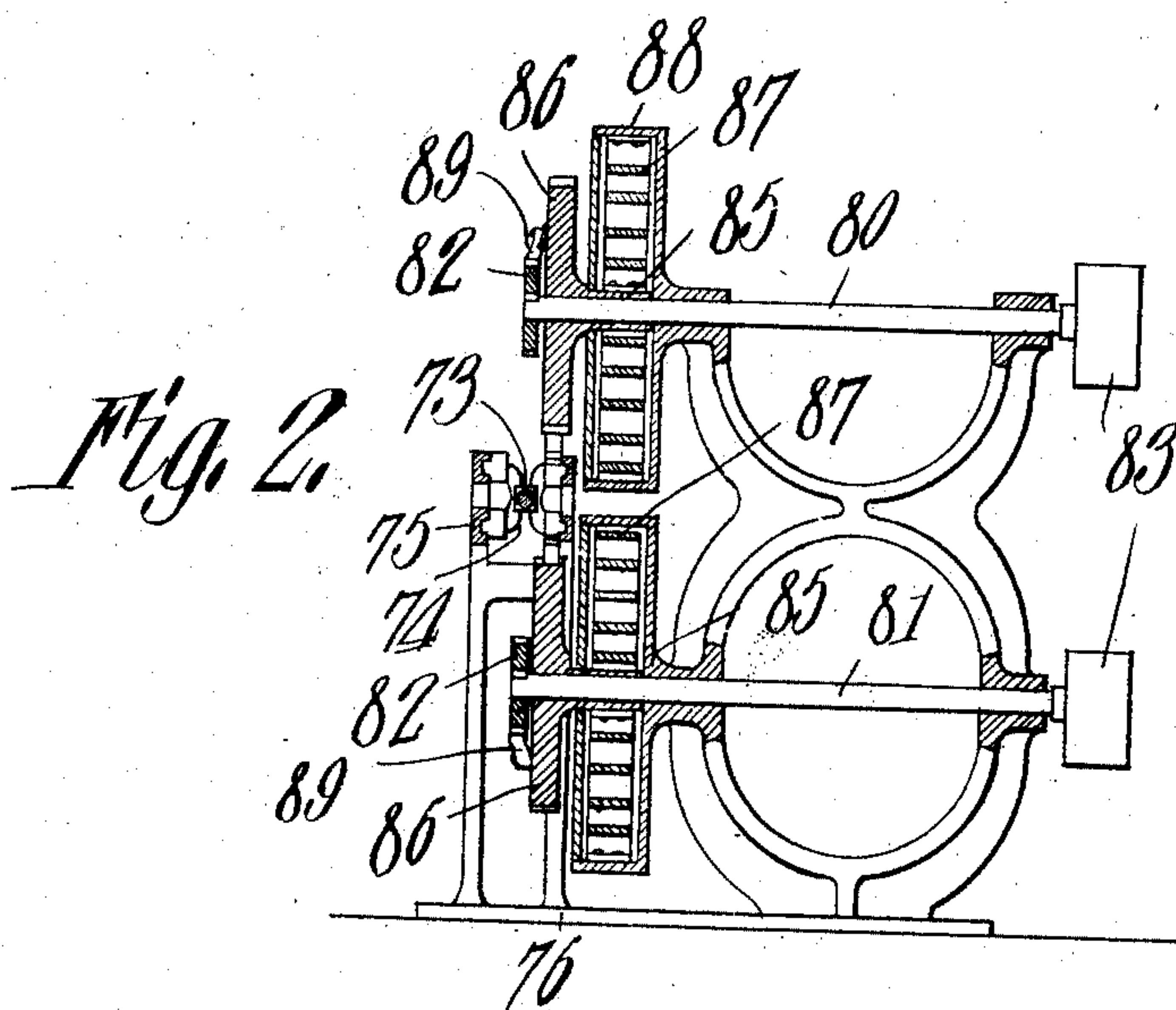
