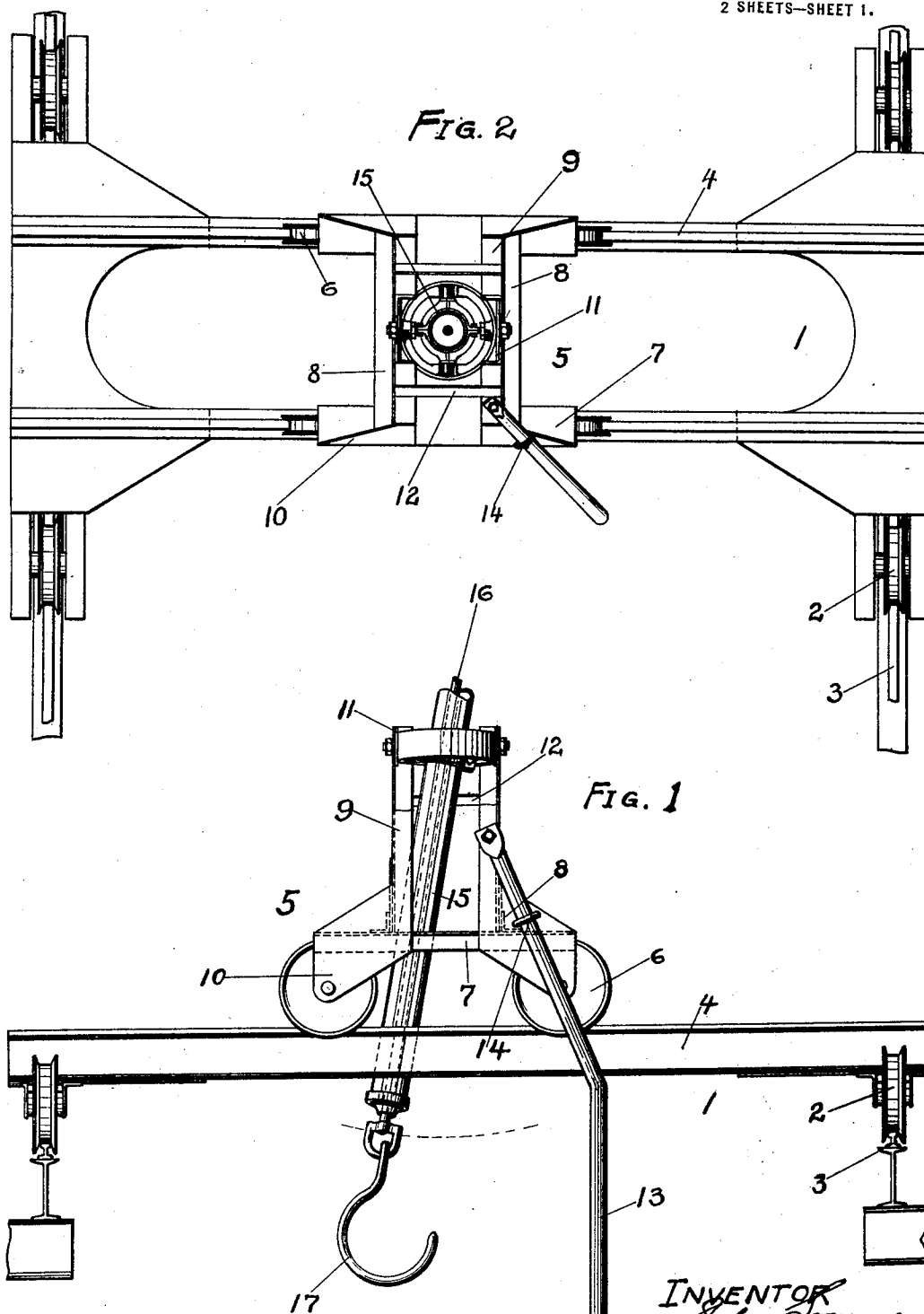


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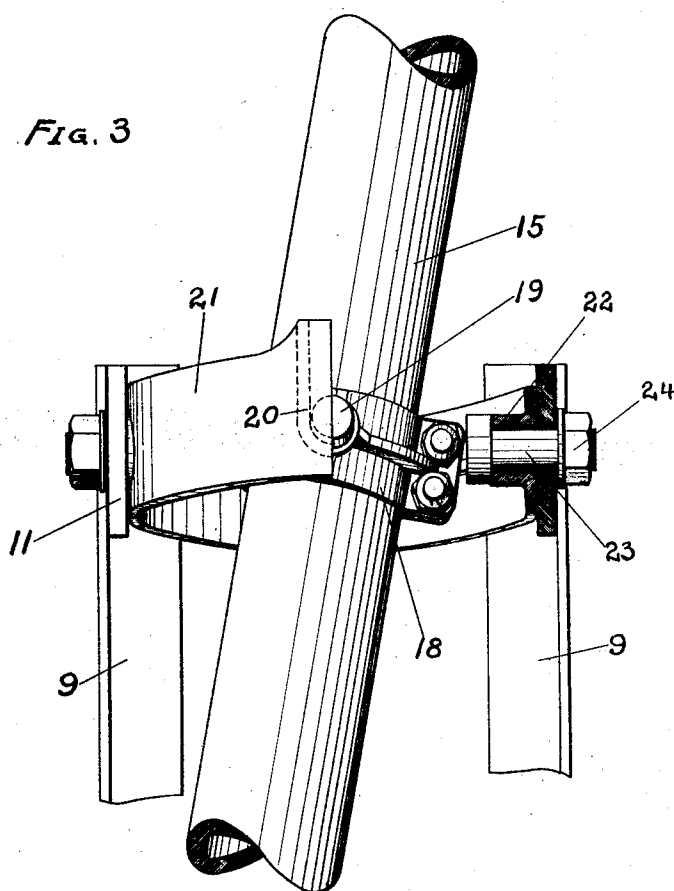
Patented Feb. 21, 1922.  
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



INVENTOR:  
BY *John Sommer*  
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ATTY.

# UNITED STATES PATENT OFFICE.

JOHN SOMMER, OF PEORIA, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE UNION TRUST COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO, AND JOHN A. CHAPMAN, OF CHICAGO, ILLINOIS, TRUSTEES.

## HOIST CRANE.

1,407,005.

Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed June 7, 1920. Serial No. 387,010.

*To all whom it may concern:*

Be it known that I, JOHN SOMMER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented new and useful Improvements in Hoist Cranes, of which the following is a specification.

This invention has reference to improvements in hoist cranes.

The invention has for its principal object to improve the mounting for the hoist cylinder, whereby the said cylinder may oscillate upon its support, so as to relieve it of the severe strains due to the lifting by the hoist piston rod, when the carriage on which the cylinder is mounted is moved during the time of lifting.

The invention has for a further object to provide a hoist crane including a hoist carriage, said carriage having a substantially universally movable mounting for the hoist cylinder, whereby the said cylinder may oscillate, and thereby relieve the strain on the carriage during the movement of the latter and the raising of the hoist piston.

That the invention may be more fully understood, reference is had to the accompanying drawings forming a part of the present description, illustrating a preferred embodiment of the invention, in which;

Fig. 1 is a side elevation of a hoist crane embodying my invention, parts being broken away to show the universal mounting for the hoist cylinder and the upper end of the said cylinder and hoist piston rod broken away;

Fig. 2 is a plan view of Fig. 1, the hoist cylinder and piston rod shown in section; and

Fig. 3 is an enlarged detail partly in section showing the universal mounting for the hoist cylinder, said mounting being oscillated into two different positions to illustrate the flexibility thereof.

