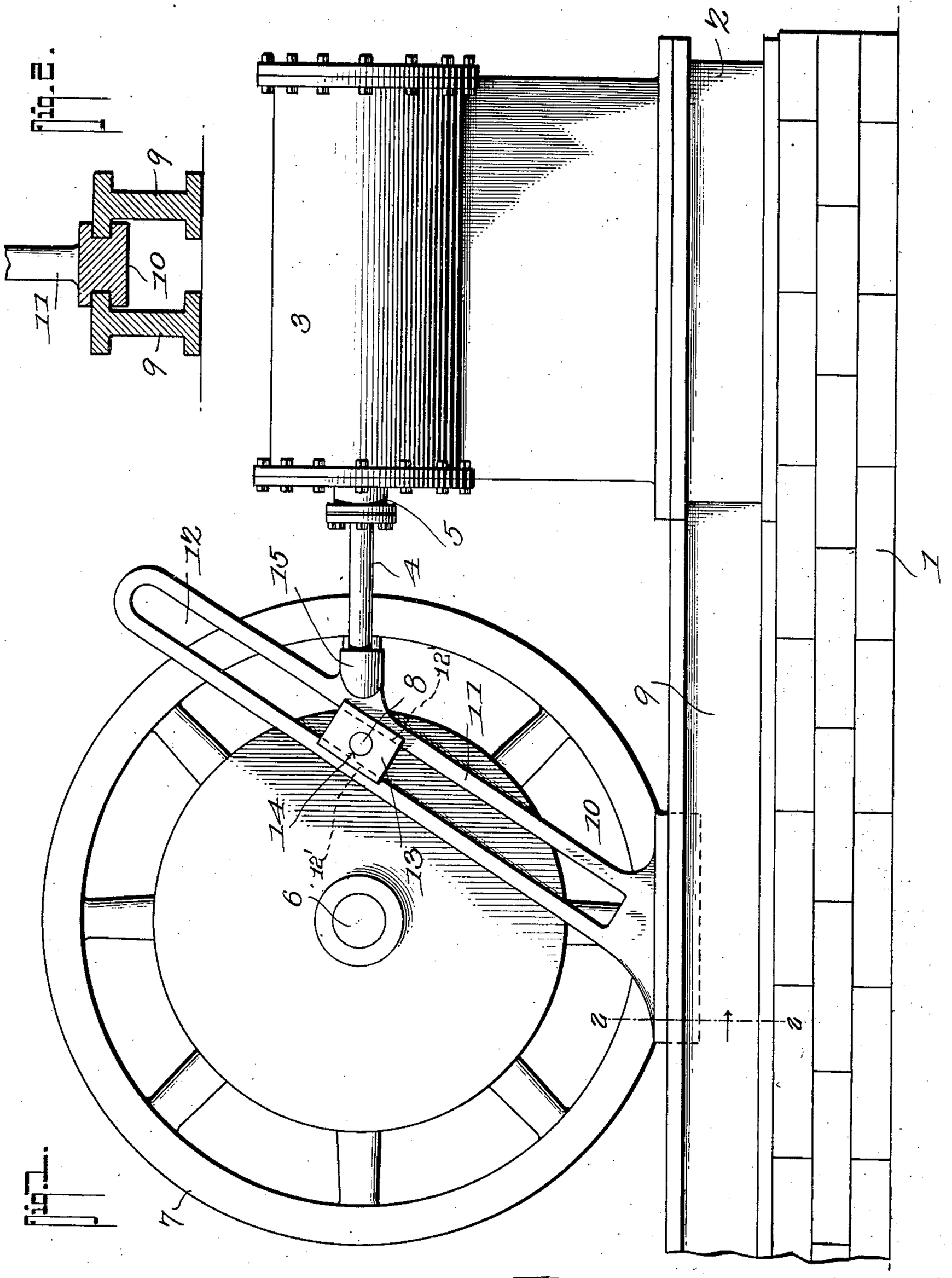
No. 829,735. PATENTED AUG. 28, 1906.

T. L. RAMSEY.

CRANK MOTION.

APPLICATION FILED SEPT. 29, 1904.



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UNITED STATES PATENT OFFICE.

THOMAS LEMUEL RAMSEY, OF MIDDLEGROVE, ILLINOIS, ASSIGNOR OF ONE-THIRD TO FRANK W. MOORE, OF MIDDLEGROVE, ILLINOIS.

CRANK-MOTION.

