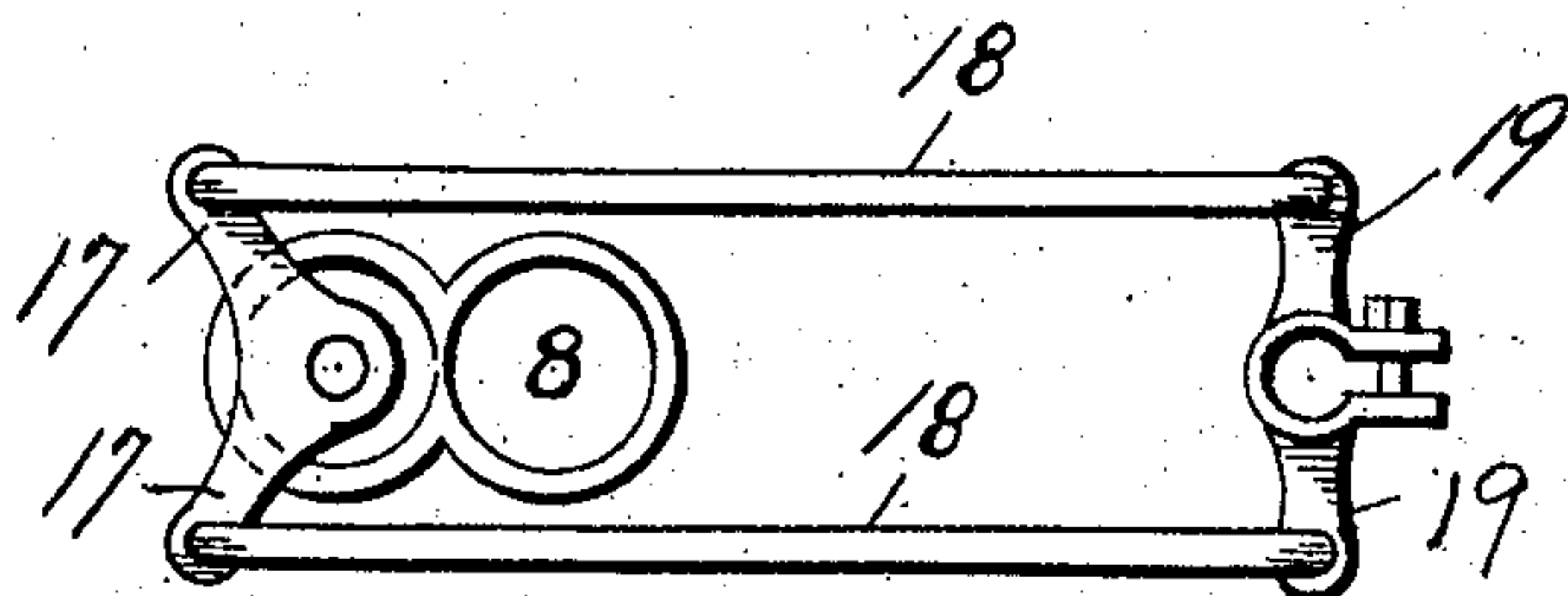


FIG. 9.

