

No. 730,935.

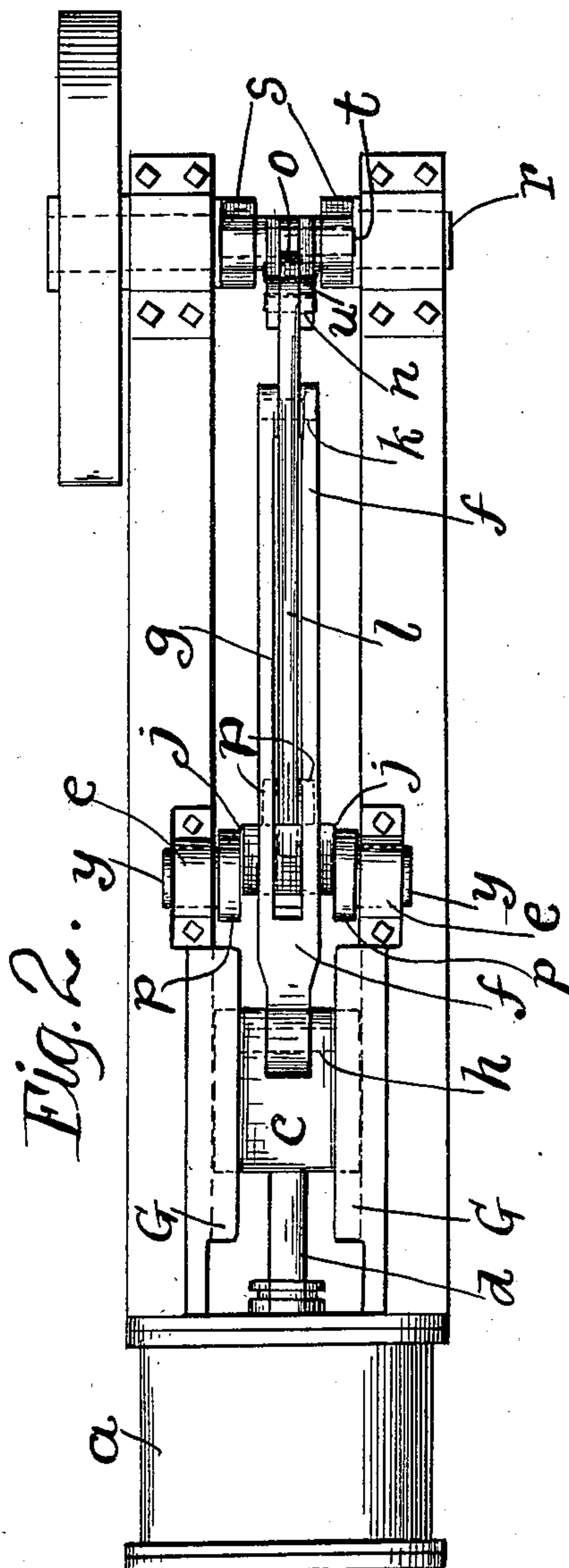
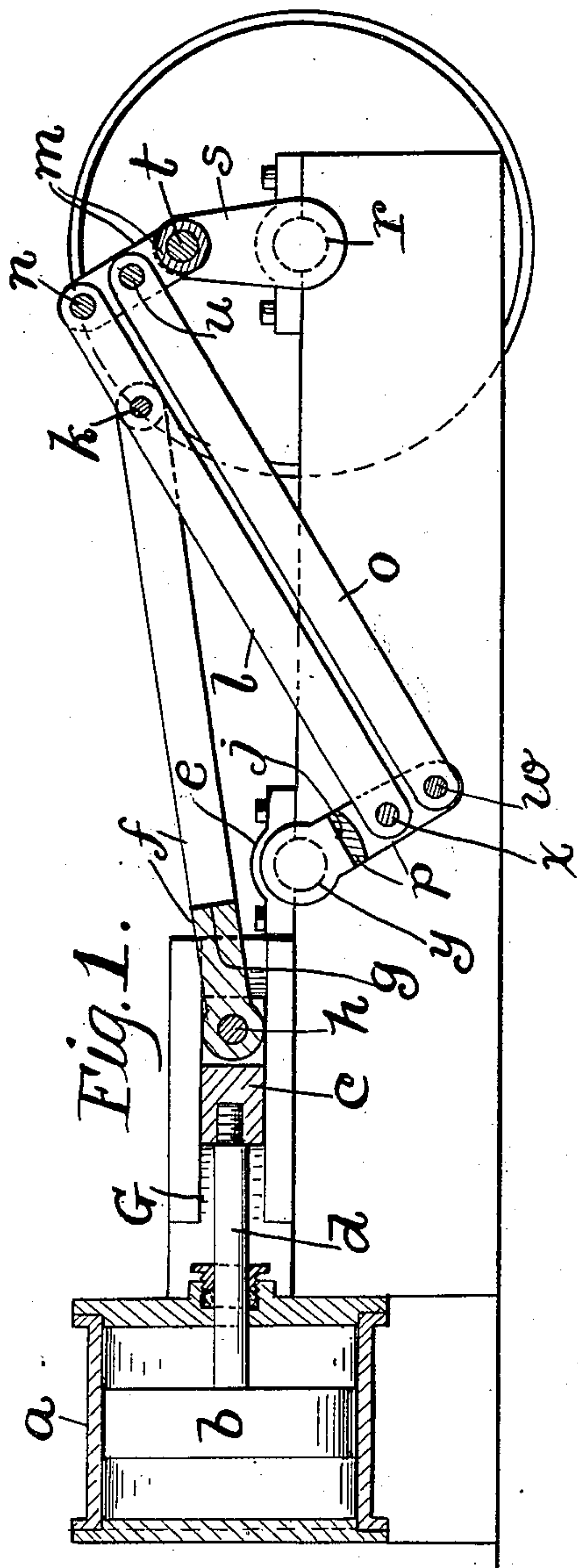
PATENTED JUNE 16, 1903.

