No. 758,254. PATENTED APR. 26, 1904.

C. H. HOWLAND-SHERMAN.

CRANE.

APPLICATION FILED DEC. 17, 1902. RENEWED SEPT. 30, 1903.

NO MODEL.

Fig. 1.

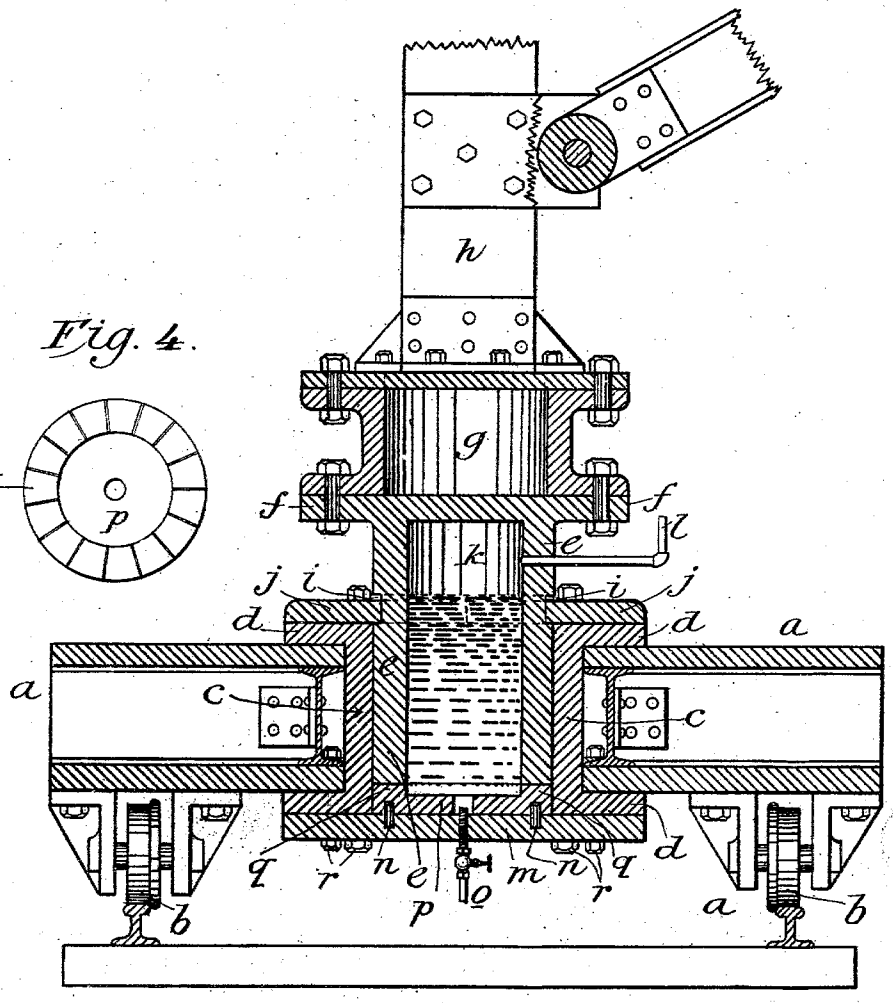


Fig. 4.

Fig. 2.

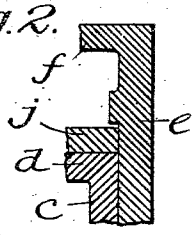
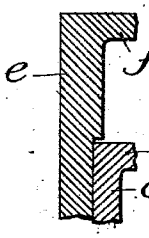


Fig. 3.



Witnesses
R. C. Marston.
F. P. Harris.

Inventor
Charles H. Howland-Sherman,
by Howland & Howland,
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 758,254. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

CHARLES H. HOWLAND-SHERMAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE HOWLAND-SHERMAN MANUFACTURING COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

CRANE.

SPECIFICATION forming part of Letters Patent No. 758,254, dated April 26, 1904.

Application filed December 17, 1902. Renewed September 30, 1903. Serial No. 175,180. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HOWLAND-SHERMAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Improvement in Cranes, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates, first, to cranes for lifting and moving articles of great weight, more especially to that class of cranes which are adapted to turn on a central pivot carried by a fixed or movably-supported pedestal, the special feature of the invention being to provide means for quickly removing a worn step-bearing block and substituting a new one by a simple operation attended with the removal of but few parts.

A second feature of my invention relates to the manner of automatically lubricating simultaneously the step-bearing and the cylindrical bearing portion of the foot-step where it turns in its fixed supporting-sleeve.

Other features of my invention will be referred to in the accompanying specification and illustrated in the drawings attached.

Figure 1 of the drawings represents the invention applied to a vertically-pivoted jib-crane mounted on a car or truck. Figs. 2, 3, and 4 are details.

A car or truck *a* of any suitable construction and mounted on wheels *b*, running on rails, supports in vertical position a cylindrical sleeve *c*, having a flange *d* at each end, by means of which flanges the sleeve *c* is firmly bolted to the frame of the car *a*. Closely fitting the bore of the sleeve *c*, but adapted to rotate or move vertically therein, is placed a cylindrical body or foot-step *e*, extending a greater or lesser height above the sleeve and having formed on its upper end a flange *f*, to which the extension-column *g* of the crane is bolted. To the extension-column *g* is bolted the mast *h* of the crane. The boom and other appurtenances being secured to the mast, the entire weight of the crane and its load is carried by the foot-step *e*. A groove *i* is turned in the outside of the foot-step *e*, within which is fitted a split collar *j*, bolted to the upper flange *d* of the sleeve *c*, thus forming a dust-tight joint. The groove *i* is, as shown, slightly wider than the thickness of the split collar, thus allowing for wear of the bearing-surface of the foot-step. If desired, a flange may be formed on the foot-step in place of the groove *i* or the wall thickened, in which case the collar *j* may be made integral or entirely omitted. (See Figs. 2 and 3.)

