(No Model.) 4 Sheets—Sheet 1.

G. A. BARTH.

CARRIAGE FOR DIRECT ACTING ROCK DRILLS.

No. 397,827. Patented Feb. 12, 1889.

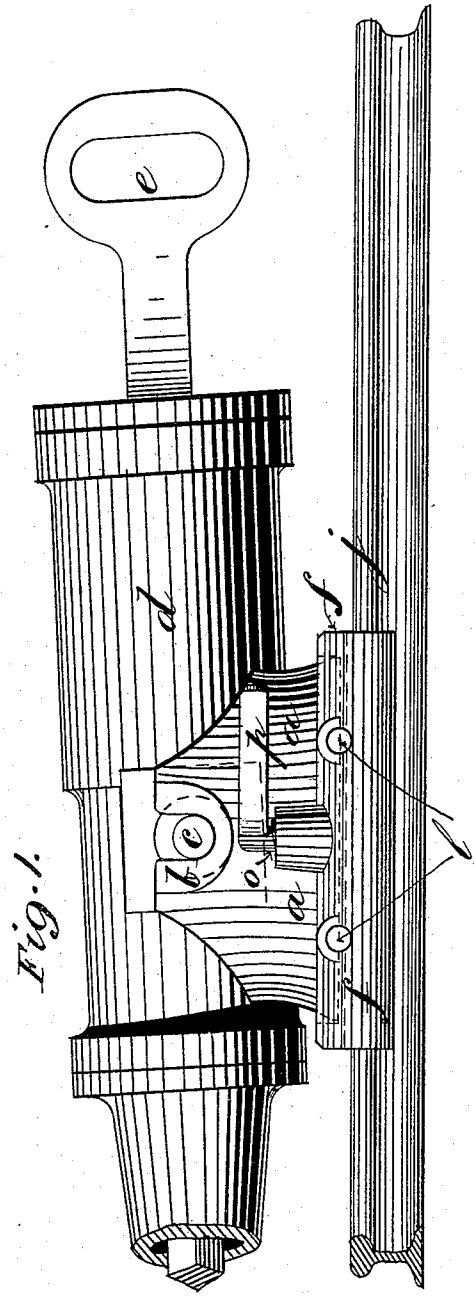


Fig. 1.

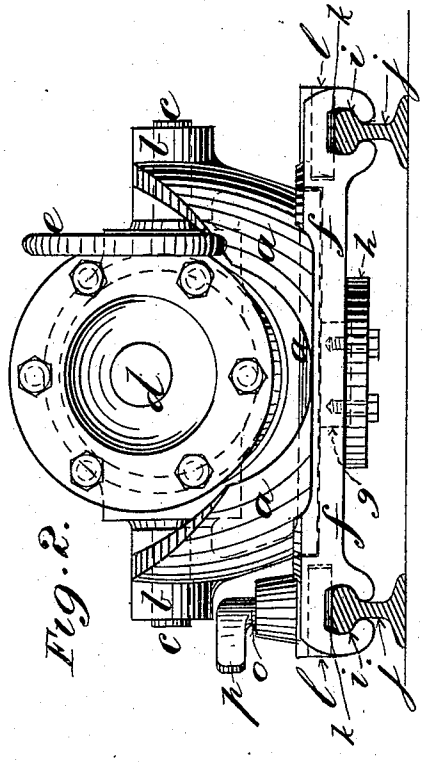


Fig. 2.

WITNESSES.
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S. L. Schrader.

INVENTOR,
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N. PETERS. Photo-Lithographer. Washington, D. C.

