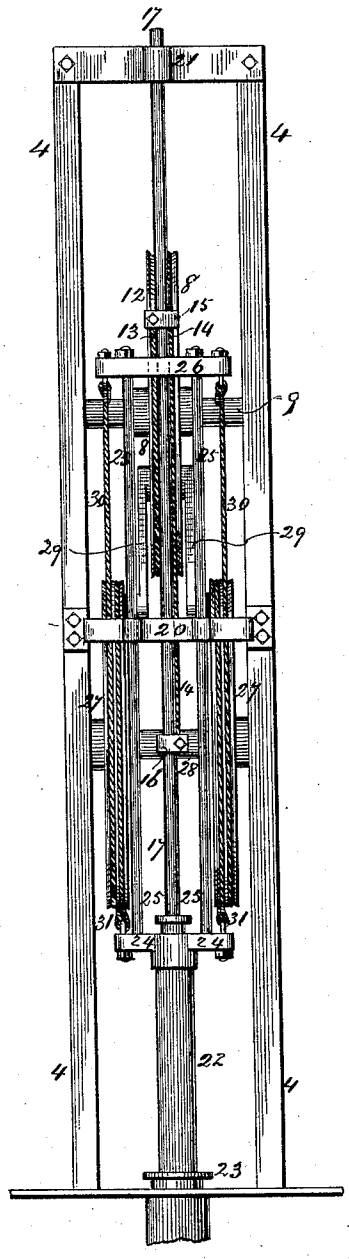
(No Model.) 2 Sheets—Sheet 1.

H. F. COOK.

MECHANICAL MOVEMENT.

No. 431,442. Patented July 1, 1890.

Fig. I.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

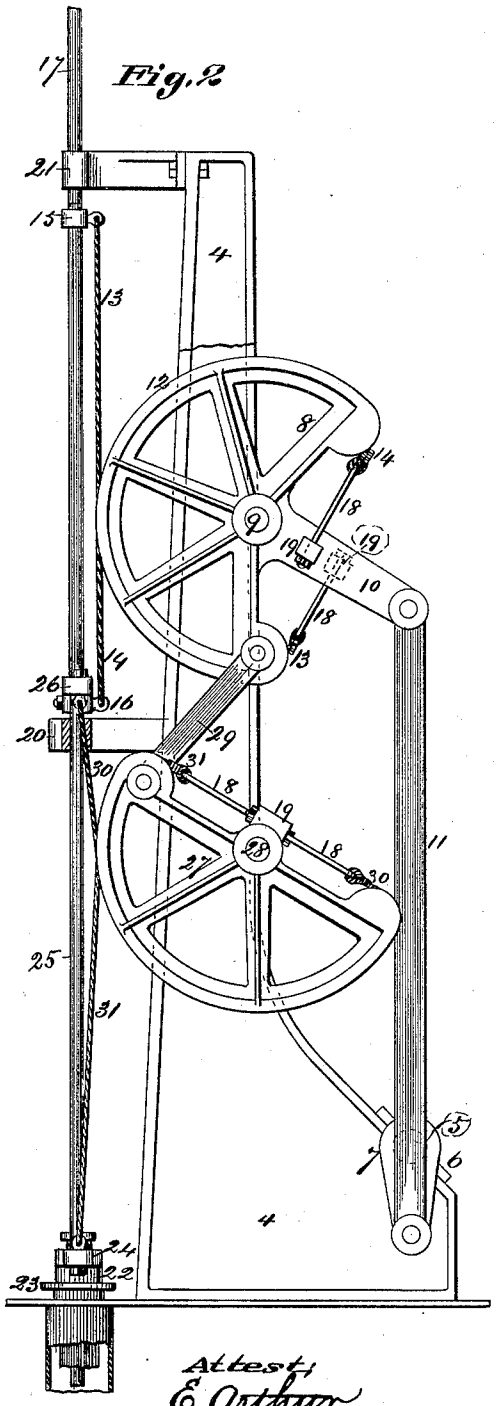
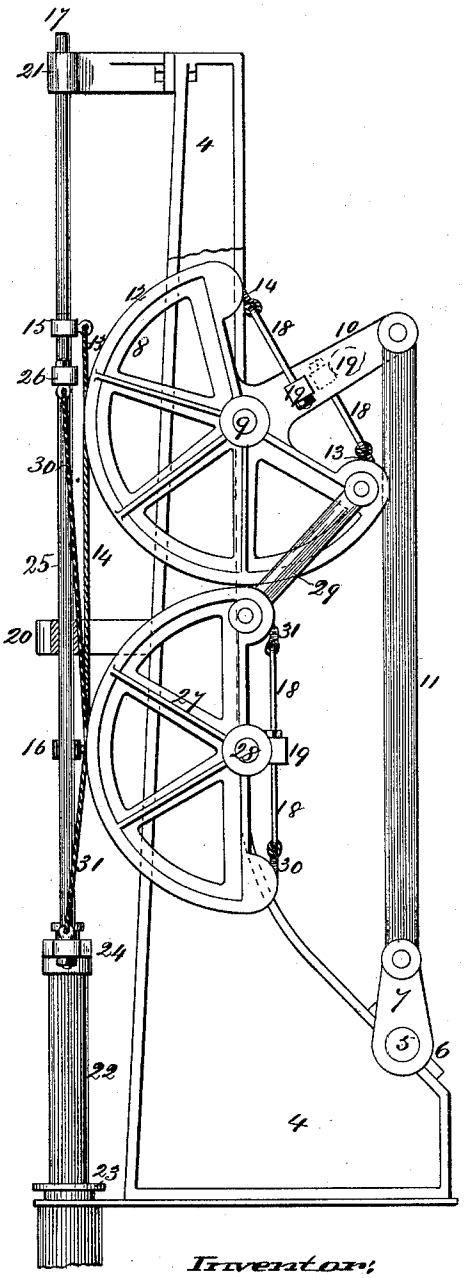


