No. 749,590. PATENTED JAN. 12, 1904.

S. C. SMITH.

RAISING AND DROPPING MECHANISM.

APPLICATION FILED DEC. 11, 1902.

NO MODEL.

Fig. 1.

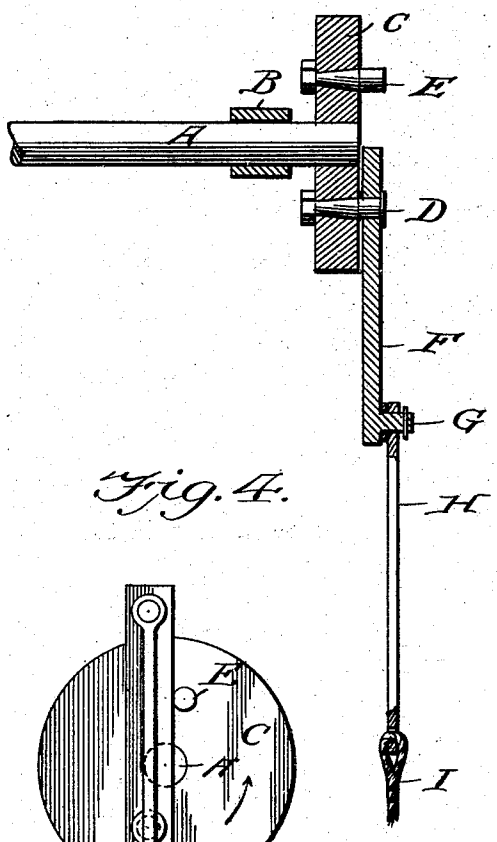


Fig. 2.

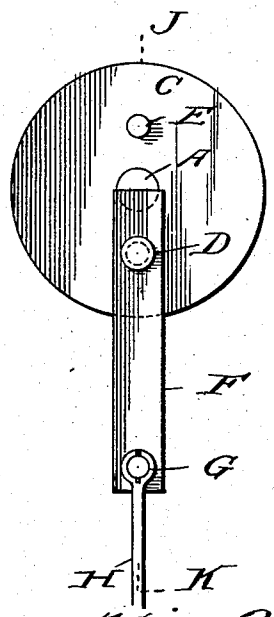
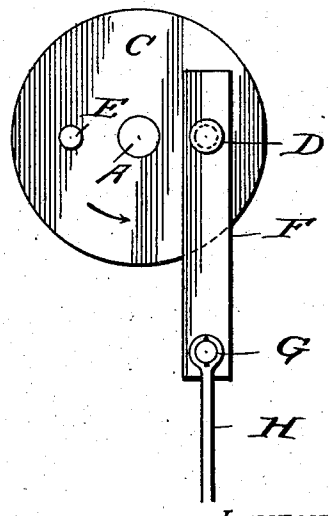


Fig. 4.

Fig. 3.



WITNESSES:

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

No. 749,590. Patented January 12, 1904.

UNITED STATES PATENT OFFICE.

SOLON C. SMITH, OF JACKSON, OHIO.

RAISING AND DROPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 749,590, dated January 12, 1904.

Application filed December 11, 1902. Serial No. 134,877. (No model.)

To all whom it may concern:

Be it known that I, SOLON C. SMITH, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Ohio, have invented certain new and useful Improvements in Raising and Dropping Mechanism, of which the following is a specification.

My invention relates to a machine for continuously raising and dropping objects with a free and unobstructed fall in which a rotating axle bears on its end a head or circular disk, which carries on its outer face two projecting pins stationed at convenient distances from its center, on one of which is placed a loose crank and the other of which projects just sufficiently to prevent the said crank from turning entirely around, but not sufficient to catch upon the line or link for pulling or bar for pushing, which may be fastened to the wrist-pin of said crank; and the objects of my invention are, first, to allow the object to descend or return to its original position as rapidly as possible by the action of gravity or a spring, as the case may be, without losing hold or connection therewith; second, to begin the upward lift with a slow and powerful motion followed with a quicker upward motion; third, to apply the power continuously to the lifting of the weight during the entire time not occupied by the falling of the same; fourth, to provide the proper facilities for arresting the fall of the object, provided it exceeds a given distance; fifth, to mitigate the violence of the sudden arrest of motion by the vibration imparted to the suspending rope or line. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the entire machine; Fig. 2, an end view of the same, the dotted line J K thereon indicating the plane in which the section was taken for Fig. 1; Fig. 3, an end view after the lift has begun; Fig. 4, an end view as it appears when at its highest point and ready to drop.