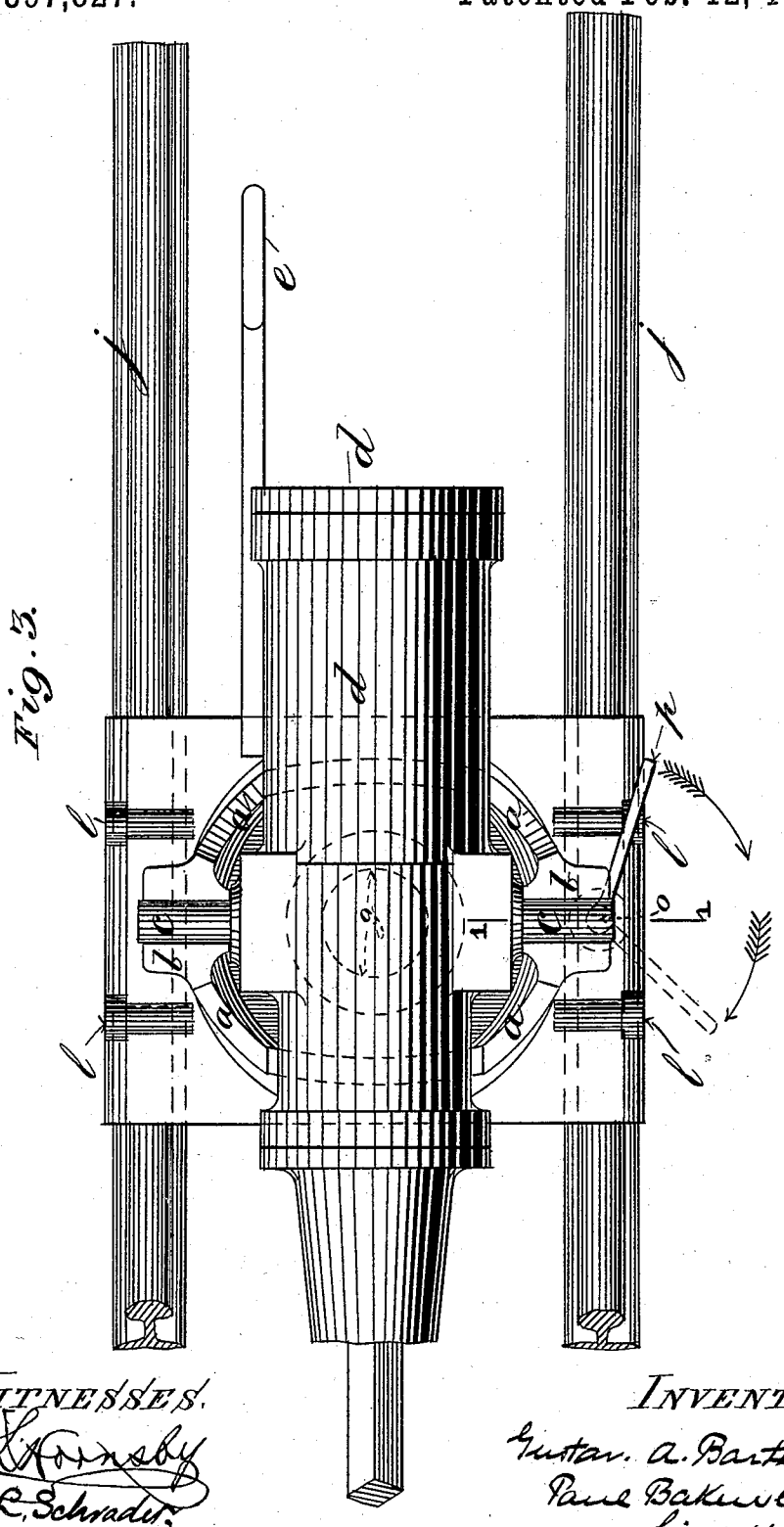
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CARRIAGE FOR DIRECT ACTING ROCK DRILLS.

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Fig. 3.



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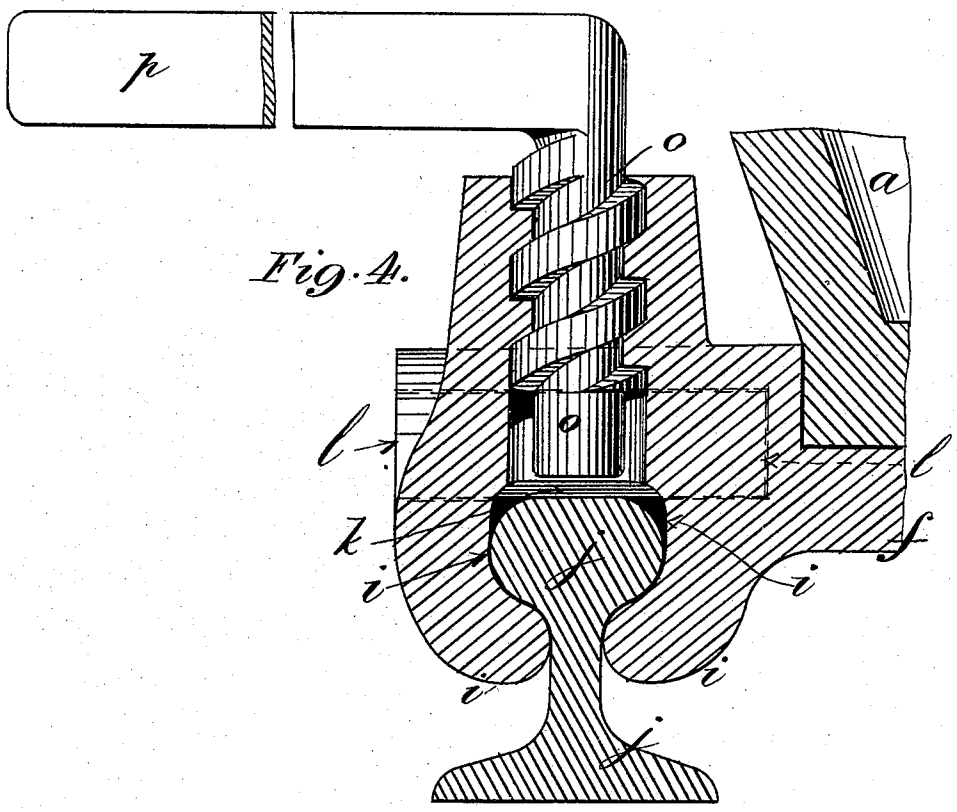
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CARRIAGE FOR DIRECT ACTING ROCK DRILLS.