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY F. COOK, OF ST. LOUIS, MISSOURI.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 431,442, dated July 1, 1890.

Application filed March 21, 1890. Serial No. 344,775. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. COOK, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Mechanical Movements, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is a device more especially intended for actuating two pitmen working in reverse directions, and it will be shown and described in this connection, although I do not confine myself to any special application of the device.

The device has two oscillating grooved segments on which are lapped cables whose outer ends are connected to the pitmen. The segments are connected by a link in such manner as to cause their synchronous movement in opposite directions.

Figure 1 is a front elevation. Figs. 2 and 3 are side elevations, part in section, showing the parts in reverse positions.

4 is a fixed frame that may be of any suitable construction. 5 is a main shaft having bearing at 6 on the frame and carrying a crank 7. The shaft is turned by a steam-engine or other motor.

8 is a segment oscillating with a shaft or on an arbor 9, and having an arm 10 connected to the crank 7 by a rod 11. The periphery 12 of the segment is concentric with the shaft or arbor 9, and said periphery has grooves to receive two wire ropes or equivalent connections 13 and 14, whose outer ends are respectively secured by connections 15 and 16 to the pitman 17. The inner ends of the cables are connected by screw-bolts 18 to lugs 19 upon the arm 10. This manner of connection gives means for tightening the cables, if required. The pitman 17 works in guides 20 21 and is guided below by the tubular pitman 22, through which it passes axially. 23 is a stuffing-box in which the pitman 22 works.

24 are lugs at the upper end of the pitman 22, from which extend rods 25, passing through the fixed guide-bar 20, and fixed at the upper end in a cross-head 26, which works on the pitman 17 that passes through it.

27 27 are two segments similar to the segment 8 and oscillating on a rock-shaft or arbor 28. These segments are connected to the segment 8 by a link 29, so that the oscillation of the segment 8 causes that of the segments 27, but in an opposite direction—that is to say, when the segment 8 is raising the pitman 17 the segments 27 are depressing the pitman 22, and vice versa—the connection between the segments 27 and the pitman 22 being by ropes or equivalent connections 30 31, which are secured to the segments in a similar manner to that already described in connection with the ropes 13 14—namely, by screw-bolts 18 and lug or lugs 19. The outer ends of the ropes 30 are attached to the cross-head 26, while the outer ends of the ropes 31 are attached to the lugs 24.

In place of the pitmen 17 and 22 may be placed any objects to which rectilinear reciprocation is to be imparted without essentially changing the principle of the invention.

One of the segments 27 27 may be dispensed with without changing the principle of the invention. Two, however, are preferred, as the parts will be balanced.

I claim herein as new and of my invention—

1. The combination of the two pitmen 17 and 22, oscillating segments 8 and 27, ropes 13 14 30 31 lapping upon the peripheries of the segments and attached at the outer ends to the pitmen, and means for oscillating the segments, substantially as and for the purpose set forth.

2. The combination of the two pitmen 17 and 22, oscillating segments 8 and 27, connected by link 29, and ropes 13 14 30 31, all constructed, connected, and adapted to operate substantially as and for the purpose set forth.

3. The combination, with two pitmen 17 and 22, of the oscillating segment 8, connected to one pitman by ropes 13, 14, and the oscillating segments 27, connected to the other pitman by the ropes 30 31, and link 29, connecting the segments, all constructed and adapted to operate substantially as set forth.

4. The combination of pitman 17, segment 8, ropes 13 14, lapped on the periphery of the segment and crossed past each other and

attached to the pitman, the pitman 22, having rods 25 and cross-head 26, segments 27, with ropes 30 lapped on the segments and attached to the cross-head 26, and ropes 31 lapped on the segments and attached to the lugs 24, link 29 connecting the segments, and means for giving oscillatory movement to the segments, substantially as and for the purpose set forth.

HENRY F. COOK.

In presence of—
SAML. KNIGHT,
E. S. KNIGHT.