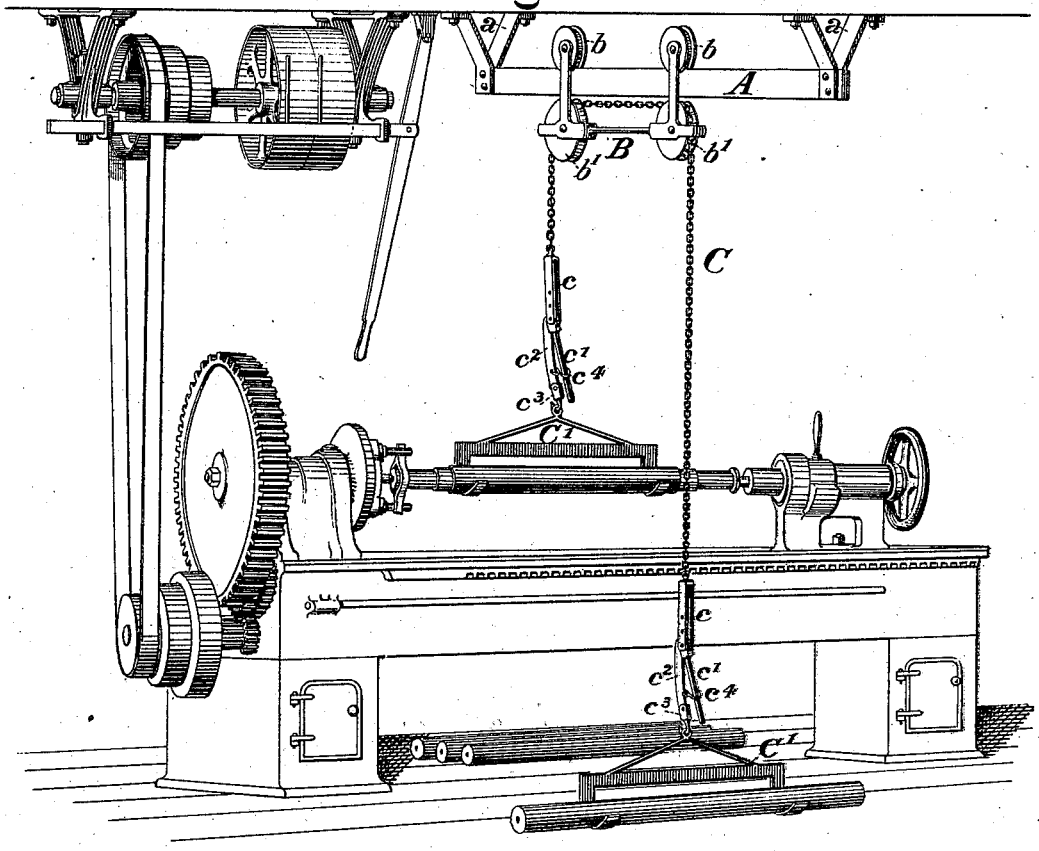
N. THOMAS.

HOISTING APPARATUS FOR MACHINE TOOLS.

No. 174,455. Patented March 7, 1876.

Fig. 1



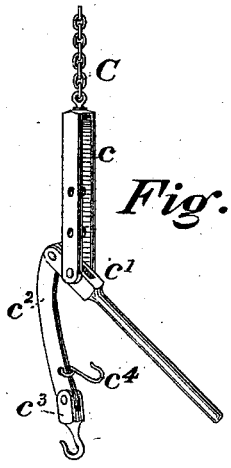


Fig. 2

Witnesses:

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UNITED STATES PATENT OFFICE.

NICHOLAS THOMAS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO J. SNOWDEN BELL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HOISTING APPARATUS FOR MACHINE-TOOLS.

Specification forming part of Letters Patent No. **174,455**, dated March 7, 1876; application filed September 20, 1875.

To all whom it may concern:

Be it known that I, NICHOLAS THOMAS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hoists for Machine-Tools, of which the following is a specification:

The object of my invention is to provide a simple and efficient device for economizing time and labor in placing heavy pieces of metal in position to be operated upon by a lathe, planer, or other machine-tool, and for conveniently and expeditiously removing them therefrom when finished; to which ends my improvements consist in combining a horizontal track-rail located above the machine-tool, a carriage traveling on said track-rail, and a cord or chain passing over pulleys on said carriage, and having suspending cradles or hooks upon its ends for the material to be moved, as hereinafter more fully set forth.

