(No Model.)

H. DAVIES.

TRAVELING CRANE.

No. 264,444. Patented Sept. 19, 1882.

FIG. 1.

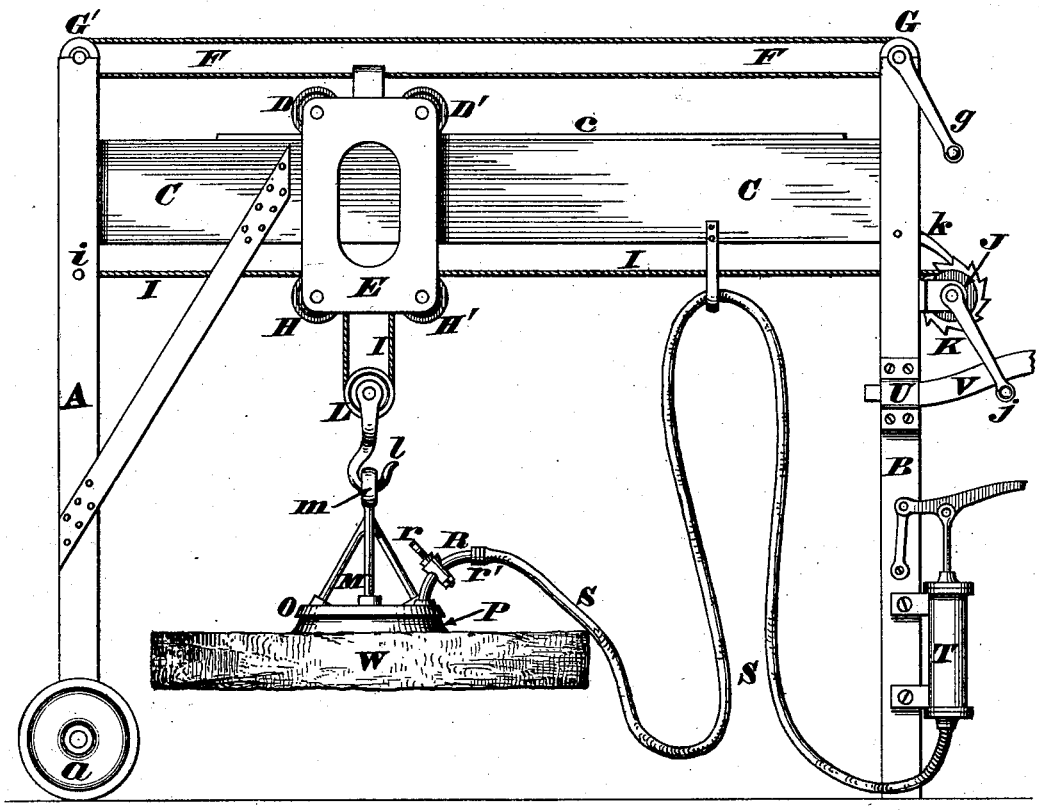
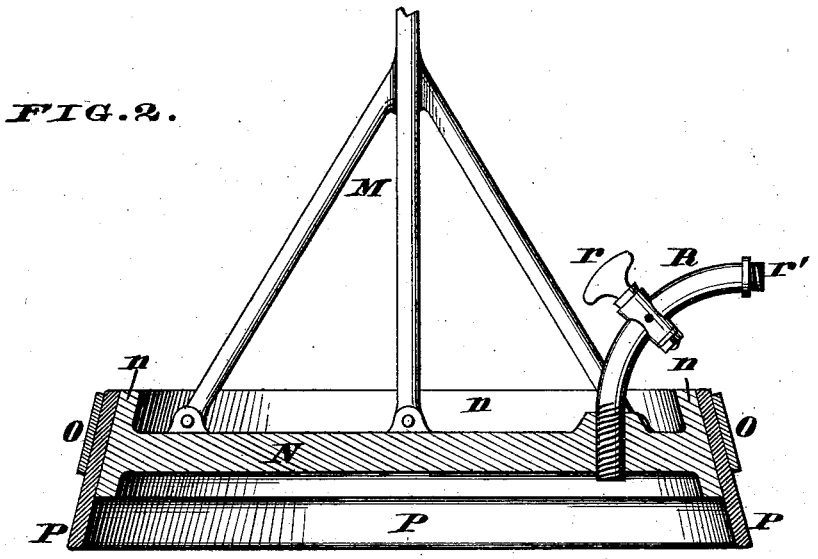


FIG. 2.



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UNITED STATES PATENT OFFICE.

HENRY DAVIES, OF NEWPORT, KENTUCKY.

TRAVELING CRANE.

