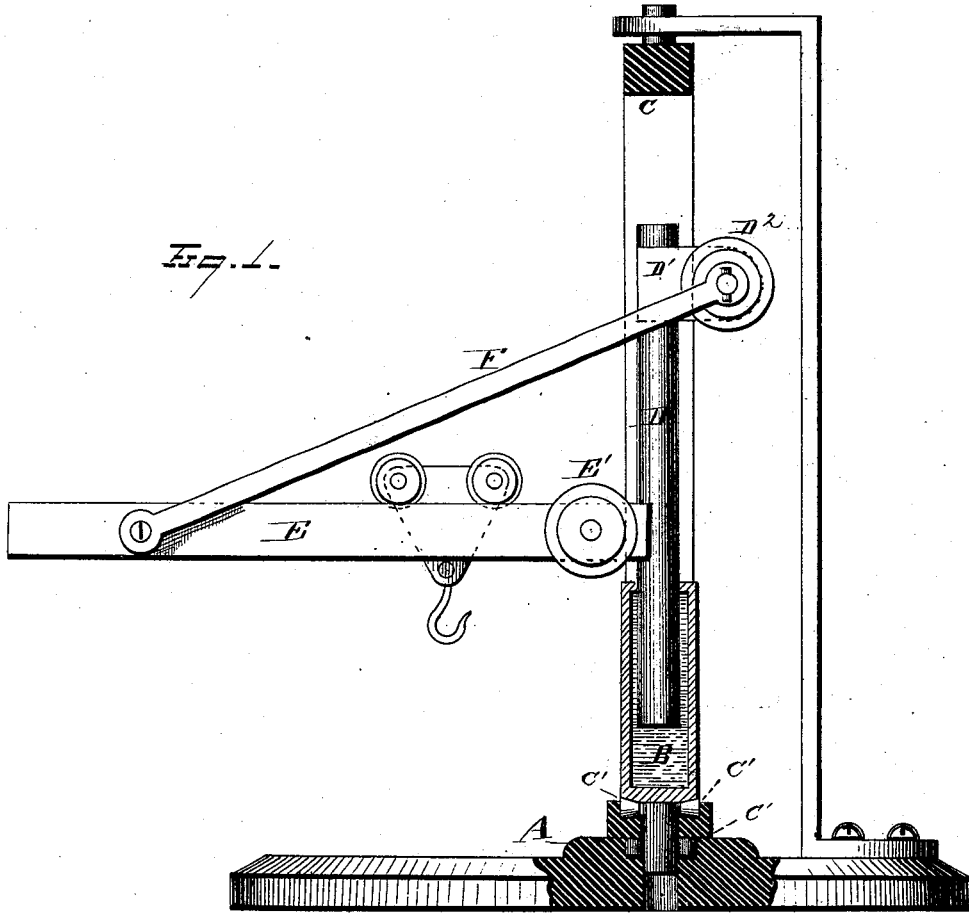


S. T. WELLMAN.
Hydraulic Crane.

No. 208,051.

Patented Sept. 17, 1878.



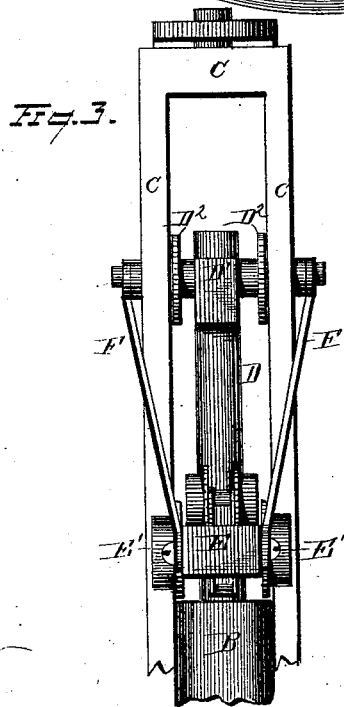
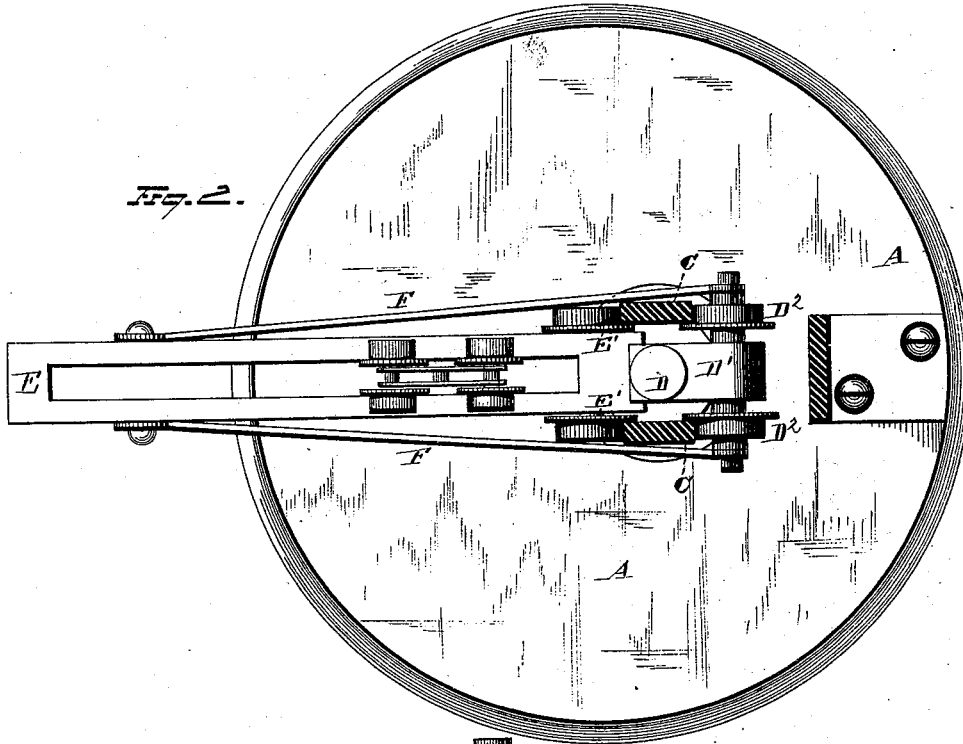
WITNESSES
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Samuel T. Wellman
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UNITED STATES PATENT OFFICE.

