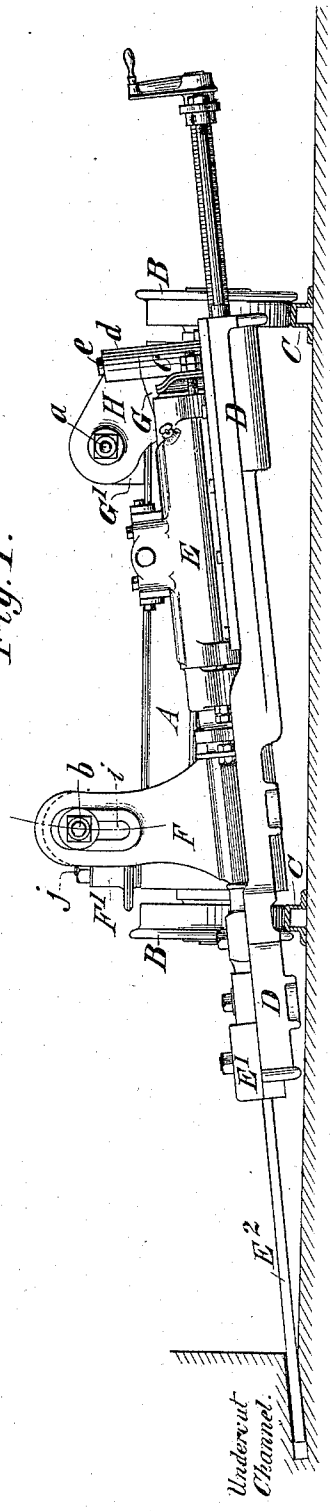
(No Model.) 3 Sheets—Sheet 1.

H. C. SERGEANT.

CHANNELING MACHINE.

No. 565,639. Patented Aug. 11, 1896.

Fig. 1.



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Henry C. Sergeant.
by attorneys:
Brown & Seward

(No Model.) 3 Sheets—Sheet 2.

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No. 565,639. Patented Aug. 11, 1896.

Fig. 2.

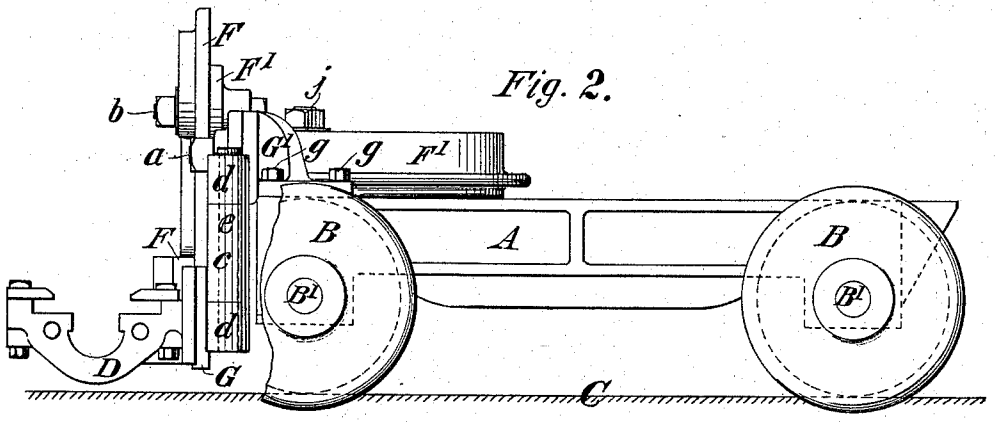
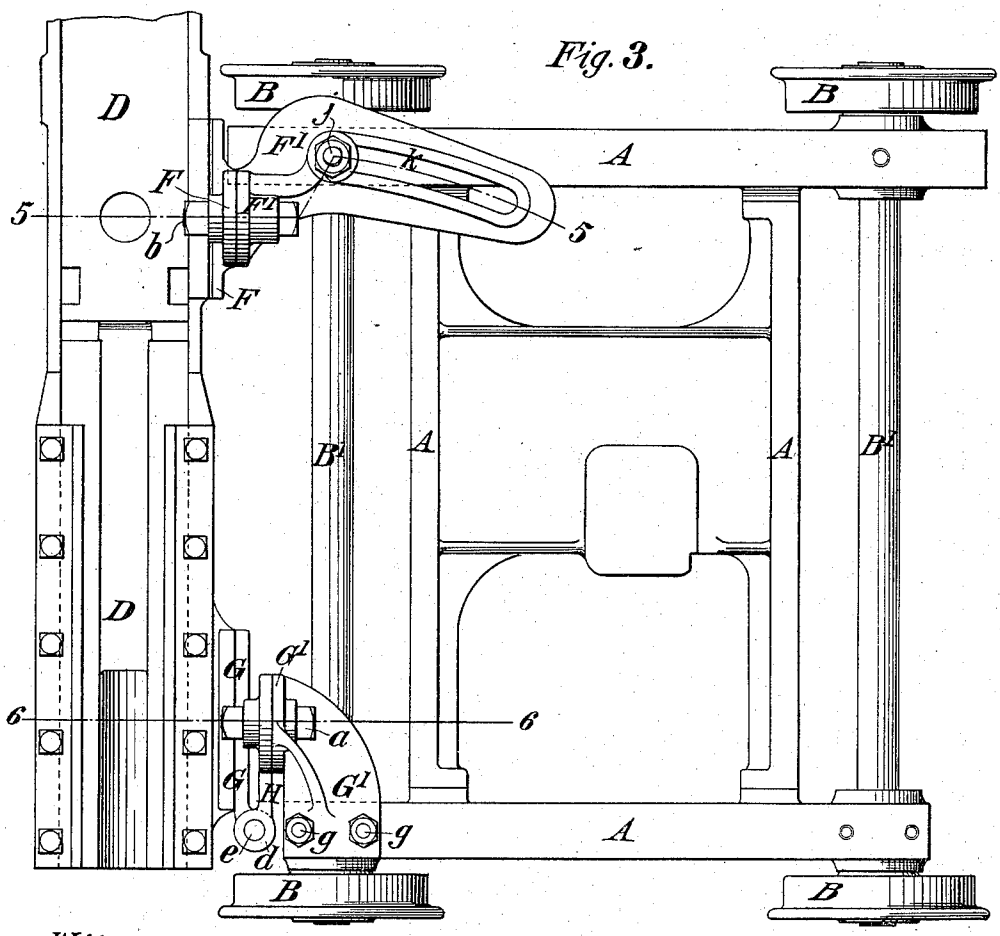


