No. 676,592. Patented June 18, 1901.

M. E. TOEPEL, F. B. WIDMAYER & A. POTDEVIN.

MOTOR CYCLE.

(Application filed Aug. 31, 1900.)

(No Model.) 2 Sheets—Sheet 1.

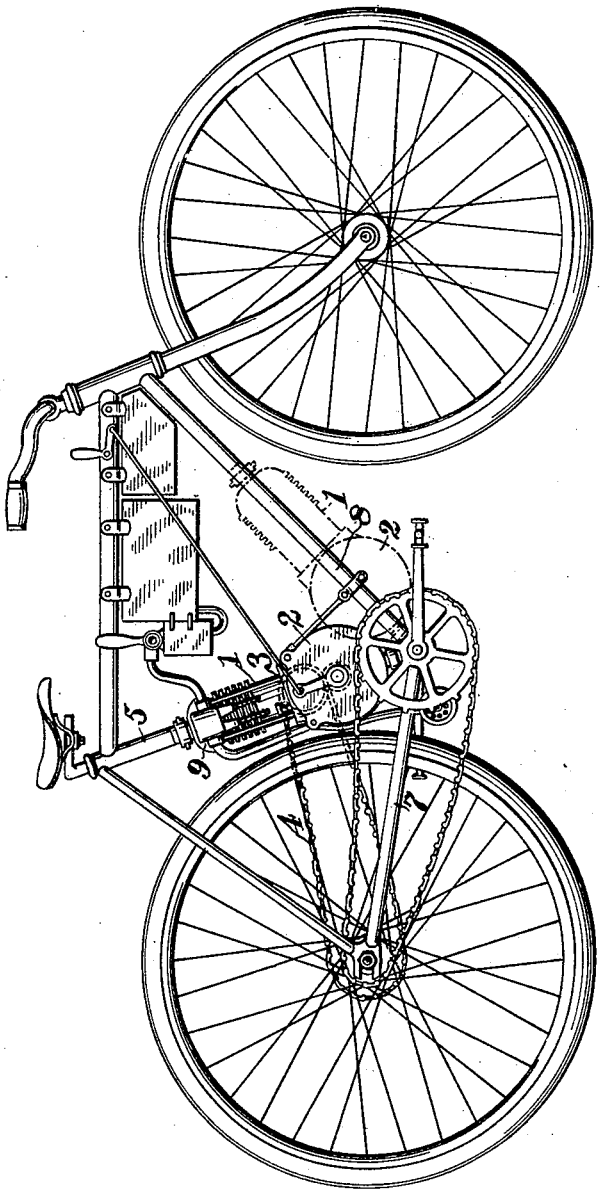

Fig. 1.

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Fig. 2

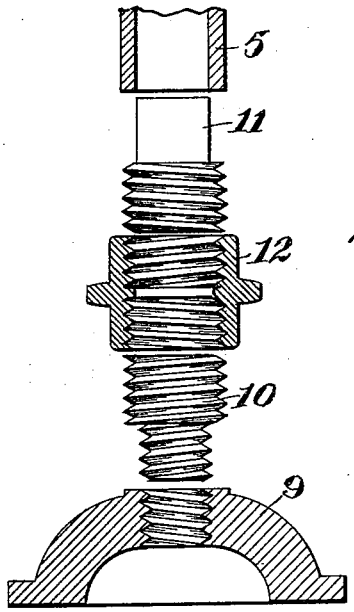


Fig. 3

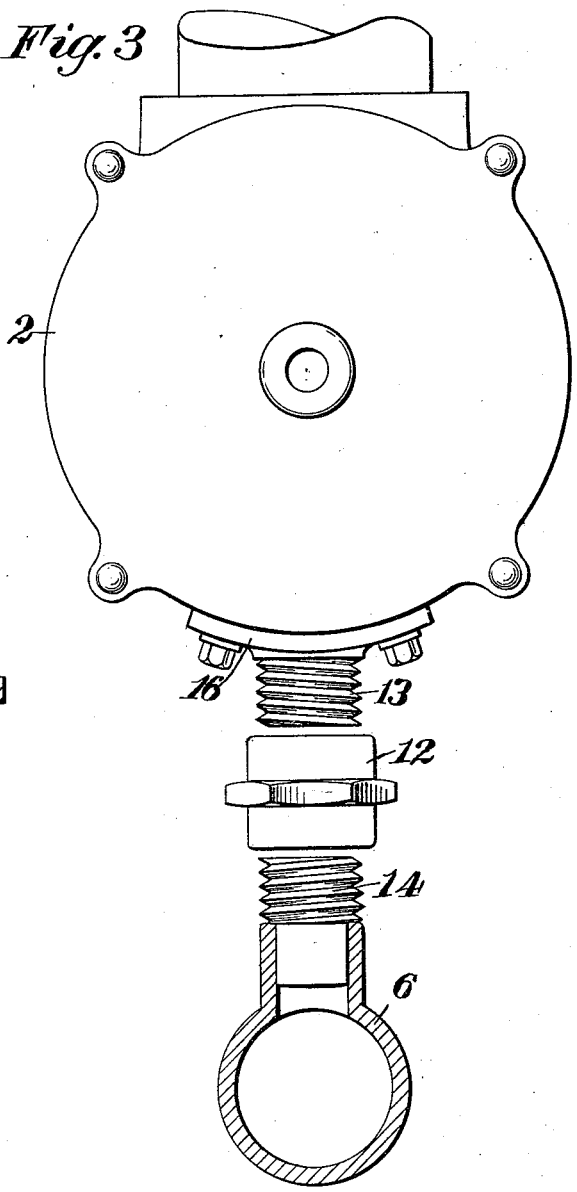
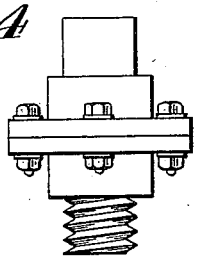


Fig. 4



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UNITED STATES PATENT OFFICE.