No. 397,827. Patented Feb. 12, 1889.

Fig. 4.



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G. A. BARTH.

CARRIAGE FOR DIRECT ACTING ROCK DRILLS.

No. 397,827. Patented Feb. 12, 1889.

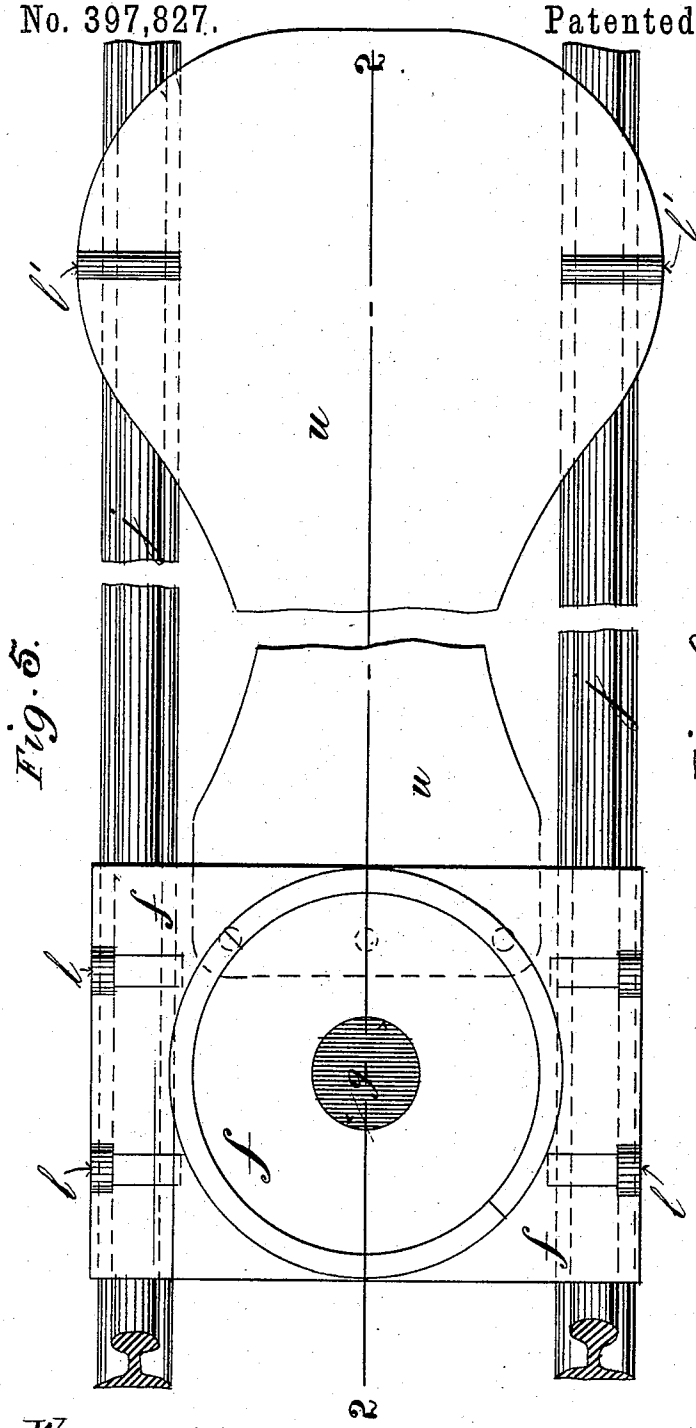


Fig. 5.