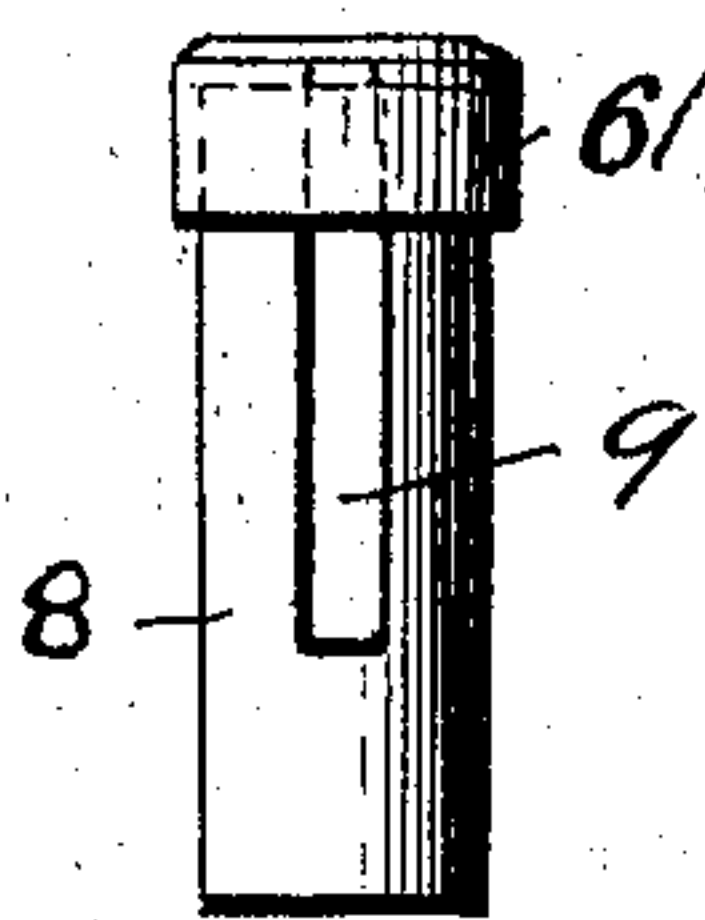


FIG. 10.



FIG. 11.

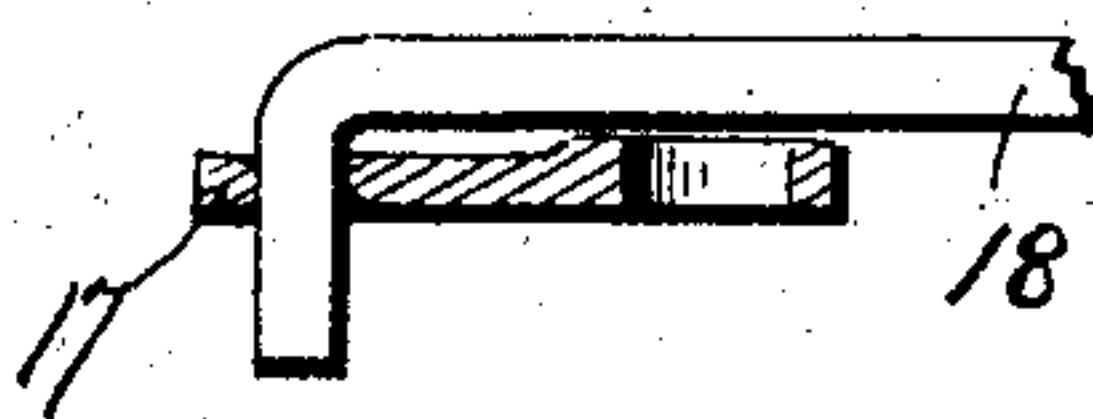


FIG. 12.

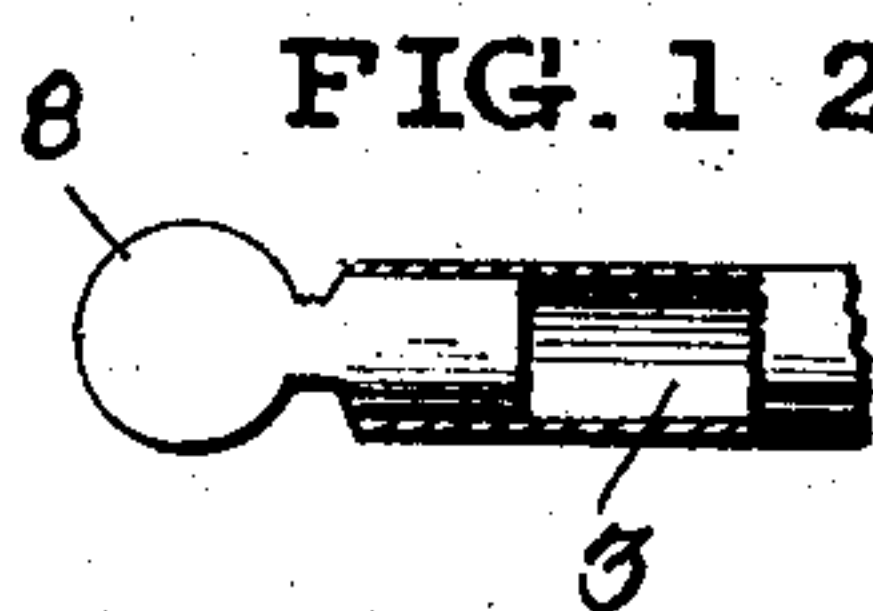


FIG. 7.

