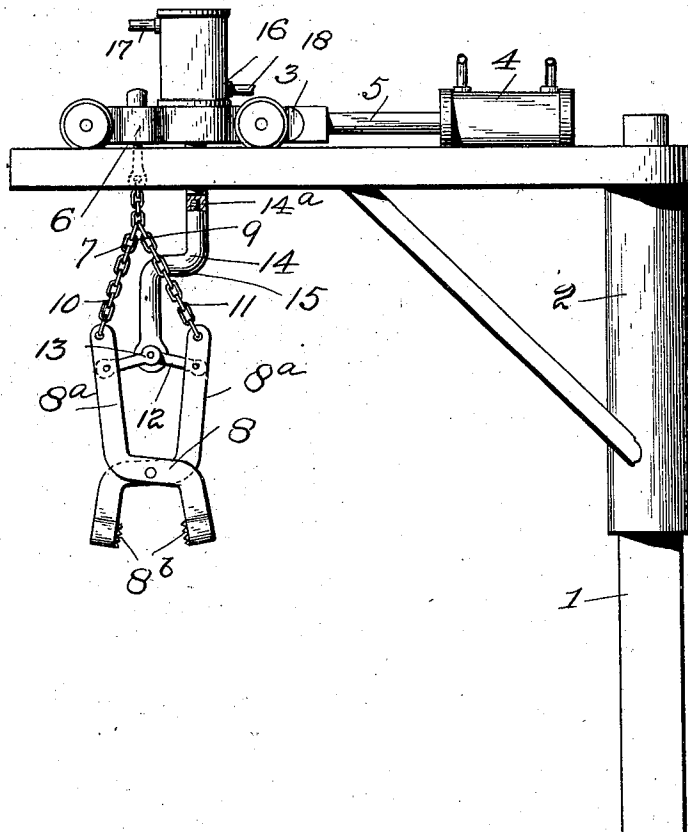


(No Model.)

J. F. A. SMITH & J. M. BRYANT.
CRANE FOR MANIPULATING TONGS.

No. 513,658.

Patented Jan. 30, 1894.



Attest
Witness
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UNITED STATES PATENT OFFICE.

JOHN F. A. SMITH AND JAMES M. BRYANT, OF BENWOOD, WEST VIRGINIA.

CRANE FOR MANIPULATING TONGS.

SPECIFICATION forming part of Letters Patent No. 513,658, dated January 30, 1894.

Application filed June 30, 1893. Serial No. 479,219. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. A. SMITH and JAMES M. BRYANT, citizens of the United States of America, residing at Benwood, in the county of Marshall and State of West Virginia, have invented certain new and useful Improvements in Cranes for Manipulating Tongs, of which the following is a specification.

10 This invention relates to certain improvements in power cranes and the object of the invention is to provide a mechanical arrangement whereby power may be applied to open and close the jaws of the tongs to cause them
15 to grasp and release their load.

The invention is illustrated in the accompanying drawing in which the figure represents a side elevation of a crane of ordinary form having my arrangement applied in connection with the carriage and tongs thereof.

Referring more particularly to the figure, 1 represents the upright mast or post upon which is journaled the rotating jib 2. This jib has a double track of the ordinary form upon which runs a four wheeled carrier 3, which is propelled back and forth upon the track by any suitable means, as for instance the cylinder 4, and piston 5 connected to the carriage, with pipe connections to the cylinder in front and rear of the piston head for supplying the medium by means of which it may be operated to reciprocate the carriage and with it its suspended load. The carriage body is provided between the wheels with the support 6, for the hoisting chain 7, of the tongs 8, the hoisting chain being divided at 9, and terminating in two branches 10, and 11, one of which is connected to each arm 8^a of the tongs at the upper end thereof. These tongs
40 are of substantially the ordinary form, being provided at their lower ends with gripping faces 8^b for gripping the article to be raised and transported. In order to provide means for opening and closing the jaws of the tongs we have provided the toggle levers 12, which
45 are pivotally connected to the arms 8^a and to each other as at 13, and to the pivot at 13 we connect the lower end of the piston rod 14. This piston rod has an angularly bent portion
50 15 so that the main portion of the piston rod

lies to one side of the lower part which is connected to the toggle joint and thus the upper part is brought to one side of the hoisting and supporting chain which sustains the tongs. The upper end of the piston rod extends into a vertical cylinder 16 carried upon the carriage and provided with suitable inlet and exhaust pipes 17 and 18 connected to the top and bottom of the cylinder respectively and through which pipes steam, water, compressed air or the like can be admitted and withdrawn from above and below the piston to reciprocate the piston rod.

We find it desirable to form the piston rod for operating the arms of the tongs in the form illustrated in the modification in which the lower portion of the piston rod, including the angularly bent portion, is detachably connected to the main portion of the rod by a suitable connection as shown at 14^a, as for instance a screw threaded toggle hinge joint or key connection.

Having thus described our invention, what we claim is—

1. In combination with the carriage of a crane, the tongs suspended therefrom, toggle levers connected to the said tongs, a cylinder mounted upon the carriage having inlet and exhaust pipes, and a piston rod depending from said cylinder, and having its lower end offset to one side of the main portion and connected to the toggle levers for operating the tongs, substantially as described.

2. In combination with the carriage of a crane, the tongs suspended therefrom, toggle levers connected to said tongs, a cylinder mounted upon the carriage having inlet and exhaust pipes, a piston rod in said cylinder, and a detachable rod connected to said piston rod, said detachable rod having an angular offset portion with the lower end thereof connected to the toggle levers, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN F. A. SMITH.
JAMES M. BRYANT.

Witnesses:

FRANCIS J. EBELING,
JOSEPH DAVIS.