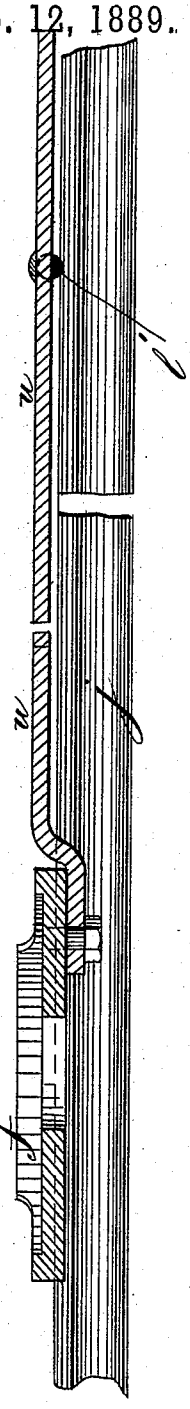


Fig. 6.

WITNESSES.
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Paul Bakewell
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N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GUSTAV A. BARTH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO PIERRE CHOUTEAU, OF SAME PLACE.

CARRIAGE FOR DIRECT-ACTING ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 397,827, dated February 12, 1889.

Application filed June 25, 1888. Serial No. 278,135. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV A. BARTH, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Carriages for Direct-Acting Steam or Pneumatic Rock-Drills Used for Mining Purposes, of which the following is a specification.

My invention relates to an improved carriage for supporting a direct-acting steam or pneumatic engine while in operation as a machine for chipping and mining purposes, and has for its object to prevent the recoil of the machine on the tool striking the material to be dislodged, and thereby remove the strain hitherto thrown on the operator when the machine is mounted on wheels, in the usual manner.

It consists in a horizontally-arranged block or cradle provided with bearings, in and between which is mounted the machine on pivots or trunnions, the cradle being swiveled centrally to and capable of independent horizontal rotation on a bed-plate or carriage, having on its under side grooves or channels which correspond in shape with and fit over the heads of two parallel rails, along which the entire apparatus is caused to travel, and securely held thereto at any point by a screw (or screws) which works through the bed-plate, and on being turned in one direction butts against the top table of the rail, so as to lift the bed-plate slightly thereat, and thereby clamp the rail-head tightly between the screw and the lower portion of the groove or channel on the bed-plate, whereby the carriage is fixed and the machine prevented from recoiling when the tool strikes the material.

On the accompanying drawings, Figure 1 represents a side elevation of my improved carriage with a mining-engine, broken away, mounted thereon; Figs. 2 and 3, a rear end view and plan thereof, respectively; Fig. 4, a section to an elarged scale on line 1 1 in Fig. 3, broken away; Fig. 5, a detached plan of part of Figs. 1, 2, and 3, showing a platform attached thereto; and Fig. 6, a section thereof on line 2 2 in Fig. 5.

Like letters of reference denote like parts in all the figures.

a represents an elliptical or other suitably-shaped block or cradle, having a circular base which is arranged horizontally and formed with two opposite upwardly-projecting sides, in each of which is a bearing, *b*, the two bearings *b* being opposite to each other in the same plane and at a suitable distance apart for receiving the pivots or trunnions *c* of the mining-machine *d*, which is mounted between and at right angles longitudinally to the bearings *b* and projects at each end beyond the cradle *a*.

The front end of the machine *d*, as seen broken away to the left of Figs. 1 and 3, carries the chipping or other mining tool, with its appendages, in the usual manner; but these parts, not being necessary to the understanding of my invention, need no illustration.

To the rear end of the machine *d* is attached one or more handles, *e*, for directing the apparatus to its work.

The cradle *a* is supported on and swiveled centrally to a bed-plate, *f*, by a circular stud or projection, *g*, which is formed on or attached centrally to the under side of the base of the cradle *a* and fitted into a corresponding hole in the bed-plate *f*. To the lower end of the stud or projection *g* is secured a head or collar plate, *h*, which bears against the under side of the bed-plate *f*, so that the cradle *a*, while capable of rotation on the bed-plate *f*, is confined thereto vertically.

