Sheet 1. 2 Sheets.

C., J., P. and L. Griscom,

Improvement in Tunnelling Machines.

118010

PATENTED AUG 15 1871

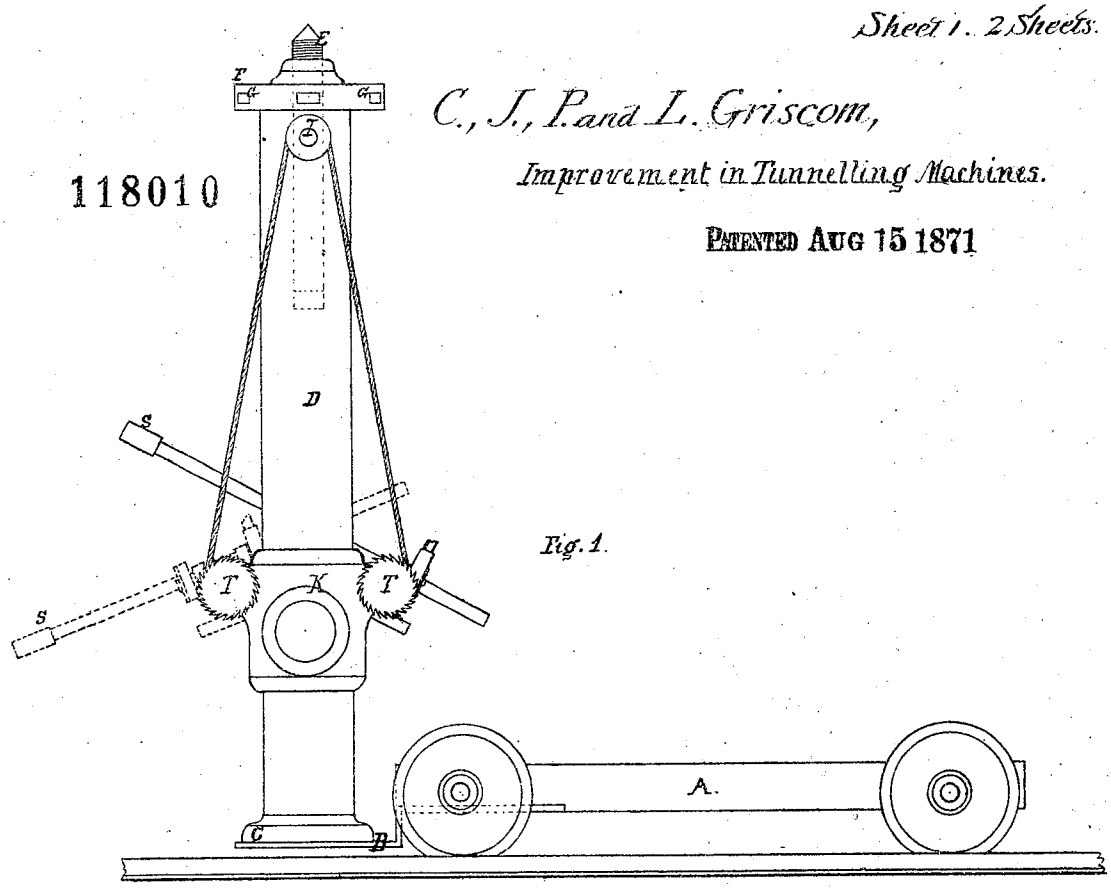

Fig. 1.