SAMUEL T. WELLMAN, OF CLEVELAND, OHIO.

IMPROVEMENT IN HYDRAULIC CRANES.

Specification forming part of Letters Patent No. 208,051, dated September 17, 1878; application filed June 10, 1878.

To all whom it may concern:

Be it known that I, SAMUEL T. WELLMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hydraulic Cranes; and I do 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 it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to hydraulic cranes; and it consists in a frame constituted in part of the standard or upright portion of the crane, adapted to turn upon pivotal points, and in a water-pressure cylinder the axis of which is in a line with said pivotal points; and in the combination with this cylinder of a plunger-rod extending upward, to which is attached the arm of the crane, which is thereby raised and lowered by the rise or fall of the plunger; also, in anti-friction rolls, upon which rests and turns the standard or upright portion of the crane.

In the drawings, Figure 1 is a view, part in section and part in side elevation, of my device. Fig. 2 is a plan view of the same. Fig. 3 is a front elevation.

A is a suitable bed or foundation, upon which rests and turns the superstructure of the frame. This bed is suitably formed, and adapted to receive and discharge water from a pump, hydrant, or other source.

B is the water-cylinder, placed upright, with its axis in line with the upright portion C of the crane.

The upright portion C may be made in any suitable manner or of any material desired. It should be adapted to permit of the cylinder B being placed substantially as specified, also to permit the plunger D to move up and down in the axis of said upright portion.

The plunger D is made to extend up beyond its cylinder, and to its upper portion is rigidly attached the cross-head D¹, which is preferably provided with anti-friction rollers D², which are made to bear and roll against the back of the upright portion.

Below and opposite to the cross-head D¹ is attached to the plunger D the arm or horizontal portion E. At this point anti-friction roll-

ers E' may be provided, bearing against the front face of the upright portion C.

A brace, F, extends between the axis of the rollers D² and the forward portion of the arms E.

It will be observed that the plunger D, cross-head and rollers D¹ D², arm E, and brace F constitute substantially one structure, and therefore would move up and down together with the rise and fall of the plunger D. It is therefore evident that as water is forced beneath the plunger, causing it to rise, it will also operate to lift the arm E and any weight that may be suspended therefrom. While thus lifted the arm may be horizontally swung upon the pivots of the upright portion C. This upright portion may be made to rest upon anti-friction rollers C', or in any manner constructed to move with the greatest ease and facility.

When the arm is swung to such a position that its weight is over the proper place for its deposit, water will be permitted to escape beneath the plunger, thereby allowing it to settle down, thus depositing the burden carried by the arm E.

I do not limit myself in any degree as to the manner in which the upright portion C shall be held in its proper vertical position. This may be accomplished in a variety of ways, and constitutes no part of my invention.

By locating the hydraulic cylinder upon the pivotal bearing of the swinging upright frame, and in vertical line therewith, the pressure on the cylinder will be distributed centrally on the pivotal bearing, and hence obviate any tendency to uneven wear and strain which results when the cylinder is located on the side of the swinging upright and out of line with the center of the pivotal bearing.

What I claim is—

1. The combination, with a swinging upright frame, of a hydraulic cylinder supported above the pivotal bearing of the upright frame, the axes of said cylinder and pivotal bearing being located and arranged in the same vertical line, substantially as and for the purpose set forth.

2. The combination, with a swinging upright frame and a hydraulic cylinder supported above the pivotal bearing of the upright frame, the axes of said cylinder and pivotal bearing

being located in the same vertical line, of a movable plunger having the lifting-arm of the crane attached thereto, substantially as and for the purpose set forth.

3. The combination of the cylinder B, plunger D, anti-friction rollers D² E', and horizontal arm E, substantially as described and shown.

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

SAMUEL T. WELLMAN.

Witnesses:

JNO. CROWELL, Jr.,
F. TOUMEY.