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HANDLING AND TRANSPORTING DEVICE.

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1,319,872. Patented Oct. 28, 1919.

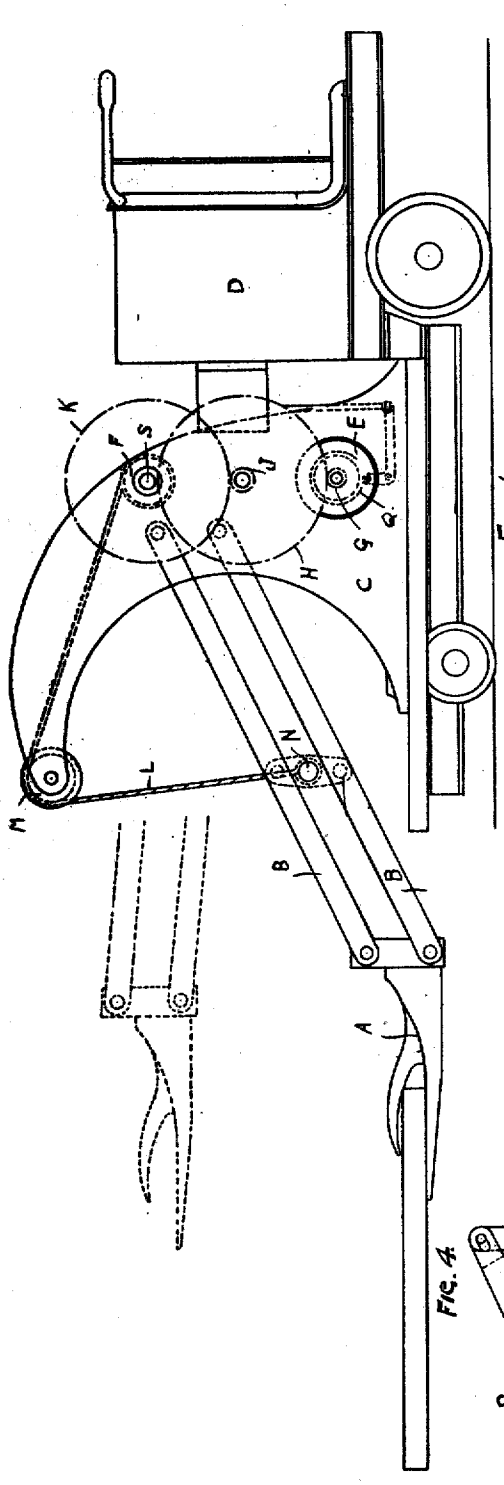


FIG. 1.

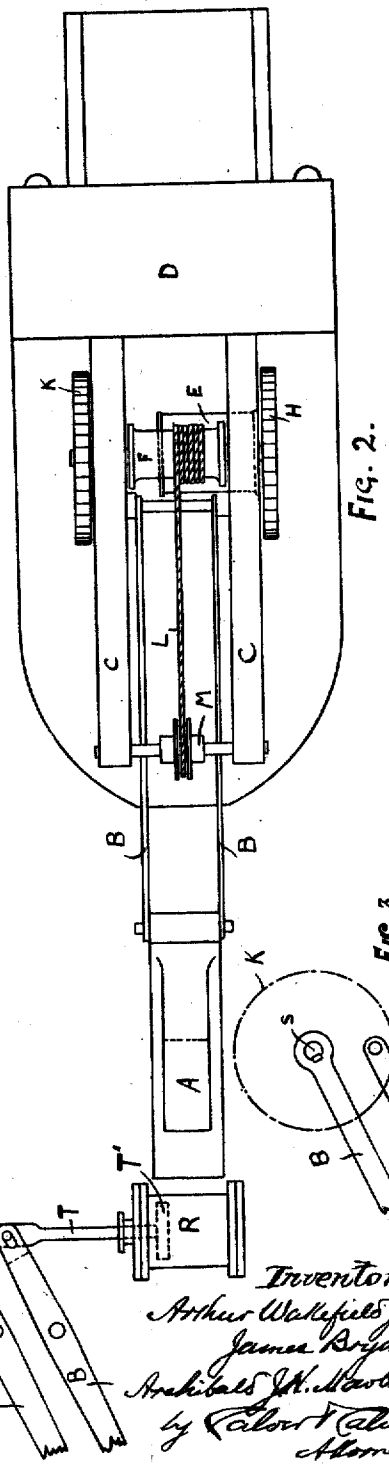


FIG. 2.

FIG. 3.

FIG. 4.

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ARTHUR W. JONES, OF STEPPS, JAMES BRYDEN, OF GARTCOSH, AND ARCHIBALD J. H. MOWBRAY, OF STIRLING, SCOTLAND.

HANDLING AND TRANSPORTING DEVICE.

1,319,872. Specification of Letters Patent. Patented Oct. 28, 1919.

