

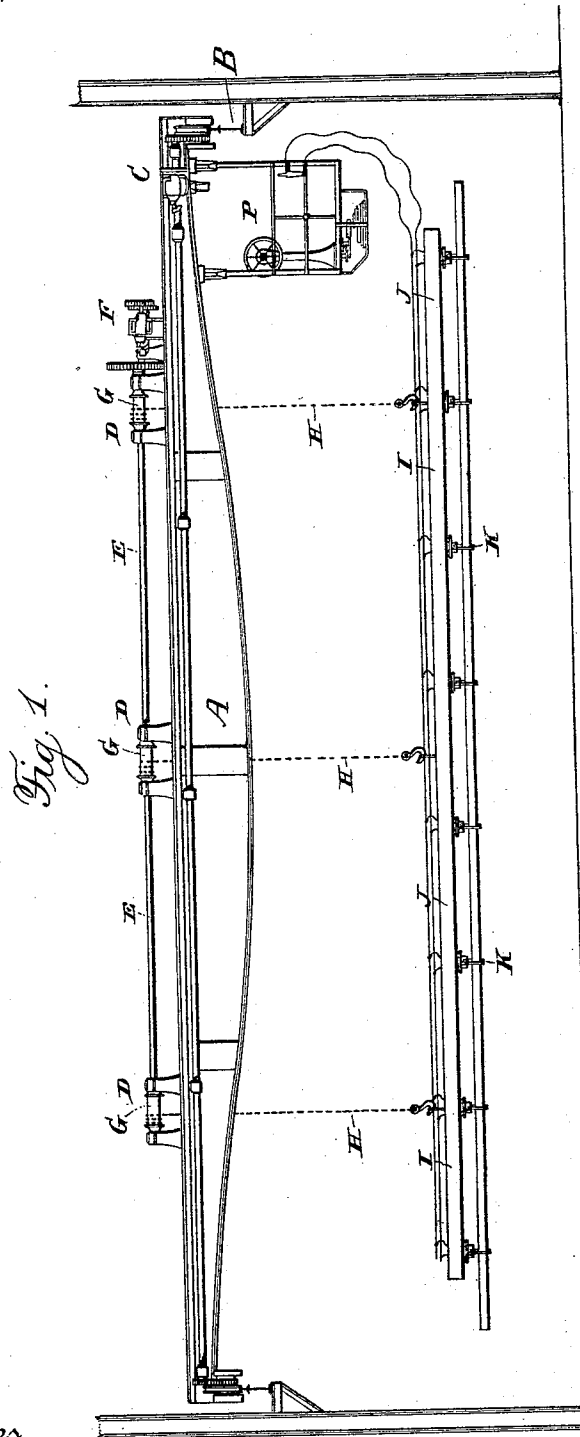
(No Model.)

2 Sheets—Sheet 1.

T. R. MORGAN, Sr.
OVERHEAD TRAVELING CRANE.

No. 543,557.

Patented July 30, 1895.



Witnesses
Jas. E. Hutchinson.
G. F. Downing.

Inventor
Thomas R. Morgan, Jr.
By H. A. Seymour
Attorney

(No Model.)

2 Sheets—Sheet 2.

T. R. MORGAN, Sr.
OVERHEAD TRAVELING CRANE.

No. 543,557.

Patented July 30, 1895.

Fig. 2.

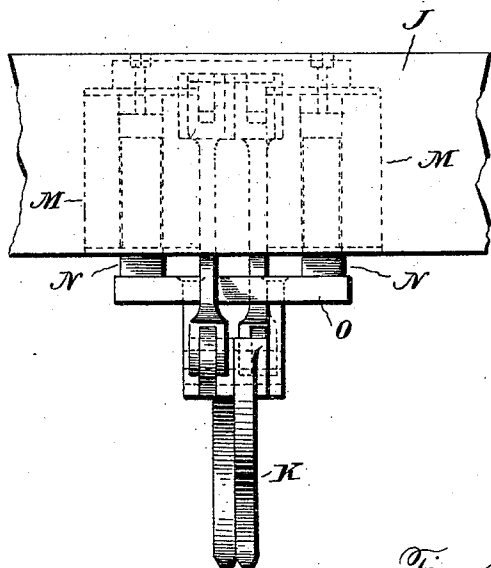


Fig. 3.