Like characters of reference denote corresponding parts throughout the figures.

Hoist cranes of the character herein referred to are not uncommon for mill work, especially where it is desired to lift comparatively heavy loads and transfer the same to different points. The present invention in hoists of this character is designed more particularly for use in wire drawing mills, although it may be found to have general usage.

When used in a wire drawing mill the hoist carriage is mounted to travel above the drawing bench, and its lifting mechanism employed for lifting or raising the bundles of wire from the drawing blocks and transferring the same to reels at some point in proximity to the drawing bench to be re-drawn, or for removing the finally drawn bundles from the drawing blocks to trucks to be transported to distant points. The stripping of the drawn bundles of wire from the drawing blocks is a constant physical strain upon the workmen, which my invention is intended to, and does, avoid and thereby increasing not only their efficiency, but results in increased tonnage in production.

In cranes of this character, employing a hoist cylinder with a hoist piston operating therein, the cylinders, so far as I am aware, have had a rigid mounting on the hoist carriage, and it follows that with the use of such a structure when a load is lifted, and during such lifting the carriage is moved, there is considerable lateral strain placed upon the cylinder, especially if the load is rather heavy, and this strain is not only injurious to the operating mechanism, but the movement of the carriage is retarded and the speed with which the operation may be performed is considerably lessened. With my improved carriage and mounting for the hoist cylinder I overcome these objectionable features and greatly facilitate the movement of commodities and with less trouble than heretofore.

In the drawings 1 designates a truck having wheels 2 which travel on rails 3 mounted upon any suitable over-head structure in a mill or other place. The truck is provided with rails 4 on which may travel or be moved the hoist carriage 5, the latter having wheels 6 for this purpose.