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To all whom it may concern:

Be it known that we, ARTHUR WAKEFIELD JONES, JAMES BRYDEN, and ARCHIBALD JOHN HOLME MOWBRAY, subjects of the King of the United Kingdom of Great Britain and Ireland, and residing at Stepps, Lanarkshire, Scotland, Gartcosh, Lanarkshire, Scotland, and Stirling, Stirlingshire, Scotland, respectively, have invented a certain new and useful Improvement in Handling and Transporting Devices, of which the following is a specification.

This invention consists in a locomotive truck, *e. g.*, an electric-battery truck provided with an attachment by means of which material may not only be transported from place to place but may also be lifted, lowered and supported to and at any point within predetermined limits while remaining parallel to its supporting surface. Although primarily intended for the handling and conveyance of steel slabs from the shears to the heating chamber of a furnace, and the subsequent withdrawal of the pieces from the furnace and transportation to the rolls of a sheet rolling mill, yet it may also be applicable to the handling of a variety of other materials by the substitution of suitable forms of grip.

According to one embodiment there is erected upon the platform of an electric battery truck a framework which serves to support a rope- or chain-barrel driven through suitable toothed or friction gearing by an electric or other motor. To suitable points on the same framework are attached parallel levers, the free ends of which are connected to a detachable grip or jaw. Around the barrel is coiled a rope or chain attached to the parallel levers at points intermediate the grip or jaw and the points of attachment to the framework. A brake is provided for sustaining the load when the motor is at rest. Assuming that it is desired to charge a furnace from a pile of steel pieces cut to the requisite size, the truck is driven to the pile of steel, and the operator, raising or lowering the grip or jaw to a height suitable for engaging the piece to be handled continues to move the truck forward until the grip is in engagement with the steel piece, when he raises it from the pile and conveys it to the furnace into which it is placed as desired on reversal of the series of operations. It will be seen that the load is always carried parallel to its original position, *i. e.*, receives translatory movement only whether raised to its full extent or lowered to ground level. When a furnace is being discharged the truck is maneuvered so that the grip enters the heating chamber, thereafter engaging and lifting the steel piece as before, whereupon the truck is withdrawn from the furnace with its load and it conveys the load to the rolls or the like to the foreplate of which it is lowered by means of the auxiliary motor.

Referring to the drawings Figure 1 is an elevation and Fig. 2 is a plan showing the complete mechanism. Fig. 3 is a diagrammatic representation of a modified construction and Fig. 4 is a detail view of an alternative arrangement for operating the parallel levers.

As shown the apparatus comprises an electric-battery truck D whereon is mounted a framework C supporting parallel levers B, B provided with a detachable grip or jaw A. Carried on the framework C, is an electric or other rotary motor E arranged to drive a rope- or chain-drum F through the intermediary of gearing G, H, J, K. Embracing the drum F is a rope or chain L passing over a pulley M and attached at one end to a crosshead N fitted to the levers B, B at the end remote from the drum F. With the grip A at a convenient height the truck D may be maneuvered until the grip A engages the pieces to be handled whereupon the motor E is rotated clockwise and the levers B, B carrying the grip and its load are raised by the rope or chain L coiling upon the drum F, the load being constrained to perform translatory movement in a position such as is shown by the dotted lines. A brake Q is provided for the purpose of sustaining the load automatically or otherwise, when the motor E is stopped,

Although for simplicity the arrangement of gearing shown is preferred, it is to be understood that the invention is not limited to this construction and that the drum F may be driven from the motor E by spur, worm, friction or bevel gearing. As shown in Fig. 3, the rope or chain for lifting may be dispensed with and an end of one of the levers B, B may be attached directly to the driven shaft S, the free lever B, being pivoted on the framework to act as a guide insuring parallel movement.

As shown in Fig. 4, the movement of the levers B, B is controlled by a steam, a hydraulic or a compressed air cylinder R, such cylinder R being mounted upon the truck and having a piston T′ with a rod T directly connected to extensions of the levers B, B and so arranged that the movement of the piston rod T will be accompanied by corresponding raising or lowering movements of the load supported by the remote ends of the levers.

The truck being trackless is capable of being steered in any desired direction.

We claim:—

1. A handling and transporting device, comprising, in combination, a locomotive truck, a framework on said truck, a system of parallel levers pivotally mounted on said framework and including a cross-head, a gripping device carried by said system and comprising jaws adapted to seize and hold an article to be transported, a winding drum on said framework, a motor for operating said drum, a load-sustaining brake, and flexible means operatively connecting said drum with said cross-head for moving said system on its pivot.

2. A handling and transporting device, comprising a locomotive truck, a framework on said truck, a system of parallel levers pivotally mounted on said framework and comprising a cross-head, a gripping device carried by said system and comprising jaws adapted to seize and hold an article to be transported, and actuating means for said system comprising a motor on said framework, a winding drum operatively connected to said system through said cross-head, and gearing connecting said motor with said drum, in combination with a load-sustaining brake coöperating with said drum.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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Witnesses:
KATE FOTHERINGHAM,
ISABEL ROLLO.