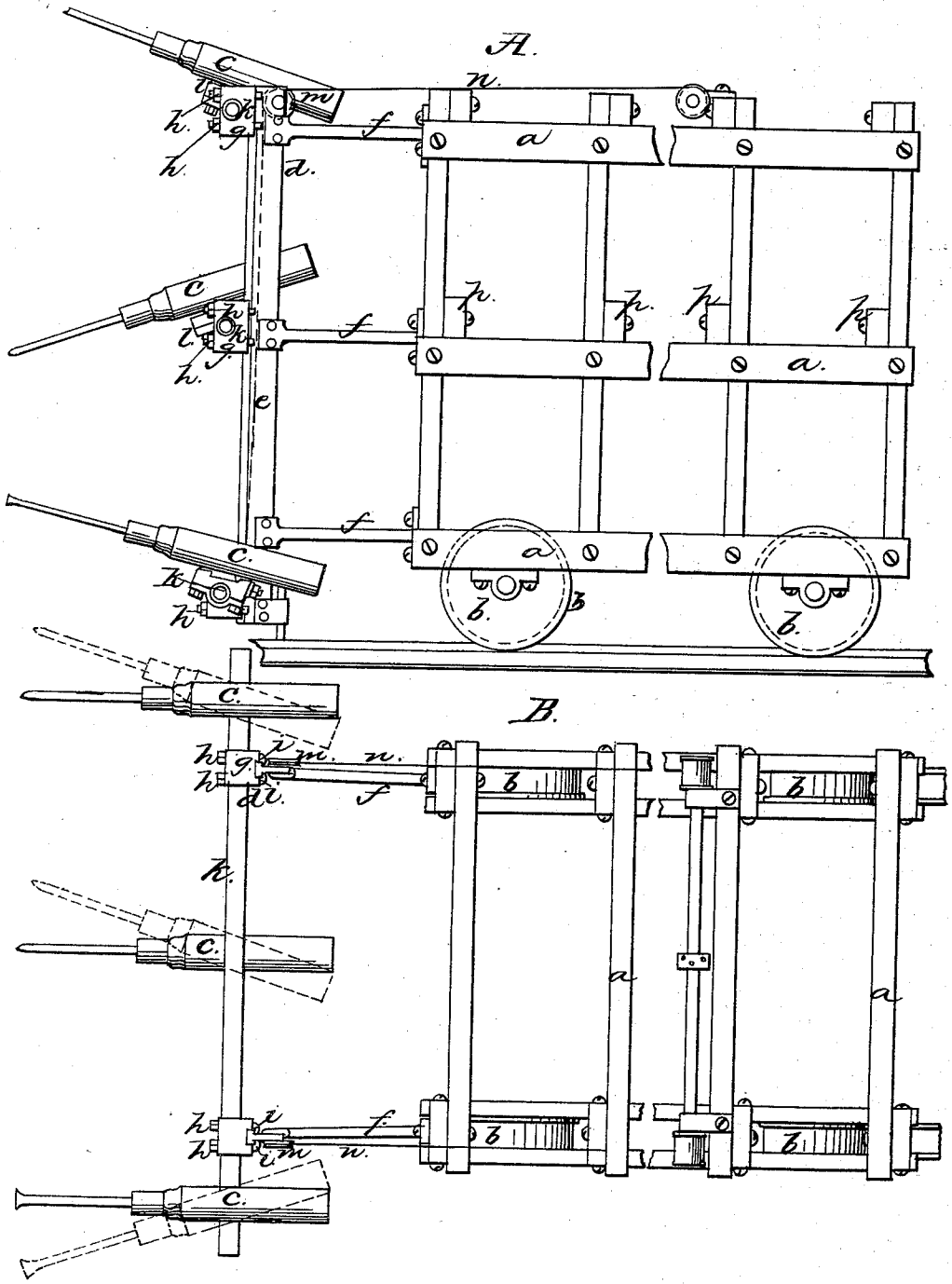
2 Sheets—Sheet 1.

C. BURLEIGH.

DRILLING MACHINE CARRIAGE.

No. 80,387. Patented July 28, 1868.



Witnesses:

W B Crosby

Francis Gould

Inventor:

Charles Burleigh.

2 Sheets—Sheet 2.

C. BURLEIGH.

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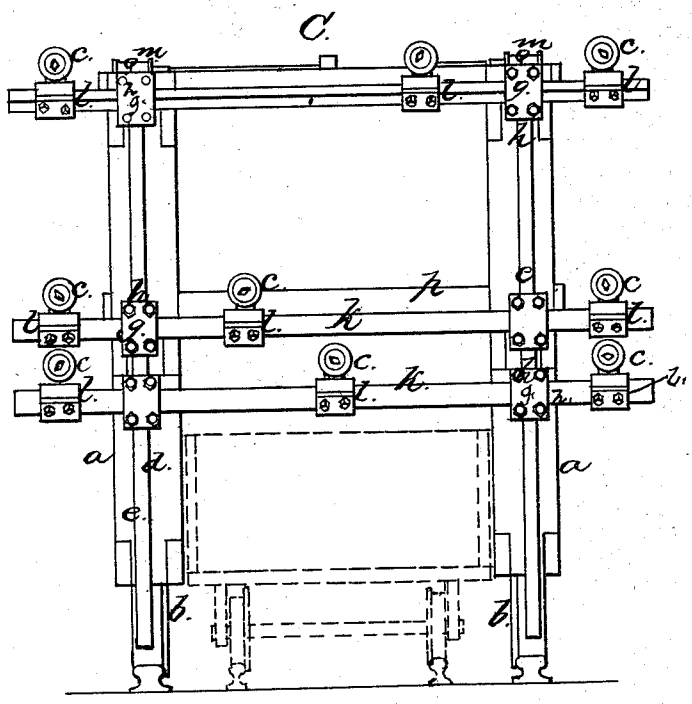

Witnesses:
W. B. Closby
Francis Gould

Inventor:
Charles Burleigh.