I. LEHMAN.

POWER TRANSMITTING MECHANISM.

APPLICATION FILED MAR. 6, 1903.

NO MODEL.



WITNESSES :

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UNITED STATES PATENT OFFICE.

ISADOR LEHMAN, OF CLEVELAND, OHIO.

POWER-TRANSMITTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 730,935, dated June 16, 1903.

Application filed March 6, 1903. Serial No. 146,564. (No model.)

To all whom it may concern:

Be it known that I, ISADOR LEHMAN, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Power-Transmitting Mechanisms; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in power-transmitting mechanism suitable for use in transmitting power from a reciprocating member to a crank-shaft or other movable member or object, and pertains more especially to such an operative connection between the said reciprocating member and the crank of a crank-shaft that the length of the reciprocations of the said reciprocating member and the connected pitman are materially shorter than would be the case if the said pitman were directly connected with the said crank.

With this object in view and to the end of rendering the mechanism simple and durable in construction and reliable in its operation this invention consists in certain peculiarities of construction, arrangement, and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, largely in central longitudinal section, of the operative connection between the piston of the cylinder of an engine and the crank of the engine-shaft. Fig. 2 is a top plan of the same.

Referring to the drawings, *a* designates the cylinder of an engine; *b*, the piston contained within and adapted to operate endwise of the interior chamber of the cylinder; *c*, a cross-head or slide with which the outer end of the piston-rod *d* is provided externally of the cylinder, and *G* slideways or guides engaged by the said slide or reciprocating member. The cylinder *a* and the reciprocating member *c* are arranged in a horizontal plane, and the said reciprocating member during the operation of the piston moves toward and from the cylinder alternately.

A pitman *f* is pivoted horizontally and transversely at one end, as at *h*, to the reciprocating member *c*, and pivoted horizontally and transversely at its other end, as at *k*, to the upper of two parallel rods *l* and *o*, arranged one above the other.

