2 Sheets--Sheet 1.

G. E. TOWNE & W. W. BAILEY.

Rock-Drill Carriages.

No. 138,959. Patented May 13, 1873.

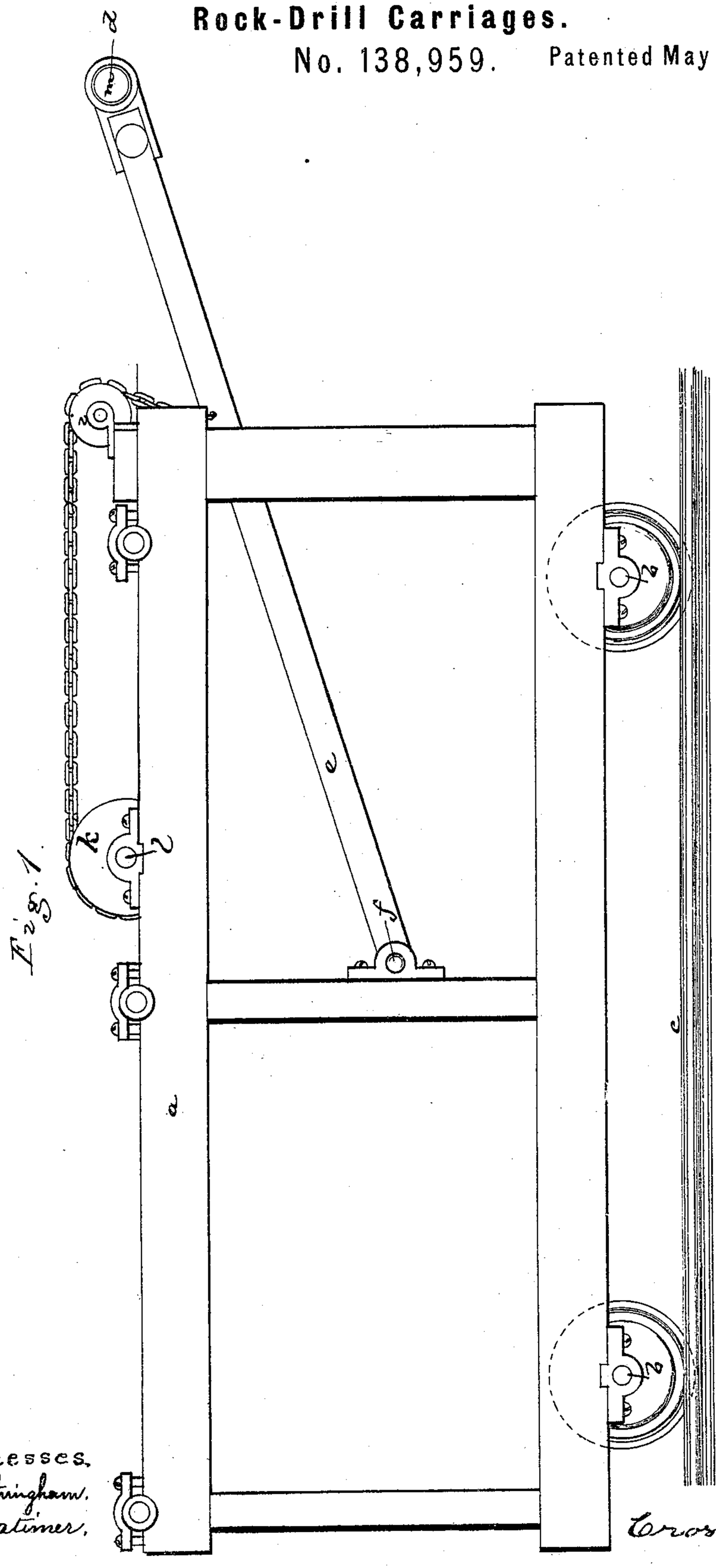


Fig. 1.

Witnesses.
M. W. Frothingham.
L. A. Latimer.

Inventors.
2nd W. W. Bailey.
1st G. E. Towne.
By their Attys
Crosby & Gould

2 Sheets--Sheet 2.

G. E. TOWNE & W. W. BAILEY.

Rock-Drill Carriages.

