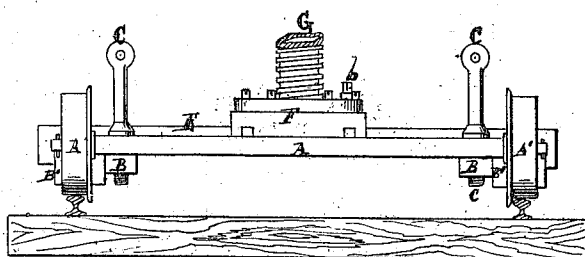
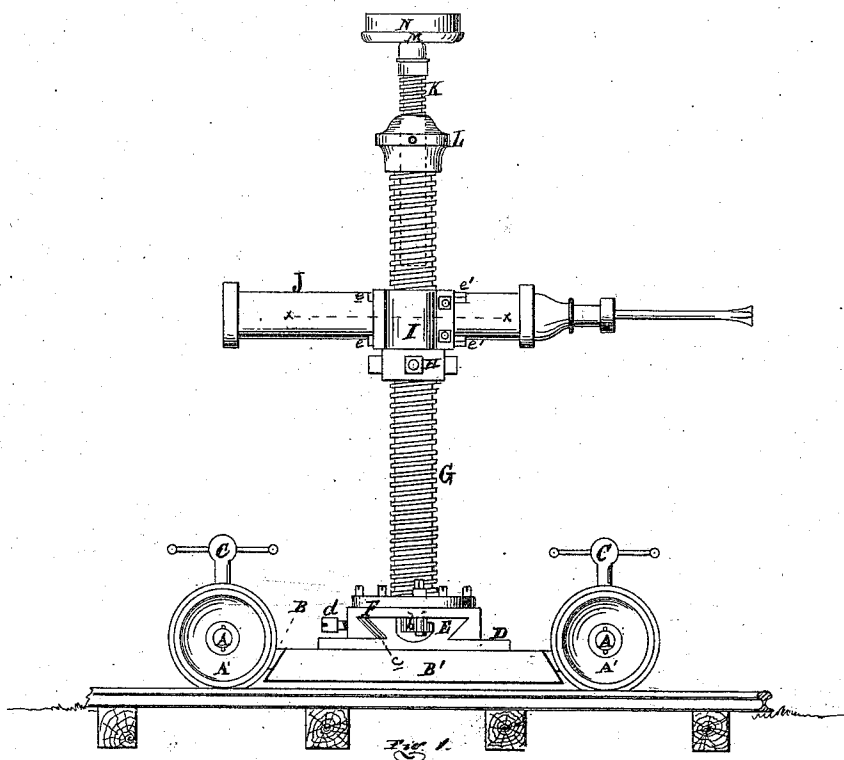


A. P. THOMAS & W. J. EVANS.

Rock-Drill Carriages.

No. 140,173.

Patented June 24, 1873.



ATTEST:

H. F. Smith,
J. A. Sprague

FIG. 2.