A depending rock-arm *p* is arranged at an elevation below and near the path of the reciprocating member *c* between the said path and the engine-shaft *r*, which is a crank-shaft, whose crank *s* is provided with a rock-arm *m*, which is loosely mounted or journaled upon the wrist *t* of the said crank. The shaft *r* and the path of the reciprocating member *c* are arranged at right angles to each other. The arm *m* projects upwardly from the wrist *t*. The upper rod *l* is pivoted horizontally and transversely, as at *n*, to the upper end of the arm *m*, and the lower rod *o* is pivoted horizontally and transversely, as at *u*, to the arm *m*, centrally between the ends of the said arm. The lower rod *o* is pivoted horizontally and transversely, as at *w*, to the lower end of the rock-arm *p*. The upper rod *l* is pivoted horizontally and transversely, as at *x*, to the arm *p* between the rod *o* and the axis of the said arm. The rock-arm *p* is provided at its upper end with trunnions *y*, which are arranged parallel with the crank-shaft and have bearing in boxes *e*, with which any suitable support—such, for instance, as the stationary framework of the engine—is provided. The upper portion of the said arm *p* is recessed or cut away, as at *j*, to accommodate the location and operation of the pitman *f*, which is slotted, as at *g*, to accommodate the location and operation of the upper rod *l*. The pitman *f* is attached to the said rod *l* near the rock-arm *m*.

By the construction hereinbefore described it is obvious that power is transmitted to the crank *s* from the pitman *f* through the medium of the upper rod *l* and the rock-arm *m*, and the depending rock-arm *p* and the lower rod *o* are instrumental in guiding the upper rod *l* and the rock-arm *m* during the transmission of power to the crank-shaft.

Although I have particularly described and illustrated mechanism for transmitting power from a reciprocating member to a crank-shaft, I would have it understood that my invention embraces, broadly, the use of the said mechanism in transmitting motion from the reciprocating member *c* to any movable

body or object to which power is to be transmitted from the said reciprocating member.

What I claim is—

1. The combination, with a reciprocating member; means for actuating the said reciprocating member; means for guiding the said reciprocating member, and a movable body or object to which motion is to be transmitted from the said reciprocating member, of a rock-arm carried by the aforesaid movable object or body to which motion is to be transmitted, which rock-arm is arranged a suitable distance from the path of the aforesaid reciprocating member; another rock-arm arranged between the first-mentioned rock-arm and the said path; two parallel rods establishing operative connection between the two rock-arms, which rods are arranged at different elevations, respectively, and a pitman operatively attached, at one end, to one of the said rods in suitable proximity to the first-mentioned rock-arm and operatively connected, at its other end, with the aforesaid reciprocating member.

2. The combination, with a reciprocating member; means for actuating the said reciprocating member, means for guiding the said reciprocating member, and the crank of a crank-shaft arranged a suitable distance from the path of the reciprocating member, of an upwardly-projecting rock-arm journaled upon the wrist of the crank; a depending rock-arm arranged a suitable distance from the aforesaid upwardly-projecting rock-arm between the shaft and the aforesaid path; two parallel rods extending between and pivoted horizontally and transversely to the rock-arms, which rods are arranged at different elevations respectively, and a pitman operatively attached to the upper rod near the rock-arm of the crank and operatively connected with the aforesaid reciprocating member.

3. The combination, with a reciprocating member; means for actuating the said reciprocating member; means for guiding the said reciprocating member, and a movable body or object to which motion is to be transmitted from the said reciprocating member, of a rock-arm carried by the aforesaid object or body to which motion is to be transmitted, which rock-arm is arranged a suitable distance from the path of the aforesaid reciprocating member and projects upwardly; a depending rock-arm arranged below and near the said path; two parallel rods extending between and pivoted horizontally and transversely to the rock-arms, which rods are arranged at different elevations respectively, and a pitman operatively attached, at one end, to the upper rod and operatively connected, at the opposite end, to the aforesaid reciprocating member.

4. Power-transmitting mechanism comprising a rock-arm carried by a movable body or object to which motion is to be transmitted, another rock-arm arranged a suitable distance from the first-mentioned rock-arm, two parallel rods extending between and pivoted horizontally and transversely to the rock-arms, and a suitably-actuated pitman operatively connected with one of the said rods, and the arrangement of the parts being such that motion is transmitted to the first-mentioned rock-arm from the pitman through the medium of the rod to which the said pitman is attached, and that the other rock-arm and the other rod cooperate as a guide.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 4th day of March, 1903, at Cleveland, Ohio.

ISADOR LEHMAN.

Witnesses:

C. H. DORER,
TELSA SCHWARTZ.