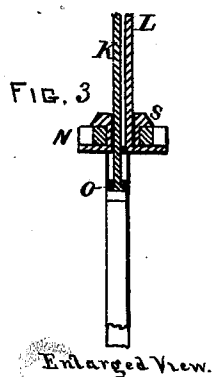
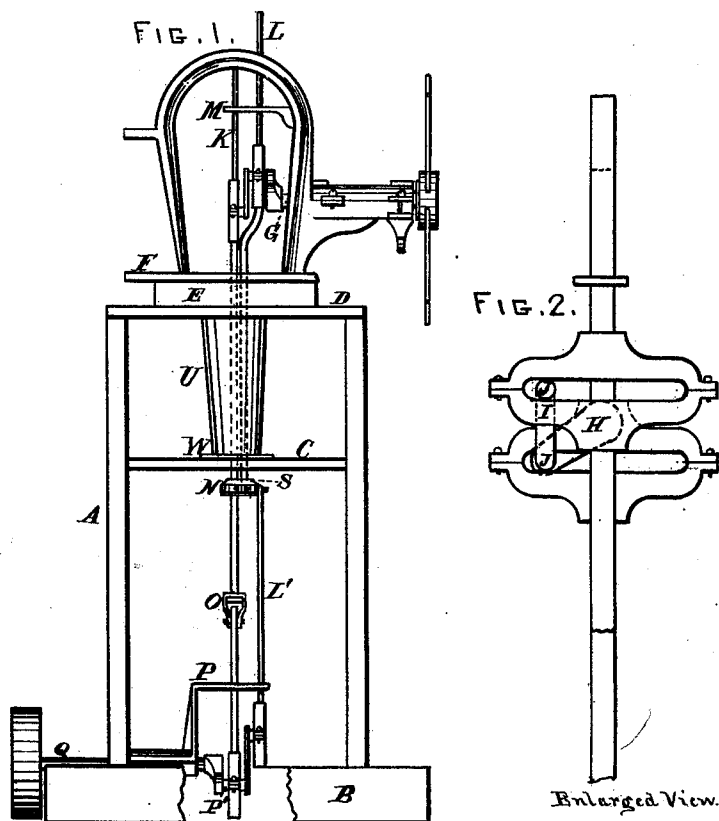


Patented March 28, 1876.



John W. Munsey
C. H. Adix.

Solomon L. Bignall
 Thomas B. Whittelsey and
 Frank W. Goodhue
 By J. L. Chapin. Atty.

UNITED STATES PATENT OFFICE.

SOLOMON L. BIGNALL, THOMAS B. WHITTLESEY, AND FRANK M. GOODHUE,
OF CHICAGO, ILLINOIS.

IMPROVEMENT IN DEVICES FOR TRANSMITTING ROTARY MOTION.

Specification forming part of Letters Patent No. **175,235**, dated March 28, 1876; application filed
January 15, 1876.

To all whom it may concern:

Be it known that we, SOLOMON L. BIGNALL, THOMAS B. WHITTLESEY, and FRANK M. GOODHUE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Transmitting Rotary Motion, of which the following is a specification:

The nature of the present invention consists, first, in two compound cranks, one of which is attached to the horizontal shaft of a windmill, and the other to a lower pulley-shaft. Connecting with these cranks are two pitmen, whose ends are provided with horizontal slots to receive the wrists of said cranks. One pitman is offsetted by a collar, N, and in the collar is a rotating bearing, S, through which the other pitman slides, and the vertical pitman has a swivel-connection, whereby the rotating of the traveling bed of windmill cannot interfere with the transmission of power.

In the drawings, Figure 1 is a side elevation of a windmill to which our devices are applied. Fig. 2 is a face view of the upper ends of the two pitmen, showing the position of the compound crank. Fig. 3 is a vertical section of the pitman-collar and swivel-joint.

A B C D represent the frame of an ordinary windmill, supporting the devices herein-after described. G represents the main shaft of a windmill, which is provided with a compound crank, H I, and wrists J J. These wrists respectively operate in slots formed horizontally in the upper ends of the pitmen K L, and

impart to them a vertical reciprocating motion. The upper parts of these pitmen, extending above the slots, have bearings in a bridge, M, projecting out from the frame of a windmill, and are guided thereby. To the pitman L is affixed a collar, N, and in it is a rotating bearing or box, S, through which the pitman K slides, that part of the pitman L shown at L' being attached to the side of the collar N. The pitman K is swiveled at o, so that its upper part may rotate freely, and its lower section, together with the lower part L', has a bearing in a bridge, P, and their lower ends are provided with the same form of slots as those formed in the upper ends of the pitmen, and in these slots the wrists of a compound crank, P', similar to the crank H I, Fig. 2, operate, so as to drive the shaft Q, to which the crank P' is attached. This arrangement is such that the rotation of the shaft G communicates to shaft Q like movement, notwithstanding the turning of the bed or table F of the windmill.

We claim as new and desire to secure by Letters Patent—

The pitmen K L L', provided with the collar N and rotating sleeve swivel-joint o, with the upper and lower compound cranks, as and for the purpose set forth.

SOLOMON L. BIGNALL.
THOS. B. WHITTLESEY.
FRANK M. GOODHUE.

Witnesses:

G. L. CHAPIN,
BURNETT B. BIGNALL.