United States Patent Office.

CHARLES BURLEIGH, OF FITCHBURG, MASSACHUSETTS.

Letters Patent No. 80,387, *dated July* 28, 1868.

IMPROVED DRILLING-MACHINE CARRIAGE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES BURLEIGH, of Fitchburg, in the county of Worcester, and State of Massachusetts, have invented an Improved Drilling-Machine Carriage; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

My invention relates to the construction and arrangement of parts of rock-drilling-machine carriages, designed for supporting a series of drilling-machines in drilling for blasting in tunnels, mines, or quarries.

My invention has particular reference to the arrangement of the cross-bars, which carry the several series or gangs of drilling-machines, (and particularly the bar which carries the lower drills,) and to the construction of the framework of the carriage with reference to the removal of the rock thrown down by the blast, and with reference to allowing the drill-carriage to be advanced over the debris up to the breast; and the invention consists primarily in so mounting the lower drilling-machines that they may be elevated at the front of the carriage, and in so constructing the carriage-frame that cars may be run up through it to the face of the rock for the removal of the blasted rock, and so that the carriage can be run up to the breast as soon as the tracks only are cleared of debris.

The drawings represent a drilling-machine carriage embodying my improvements.

A shows a side elevation, B a plan, and C an end elevation of the machine.

a denotes a strong frame, mounted on wheels *b*, the frame and wheels making up a carriage for supporting a suitable number of drilling-machines, *c*, which machines are more immediately mounted in a metal framework, *d*, forming the front end of the carriage, the framework *d* being composed of two vertical ways or rails, *e*, connected to the carriage-frame *a* by horizontal bars *f*. On the rails *e* are boxes, *g*, through which run screw-bolts *h*, having lips *i*, projecting over the rail-flange, the boxes being made capable of vertical movement and of adjustment, by loosening and tightening the bolt-nuts. Each pair of boxes, on the opposite rails, supports a cross-bar, *k*, upon which is mounted any desirable number of drilling-machines, *c*, each drill being immediately mounted upon a clamp, *l*, which turns upon this bar to give the drill any desirable inclination in a vertical plane, and the drill being also so applied to the clamp *l* as to admit of being inclined laterally as well as vertically, each drill-clamp, *l*, also sliding on the bar, and admitting of being confined in any position along the length thereof.

A round or a square or other prismatic bar, *k'*, may be employed to hold the clamp, suitable gibs being interposed between the clamp and the bar (when a round bar is not used) for the clamp to turn upon in a vertical plane, the outer surface of the gibs being made cylindrical.

By making the drill-supporting bars adjustable as to height, as shown, the drills on any bar may be brought to the best position opposite to the rock-surface to be drilled, this capability of vertical adjustment and the provision for adjustment laterally of the drill, and for inclining it in any direction, making it perfectly practicable to reach all points of the heading without moving the carriage, except in a forward direction, as the work progresses.

Now, in order to remove the lower drill-bar, so as to allow the loosened and broken rock to be thrown under the carriage, and to allow a car to be run up to the heading, I hang this bar from sheaves *m*, by cords or chains *n*, running back to a windlass-shaft, *o*; and when the rock thrown down by the blast is to be removed, the bolts of the lower drill-bar boxes are loosened, and the bar is drawn up high enough to allow a car to pass freely under the bar, the elevation of the bar also permitting the carriage to be advanced and the upper drill to be put at work, while the loose rock is being thrown down and cleared away.

To allow the car to be run up through the carriage, without disturbing the carriage, I place all the cross-beams, *p*, in the upper part of the frame, as seen at C, leaving a clear passage directly through the whole length of the carriage, from side to side, of size sufficient to permit a car to be run through the carriage with its load of loose rock.

This construction greatly facilitates the advance into the rock, as it economizes all the time otherwise employed in withdrawing the drill-carriage to allow the cars to enter.

It will be seen that with a carriage of this description, the entire breast of a tunnel or of a cutting may be worked instead of being confined to working a mere lower section, and the carriage also affords facilities as a staging to accommodate workmen engaged in trimming minor projections of rock, and other stagings may be secured to the carriage.

I claim the arrangement of one or of a series of horizontal drill-machine bars or holders, substantially as described, so that any of the bars or holders, and especially the lower one or the lower series, may be elevated to allow the passage of the carriage to the breast when the track-rails only are cleared from debris, and to allow passage of a car through the carriage and under the lower bar or bars up to the breast.

I also claim a drill-machine carriage, so constructed that a car may be run up through the carriage, substantially as set forth.

CHARLES BURLEIGH.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.