SPECIFICATION forming part of Letters Patent No. 264,444, dated September 19, 1882.

Application filed May 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY DAVIES, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Traveling Cranes, of which the following is a specification.

My invention consists in applying a peculiarly-constructed pneumatic clamp, grapple, or gripper to a traveling crane or similar lifting apparatus, said clamp being adapted to obtain a secure hold on the load to be moved, while the subsequent raising and bodily shifting of said load is effected either by power attached to or communicating with the crane or hoister, as hereinafter more fully described, and pointed out in the claims.

In the annexed drawings, Figure 1 is a side elevation, showing my pneumatic clamp applied to a traveling crane, a load being suspended therefrom. Fig. 2 is an enlarged axial section of said clamp or gripper.

A and B represent two vertical stanchions similar to those employed with traveling cranes and other hoisting appliances, the stanchion A being mounted on a wheel, *a*, while the other one, B, rests on the ground. These stanchions may be arranged in a triangular position, in which event another upright like the one A *a* would be employed, the stanchion B being situated at the apex of said triangle.

Secured to the uprights A B is a stout beam, C, provided with a track, *c*, traversed by the grooved wheels D D′ of a carriage or slide, E, said carriage being shifted in either direction by a cable, F, passing around pulleys G G′, of which devices the one G is operated by a crank, *g*, said cable or chain having its ends fastened to the slide. Furthermore, carriage E has journaled in it a pair of sheaves, H H′, over which passes a cable or chain, I, having one end secured to the frame at *i*, while its other end is coiled around a windlass or drum, J, operated by a crank, *j*, and locked with the ratchet K and pawl *k*. Suspended in the bight of this cable is a sheave, L, the hook of which, *l*, engages with the ring or eye *m* of a tripod or other standard, M. This standard M is securely fastened to a circular head, N, having a marginal flange, *n*, as seen in Fig. 2. The flange *n* is preferably flaring, and has secured around it, with a hoop, O, or otherwise, a ring, P, composed either of leather or india-rubber, or other flexible material. By this arrangement the hoop O can be driven down on the conical flange *n*, so as to tighten the flexible ring P in case the latter should shrink and allow air to enter and destroy the vacuum.

Communicating with the chamber beneath the head N is a pipe, R, having a cock or valve, *r*, and a screw-coupling, *r′*, the latter serving to connect said pipe to one end of a hose or flexible pipe, S, the other end of this hose being attached to an air-pump or equivalent exhauster, T, operated either with a lever or crank, or otherwise.

U is a socket for the reception of a handle, V, wherewith the crane is readily moved.

To illustrate the principle of my invention, I will suppose it is desired to lift a large block of stone, W, from out of a pavement where it is impossible to bring into service a crow-bar or other lever. In such a case the end B of the machine is raised by the handle V, and the crane is then wheeled to the place and brought into position over the stone. The pneumatic gripper is now applied so as to bring its ring P about in the center of the stone, after which act the exhauster T is operated until a suitable vacuum has been formed in the chamber of said gripper, the flexible nature of ring P causing it to fit very closely to the surface of the stone. Cock *r* is now closed, so as to preserve the vacuum, and the windlass J is operated so as to raise the stone clear of the sidewalk, as seen in Fig. 1. The loaded crane is now wheeled away, and the stone lowered, after which act air is admitted to the gripper, so as to destroy the vacuum and cause the ring P to quit its hold of the load. The vacuum can be destroyed by means of a special vent tapped into the head N, or the same result may be effected by so constructing the cock *r* as to cause it to admit air when turned to a certain position. The load is suspended from the pneumatic gripper in the same manner as a brick is sustained by a boy's "sucker," and, as the clamping-ring P can be of any desired diameter, there is practically no limit to the utility of the apparatus. It is also apparent that the heaviest stones, &c., can be lifted and moved without in the least marring their surfaces or

otherwise injuring them. If the surface of the stone or other load should be somewhat rough or uneven, tallow or other luting can be applied around the margin of the flexible ring P, so as to insure an air-tight joint. Finally, the head N may be square or oblong, or of any other desired shape.

I claim as my invention—

1. The combination, in a traveling crane, of frame A B C, carriage D D′ E H H′, shifting devices F G G′, hoisting appliances I J L *l*, pneumatic gripper N P R *r*, flexible connection S, and exhauster T, for the purpose herein described.

2. A pneumatic grapple for lifting apparatus, consisting of the head N, having a conical marginal flange, *n*, to which the flexible ring P is clamped by the hoop O, said head being provided with a valved pipe, R *r*, as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY DAVIES.

Witnesses:
JAMES H. LAYMAN,
E. N. PARKER.