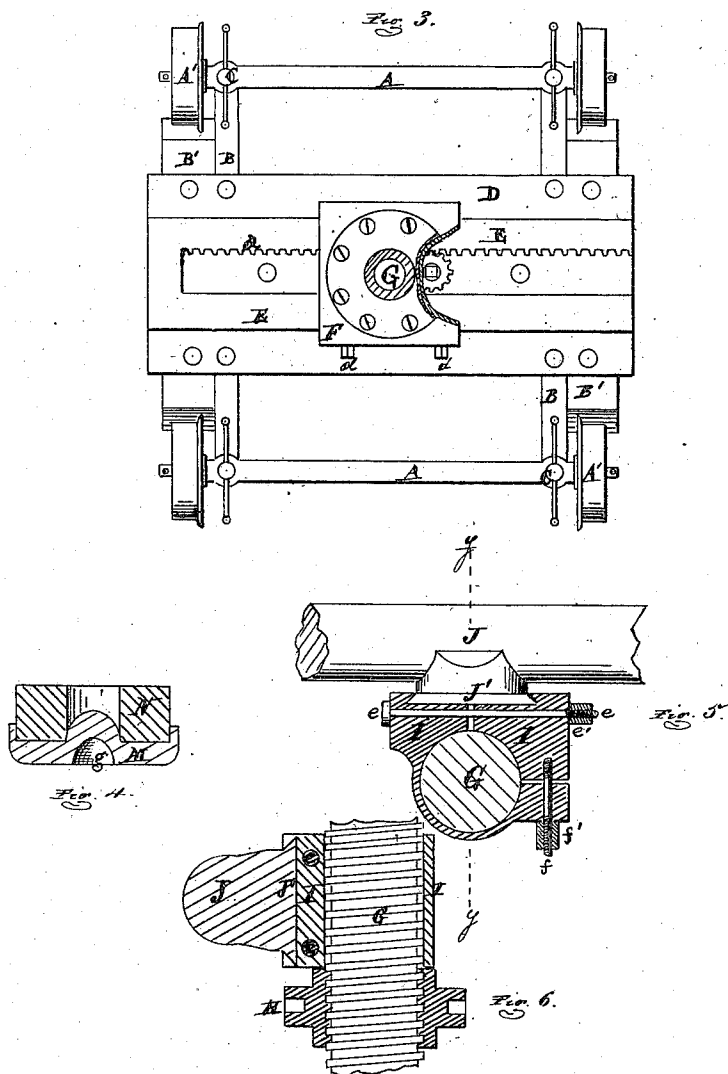
INVENTORS:

Alexander P. Thomas,
William J. Evans,
per Attorney,
J. A. Sprague

A. P. THOMAS & W. J. EVANS.
Rock-Drill Carriages.

No. 140,173.

Patented June 24, 1873.



ATTEST:

W. F. Eberle,
H. C. Sprague

INVENTORS:

Alexander P. Thomas,
William J. Evans,
per attorney
H. C. Sprague

UNITED STATES PATENT OFFICE.

ALEXANDER P. THOMAS AND WILLIAM J. EVANS, OF COPPER FALLS MINE,
MICHIGAN.

IMPROVEMENT IN ROCK-DRILL CARRIAGES.

Specification forming part of Letters Patent No. 140,173, dated June 24, 1873; application filed
October 28, 1872.

To all whom it may concern:

Be it known that we, ALEXANDER P. THOMAS and WILLIAM J. EVANS, of Copper Falls Mine, in the county of Keweenaw and State of Michigan, have invented a new and useful Improvement in Rock-Drill Carriages; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1, sheet 1, is a side elevation of our carriage and drill-post; Fig. 2 is an end elevation of the carriage; Fig. 3, Sheet 2, is a plan of the same; Fig. 4 is an enlarged cross-section of the cap at the top of the jack-screw; Fig. 5 is an enlarged cross-section of the drill-clamp on the plane xx in Fig. 1; and Fig. 6 is a transverse section on the line yy in Fig. 5.

Like letters refer to like parts in each figure.

This invention relates to an improved carriage, to be used in mines and rock-tunnels, for carrying and holding at any point on the face of the tunnel or drift a rock-drilling machine, driven by compressed air, steam, or other motor. The object of the invention is to facilitate the adjustment of the drilling apparatus to the required positions, and to firmly hold it after such adjustment. The invention consists in a four-wheeled truck or carriage, the sides or longitudinal sills of which are connected to the axles by screws, so arranged that the sills may be lowered to rest upon the bottom of the tunnel, or upon the rails of the track, if there be one; secondly, in a rest carrying the drill-post, dovetailed in ways transversely placed across the carriage, with a rack and pinion, or equivalent device, for moving the drill-post laterally across the face of the work; thirdly, in the peculiar construction of the clamp which secures the drill-cylinder to it at any inclination, and to the drill-post; also, in the general construction and arrangement of the various parts, as more fully hereinafter set forth.

In the drawings, A A represent a pair of iron axles, each of which carries a pair of low flanged wheels, A', to run on the rails of the track usually laid in tunnels and headings.