MICHEAL E. TOEPEL, FRANK B. WIDMAYER, AND ADOLPH POTDEVIN, OF NEW YORK, N. Y.

MOTOR-CYCLE.

SPECIFICATION forming part of Letters Patent No. 676,592, dated June 18, 1901.

Application filed August 31, 1900. Serial No. 28,653. (No model.)

To all whom it may concern:

Be it known that we, MICHEAL E. TOEPEL, FRANK B. WIDMAYER, and ADOLPH POTDEVIN, citizens of the United States and residents of the city of New York, in the counties of New York and Kings and State of New York, have invented a certain new and useful Motor-Cycle, of which the following is a specification.

Our invention relates to the construction of motor-cycles driven wholly or in part by an engine—such as an oil, gas, or steam engine—but is primarily designed for motor-bicycles in which the motor is a gasolene or explosive engine.

The object of the invention is to secure compactness, rigidity, a low center of gravity, ease of repair or inspection, and other advantages, which will be apparent to those skilled in the art from the subjoined description, taken in connection with the accompanying drawings.

Briefly stated, our invention consists in mounting the motor so that it shall form a section of the seat-post tube or upright, being interposed, as shown in the accompanying drawings, between the upper end of said tube and the bottom bracket of the bicycle-frame. We also preferably secure it in place by suitable couplings, which will permit it to be removed and a tube or section of frame of the ordinary form substituted for it, thus reconverting the machine into an ordinary bicycle to be propelled by foot-pressure.

Figure 1 is a side elevation of a form of motor-bicycle embodying our invention. Fig. 2 is a longitudinal section through the couping between the head of the engine-cylinder and the bicycle-tubing. Fig. 3 is a similar section of the coupling between the opposite end of the engine and the bicycle-tubing. Fig. 4 illustrates a modified form of coupling.

In the drawings we show the invention applied to a bicycle designed to carry one rider, from which its application to machines designed to carry any number will be obvious.

1 is the cylinder of an ordinary reciprocating explosive-engine, and 2 is the crank casing or frame which carries the crank-shaft, the latter being geared or connected in any suitable manner to the driving or rear wheel of the machine. In the present instance we show the engine geared through a chain or sprocket wheel 3 (shown in dotted lines) on a counter-shaft, and a drive-chain 4 running on a sprocket on the rear wheel.

5 is the seat-post tube, and 6 the bottom bracket or junction between the rear stay 7 and the lower tube 8. The engine is interposed directly between the parts 5 and 6, so that its piston and piston-rod will be practically in direct line with the tube or portion of frame 5, and said engine will in effect be a part of the seat-post tubing or diagonal, being substituted for a section of the tubing, which in the ordinary form of bicycle makes with the part 5 an integral tube from the top of the frame to the bottom bracket 6.

The head 9 of the cylinder is provided at or about its center with a device for coupling it to the section of tubing 5, and the crank-casing 2 is provided with similar devices for connecting or coupling to the bottom bracket or an upward extension therefrom. One form of these devices is shown in detail in Figs. 2 and 3.

10 is a threaded plug secured in the cylinder-head 9 in any suitable way—as, for instance, by a screw connection—and 11 is another threaded plug which is pinned and brazed in the tube 5.

12 is a double-threaded coupling-sleeve which is adapted to engage the threaded plugs, as indicated, so as to fasten the head of the cylinder to the tubes and make them mechanically one.

For the opposite or lower end of the engine a similar device may be used, as shown in Fig. 3. The threaded plug 14 is secured in the short end of the seat-post tube projecting upward from the bottom bracket, and the threaded coupling-sleeve 12 engages a threaded projection 15, extending in line with the seat-post tubing from a plate 16, which is bolted or otherwise suitably fastened to the bottom of the crank-case 2.

Fig. 4 shows a modified form of coupling, in which each of the parts secured, respec-

tively, to the motor and the tubing is provided with a flange and said flanges are bolted together.

What we claim as our invention is—

1. The combination in a motor-cycle, of the reciprocating explosive-engine, the threaded projection 13 extending from a plate 16 bolted or fastened to the bottom of the crank-casing, the threaded plug 14 secured to the projection from the bottom bracket of the frame, and the threaded coupling-sleeve 12 as and for the purpose described.

2. In a motor-cycle, the combination with a reciprocating explosive-engine, of the threaded plug 10 secured in the cylinder-head 9, the threaded plug 11 pinned and brazed in a tube 5 extending from the upper portion of the frame and the double-threaded coupling-sleeve 12 adapted to engage said plugs and to fasten the head of the cylinder in position so that the engine shall constitute a part of the seat-post tube of the bicycle as and for the purpose described.

3. The combination in a motor-cycle, of a reciprocating explosive-engine having a plate 16 fastened to the bottom of a crank-casing and provided with a projection adapted to be coupled to a projection extending upward from the bottom bracket in line with the seat-post, as and for the purpose described.

Signed at New York, in the county of New York and State of New York, this 29th day of August, A. D. 1900.

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