J. B. Page,

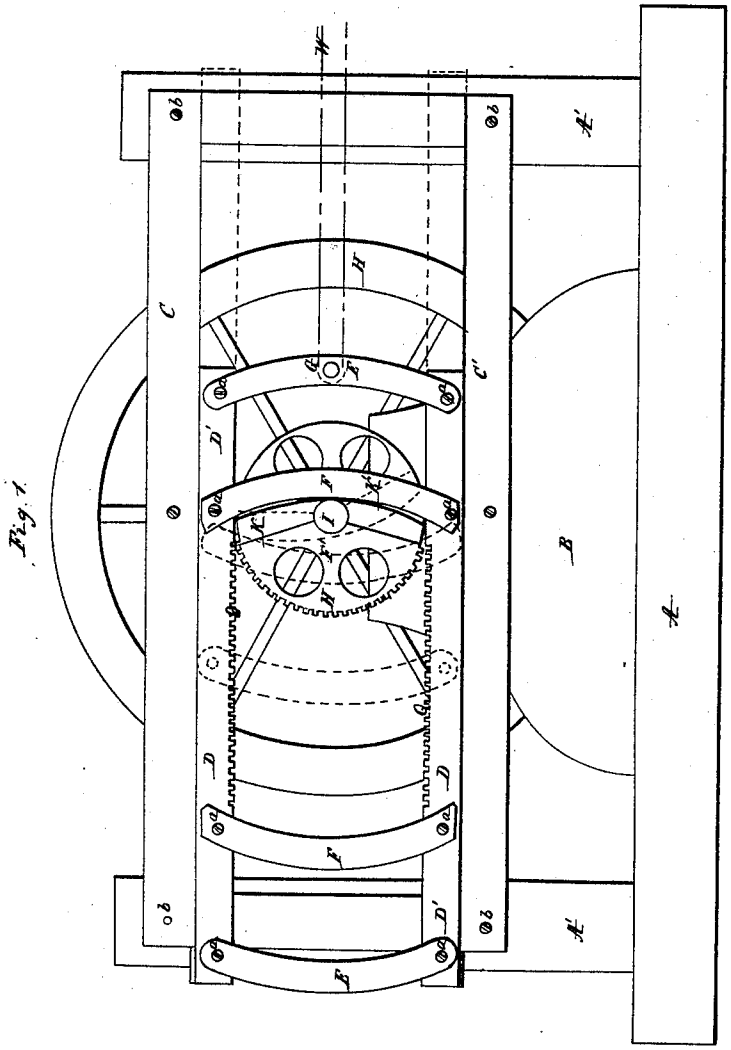
Converting Motion.

No. 57,178. Patented Aug. 14, 1866.

Fig. 2.



Fig. 1.



Witnesses:
Geo. L. Chaffin.
J. L. Meriam

Inventor:
John B. Page

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

JOHN B. PAGE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MACHINES FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.

Specification forming part of Letters Patent No. **57,178**, dated August 14, 1866.

To all whom it may concern:

Be it known that I, JOHN B. PAGE, of Chicago, in the county of Cook and State of Illinois, have made certain new and useful Improvements in Reciprocating Motion for Engines and other purposes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal elevation of my invention. Fig. 2 is a transverse section of the guides and slide-frame.

The object of my invention is to use the rack and pinion in conjunction with a cam or lever, instead of the common crank used for turning the main shaft of machinery.

The advantage gained by the use of this arrangement is a more uniform motion of the machinery and the removal of the principal part of the objection to the use of the crank in consequence of its having two dead-points at each revolution; and, further, a saving of power is secured, together with less wear of machinery.

A represents the common foundation used to support the frame-work for pitmen-shafts, and B the common strong standards which support the main shaft I. A′ shows strong vertical standards, secured to the foundation A in the usual manner. C and C′ show the common style of iron guides, which are secured to the standards A′ by means of the screws or bolts *b*. These guides may be made of two pieces each, as shown in the drawings at Fig. 2, or of a single piece if the groove *o* is properly made so as to guide the slide-frame D′ D′. This guide-frame is made of iron and finished in the usual manner for machinery, so as to work properly in the grooves *o*, Fig. 2.

E F represent the curved supports, which hold the racks D in place by means of the bolts *a*. *a* shows the cogs made in the racks D, which operate on the pinion H′. This pinion is secured to the main shaft I in the usual manner, and has cogs made on about two-fifths of its circumference. The object of having no cogs on the other part of the wheel is to allow the pinion to travel in one direction on the lower rack and catch the upper rack, in order that the pinion may be kept in motion as long as the power is applied to the rack-frame. K shows the iron lever or cam, which is secured to the pinion H′ by any usual means.

The object of the lever K is to give the balance-wheel H such power against the curved parts F as will immediately carry the rack-frame D′ D′ past the dead-points, as shown by the dotted lines K′ and F′. The lever K is made to project in front of the pinion H′, in order that its face may correspond with the faces of the curved supports F.

It will be seen that the convex edge of the lever or cam K is more curved than the concave edge of the support F. This is an important feature in the construction of the part K, and must be attended to in order to prevent a dead-stroke of the part K against the support F.

Operation: The red lines W represent the common connecting-rod, attached to the support F at G in the usual manner. When the power is applied to the rod the slide-frame D D will move back and forth in the grooves *o*, and one of the racks D D will carry the pinion H one-half round when moving in one direction, and the other rack will complete the revolution when moving in an opposite direction, while the cam or lever K alternately operates against the supports F. The power may be applied when the racks occupy any position on the pinion H′.

Having thus fully described my device, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The arrangement and combination of the racks D, supports F, with the lever K and pinion H′, substantially as described and set forth.

J. B. PAGE.

Witnesses:

GEO. L. CHAPIN,

J. L. MERIAM.