

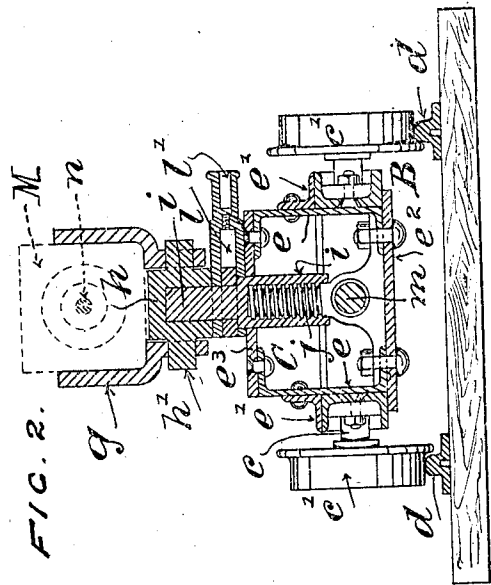
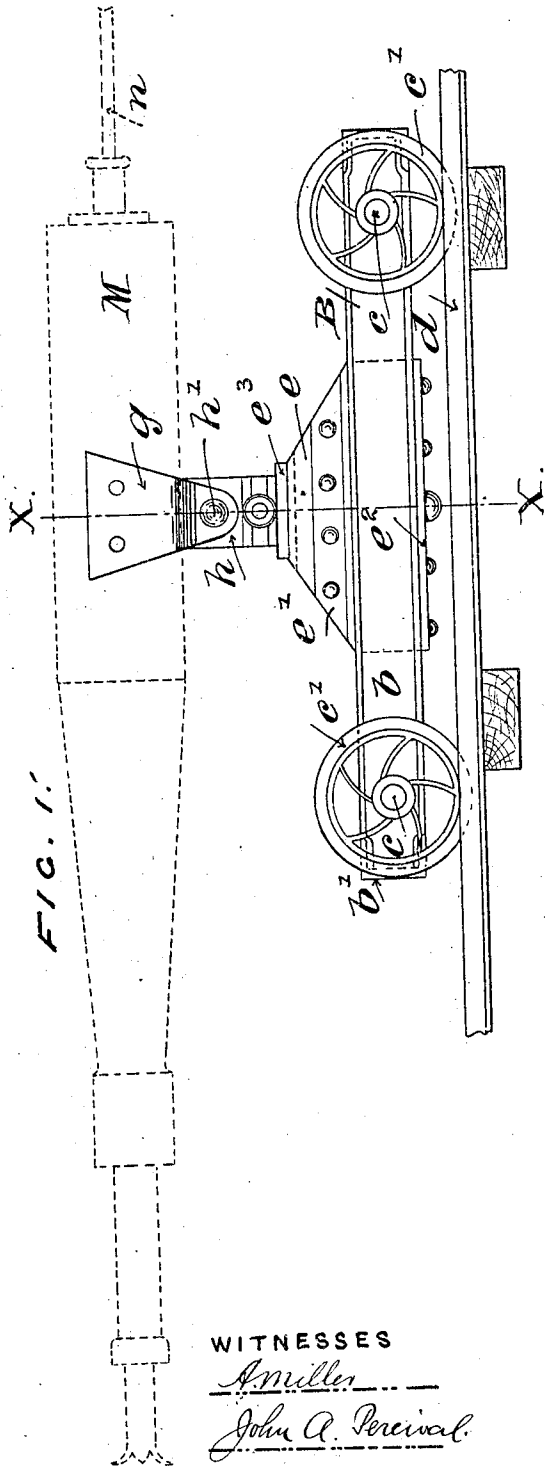
No. 830,697.

PATENTED SEPT. 11, 1906.

W. YOUNG, W. CLARK & H. GREEN.
COAL CUTTING OR WINNING MACHINE.

APPLICATION FILED OCT. 20, 1905.

2 SHEETS—SHEET 1.



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UNITED STATES PATENT OFFICE.

WILLIAM YOUNG, WILLIAM CLARK, AND HENRY GREEN, OF BICKERSHAW, ENGLAND, ASSIGNORS OF ONE-FOURTH TO CHARLES FITZHENRY BOUCHIER, OF HINDLEY, ENGLAND.

