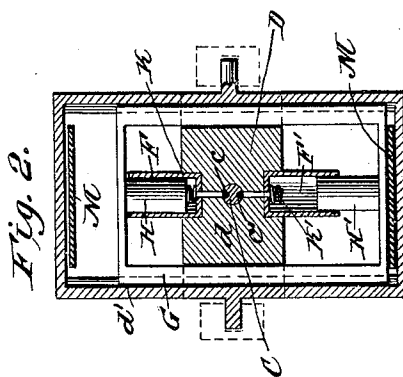
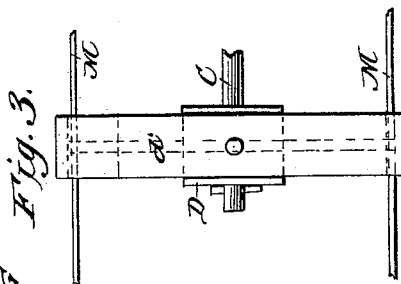
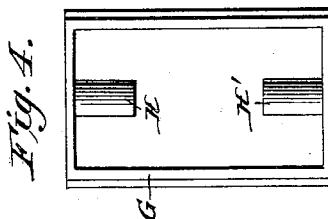
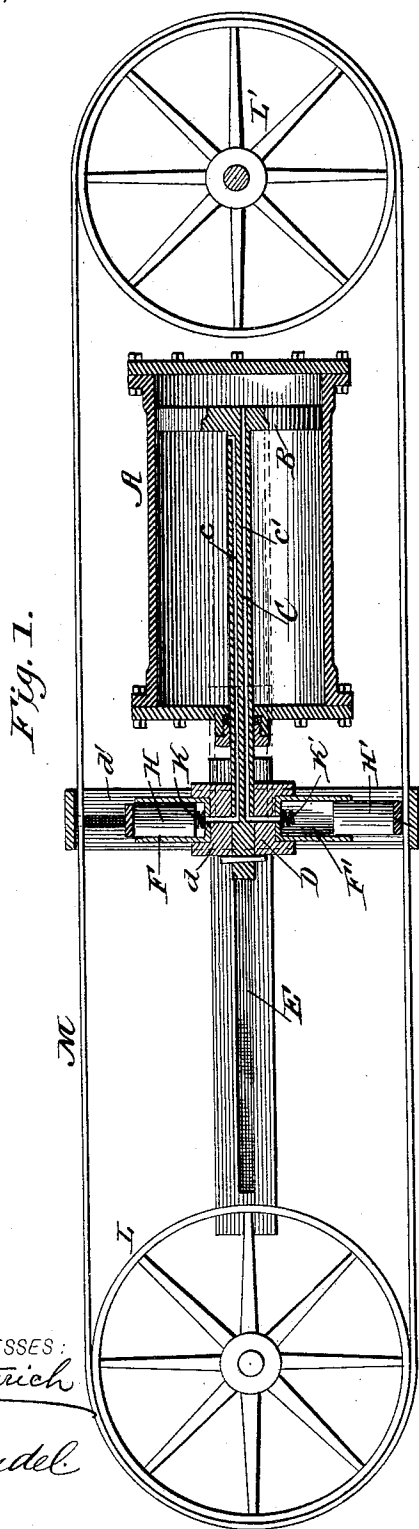


D. McCARTHY.
POWER TRANSMITTER.

Patented July 19, 1892.



WITNESSES:
Fred G. Dreterich
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INVENTOR :
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ATTORNEYS

UNITED STATES PATENT OFFICE.

DANIEL MCCARTHY, OF EARLE, COLORADO.

POWER-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 479,297, dated July 19, 1892.

Application filed January 30, 1892. Serial No. 419,840. (No model.)

To all whom it may concern:

Be it known that I, DANIEL MCCARTHY, a citizen of the United States, residing at Earle, in the county of Las Animas and State of Colorado, have invented a new and useful Improvement in Power-Transmitters for Steam-Engines, of which the following is a specification.

This invention is an improved device for transmitting the power of a piston-rod to an endless belt for the purpose of revolving the same and thus convert the reciprocating motion of the piston into the rotary motion of the power-shaft.

The object of my invention is to provide a steam-actuated gripping mechanism in which the steam employed to drive the piston also serves to operate the gripping mechanism.

My invention consists in the peculiar construction of the various parts and their novel combination or arrangement, such as shown in the drawings, set forth in the description, and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a side view, partly in section, of a steam-cylinder and piston appliances. Fig. 2 is a sectional view of the cross-head and gripping mechanism. Figs. 3 and 4 are detail views of the gripping mechanism.

Referring to the drawings, A indicates the steam-cylinder, provided with the appropriate steam-chest and slide-valves.

B is a piston arranged within the cylinder, and C is the piston-rod connected with the piston. A cross-head D is secured upon the outer end of piston-rod, said cross-head consisting of a central portion *d* and a rectangular frame *d'*, connected with the central portion and which slides in the guideway E. The piston-rod C is provided with two steam-passages *c* and *c'*, which passages communicate with cylinders F and F', attached to the central portion of cross-head. An inner rectangular frame G is mounted within the frame *d'* and adapted to slide vertically therein, said frame G being provided with plunger-pistons H and H', which rest within the cylinders F and F', respectively. Springs K and K' are also arranged within these cylinders beneath the plungers.

L I. indicate the drive-wheels, and M the belt passed thereover, the ranges of said belt being passed between the inner surfaces of the outer rectangular frame and the outer surfaces of the inner frame, the outer frame being stationary as regards the inner one.

In operation when steam is admitted to the main cylinder it operates the piston, and at the same time enters the cross-head and operates one of the plungers. This causes the movable gripping-surface to grip the range of belt against the stationary gripping-surface, and the belt is thus held during the entire length of stroke. When the piston arrives at the end of its stroke and steam is exhausted from main cylinder into air, it is also exhausted from the cross-head cylinder through its steam-passage into the main cylinder. During the return stroke the opposite gripping-surfaces act in precisely the same manner to grip the belt, and thus the belt is moved continuously.

Instead of the piston-rod having passages, steam-pipes may be employed to connect the cross-head and main cylinder, as shown by dotted lines.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a steam-cylinder, piston, and rod, of an endless belt, a cross-head carried by the end of rod and having steam communication with the steam-cylinder, the outer frame carried upon said cross-head, the cylinders, inner frame, and plungers, all arranged substantially as described.

2. The combination, with cross-head, cylinders, and outer frame, of the inner frame and plungers, the endless belt, the ranges of which pass between the inner and outer frames, the piston-rod having steam-passages which communicate with the cylinders carried by the cross-head, and the piston and main cylinder, all arranged substantially as shown and described.

DANIEL MCCARTHY.

Witnesses:

JULES H. KLEINZ,
ROBERT PEDEN.