Formed in or projecting from and along the under side of the bed-plate *f* are two parallel grooves or channels, *i*, which correspond in shape and configuration with and are placed over so as to embrace the heads of two parallel rails, *j*, on which the entire apparatus is supported and moved to and from the material to be dislocated.

A certain space, *k*, is left between the entire length of the upper portion or roofs of the grooves or channels *i* and the top tables of the heads of the rails *j*, and across the spaces *k* are inserted, at suitable distances apart, rollers *l*, which are bedded and rotate in the bed-plate *f*, except through the spaces *k*, where they are exposed and bear upon the top tables of the rails *j*. By this arrangement frictional contact between the bed-plate *f* and

rails *j* is prevented and the entire weight of the apparatus carried by the rollers *l*.

Within a hole tapped vertically through the bed-plate *f* and through the roof of one of the grooves or channels *i* is fitted a screw-bolt, *o*, (seen more particularly in Fig. 4,) which is provided at its upper end or shank, outside the bed-plate *f*, with a lever, *p*, the lower plain end of the screw *o*, when the machine is not in use, being somewhat clear of the top table of the rail *j*, in which position the lever *p* will be thrown over toward the rear end of the machine, as seen in Fig. 3; or, if desired, more than one screw *o* may be used on either or both sides of the bed-plate *f*.

The machine *d* being mounted on its carriage, as above described, and resting therewith on the rails *j*, the entire apparatus is moved along the rails *j* by the handle *e* of the machine *d* until the latter is in the proper position for striking the material. The operator then throws over the lever *p* by his foot toward the front end of the machine, or into the position shown by dotted lines in Fig. 3, which causes the screw *o* to be partially rotated, and its lower end closing upon the top table of the rail *j* raises the bed-plate *f* sufficiently to tightly clamp the head of the rail *j* between the screw *o* and the lower part or jaws of the groove or channel *i*, in which position the carriage is immovable, and the recoil of the machine transmitted thereby to the rail-bed in lieu of to the operator, as heretofore.

To the rear end of the bed-plate *f* is attached, as seen in detached views, Figs. 5 and 6, one end of a platform, *u*, on which the operator sits or stands for handling the machine *d*, the rear end of this platform *u* being provided on its under side with rollers *l'*, similar to the rollers *l*, already described, for bearing on the rails *j*, (or plank *q*.) By this construction I not only provide a convenient place for the operator to sit, but also utilize the operator's weight in clamping the carriage-platform to the rails to assist in counteracting the recoil of the machine caused by the tool striking the material.

By this invention the machine *d*, though prevented from recoiling, can be directed to varying situations—either upward, downward, or sidewise, as required. It can also be considerably lightened, as the great weight hitherto used in its construction for diminishing the recoil is dispensed with.

I claim—

1. In a coal-mining machine, the combination, with a carriage having a cylinder mounted thereon, of an operator's platform attached to and projecting from the rear thereof back of the fulcrum or center of gravity, whereby the weight of the operator overweights the carriage and causes it to bind upon the track and neutralize the recoil, substantially as and for the purposes described.

2. The combination of bed-plate *f*, formed with grooves or channels *i*, embracing the heads of rails *j*, rollers *l*, screw *o*, having lever *p*, and a block or cradle, *a*, having bearings *b*, with direct-acting steam or pneumatic engine provided with pivots or trunnions, substantially as shown, and for the purpose described.

3. In a coal-mining machine, the combination, with a carriage and a track therefor, of a clamp for binding the carriage to the rail to neutralize the recoil, a cylinder-cradle pivotally mounted thereon to allow of horizontal rotary movement of the cylinder independent of the carriage, said cradle having trunnions-bearings, and a cylinder having trunnions mounted on said cradle, whereby the said cylinder is capable of vertical and horizontal oscillatory motion independent of the carriage, substantially as and for the purposes described.

4. In a coal-mining machine, the combination, with a carriage and a track therefor, of a clamp for binding the carriage to the rail to neutralize the recoil, a cylinder-cradle pivotally mounted thereon to allow of horizontal rotary movement of the cylinder independent of the carriage, and an operator's platform attached to and projecting from the rear thereof back of the fulcrum or center of gravity, whereby the weight of the operator overweights the carriage and causes it to bind upon the track and assist in neutralizing the recoil, substantially as and for the purposes described.

In testimony whereof I affix my signature, in presence of two witnesses, this 21st day of June, 1888.

GUSTAV A. BARTH.

Witnesses:
S. L. SCHRADER,
J. L. HORNSBY.