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

H. C. SERGEANT.

CHANNELING MACHINE.

No. 565,639. Patented Aug. 11, 1896.

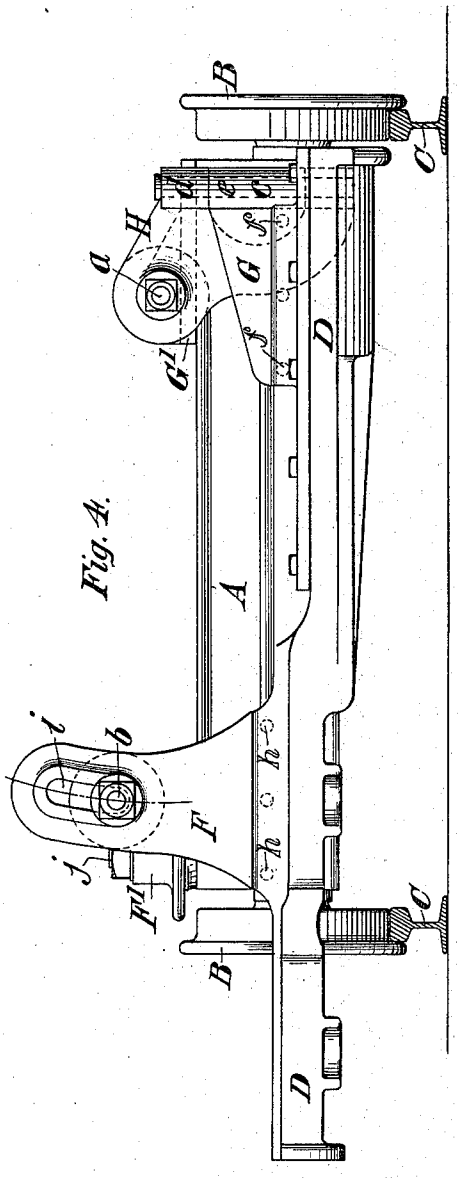

Fig. 4.

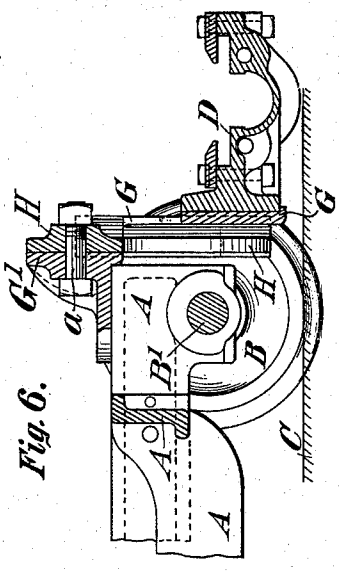

Fig. 6.