No. 829,735. Specification of Letters Patent. Patented Aug. 28, 1906.

Application filed September 29, 1904. Serial No. 226,538.

To all whom it may concern:

Be it known that I, THOMAS LEMUEL RAMSEY, a citizen of the United States, residing at Middlegrove, in the county of Fulton and State of Illinois, have invented a new and useful Crank-Motion, of which the following is a specification.

This invention relates to devices for converting a reciprocating into a rotary motion, and more specifically to devices for converting the reciprocatory motion of the piston-rod working in the cylinder of a steam, gas, or other engine into a rotary motion through the medium of a crank connected with a wheel mounted for rotation, the same being effected without the use of the pitman commonly employed for this purpose and in such a manner as to avoid the possibility of what is known as a "dead-center," no matter at what point of its movement the piston-rod may be at rest.

The object of the invention is to present a device of the class referred to which shall possess superior advantages in point of simplicity, durability, and general efficiency, and with these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinefter fully described, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation illustrative of the invention. Fig. 2 is a sectional detail view taken on the line 2 2 in Fig. 1.

Corresponding parts in both figures are indicated by like characters of reference.

Upon a suitable foundation 1 is mounted a base 2, supporting a cylinder 3, which may represent the cylinder of an engine driven by steam or other fluid or of any of the various types of gas or gasolene engines. Within the cylinder moves a piston the rod of which, 4, extends through a gland 5 in the head of the cylinder.

6 designates a shaft supported for rotation transversely in front of the cylinder and at right angles to the axis of the piston-rod and preferably in the same vertical plane as the latter. The shaft 6 carries a wheel 7, which constitutes a balance-wheel and which is provided with a crank or wrist pin 8.

Supported upon the foundation are ways 9, in the drawings illustrated as a pair of I-beams, the upper inner webs of which afford bearings for a reciprocatory slide 10, which is mounted directly for reciprocation in a plane parallel to that of the piston-rod. The slide 10 carries an obliquely disposed or inclined upright 11, having a slot 12, which affords a bearing or guideway for the slide 13, having a perforation 14, whereby it is mounted for rotation upon the wrist-pin 8 of the wheel, said slide being provided in opposite sides thereof with grooves 12′, engaging opposite side edges of the slot 12. The slotted upright may be inclined at any desired angle to the base upon which it moves, and the slot therein should be of sufficient length to amply accommodate the throw of the crank or wrist pin 8.

In operation when the piston reciprocates it will impart a reciprocatory motion to the slide carrying the inclined upright, with which latter the said piston-rod is connected by means of a rigid coupling or connection 15 of any suitable construction. When the upright is thus moved, the slide 13 will move upward or downward in the inclined slot 12, according to the direction of the movement of the piston-rod, and a rotary motion will thus be imparted to the wheel 7 and to the shaft 6, upon which said wheel is mounted. The slide 13, which rotatably engages the wrist-pin of the fly-wheel, is guided and steadied by the grooves 12′, that are in constant engagement with the opposite edges of the slot 12, an even and steady motion being thus assured.

It is obvious that a dead-center is impossible, for the reason that when the piston-rod is at either end of its movement and the wrist-pin consequently is in axial alinement therewith the slide 13, engaging said wrist-pin, will be about midway of the inclined slot 12, so that when the piston-rod starts on its return stroke there will be no impediment to the rotation of the wheel.

This improved device, as will be seen, is of an extremely simple construction, and it may be operated at a very high rate of speed with little or no vibration, such as is commonly experienced when a pitman connection is used.

The device is also of a light, simple, and inexpensive construction, which will enable it to be conveniently adapted or applied to various kinds of motors which have been

originally constructed with a pitman movement, the change being easily and inexpensively effected, the only requirement being the proper placing of the gibs or guideways and the inclined upright, which latter is readily connected with the piston-rod by the coupling 15.

Having thus described the invention, what is claimed is—

A base, a pair of I-beams placed parallel to each other in alinement with the base, a cylinder supported upon the latter, a reciprocatory piston-rod, a slide mounted for reciprocation in engagement with the I-beams, an obliquely-disposed upright extending from said slide and having a slot, a slide supported for movement in said slot and having grooves engaging the opposite edges of said slot and an aperture, a fly-wheel supported for rotation and having a wrist-pin in engagement with said aperture, and a coupling projecting from the inclined upright and having rigid connection with the piston-rod.

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

THOMAS LEMUEL RAMSEY.

Witnesses:

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