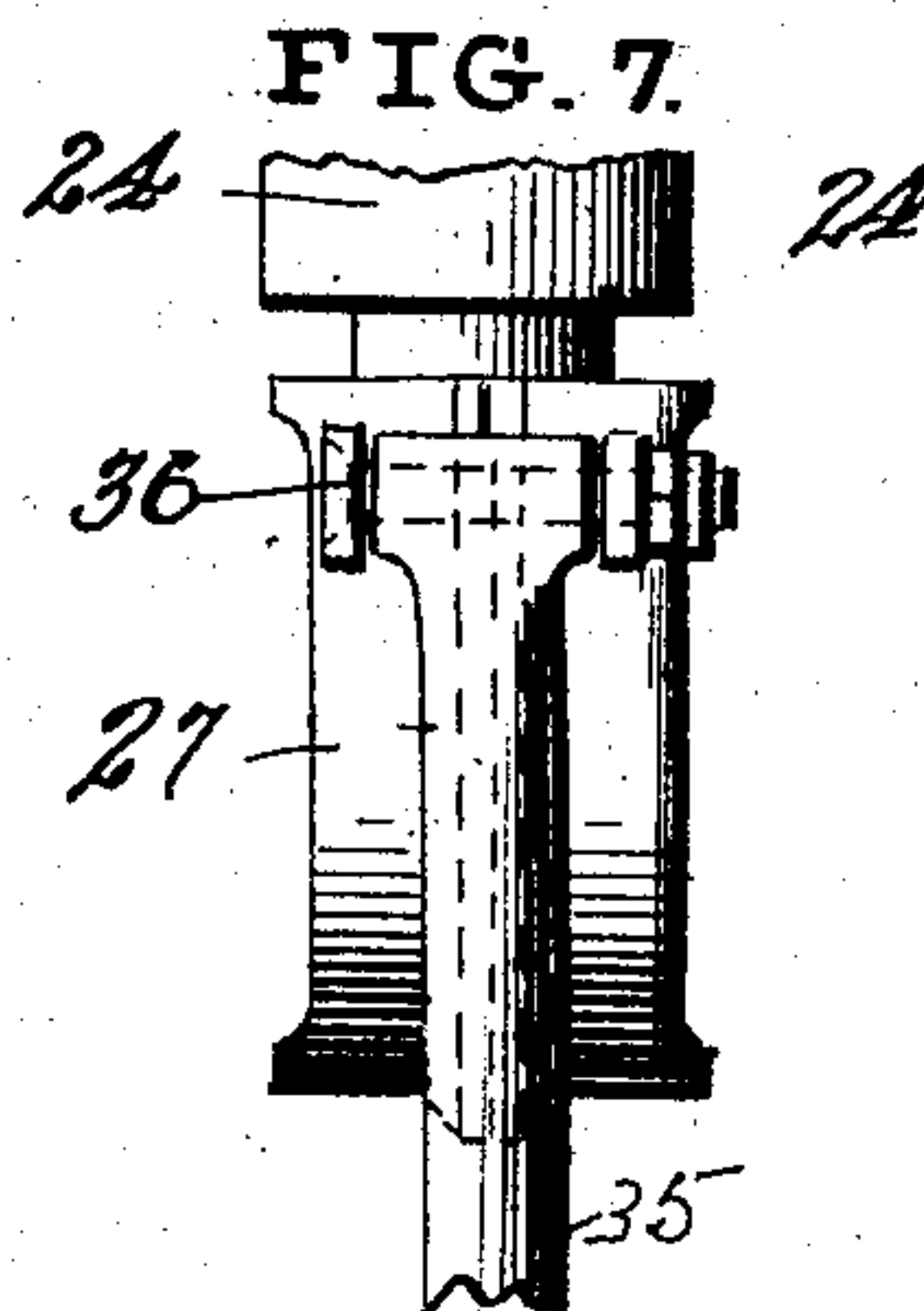