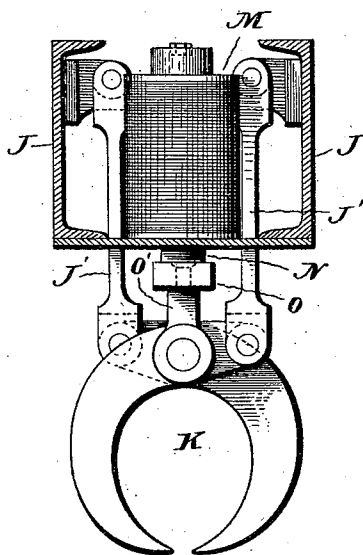
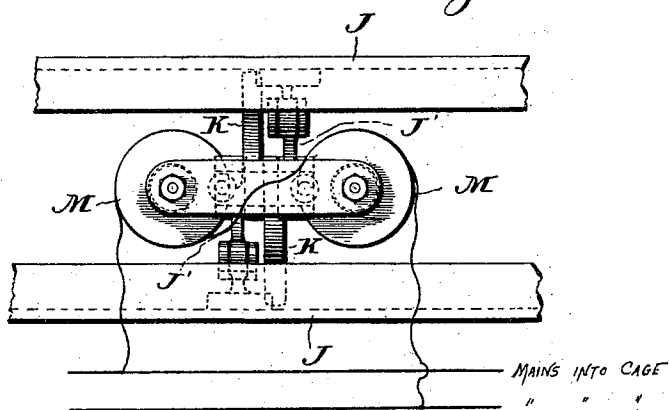


Fig. 4.



Witnesses
Jas. Hutchinson.
G. F. Downing.

Inventor
Thomas R. Morgan Sr.
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

THOMAS R. MORGAN, SR., OF ALLIANCE, OHIO, ASSIGNOR OF THREE-
FOURTHS TO THOMAS R. MORGAN, JR., JOHN R. MORGAN, AND
WILLIAM H. MORGAN, OF SAME PLACE.

OVERHEAD TRAVELING CRANE.

SPECIFICATION forming part of Letters Patent No. 543,557, dated July 30, 1895.

Application filed September 10, 1894. Serial No. 522,647. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. MORGAN, Sr., of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Overhead Traveling 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 appertains to make and use the same.

My invention relates to an improvement in overhead traveling cranes and more particularly to cranes designed for carrying billets or rods; and it consists, broadly, in a traveling crane carrying a series of drums, a lifting-chain for each drum, a table carried by the several chains, and electrically-operated tongs arranged at intervals on the table for grasping the billet or rod.

My invention further consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of a crane embodying my invention. Fig. 2 is a view in side elevation of a portion of the table, showing one of the tongs or clutches. Fig. 3 is a view in transverse section of the table, showing the clutch; and Fig. 4 is plan view of same.

A represents an overhead traveling crane consisting, essentially, of a bridge mounted at its ends on the trackway B and provided with an electric motor C, by which it is propelled back and forth.

Located on the bridge A are series of bearings D, preferably arranged in pairs, as shown, the several pairs supporting the shaft E, which latter extends lengthwise of the bridge. This shaft is rotated by the electric motor F and is provided at intervals throughout its length with the drums G, each of which carries a chain H. Each drum is preferably located between a pair of bearings. The drums are of the same size and carry chains of the same length, so that the table or support I, carried by the chains, will always rest in a horizontal position.