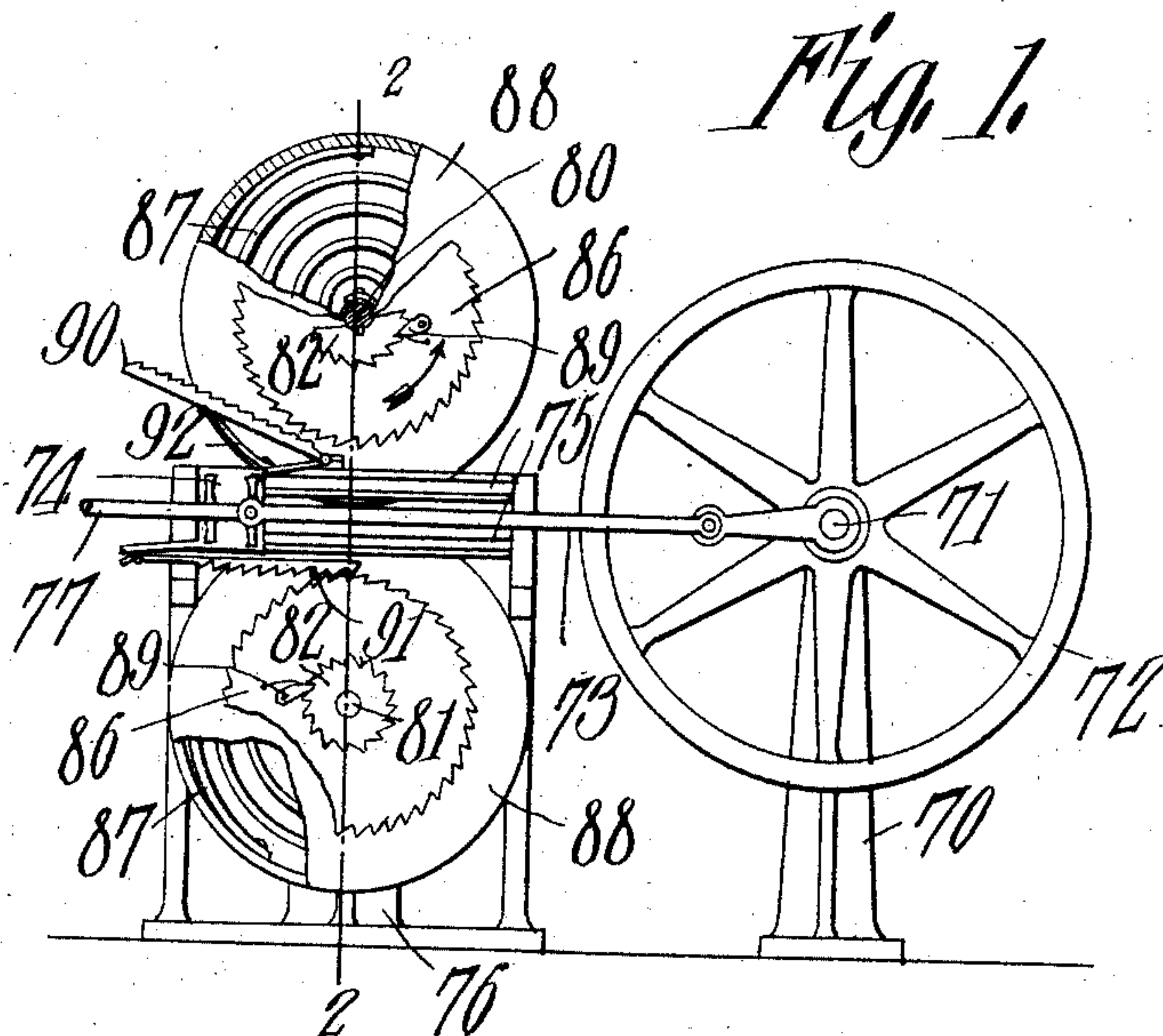