COAL CUTTING OR WINNING MACHINE.

No. 830,697.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed October 20, 1905. Serial No. 283,677.

To all whom it may concern:

Be it known that we, WILLIAM YOUNG, residing at 533 Bickershaw Lane, WILLIAM CLARK, residing at 523 Bickershaw Lane, and HENRY GREEN, residing at Hurdley Field House, Bickershaw, Wigan, in the county of Lancaster, England, subjects of the King of Great Britain, have invented new and useful Improvements in Coal Cutting or Winning Machines, of which the following is a specification.

This invention has reference to coal cutting or winning machines of the type actuated by fluid-pressure, and relates principally to carriages for such coal-cutting machines and to the mounting of such percussive machines upon such carriages with a view to greatly facilitating the working or manipulation and the transport of such machines in the mine.

The invention aims at greatly facilitating the working and handling of coal-cutting machines of the "Ingersoll" type, but it may be found useful with other types of percussive tool for winning coal.

At the present time the Ingersoll machine is provided with two small wheels in an approximately mid-position and also with handles in the rear, and the machine when in actual use rests upon boards arranged at an angle and supported by trestles or otherwise. The operator squats in the rear, with his hands on the handles and his legs disposed on either side of the machine, the working of which he controls and directs. Working the machine in this way is a more or less arduous task for the operator who is backing up and controlling the machine, while the transport or carrying about of the machine, boards, and trestles is a by no means easy task in the mine. In addition to this, the machine cannot be as smartly and easily handled as is desirable.

According to our invention we propose to entirely dispense with the usual wheels at present attached to the Ingersoll machine and to mount the machine upon a carriage or traveling base and in such a manner as will permit of the machine having a universal movement, and, in addition, we provide for a

vertical and horizontal movement of the coal cutting or winning machine with respect to such carriage or traveling base.

The invention will be fully understood from the detailed description which we now give, such description being drafted with regard to the annexed two sheets of drawings, in which—

On Sheet 1, Figure 1 shows a side elevation of our carriage supporting a percussive coal-winning machine of the Ingersoll type, the wheels of the carriage being shown engaging the rails of a track such as is used for the ordinary haul trucks in the mine. Fig. 2 is a transverse section of Fig. 1, taken on the line X X. On Sheet 2, Fig. 3 shows a plan view of the carriage. Fig. 4 is an enlarged detail view of one form of ratchet mechanism suitable for rotating the screwed sleeve.

As already stated, we dispense altogether with the usual wheels at present attached to the Ingersoll machine, and we mount the coal-winning machine M upon a shiftable carriage or traveling base B or preferably upon a structure or platform C, adjustable along said carriage or traveling base B. This shiftable carriage or traveling base B is provided with wheels of a suitable description to allow of the carriage being wheeled about the mine. In the drawings the carriage or traveling base B is of a rectangular shape and is constructed of wrought-iron or steel side lengths *b* of a channel or other section, the end members *b'* being likewise of channel or other section, the parts being firmly riveted or bolted together. This rectangular structure or framework B carries or has secured thereto short axles *c*, which carry flanged wheels *c'*. In any case the flanged wheels *c'* engage the usual track-rails *d* in the mine, and so the carriage is transported.

As already stated, the percussive machine M is mounted upon a structure or platform C, carried by the carriage or traveling base, and this structure or platform, as shown in the drawings, consists of side plates *e*, to which are firmly riveted or bolted strips of angle-iron *e'*, the horizontal webs of which rest upon the side members *b* of the carriage, while a flat base-plate *e²* is also firmly secured

to the side plates in such a manner that its extended edges bear against the bottom of the side members of the carriage. It is thus seen that the angle-irons e' and the edges of the base-plate e^2 form a slide which holds
 5 and also accurately guides the structure or platform C when same is adjusted along the carriage or traveling base. The side plates e are firmly connected together at
 10 the top by a plate e^3 , the whole of the, combined members e, e', e', e^2 , and e^3 forming the structure or movable platform C. It will be obvious that the design of this movable plat-
 15 form may be considerably varied so long as a firm structure is designed provided with slides to engage the side members of the carriage, and we do not wish to confine our-