In the drawings I have shown three drums, and while I might employ more or less than

three and might, in fact, suspend the table from a single chain I prefer to employ at least three chains, as the table can then be supported near its ends and center, and thus be prevented from sagging.

The table I is composed of two angle-irons J, separated a suitable distance and connected by suitable plates or braces. This table is provided with loops or hooks for the attachment of the chains H, and also carries the links J', arranged in pairs, each pair of links supporting the two members of the tongs K. The tongs are curved substantially as shown, the free ends of each member thereof being pointed to enable them to enter well under a billet or bar, so as to securely grasp the same when closed by the mechanism to be hereinafter described. The links J' depend below the lower edge of the table and the members of the tongs are pivoted at their upper ends to the lower ends of the links and pivoted together centrally between the lower ends of the links.

Located between the angle-irons J are the helices M, a pair being provided for each grapple. The helices are open at the bottom for the movable cores N, the cores of each pair of helices being connected by an armature O. Depending from each armature O are the stems O', which latter are connected to the tongs at the point of pivotal connection of the two members of each. The links J' are pivoted to the angle-irons. Hence as the armature moves upwardly toward the helices the lower ends of each pair of links move toward each other and as the armature falls the lower ends are moved away from each other.

The several pairs of helices are connected by means of wires to a generator, and the current is controlled by a switch operated from the operator's cage P, depending from the bridge A.

By energizing the solenoids the cores, with the armatures thereon, are moved upwardly, which movement operates to open the tongs. The table is then lowered until the ends of the tongs are in a position to grasp the billet or bar. By now cutting off the current the cores and armatures drop and the weight

thereof closes the tongs around the billet. By now rotating shaft E the table carrying the billet is elevated as high as necessary, and by imparting motion to the bridge by the motor
 5 C, hereinbefore referred to, the billet or bar can be moved to any part of the shop and released by simply energizing the solenoids.

By providing the table with a series of tongs, as described, the billet or bar is supported at
 15 short intervals throughout its length. Hence hot or cold billets, which heretofore could only be handled at considerable expense and trouble, can be conveniently moved from place to place without delay and without danger of
 20 bending or distorting their shape.

It is evident that numerous slight changes in the construction of the several parts might be resorted to without departing from the spirit of my invention. Hence I would have
 25 it understood that I do not confine myself to the details herein described, but consider myself at liberty to make such changes as fairly fall within the spirit and scope of my invention.

25 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a crane and suspending means carried thereby, of a table
 30 carried by said suspending means and a series of electrically operated tongs carried by said table or support.

2. The combination with a crane and a table suspended from said crane, of a series of
 35 tongs or grapples carried by said support or table, and magneto-electric devices for opening said tongs, substantially as set forth.

3. The combination with a traveling bridge,
 40 a drum thereon, a chain carried by the drum and a table carried by the chain, of a series

of electrically operated tongs carried by the support or table.

4. The combination with a traveling bridge, a series of drums thereon, means for actuating the drums simultaneously and a chain on
 45 each drum, of a table carried by the chains and electrically operated tongs carried by the table, substantially as set forth.

5. The combination with a traveling bridge, a shaft carried thereby, a series of drums secured to said shaft and a chain to each drum,
 50 of a table carried by the chains, and a series of electrically operated tongs supported by the table.

6. The combination with a table and a series of tongs connected thereto, of a solenoid
 55 for each tongs, substantially as set forth.

7. The combination with a table, links pivoted thereto and curved arms pivoted to the links the said curved arms being pivoted together, of solenoids, the cores of which are
 60 connected to the curved arms whereby the upward movement of the cores separates the free ends of the arms, substantially as set forth.

8. The combination with a table links arranged in pairs pivoted to said table and a curved arm pivoted at one end to each link, the two arms of each pair of links being pivoted together, of solenoids the cores of which
 70 are connected to the curved arms, substantially as and for the purpose described.

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

THOMAS R. MORGAN, SR.

Witnesses:

W. H. RAMSEY,
 A. C. STRONG.