B B are longitudinal iron sills or side bars laid under the axles near their ends. C are lever-screws, which pass down through the axles, and are screw-threaded at their lower ends, which are tapped into the ends of the sills B, across which is bolted the bed-plate D, under the ends of which are bolted two sill-timbers, B', one at each end. By turning the screws C to the right the sills B are drawn up into contact with the axles, making a rigid frame to support the load of the carriage. By turning the screws to the left the bed-plate is dropped until the sills B' rest upon the track, taking the load off the axles and wheels. E are dovetail-ways formed on the bed-plate parallel with the axles. On the inner edge of one of the ways a toothed-rack, a , is cut. F is a heavy slide-rest dovetailed on the ways, and carries a vertical externally-screw-threaded hollow drill-post, G, having its flanged foot firmly bolted to the rest. b is a pinion, journaled through the post-foot and rest, and meshes with the rack a . Its top is squared to receive a key, by which it is rotated to move the rest on the ways. Between the rest and the way, at one side, is inserted a clamp-plate or gib, c , against which about the ends of two set-screws, d , tapped through the side of the rest, and serve to bind the rest fast when adjusted to position. H is a nut on the drill-post, which supports the clamp I of a drill-cylinder. The drilling apparatus may be rotative in action, like the diamond drill, or percussive, and be operated by compressed air, steam, or other motor. The drill-cylinder J is sleeved by the clamp I to the post, being raised or lowered in plane by the nut H, and swung axially around the post, while it also has a radial movement through its trunnion J', which is dovetailed into the side of the clamp I. The clamp I is divided vertically into two parts, the one embracing three-fourths of the post, and the other the remaining fourth, or nearly so. Where they embrace the trunnion the parts are secured by two bolts, e , passing horizontally through them with screw-nuts e' on their threaded ends. The other end of the smaller segment has two stud-bolts, f , horizontally tapped therein, and which project through a flange on the adjacent end of the

longer segment, where they receive the nuts, *f'*, Fig. 5. By screwing up the nuts *e'* the trunnion of the drill-cylinder is clamped fast at any inclination to which the cylinder may be adjusted, while, by screwing up the nuts *f'*, the drill-cylinder is clamped fast to the post. Thus, it will be seen that through the slide-rest the drill-post is moved laterally across the face of the work; through the nut *H* the cylinder is raised or lowered in plane; through the clamp and trunnion it has a compound adjustment, radially, in the horizontal and vertical planes. All the parts after adjustment are readily secured in position by the various nuts and screws described.

To secure the carriage, and to prevent recoil and destructive vibration under the action of the drill, the drill-post is made hollow, and in it is telescoped the jack-screw *K*, which is raised or lowered by a nut, *L*, sleeved on the top of the drill-post, the jack-screw being prevented from turning on its axis by a feather on the inner face of the post entering a longitudinal key-way cut in the jack-screw. The top of the latter is rounded, and carries a metallic cap, *M*, seated thereon by a concave socket, *g'*, Fig. 4, in its bottom. The top of this cap is cupped to receive a thick rubber washer, *N*. When the carriage is run up to the face of the work the jack-screw is run up

until the rubber washer is forced against the roof of the tunnel or heading with power enough to prevent the carriage from recoiling under the action of the drill. The ball-and-socket joint of the cap insures a broad bearing upon the roof, while the rubber washer compresses into the lesser inequalities and affords a great adhesive resistance.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The axles *A A*, sills *B B B' B'*, screws *C C C*, and bed-plate *D* of a rock-drill carriage, constructed substantially as herein shown, for the purpose set forth.

2. The dovetail-ways *E* on the bed-plate *D* carrying the slide-rest *F*, and the drill-post *G* with a rack, *a*, and pinion *b*, for moving said slide-rest, as shown and set forth.

3. The clamp-gib *c* and set-screws *d* for clamping the rest *F* to the ways *E*, as described and shown.

4. The sectional clamp *I*, and bolts *e e' f f'* for securing the drill-cylinder *J* to the drill-post, substantially as described.

ALEXR. P. THOMAS.

WM. J. EVANS.

Witnesses:

EMIL HAET,

JULIUS MICHALS.