No. 138,959. Patented May 13, 1873.

Fig. 2.

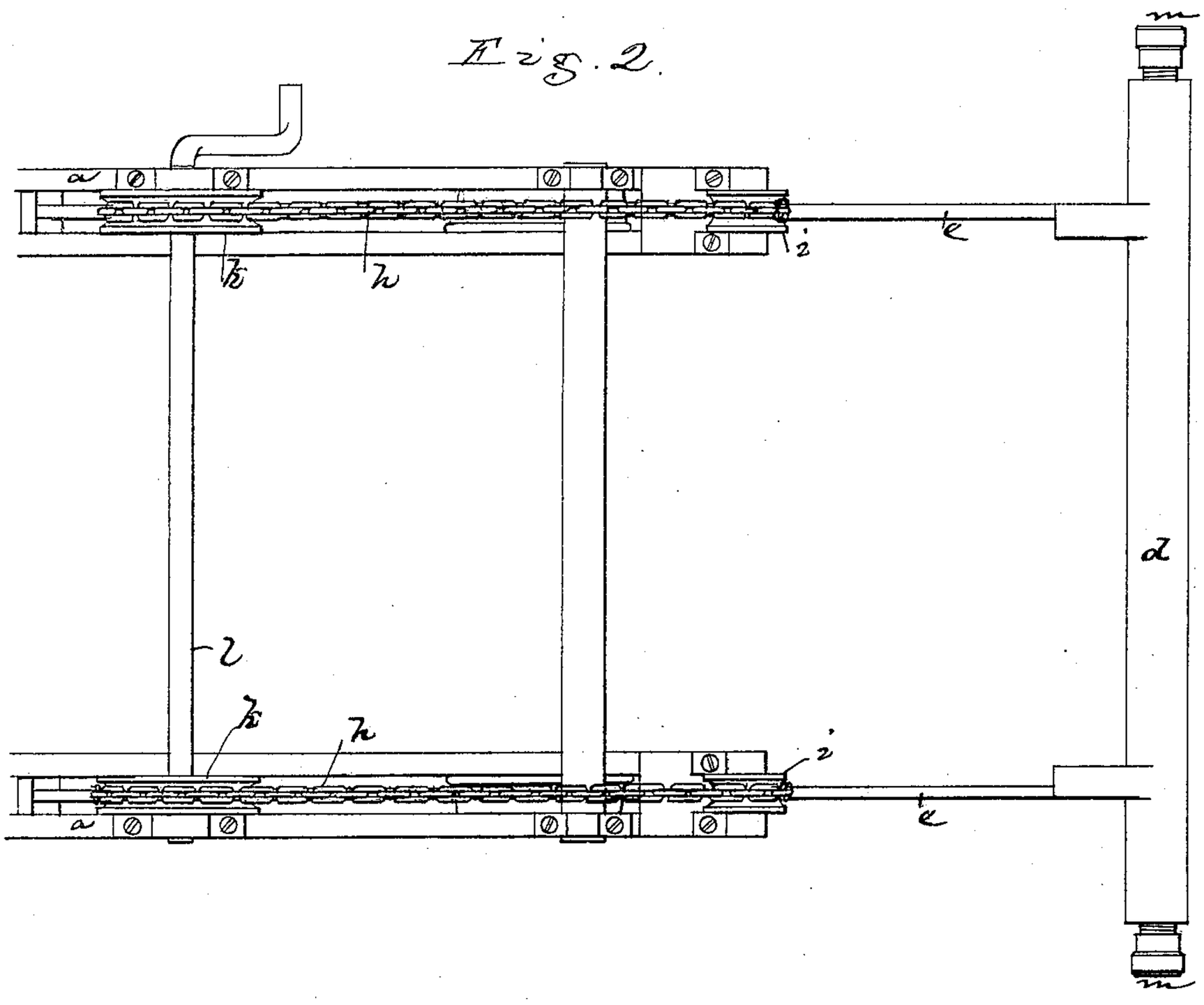
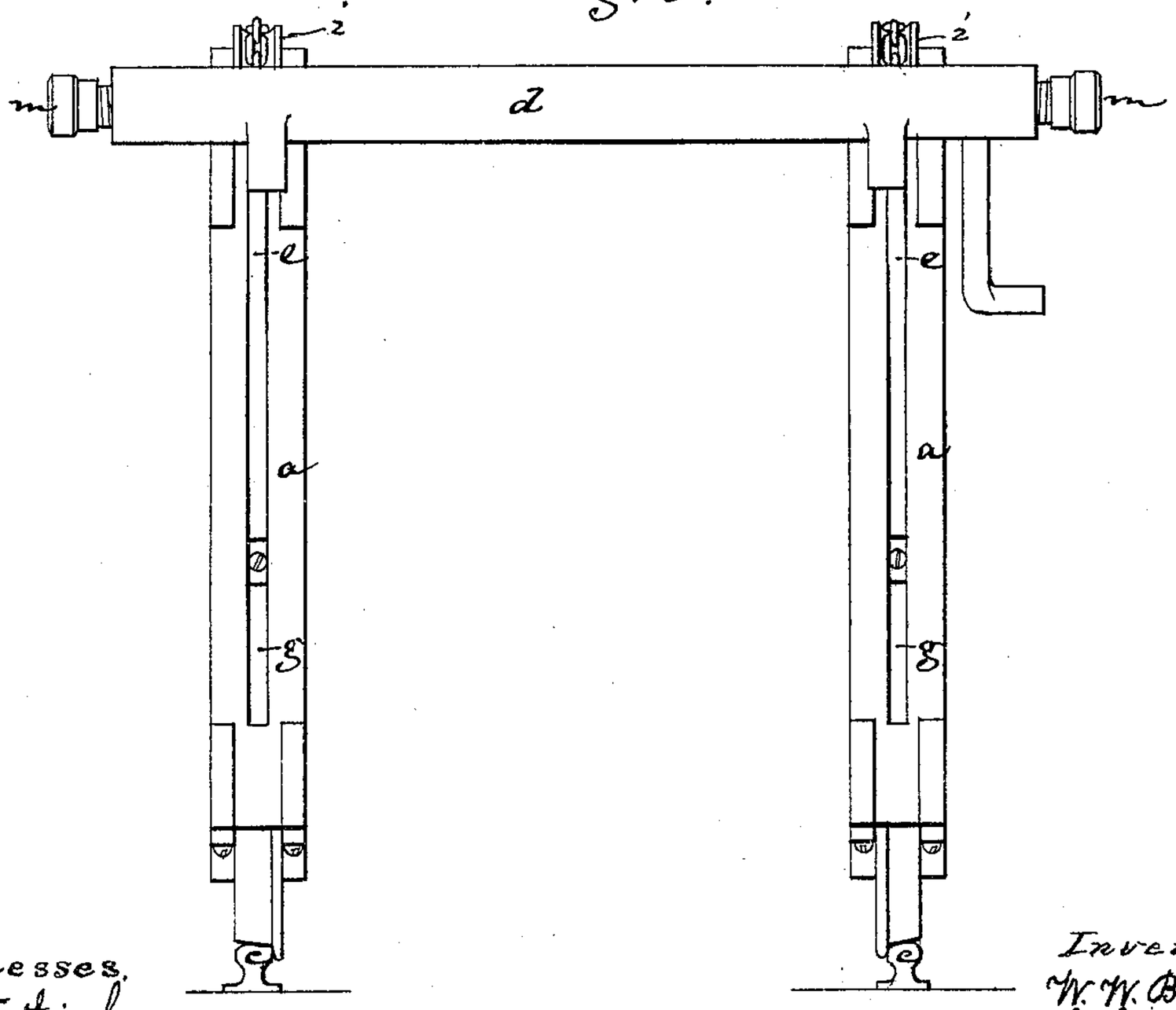