selves to the particular design shown.
 20 Returning to the percussive machine M, this has flanges or shaped brackets, such as g , which may form part of the coal-winning machine or be separately secured thereto. In the said flanges or shaped brackets we
 25 form bearings or steps, the said bearings or steps accommodating trunnions h' or other axial support formed on a rotatable cap h , which rests on and is carried by the upper
 30 extremity of a screwed sleeve i . The trunnions or axial support allows of free movement of the machine M in a vertical plane with the trunnions or axial support as center, while, owing to the cap h being rotatable, a
 35 sluing or horizontal movement of the machine is also permissible, and this in any plane which the inclination of the machine upon its trunnions will allow. To permit of
 40 the cap h , and consequently the machine M, being raised or lowered bodily, we provide a vertical screwed shaft j , the lower end of which is firmly secured to the base-plate e^2
 45 or otherwise to the structure or platform C, and this screwed shaft engages the screwed sleeve i , so that when the sleeve is rotated it sets up or lowers the cap h , and conse-
 50 quently the machine M. To actuate the sleeve i , a ratchet motion l , such as is clearly shown in the detail view, Fig. 4, may be used, and such ratchet motion may have a
 55 socket l' for insertion of an actuating-lever. (See also Fig. 2.) The ratchet device shown in Fig. 4 has a notched ring l^2 firmly secured to the sleeve i , and a pivoted pawl l^3 mounted in the jawed end of the handle-socket, a
 60 spring-pressed catch l^4 pressing on one or other of the angular faces of the pawl. By acting on the pawl either one or the other of its operative legs may be thrown into engagement with a notch in the ring l^2 , so that the sleeve i can be rotated in either direction. It will be obvious that the handle is moved back and advanced to effect raising and lowering according to the setting of the pawl l^3 ,

the detent motion being somewhat like the action of a brace.

It has been clearly explained that the
 65 percussive machine is carried upon the structure or platform C, and this platform or structure is adjustable upon the carriage or traveling base B, and to obtain this traverse of the structure or platform we use a
 70 screwed shaft m , mounted in bearings in the end members of the carriage or traveling base. In the drawings the said screwed shaft m engages a nut formed in the base of the screwed shaft j ; but the nut may be
 75 otherwise secured to the movable structure or platform C. The shaft m is actuated to traverse the structure or platform C by a squared extremity, such as m' , and the means for this purpose may be at the front of the
 80 machine or at the back.

For the purpose of holding or directing the machine when in action, we may provide a
 85 movable or other tail-bar n , so that the operator may stand clear of the machine and yet be able to easily manipulate the same over the surface of the work.

From what has been related it will be seen that a machine mounted in accordance with
 90 our invention may be handled and directed with the greatest smartness and with less fatigue, while any desired movement for the required cutting is obtainable with the machine, which is yet at all times firmly supported. The method of mounting and the
 95 carriage indicated provide for, first, a free movement in a vertical plane about a center; second, for a horizontal movement about a center, and, third, for a vertical adjustment of the percussive machine, and also, fourth,
 100 for a longitudinal adjustment of the platform supporting said machine upon the main carriage.

A machine mounted as herein described
 105 can be more readily transported about the mines, while its range of cutting and its scope of usefulness are considerably extended. We also anticipate the saving of labor by mounting coal-cutting machines under our
 110 invention, while the machine operator is subject to less risk.

We declare that what we claim is—

1. In combination with a carriage for coal-cutting machines, a vertical shaft mounted thereon, said shaft being screw-threaded, a
 115 screw-threaded sleeve fitting over said shaft and having a reduced upper end, a rotatable cap fitting over said reduced end and cutting mechanism carried by the cap.

2. In combination with a coal cutting and
 120 winning machine, a carriage having an open framework, a platform fitting in said framework and having flanges thereon which engage the framework, means for moving the

platform endwise on the carriage, a vertical
screw-threaded shaft carried by the platform,
a screw-threaded sleeve fitting on said shaft,
and having a reduced upper end, a rotatable
5 cap mounted on said reduced end and trun-
nions on said cap for supporting the cutting-
machine.

In testimony whereof we have signed our

names to this specification in the presence of
two subscribing witnesses.

WILLIAM YOUNG.
WILLIAM CLARK.
HENRY GREEN.

Witnesses:

ALFRED YATES,
NORMAN KIERNAN.