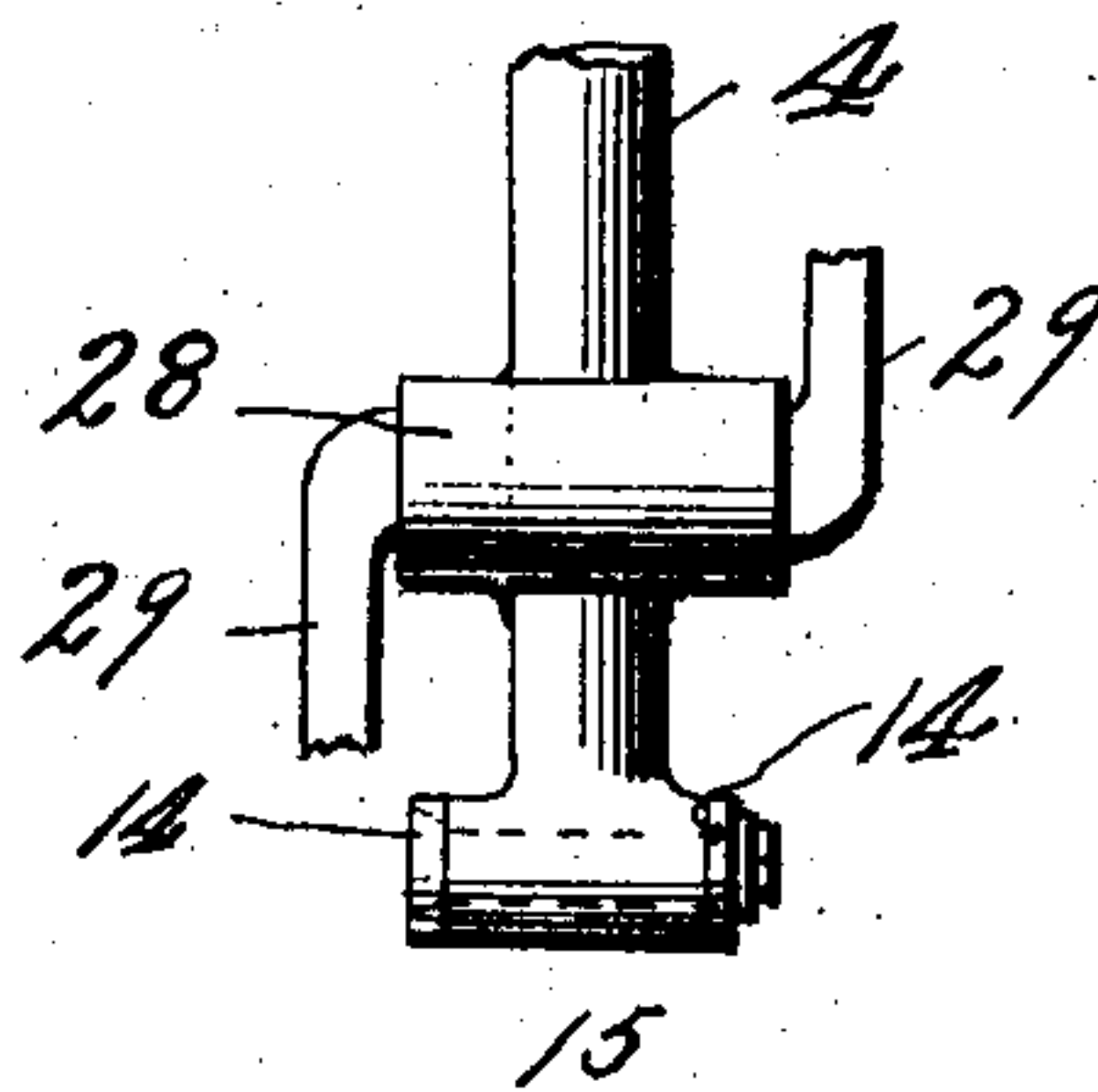