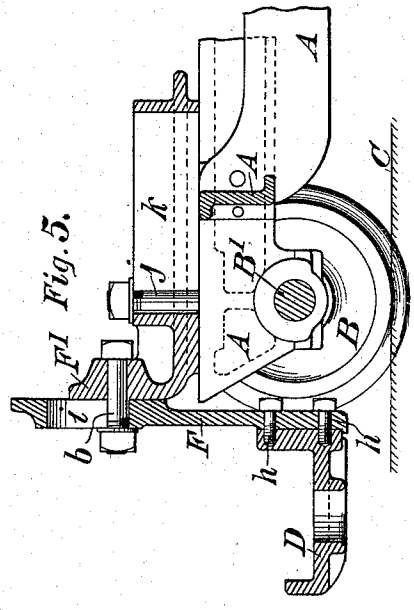

Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE INGERSOLL-SERGEANT DRILL COMPANY, OF NEW YORK, N. Y.

CHANNELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,639, dated August 11, 1896.

Application filed August 15, 1895. Serial No. 559,338. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, of Westfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Channeling-Machines, of which the following is a specification.

My invention relates to channeling-machines of the class commonly known as "track-channelers," such machines comprising a carriage mounted to run on a track and on which is secured a rock-drill embodying a cylinder and a piston reciprocating rapidly therein and having a drill or bit secured upon its piston-rod.

The object of this invention is to adapt such a machine to the production of what are known in quarrying operations as "undercut channels," having generally a horizontal direction or a direction only deviating from the horizontal as may be desirable to permit the bits to follow a dipping or pitching vein.

The invention consists in certain combinations hereinafter described and claimed, whereby the machine is adapted to the cutting of such channels as are hereinabove mentioned.

Figure 1 represents an elevation of an undercutting track-channeler embodying my invention; Fig. 2, an elevation at right angles to that shown in Fig. 1, showing only those parts of the machine directly involved in my invention. Fig. 3 is a plan view corresponding with Fig. 2; Fig. 4, an elevation corresponding with Fig. 1, but including only the parts shown in Figs. 2 and 3. Fig. 5 represents a vertical section taken in the line 5 5 of Fig. 3; Fig. 6, a vertical section taken in the line 6 6 of Fig. 3.

A designates the carriage of the machine, represented as consisting of a quadrangular frame mounted on wheels B B to run on a light-rail track C C, conveniently laid for the purpose. To either end of this carriage what is known as the "drill-back," consisting of the frame which carries the drill-cylinder E and its immediate appurtenances, is attached in such manner that the said drill-back will completely overhang the carriage, as shown in Figs. 2, 5, and 6, and will lie across and very close to the track and may be adjusted vertically to a horizontal position, as shown in Fig. 4, or to such inclination as may be desired, as illustrated in Fig. 1, and that it may be further adjusted horizontally to a position parallel with the axles B′ of the wheels B or more or less oblique thereto, as may be desired.

For the purpose of attaching the drill-back D to the carriage to provide for the adjustments hereinabove mentioned, the said drill-back has attached to it on that side which comes next the carriage two hangers F and G H, through which it is bolted by screw-bolts *a* and *b* to two standards F′ and G′, erected upon the carriage A near one end thereof, but at opposite sides thereof, as shown in Figs. 3 and 4.

The hanger G H at the rear end of the drill-back D consists of two members G and H, united by a hinge *c d e*, the upright pivotal connection *e* of which is situated very near the rear end of the drill-back. The member G is rigidly bolted at *f f*, Fig. 4, to the drill-back and the member H is bolted to the standard G′ by a bolt *a*, which serves as a pivot upon which the drill-back with the cylinder E, the reciprocating bit-holder E′, and bits E^2 may be adjusted vertically to a horizontal position, as shown in Fig. 4, or to an inclined position, as shown in Fig. 1. The standard G′ is bolted rigidly to the carriage by bolts *g g*, as shown in Figs. 2 and 3, the adjustments at the rear end of the drill-back being made on the pivots *a* and *e*. The hanger F at the front end of the drill-back or cylinder-frame D is bolted rigidly thereto at *h h*. This hanger consists of a simple upright, in which is an arc-formed slot *i* (see Figs. 1, 4, and 5) for the reception of the bolt *b*, which fits snugly in a hole in the standard F′, the said slot being concentric with the pivot *a* to permit the upward and downward adjustment of the front end of the drill-back. This adjustment is secured by screwing up the bolts *a* and *b*. The hinge *c d e* provides for the adjustment of the drill-back with its drill-cylinder E in a horizontal direction to a position parallel with the axles B′ and at right angles to the track or to a position oblique thereto, and to permit this adjustment and provide for securing the drill-back at the proper angle transverse to the carriage A and track when so adjusted the base of the standard F′, which rests on the top of the carriage and is secured

to the latter by a bolt *j*, has provided in it, as shown in Figs. 3 and 5, for the reception of said bolt, a slot *k*, which is in the form of an arc concentric with the pivot *e* of the hinge.