The base of the hoist carriage 5 is constructed of the longitudinal and transversely connected bars 7 and 8. To the bars 7 are connected the upstanding frame supports 9 formed with plate extensions 10 to serve as bearing members for the axles of the wheels 6 of the carriage. These upstanding frame supports constitute the four corners of the frame carrying the mounting for the hoist cylinder, and each pair of supports, as best seen in Fig. 2, converge toward each other and at their upper ends are joined by

the plates 11. 12 designates cross bracing straps for connecting and bracing the opposite corner supports.

For manually moving the hoist carriage 5 on the truck 1, and also for moving the truck 1 together with the carriage on the rails 3, there is provided the bar or rod 13, preferably connected to one of the upstanding frame supports 9 and extending down to a point below the truck 1 and within easy reach of the operator. The strap 14 being provided to give additional securing means for the rod or bar 13 on the carriage. It should thus be apparent that an operator 15 by gripping the rod or bar 13 may move the truck 1 with the carriage 5 thereon to different points along the rails 3 and after locating the truck in proximity to the load to be lifted, the operator may then move the 20 carriage 5 on the truck to a position to permit the connection of the lifting mechanism with the load to be raised.

The lifting mechanism of the carriage comprises in the main the hoist cylinder 15 25 and the hoist piston rod 16 therein, the latter provided with a suitable gripping hook 17, arranged to have connection with the load to be lifted. I am not concerned about the character of the power employed for extending, or retracting the hoist piston rod 16, 30 nor the manner of control thereof, or from what point the same may be controlled, as such devices are well known in the art and in detail form no particular part of this invention.

The mounting for the cylinder 15 comprises a strap 18, preferably made in two sections and bolted around the cylinder, the sections of said strap each having trunnions 19 diametrically opposed. These trunnions 40 are adapted to be seated in preferably U-shaped bearings 20 formed on, or secured to the inside face of ring 21, and said trunnions 19 and bearings 20 provide a pivotal connection between the cylinder 15 and the ring 21. To detach the cylinder from the ring it 45 is only necessary to raise the cylinder to lift the trunnions 19 out of bearings 20 as will be understood.

The ring 21 is formed with hubs or bosses 50 22 to receive bolts 23, which are also passed through the plates 11 and the bolts secured in position by the nuts 24. The bolts 23 form the fulcrum points on which the ring 21 55 is pivotally connected to the hoist carriage and said bolts 23 are preferably disposed at right-angles to the position of the trunnions 19 when journaled in the ring. Thus it will be observed that the ring 21 may be oscillated on the hoist carriage through its connection therewith by means of the bolts 23, 60 and the cylinder through the connection of

the trunnions 19 with the ring 21 may be oscillated in said ring. These two pivotal connections, the ring with the carriage and the 65 cylinder with the ring provides and approximate universal connection between the cylinder and the carriage which will permit of various movements on the carriage, not only for the purpose of permitting a wide range 70 of location of the hook 17 on the piston rod 16, but as the load is being lifted and the carriage is being moved the strain upon the cylinder and piston, as well as upon the carriage is removed.

What I claim is:—

1. In an apparatus of the character described, in combination, a wheeled truck including a pair of rails, a hoist carriage, wheels supporting said carriage and movable on said rails, said carriage including 80 an upstanding skeleton frame work, an annular ring provided with diametrically opposed and internally arranged open trunnion bearings, means pivotally connecting 85 said ring, at points at right angles to said bearings to and within said frame work at the upper end thereof, and elongated hoisting member disposed in an upright position through the frame work of said carriage 90 and down between said rails, a two part clamp secured about said hoisting member provided with diametrically disposed trunnions adapted to have a removable bearing relation in the bearings of said ring, and a 95 handle bar secured to said frame work and depending therefrom and alongside of said truck, for moving the hoisting carriage on said rails and for moving said truck and carriage.

2. In an apparatus of the character described, in combination, a hoisting carriage, including an upstanding skeleton frame work, wheel supports for said carriage journaled at the opposite four corners 105 thereof, a ring located within and at the upper end of said frame work provided with diametrically opposed open U trunnion bearings, pivot pins pivotally connecting said ring to said frame work, whereby said 110 ring may be oscillated in one direction, a hoisting member disposed in an upright position through said ring and said frame work, clamping members secured to and embracing said hoisting member, trunnions 115 arranged diametrically on said clamping members adapted to have a removable connection with said trunnion bearings, whereby said clamping members may be oscillated only in one direction in said ring, and a 120 handle bar secured to and depending from said frame work.

JOHN SOMMER.