In the operation of machine-tools upon heavy metal-work, it is necessary either to provide some species of hoisting apparatus for raising the work from the floor to its position upon the tool, and lowering it when finished, or to employ manual labor for the purpose. In the former instance the employment of suitable gearing economizes the power required, at a corresponding expenditure of time, while in the second the attendant must be assisted by other persons whenever a piece of work is to be moved. Moreover, it is often the case, more especially in railroad-shops, that a tool is employed continuously upon standard work, and operates upon castings or forgings which are of substantially uniform dimensions and weight, as, for example, car wheels or axles. The average weight of a car-wheel may be assumed to be five hundred pounds, and of an axle, three hundred pounds, being in each case too great to be handled by a single operative. My invention is designed for application to tools where the pieces of material to be worked are of substantially uniform weight—as, for example, axle-lathes, car-wheel borers, &c.—the principle of its operation being to utilize the weight of the piece which is being taken off the tool and lowered to the floor, to elevate another piece from the floor to the tool.

In the accompanying drawings, Figure 1 is a view in perspective of my invention as applied to an axle-lathe, and Fig. 2 a similar view of the device for tightening the chain.

To carry out the object of my invention I provide a horizontal track-rail, A, arranged at a convenient distance above the lathe or other tool, transversely thereto, and preferably supported by brackets *a*, secured to the rafters of the building. The rail A may be made of a single rectangular bar of metal, and should be of sufficient strength to support the weight of the accessories, presently to be described, plus two of the pieces of metal to be operated upon by the tool. A traveling carriage, B, is supported upon the rail A by rollers *b*, journaled at its top, and is provided with two sheaves or chain-pulleys, *b′*, which turn freely in bearings in the lower part of the carriage, sufficiently below the rail to be perfectly clear thereof. The distance between the centers of the pulleys must be such that when one pulley is directly above the center of the machine-tool, a vertical line drawn through the center of the other will fall a sufficient distance outside the base or bed plate thereof to allow of the attachment and removal of the pieces of material to be moved, and to permit the same to pass entirely clear of the tool on each side thereof. A cord or chain, C, passes over the pulleys *b′*, and is connected at its ends with cradles C′, of suitable shape and strength to support the axle. The form of the cradles will, of course, vary with that of the material to be moved, and in some cases a series of swinging hooks would be employed. A small amount of slackness must be left in the chain when the cradles are in the position shown in Fig. 1, and this slackness is taken up when required by tighteners interposed between the chain and cradles, which I preferably construct in the following manner: A clevis, *c*, is secured to each end of the chain C, and to the lower end of each clevis a lever, c^1, is pivoted. The short arm of each lever is pivoted to a link, c^2, having a hook, c^3, upon its opposite end, by which it is connected with one of the cradles C′. By a downward movement of the lever c^1 the chain

can be made perfectly tight, and the lever is held in position, when turned down, by a hook, c^4, on the link c^2.

In the operation of my invention, as hereinbefore described, the weight of the axle in the lathe substantially counterbalances that of the axle which is to be raised from the floor, and upon tightening the chain the operator can readily move the carriage and the suspended axles along the track-rail, and by the lowering of the finished axle raise the rough one into position.

It is obvious that my invention may be modified for use upon different machine-tools without departing from the spirit of my invention, and I do not, therefore, confine myself to the precise form and location of parts herein described and shown.

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

1. The combination, with a machine-tool, of a hoist or traveling conveyer, by which the rough piece of material to be placed in the machine-tool is elevated thereto coincidently with the removal of the finished piece therefrom, and the rough and finished pieces are substantially counterbalanced, as set forth.

2. The combination of a horizontal track-rail, a carriage traveling on said track-rail, and a cord or chain passing over sheaves on the carriage, and provided with hooks or cradles on its ends for supporting the material to be moved, substantially as set forth.

3. The combination, with the suspending-chain and cradles, of the tightening levers and links, substantially as set forth.

NICHOLAS THOMAS.

Witnesses:
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