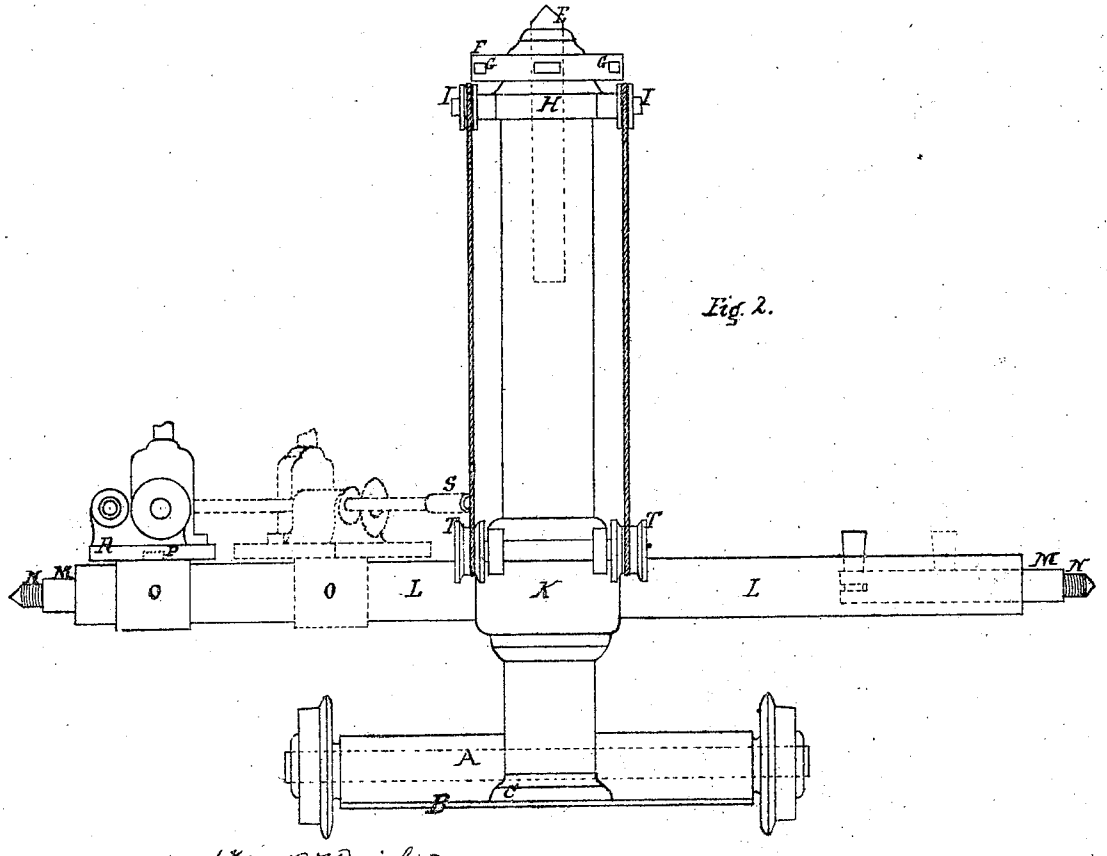

Fig. 2.

Witnesses { Wm. R. Wright, Thos. A. Butler.

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Horace Binney, 2nd

Improvement in Tunnelling Machines. *Sheet 2. 2 Sheets.*

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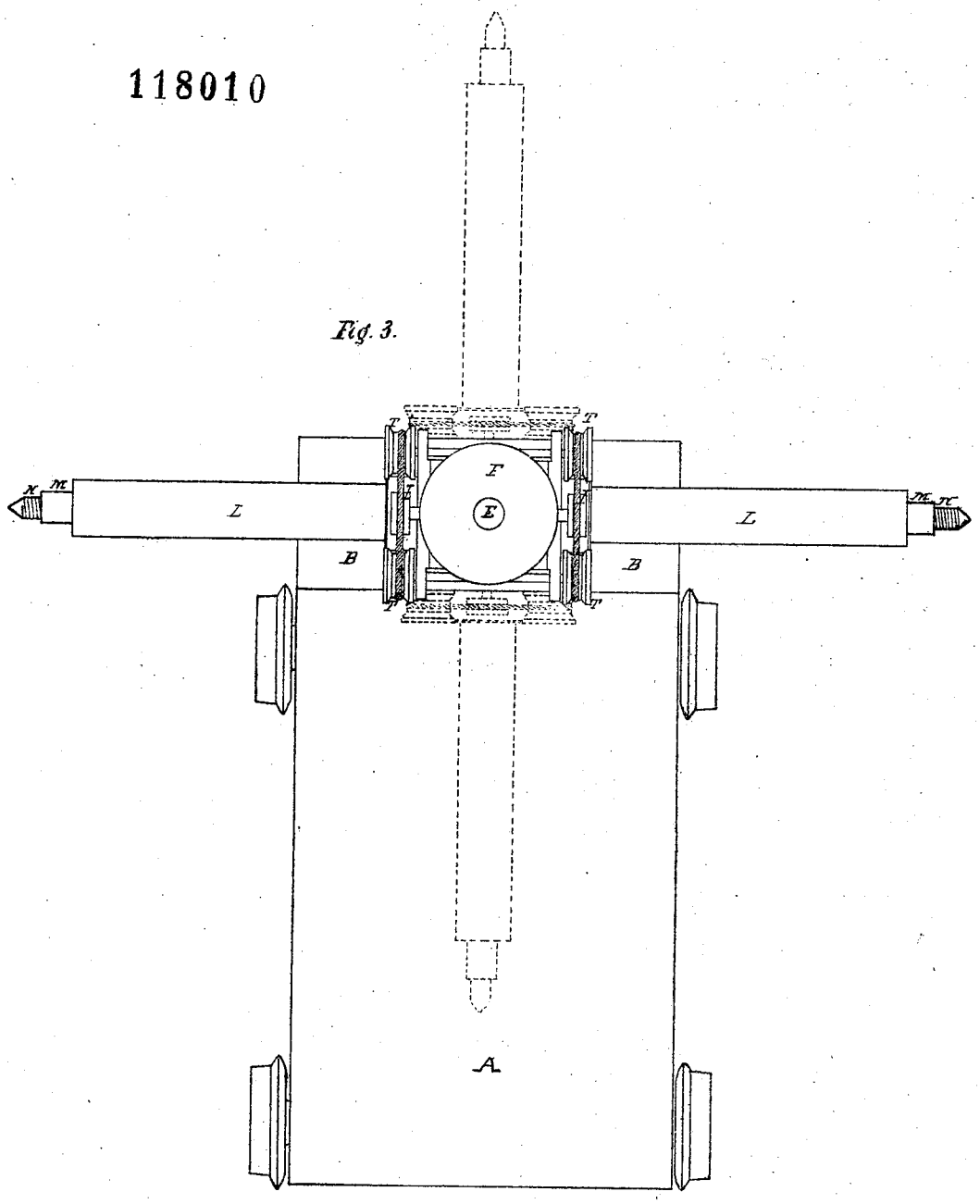
Fig. 3.



