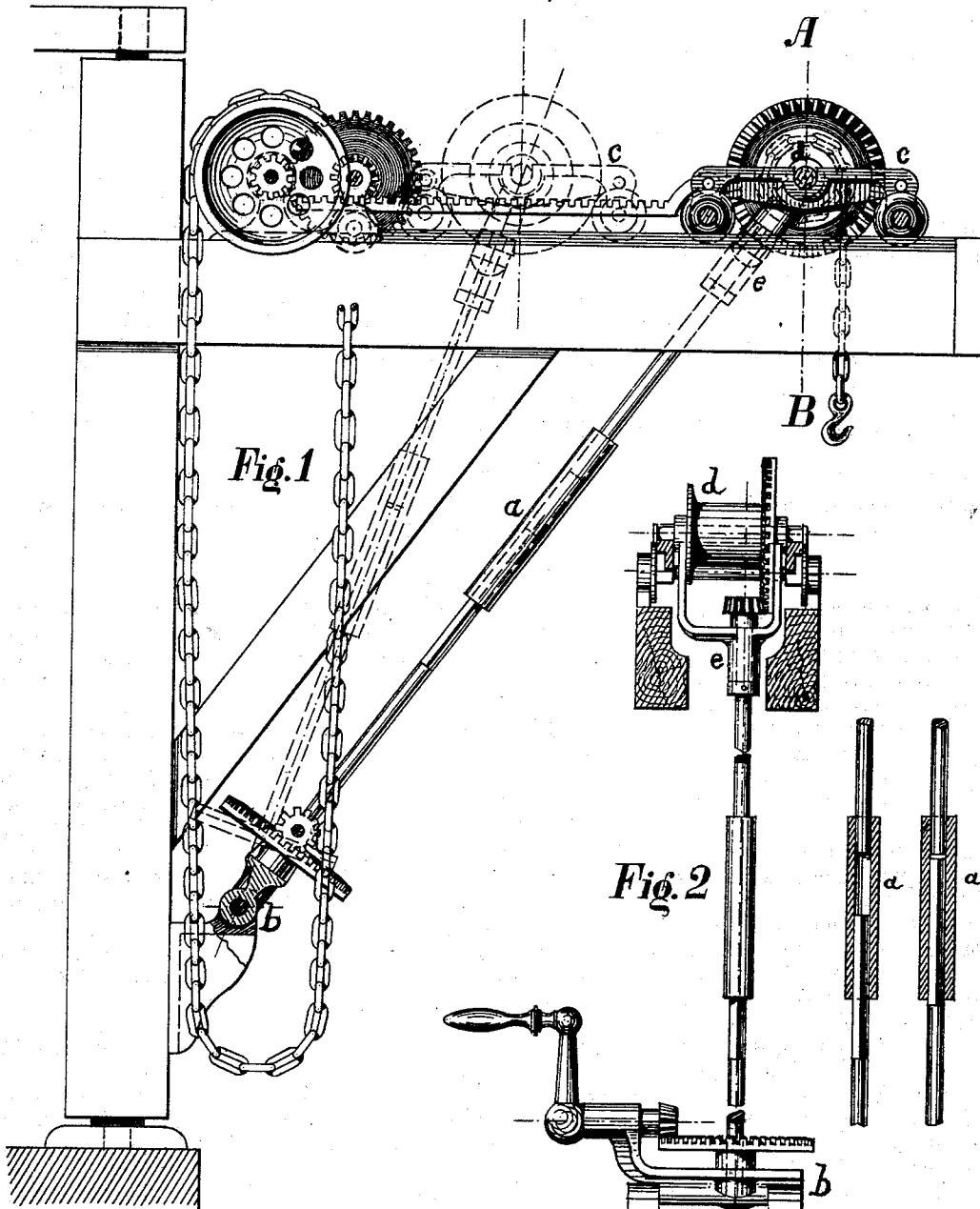


J. L. LEWIS.
Cranes.
No. 156,028.

Patented Oct. 20, 1874.



Attest
E. G. Krihan.
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UNITED STATES PATENT OFFICE.

JOHN L. LEWIS, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CRANES.

Specification forming part of Letters Patent No. **156,028**, dated October 20, 1874; application filed September 15, 1874.

To all whom it may concern:

Be it known that I, J. L. LEWIS, of the city of Pittsburg, county of Allegheny, State of Pennsylvania, have invented a new and useful Improvement in Hoisting-Cranes; and I do hereby declare the following to be a full, clear, and exact description of same, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a side elevation of the crane, with my improvement shown. Fig. 2 is a sectional front view.

Cranes, as commonly constructed, have a rope or chain extending from a drum or spool below, upon which it is coiled, to sheaves or pulleys above; thence, in one or more parts or doubles, to a block or sheaves immediately below, to which is attached a hook for securing the weight to be raised. It will be apparent that, when any great weight is to be suspended to a crane so arranged, much difficulty is found in moving the carriage C above and weight below to the extreme or outer end of same, owing to the rope or chain from the drum below pulling in an opposite direction; while a weight raised directly under the extreme point or outer end of the crane has to be secured from being drawn in toward the base of the crane by the same rope or chain.

To enable others skilled in the art to understand my improvement, I will describe its construction.

To obviate the difficulties mentioned, as well as to dispense with so great a length of rope or chain, and the usual block or tackle as well, I substitute the extension-shaft *a*, Fig. 1. This shaft, driven by gearing below, extends to the drum *d* above, where, by the use of gearing again, which compounds the power, the rope or chain is coiled, which raises the weight. To allow the extension-shaft *a* to adapt itself to any angle to the dotted line A B, by moving in or out the carriage C, I employ the joint *b* at the lower end of the extension-shaft, and also the bracket or joint *e* at upper end of same, as shown more fully in Fig. 2.

This mode of constructing cranes is less complicated than when made with block and tackle, and is better adapted to being put up for shipment to great distances.

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

The extension-shaft *a*, in combination with the joint *b* and the joint or bracket E, or their equivalents, as and for the purpose described and shown.

In testimony whereof I, the said J. L. LEWIS, have hereunto set my hand.

JOHN L. LEWIS.

Witnesses:

E. G. KREHAN,
HARRY MOORE.