No. 874,157.

PATENTED DEC. 17, 1907.

G. E. BLAKE.
POWER TRANSMITTING DEVICE.
APPLICATION FILED DEC. 11, 1906.



George E. Blake,
Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE EDWARD BLAKE, OF GREENCASTLE, INDIANA.

POWER-TRANSMITTING DEVICE.

No. 874,157.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed December 11, 1906. Serial No. 347,293.

To all whom it may concern:

Be it known that I, GEORGE E. BLAKE, a citizen of the United States, residing at Greencastle, in the county of Putnam and State of Indiana, have invented a new and useful Power-Transmitting Device, of which the following is a specification.

This invention relates to motors, and has for its principal object to provide improved means for converting reciprocatory into rotary motion, the device being especially valuable in connection with motors of that class in which an explosive charge or a fluid under pressure constitutes the working force.

A further object of the invention is to provide an improved form of power transmitting mechanism of such nature that a relatively slow reciprocatory movement may be transmitted into rotary movement of high speed.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawing, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a side elevation, partly in section, of a power transmitting mechanism constructed in accordance with the invention. Fig. 2 is a vertical sectional view of the same on the line 2—2 of Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The apparatus forming the subject of the present invention is designed for use in connection with internal combustion or other engines of the reciprocating type, and is intended to convert the reciprocating movement into intermittent rotative movement, or it may be employed in connection with any reciprocatory element for the same purpose.

The working parts of the power transmitting device are shown as mounted on two standards 70 and 76 of which the standard 70 has bearings for a crank shaft 71, on which is mounted the balance or belt wheel 72. The crank shaft is connected by a rod 73 to a cross head 74 that slides in guides 75 carried by the frame 76, and said cross head

is connected by a rod 77 to the piston or other member from which the device receives reciprocatory motion.

The frame 76 is provided with bearings 60 for the reception of two shafts 80 and 81, and to the inner ends of these shafts are secured ratchet wheels 82, while the outer ends carry belt or other wheels 83 from which motion may be imparted to any mechanism to be driven.

Mounted loosely on each shaft 80—81 is a hub 85 carrying a ratchet wheel 86, and to the hub is secured the inner end of a spiral spring 87, the outer end of the spring being secured to a fixed casing 88 carried by the frame. Each ratchet wheel 86 carries a spring pressed pawl 89 that intermeshes with the ratchet pinions 82 of the shaft.

The teeth of the ratchet wheels 86 face in the same direction, and said teeth are arranged to be engaged by two racks 90 and 91, having teeth that face in opposite directions, respectively. These racks are pivoted to the cross head 74, and are held in ratchet wheel engaging position by leaf springs 92, the racks being so mounted and arranged that during the out stroke of the cross head in the direction of the crank shaft 71, the teeth of the rack 90 will engage the upper ratchet wheel, and will turn the same in the direction indicated by the arrow in Fig. 1, this movement being transmitted through the hub 85 to the uppermost spring 87, and at the completion of the out stroke, the teeth of the rack 90 will still remain in mesh with the teeth of the ratchet wheel, and as the rack moves in the opposite direction, the spring will be free to unwind and will rotate said ratchet wheel in the opposite direction, and the movement will be transmitted through the pawl 89 to the ratchet wheel 82 and shaft 80, and from thence may be transmitted through the wheel 83 to any device to be driven, for instance, a compressor, and this movement and the unwinding of the spring may be accomplished at any desired speed.

During the out stroke of the cross head, the teeth of the rack will remain in mesh with the lower ratchet wheel as the latter rotates under the influence of its spring, but on the return or in stroke, said rack 91 will turn the same positively to wind up the lower spring, so that the power stored in the lower spring may be utilized for revolving the lower shaft 81 in the manner described in reference to the upper shaft.

I claim:—

1. In apparatus for transforming reciprocating motion into intermittent rotative movement, a reciprocatory cross head, a rack
5 carried thereby, a shaft, a ratchet wheel mounted loosely on the shaft and with which the rack engages, a spring casing surrounding the shaft, a spiral spring having its outer end secured to the casing and its inner end to the
10 ratchet wheel, a ratchet pinion secured to the shaft, and a pawl carried by the ratchet wheel and engaging said pinion.

2. In mechanism of the class described, the combination with a reciprocatory cross head,
15 of a cross head guide, a pair of spring pressed racks, pivotally connected to the cross head and having teeth facing in opposite directions, respectively, a pair of power shafts,

ratchet pinions secured thereto, ratchet wheels mounted loosely on the shafts, pawls 20 carried by the ratchet wheels and engaging said ratchet pinions, said ratchet wheels being arranged to be engaged alternately by the spring pressed racks, spiral springs having their inner ends secured to the ratchet 25 wheels, and stationary spring casings to which the outer ends of said springs are secured.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 30 in the presence of two witnesses.

GEORGE EDWARD BLAKE.

Witnesses:

PARKE DUNBAR,
JOHN G. DUNBAR.