Witnesses. Wm. K. Wright, Thos. A. Budd.

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UNITED STATES PATENT OFFICE.

CHALKLEY GRISCOM, JOHN P. GRISCOM, AND LEWIS GRISCOM, OF PORT CARBON, AND JOHN FRITZ, OF MAHANOY TOP, PENNSYLVANIA.

IMPROVEMENT IN TUNNELING-MACHINES.

Specification forming part of Letters Patent No. 118,010, dated August 15, 1871.

To all whom it may concern:

Be it known that we, CHALKLEY GRISCOM, JOHN P. GRISCOM, and LEWIS GRISCOM, of Port Carbon, and JOHN FRITZ, of William Penn Colliery, Shenandoah Valley, Mahanoy Top, Schuylkill county, in the State of Pennsylvania, have invented a new and useful Improvement in Tunneling-Machines; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use our invention, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1, sheet 1, is a side view of our improvement; Fig. 2, sheet 1, a front view thereof; and Fig. 3, sheet 2, a plan or top view of the same, the drill and working parts being omitted.

The same parts are denoted by the same letters in all the figures.

A in the drawing represents a truck which is mounted on flanged wheels so as to run on a railway. From the front of this truck a platform, B, is suspended a little above the surface of the rails. A hub, C, is bolted to the platform, and a mast or column, D, is screwed into the hub or stepped into the platform in any convenient way. The upper part of this column has a screw-thread cut in it to receive an extension screw, E, to which is feathered a nut, F, mortised, as shown at G G. A loose collar, H, rests on a shoulder near the top of the column and supports on its projecting arms the pulleys I I. The column is encircled by a sliding hub, K, from whose sides project the arms L L, which form, with the hub, a yard or spar, adjustable at different heights on the mast, as hereinafter explained. At each end of the spar are extension rods M M sliding within the spar, and adjusted by keys or equivalent devices, and having screw-threads cut in their outer ends to receive extension screws N N. On one arm of the spar is a hub, O, which may be revolved around and slid along the spar, and adjusted in position by any suitable means. To this hub is pivoted, as shown at P, the face-plate R, which carries a drill or boring-rod, S. The gearing and even the engine by which the drill is actuated may, if desired, be mounted on the face-plate. The hub O, instead of being constructed in one piece, as shown, may also be made in two parts, hinged together so as to form a hinged clamp. The spar formed by the hub K and arms L L is suspended from the mast by wire ropes passing over the pulleys I I on the swiveled collar H, and attached to the drums or windlasses T T, which are mounted on the hub K and provided with ratchets and pawls, by which the spar may be adjusted at different heights.

The operation of these devices is as follows: The machine having been run on the railway to the face of the rock to be drilled, blocking is placed between the platform B and the rails or bottom of the tunnel so as to give the foot of the column D a firm support, and the nut F is then turned, by hand-spikes inserted into the mortises G G, until the point or top of the extension screw E bears with great force against the top of the tunnel. The extension rods M M are then slid out and adjusted to the width of the tunnel, and the screws N N turned, by any suitable means, until they also bear firmly against its sides, so that the structure which sustains the drill-rod is fastened solidly to the walls of the tunnel at four points. The column, being mounted on the truck, may be readily adjusted at any desired distance from the face of the rock; and, as the spar may be set at any height and at any angle with the front of the truck, and the hub which carries the drill-rod may also be adjusted both around and in a direction parallel to the axis of the spar, while the face-plate, to which the drill-rod is more immediately attached, may be rotated and adjusted on the pivot P, it is evident that the drill may be made to operate at any height and in any direction. The pump, tool-chests, &c., may be conveniently carried on the truck and the debris thrown upon it as the drilling progresses. When enough drilling has been done for a blast the extension screws are loosened and the truck and machinery easily removed.

We have shown only one drill-rod and spar, but it is evident that a greater number may, if

desired, be mounted on the spar in the manner described, and that a number of spars may be suspended from the column.

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

1. The combination, operating as described, of the extensible column and the extensible spar which supports the boring-tool, and which is adjustable both vertically upon the column and also about the axis thereof.

2. The combination, with the collar H, pulleys I I, and rope, or equivalent devices, of the drums T mounted on the hub K and operating to raise or lower the spar.

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Witnesses:
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WM. R. WRIGHT.