The foot-step *e* is hollowed out to form a reservoir, as at *k*, and when in use is filled with oil through the pipe *l* to about the level of the split collar. The height of the oil in the reservoir may be increased sufficiently to give it a head or pressure great enough to cause it (the oil) to flow in an upward direction between the sleeve and the foot-step, the bearing being thus made self-cleaning. The lower end of the sleeve *c* is closed by a head or plate *m*, bolted to the lower flange *d* of the sleeve, and provided with two or more upwardly-projecting steady-pins *n* and an outlet-cock *o*.

Supported on the head or plate *m* and prevented from turning by the steady-pins *n* is a bearing-block *p*, extending a short distance within the sleeve *c* beneath the foot-step *e*, which normally rests and turns thereon. The bearing-block *p* is provided with an outer flange *q* of a width substantially equal to the thickness of the bearing face or shell of the foot-step *e*. Shallow radial grooves (see Fig. 4) are cut in the bearing-face of the flange *q* of the bearing-block *p*, through which grooves oil will pass from the reservoir to the bearing-surfaces of the foot-step *e*, the sleeve *c*, and the split collar *j*, thus assuring perfect lubrication.

When the step-bearing block *p* becomes so worn as to require renewal, the bolts *r*, which fasten the head *m* to the flanges *d*, are turned successively a short distance at a time, thus loosening the head *m* and permitting the foot-step *e* and the crane fastened thereto to descend slowly until the upper edge of the

groove *i* rests on the split collar *j*, which then sustains the entire weight of the crane. The head *m* may now be quickly removed from the sleeve *c* and a new step-bearing block substituted, after which the head is again secured to the sleeve-flange and the weight gradually shifted from the split collar *j* onto the new bearing-block as the bolts are screwed home. Any oil contained within the reservoir *k* will when the step-bearing is to be renewed or fresh oil admitted be withdrawn therefrom by means of the cock *o*. The pipe *l* may be used when desired to blow out and clean the reservoir *k*.

I do not confine myself to the use of a movable base or support for the crane, as herein described, for in certain cases the base will be permanent.

I do not restrict myself to the exact details of construction, combination, and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by the skilled mechanic, and such departures from what is herein described and claimed not involving invention I consider as within the scope and terms of my claims.

Having thus described my invention, I claim—

1. Combined in a crane, a fixed sleeve, a foot-step adapted to rotate and move vertically therein and provided with a circumferential groove, a step-bearing block for the foot-step, means for removably securing said step-bearing block, and means, in connection with said groove, for supporting the foot-step after the removal of the step-bearing block, substantially as set forth.

2. Combined in a crane, a fixed sleeve, a foot-step carried therein and provided with a circumferential groove, a removable step-bearing block for the foot-step, a plate bolted to the sleeve and carrying the step-bearing block, and means, in connection with said groove, for supporting the foot-step when the step-bearing block has been removed, substantially as set forth.

3. Combined in a crane, a fixed sleeve, a foot-step rotatable therein and having a circumferential groove, a collar bolted to the sleeve surrounding the foot-step and extending into the groove, and a removable step-bearing block, substantially as set forth.

4. Combined in a crane, a fixed sleeve, a foot-step rotatably carried therein and having a circumferential groove, a collar fitting said groove and bolted to the upper end of the sleeve, a step-bearing block for the foot-step, and a plate removably attached to the lower end of the sleeve for supporting the step-bearing block, substantially as set forth.

5. Combined in a crane, a fixed sleeve, a foot-step rotatably carried therein, a step-bearing block for the foot-step, a plate removably attached to the lower end of the sleeve for supporting the step-bearing block, and a collar surrounding the foot-step beneath a shoulder thereon for upholding the weight of the crane when the step-bearing block is removed, substantially as set forth.

6. Combined in a crane, a fixed sleeve, a hollow foot-step rotatably carried therein, a removable step-bearing block, means for supporting and holding the step-bearing block against rotation, and means for admitting and withdrawing oil to and from the hollow foot-step and for cleaning it, substantially as set forth.

7. Combined in a crane, a fixed sleeve, a rotatable foot-step in said sleeve, a removable step-bearing block for the foot-step, and means, such as described, for sustaining the weight of the crane when the step-bearing block is removed, substantially as set forth.

8. Combined in a crane, a fixed sleeve, a rotatable foot-step in said sleeve, a removable step-bearing block for the foot-step, and a shoulder on said foot-step above the sleeve for supporting said foot-step when the step-bearing block is removed, substantially as set forth.

9. Combined in a crane, a fixed sleeve, a rotatable foot-step in said sleeve, a removable step-bearing block for the foot-step, a shoulder on said foot-step, and a collar bolted to said sleeve and surrounding the foot-step beneath the shoulder, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

CHARLES H. HOWLAND-SHERMAN. [L. S.]

Witnesses:

C. B. BULL,

CHARLES LOWELL HOWARD.