Fig. 3.



Witnesses,
M. W. Frothingham.
Lott Latimer

Inventors,
W. W. Bailey,
G. E. Towne
By their Attys.
Crosby & Gould

UNITED STATES PATENT OFFICE.

GEORGE E. TOWNE AND WILLIAM W. BAILEY, OF FITCHBURG, MASS., ASSIGNORS TO BURLEIGH ROCK-DRILL COMPANY, OF SAME PLACE.

IMPROVEMENT IN ROCK-DRILL CARRIAGES.

Specification forming part of Letters Patent No. **138,959,** dated May 13, 1873; application filed February 7, 1873.

To all whom it may concern:

Be it known that we, GEORGE E. TOWNE and WILLIAM W. BAILEY, both of Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improvement in Rock-Drill Carriages; and we do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

In United States Letters Patent No. 80,387 there is shown a drill-carriage in which the drill stocks or holders are secured to bars fixed or adjustably fastened to the carriage-frame, the carriage being provided with car-wheels, or made as a truck to run upon the railway, and the frame of the carriage being made open, or without cross-bars, the carriage being thereby enabled to run over the broken rock lying between the rails, and also enabling a car-truck to run through it upon a narrower track, to remove the débris without interrupting the progress of the drilling operations. Although such carriage has been an important adjunct in tunneling operations, there is sometimes difficulty in running it up to reach the breast or face of the rock, on account of the débris in front of the carriage, and the drill-bars upon such carriage cannot be readily raised, or lowered, or adjusted in position, and cannot be jacked without leaving the carriage subject to the strains produced by the drill blows.

To remedy these defects, we have made an open carriage, with the drill-holding bar overhung, so that the drills are projected entirely beyond the open frame, and have capabilities of more ready adjustment than are possessed by the drills mounted upon bars directly fixed to the carriage-frame. For this purpose we fasten the drill-holding cross-bar to the outer ends of two long arms, whose inner ends are pivoted to the open carriage-frame at some distance back from the front end thereof, these arms swinging vertically, or being capable of vertical movement upon their pivots, to raise and lower and position the drill-bar, the arms being connected, by a chain and pulley mechanism, with a windlass or winding-wheels fixed on a shaft, by turning and setting which the drill-bar is brought to and held in position. These arms project beyond the ends of the carriage-frame, thereby enabling the drills to reach the rock without necessity of movement of the carriage up to the face against which the drills are to work, the open frame permitting the débris to be drawn through it while the drills are in operation.

Our invention consists in this construction or provision, or in an open-framed drill-carriage having a drill-bar standing in front of the carriage, and fixed upon the front ends of long arms pivoted to the open carriage-frame, and preferably at a distance from the front thereof equal to or in excess of the length projecting beyond the carriage.

The drawing represents a drill-carriage embodying our invention.

Figure 1 shows the machine in side elevation. Fig. 2 is a plan of the front part of the carriage. Fig. 3 is an end view of the carriage.

a denotes the open frame of the carriage, resting upon the short axles of wheels *b*, which fit to and run upon the rails *c*, the frame being made without any cross beams or ties except at top, the short axles and the absence of the cross-bars below the top of the frame leaving an open carriage, free from any obstacle to prevent its running over rock, which, being thrown down in front of the carriage by the operations of the drills, needs only to be cleared from the rails to enable the carriage to run over it. *d* denotes the drill-bar, located in front of and beyond this open carriage, as seen in the drawing, and fixed to the outer ends of two long arms or pivot-bars, *e e*, which are pivoted to the frame, as seen at *f*, the arms *e e* passing through vertical slots *g* at the front end of the frame, and swinging freely in vertical directions in these slots. Fastened to the arms *e e* are chains *h*, which extend over guide-sheaves *i*, and thence to wheels *k* on a shaft, *l*, so that by turning the shaft the arms *e e* are raised or lowered, and

the drill-bar is thus brought to the desired position, at which position it is fastened by the bracing-screws *m*, which are turned outwardly until, by acting against the sides of the shaft, they jack the bar and hold it fast in position.

We claim—

A drill-carriage having, in combination with an open frame, the pivoted drill-bar carrier, arranged to operate substantially as described.

Executed this 25th day of January, A. D. 1873.

GEO. E. TOWNE.
W. W. BAILEY.

Witnesses:
FRANCIS GOULD,
M. W. FROTHINGHAM.