FIG. 8.



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UNITED STATES PATENT OFFICE.

EDWARD Y. WHITE, OF SAN ANTONIO, TEXAS.

FRAME FOR MOTOR-BICYCLES.

SPECIFICATION forming part of Letters Patent No. 772,595, dated October 18, 1904.

Application filed March 5, 1904. Serial No. 196,751. (No model.)

To all whom it may concern:

Be it known that I, EDWARD Y. WHITE, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented certain new and useful Improvements in Frames for Motor-Bicycles, of which the following is a specification.

This invention relates to frames for motor-bicycles.

The object of the invention is to produce a strong and elastic frame for motor-bicycles in which the motor-engine shall be compactly arranged in the front section of the frame, which frame is yieldingly connected to the rear section thereof; also, to make the engine a connecting link in the frame construction; also, to improve the construction of motor-cycle frames and the auxiliaries immediately connected with the frame.

The invention consists in certain mechanical constructions and combinations of elements substantially as hereinafter described and claimed.

Figure 1 is a broken side elevation of so much of a motor-bicycle as is necessary to illustrate my invention, some parts being omitted and some broken away. Fig. 2 is a rear elevation to show the elastic rear extension of the frame. Fig. 3 is a plan view of the lower rear fork or frame member, showing connection to rear or drive wheel. Fig. 4 is a top plan of the lower member of the front part of frame. Fig. 5 is an enlarged detail elevation, partly in section, of the elastic support of top member of front frame-section, showing also steering connections. Fig. 6 is a top plan of steering connections. Fig. 7 is a broken bottom plan of the connection or hinge between the bottom member of the frame and the engine-casing. Fig. 8 is a broken rear elevation of the bottom portion of seat-post, showing pedal-bearing. Fig. 9 is a detail elevation of front spring-casing. Fig. 10 is a plan of a filler-piece in the top of front spring-casing. Fig. 11 is an enlarged sectional detail of the connection of one of the steering rods or bars to the steering-head.

Fig. 12 is a broken plan of the front end of top tube of front frame member and bearing-head attached thereto.

The frame resembles in outline a diamond frame and is substantially in the form of two triangles having a common side, the seat-post tube or vertical spine serving as a base for both front and rear sections, and each section elastic in itself, the front and rear triangles being yieldingly connected. The front frame-section is again divided into an upper rigid triangular strut, which surrounds the gasoline-tank 20, and a lower nearly-triangular part which surrounds the engine, being rounded at the lower angle and hinged to the spine or seat-post tube.

The numeral 1 denotes the steering-head, in which the front fork 2 has its bearing, so as to turn in the usual manner.

The upper triangle or strut of the front frame-section is composed of tubes 3 4 5, which are rigidly connected together. Tube 4 is the seat-post tube in which the seat-post 6 rests and is held in any usual way. The front ends of tubes 3 and 5 are connected together and to a head or rest 7, which rest or head enters a tubular casing 8 through a slot 9 in the side thereof. Casing 8 is rigidly attached to steering-head 1 and is partly incased by strap 13, to be described. A cap 61 covers the top of casing 8, and a filler-piece 62 lies within this cap above spring 11. A spring 10 in casing 8 below head 7 and a spring 11 in said casing above the head provide for the yielding of the head 7 in either upward or downward direction in casing 8 to compensate for jolts or jars. Casing 8 may be slightly curved to permit free vertical movement of the head. The lower member of the front frame-section has a forging in form of a fork 12, which has a loop 13 inclosing the steering-head 1 and casing 8 and is rigid therewith. Tubes 14 14 are connected to the prongs of the fork 12 and extend back to the hinge or joint 15 at the bottom of seat-post tube or spine 4. Tubes 14 may be braced, as at 65.

Steering-head 2 is connected to the front

wheel-fork and has its upper end projecting upward through the tubular steering-head 1. The post is provided with lever-arms 17, Fig. 6, above the steering-head 1. Rods 18 18 connect these arms 17 17 to the lever-arms 19 19 of the handle-bar spindle 66. This spindle 66 projects through a socket or bearing 21 in tube 3 near the junction of tubes 3 and 5, and the lower end of spindle 66 may have a bearing on tube 5. The rods 18 have hooked ends, which extend some little distance through sockets in the arms or levers 17 and 19. This allows the head 7 of the front end of the top member of the frame to rise and fall in the casing 8 without interfering with the operation of the steering connections, there being a slight play in the connection of steering-levers and rods.

The gasoline-tank 20 is nearly triangular in form and is secured in the space between the tubes 3 and 5 by suitable clasps.

The front or cylinder end of the engine 24 is secured to the tube 5 by a suitable clasp 25, embracing said tube and a stud 26 at the front or top of the cylinder. The crank-casing 27 of the engine has a half-sleeve 30, which partly surrounds the tube 5, said half-sleeve 30 being integral with or firmly secured to the engine-casing. A corresponding half-sleeve 60 above tube 5 is bolted or otherwise firmly secured to half-sleeve 30, thereby firmly holding the engine to the upper rigid triangle or strut formed by tubes 3 4 5.