Similar letters refer to similar parts throughout the several views.

The axle A rotates in the boxing B and is operated by power applied in any of the usual methods, preferably through a spur-gear wheel keyed thereon and meshing in a pinion-wheel keyed on another axle, one end of which bears a fly-wheel and the other a pulley of suitable size and shape to be run by a belt. Said gearing being a matter of common knowledge is not shown in the drawings and forms no part of my present invention.

C is a flat head, preferably circular or disk shaped, keyed securely to the end of said axle A, which comes flush only with the outer surface of said head C. The head C is of sufficient thickness to give the desired strength and the proper support for the pins E and D and of ample diameter to allow the said pins to be placed a proper distance from the center of the head C. A further margin on the head C is desirable, as it assists in keeping the crank F in the proper plane when the strain comes on the wrist-pin G and during the last half of the revolution of the head C. The pin D passes through the crank F and the head C and is provided with a head to retain the crank F and a nut to tighten against the inner surface of the head C. I prefer the form of pin shown in sectional view in Fig. 1, it being slightly conical throughout that portion which rests within the head C to prevent its binding the crank F when the nut is screwed tight on the said pin D. The hole also in the head C is then made conical. The pin E also passes through the head C and is also secured by a nut on the inner surface of the head C and may also be made conical throughout a portion, as in the case of the pin D, but must project from the outer face of the head C just sufficiently to catch securely the crank F and not so much as to interfere with the link H or rope I, as the case may be, which is fastened to the wrist-pin G.

A lug cast solid with the head C may be substituted for the pin E; but I prefer to use the pins as set forth and bore more than one pair of holes in the head C and more than one hole in the crank F or furnish more than one crank of different lengths, so as to provide for varying adjustments. The pins may also be provided with threads and screwed directly into the head. The pin E need not be diametrically opposite the pin D. The pin D may be made solid with the crank F

and turn in the head C. The rope I may be fastened direct to the wrist-pin G; but I prefer to interpose a link H somewhat longer than the crank F. The rope I may be fastened direct to the object to be raised, or it may pass over a pulley and thence to the object, or may be fastened to a lever which in turn bears the object, or may itself bear on its other end a pulley through which the lifting-rope passes or otherwise, as convenience dictates. Instead of the rope I a bar may be used and the machine made to push up a load instead of pull the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination with a revoluble head; of a crank loosely connected thereto at a point removed from the center of the head, and a hoisting-pin extending from the head and adapted to contact with and raise the crank during the rotation of the head.

2. In a machine of the character described, the combination with a revoluble head; of pins extending laterally from the head at points removed from the center thereof, and a crank loosely mounted on one of the pins and adapted to be contacted and raised by the other pin during the rotation of the head.

3. In a machine of the character described, the combination with a revoluble head; of a crank pivotally mounted upon the head at a point removed from the center thereof, and means whereby said crank is supported and raised during one-half a revolution of the head.

4. In a machine of the character described, the combination with a revoluble shaft having a head thereon; of pins extending laterally from the head at points removed from the center thereof, a crank loosely mounted upon one of the pins, and a link pivoted to the crank, the other pin upon the head being adapted to support and raise the crank during part of the revolution of the head and permit it to freely return to normal position during the balance of the revolution of the head.

In testimony whereof I have subscribed my name to this specification in the presence of two subscribing witnesses.

SOLON C. SMITH.

Witnesses:
JAMES TRIPP,
EVAN E. EUBANKS.