The carriage A is intended to be furnished with a steam-engine or other motor gear in any suitable manner with one of its axles for the purpose of moving it upon the track in a direction in which the channel is to run. As such motors and gearing are used on channeling-machines it will be sufficient here to say that these may be such as are described in my Letters Patent No. 402,862 or in my Letters Patent No. 522,236.

The whole of the drilling apparatus, consisting of the drill-back, drill-cylinder, bit-stock, and bits, together with the hangers F and G H and standards F′ and G′, may be made reversible from one end of the carriage to the other, or two separate drilling apparatuses may be provided, one for each end of the carriage and each attached thereto by its own set of hangers and standards, such as herein above described.

It is an important feature of this invention that the drilling apparatus, by reason of its drill-back or frame entirely overhanging the end of the carriage, with the drill-cylinder across the track instead of being arranged to overhang one of the sides of the carriage parallel with the track, as is common in track-channelers, permits the cutting of a horizontal channel nearly on a level with the track on which the carriage runs or a slightly-inclined channel as low as or even lower than the said track, and also permits the cutting of the channel close up into corners.

Another important feature is the adjustments provided for the setting of the cylinder and bits either square with the line of the channel or at an oblique angle thereto.

What I claim as my invention is—

1. In a channeling-machine, the combination of a carriage, a drilling apparatus comprising a drill-cylinder and a reciprocating bit-holder and bit, and a frame for said cylinder attached to the said carriage at one end thereof and overlapping the said end, said frame being adjustable upward and downward relatively to the carriage to place the drill-cylinder and bit-holder in horizontal or inclined positions crosswise of and beyond the end of the carriage, substantially as herein described.

2. In a channeling-machine, the combination of a wheeled carriage, a drill-cylinder and a reciprocating bit-holder and bit, and a frame for said cylinder attached to the said carriage at one end thereof and overlapping the said end beyond and outside of the carriage-wheels, the said frame being adjustable upward and downward relatively to the carriage to place the drill-cylinder in horizontal or inclined positions crosswise of the carriage and outside of its wheels, substantially as herein described.

3. In a channeling-machine, the combination of a wheeled carriage, a drill-cylinder and a reciprocating bit-holder and bit and a frame for said cylinder attached to the said carriage at one end thereof and overlapping the said end beyond the carriage-wheels, the said frame being adjustable horizontally in different positions beyond the carriage-wheels to place the drill-cylinder at different angles to the axis of the said wheels, substantially as herein described.

4. In a channeling-machine, the combination of a carriage, a drilling apparatus comprising a drill-cylinder and a bit-holder and bit, and a frame for said cylinder attached to the carriage at one end thereof and overlapping the said end, said frame being adjustable both vertically and horizontally to place the cylinder and bit-holder at various inclinations and at various angles transverse to the carriage beyond the end thereof, substantially as herein described.

5. In a channeling-machine, the combination of a carriage, a drilling apparatus comprising a drill-cylinder and a bit-holder and bit arranged across and overhanging one end of said carriage, an upright pivotal connection between said frame and one side of the carriage, and a horizontally-movable clamping connection between the said frame and the other side of the carriage, the said pivotal and clamping connections providing for the horizontal adjustment of the said frame at different angles transverse to the carriage, substantially as herein described.

6. The combination with the carriage and the drill-back arranged beyond one end of the carriage, of a hanger composed of two members which have an upright pivotal connection and one of which is affixed to the drill-back, a standard affixed to the carriage, and a horizontal pivotal connection between the other of said members and said standard, substantially as and for the purpose herein described.

7. The combination with the carriage and the drill-back, of an upright pivotal connection between the drill-back and the carriage at or near one side and one end of the latter, a hanger affixed to the drill-back at or near the same end and the other side of the carriage, an adjustable standard having a curved slotted base on said other side of the carriage, and bolts for adjustably securing said standard to the carriage and attaching said hanger to said standard, substantially as herein described.

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