The tubes 14 of the lower front frame member are spread apart far enough at their front ends to permit the cylinder 24 to pass between the upper part as the frame yields in traveling, said upper part in such yielding rocking on hinge 15. The engine can be removed in the same direction.

The pedal-bracket 28 is attached to the seat-post tube or spine 4 in any usual manner, and the crank-pedal 29 passes through said bracket, as usual.

The rear lower fork of the frame is composed of side bars or tubes 33 (which are connected to or have bearings for the rear axle) and a head 34, to which both bars are fast. This head 34 is rigid with a curved bar or tube 35, which extends forward under the crank-casing of the engine and is hinged to said casing at 36. The upper rear fork of the frame is composed of bars or tubes 40 40, which are pivoted to the bars 33 near the axle-bearing and are joined to a spring holder or plunger 41. This plunger 41 enters the spring-casing 42, which is pivoted to the top of the seat-post 4. A spring 44 in the casing 42 and preferably partly inclosed in the plunger 41 permits the said plunger to close into said casing with increasing resistance as the spring 44 is compressed. The casing 42

swings on its pivot and bars 40 turn slightly on their pivots to permit resiliency.

The engine drive chain or belt 45 leads from engine-gear 46 to the pulley or pinion 47, connected to the wheel-hub or axle in usual manner, and the pedal drive-chain 50 leads from the driving-pinion 51 on the pedal-shaft to pinion 52 on the axle, or other driving-gear might be adopted, the same forming no part of my present invention.

From the foregoing it should be understood that my bicycle-frame consists, essentially, of a rigid spine or seat-post support, which is the seat-post tube 4, and that while there is a part of the front frame rigid with this spine the front and the rear members of the frame have a separate yielding movement. The engine-casing is supported from the most rigid part of the frame and is itself a link in the resilient part of the frame. The general outline of the well-known diamond frame is preserved; but this is subdivided into generally triangular sections, which are separately yielding. The frame is effectively braced, but with slight increase in weight.

What I claim is—

1. A frame for motor-bicycles having a substantially vertical spine, the engine rigid therewith; a front frame member hinged to the base of the spine and connected to the front wheel-fork, and a rear frame member hinged to the engine-casing and supporting the rear axle.

2. A frame for motor-bicycles having a substantially vertical spine, the engine-casing rigid therewith, a forwardly-reaching member from the spine yieldingly connected to the steering-head, and a hinged member connected rigidly to the steering-head and hinged to the spine at its lower end.

3. A frame for motor-bicycles having a substantially vertical spine, the engine-casing rigid therewith, a rear frame member hinged to said casing and having bearings for the rear axle, and a fork from the rear axle yieldingly connected to the upper part of the spine.

4. The combination, in a bicycle-frame, of a substantially vertical central tube, a rigid top tube and a rigid lower tube forming a triangular strut, a steering-head to which said strut is yieldingly connected, and a bottom member hinged to the upright and rigid with the steering-head.

5. The combination of the central upright tube, the forwardly-projecting top tube, the bottom member hinged to the upright tube, and a slotted front casing rigid with the bottom member and having a spring therein on which the front end of the top tube is supported.

6. The combination of the substantially vertical central tube, a forwardly-projecting strut rigidly connected thereto, the steering-post

and a yielding spring connection between the same and said strut, the engine-casing connected to said strut, and the rear frame-section hinged to the engine-casing forward of the central upright post.

7. In a motor-bicycle frame, the combination of a central vertical seat-support or spine, an engine-casing forward of the same and rigid therewith, a rear frame-section hinged to said engine-casing, and a yielding fork connecting the rear of said frame to the top of said seat-support or spine.

8. In a motor-bicycle frame, the combination of a vertical seat-support, the engine-

casing rigid therewith, the lower rear fork hinged to the casing and provided with axle-bearings, the upper rear fork hinged to said lower fork, and a casing pivoted to the seat-support and provided with a spring against which the upper end of said upper rear fork bears.

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

EDWARD Y. WHITE.

Witnesses:

J. E. ADAMS,

W. COPE DAVIS.