

(No Model.)

W. T. GOOLDEN & L. B. ATKINSON.
MACHINE FOR WORKING COAL OR OTHER MINERALS.

No. 488,606.

Patented Dec. 27, 1892.

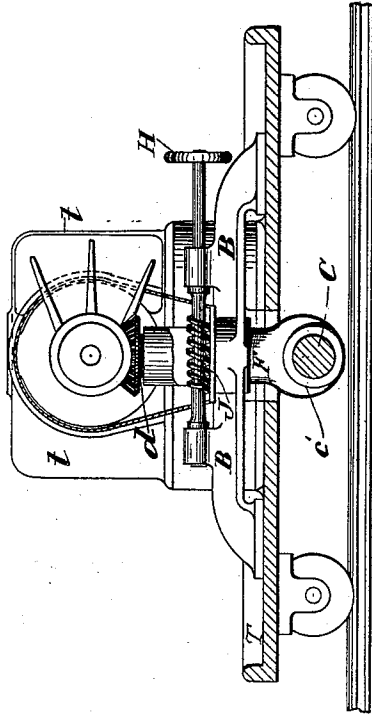


FIG. 2.

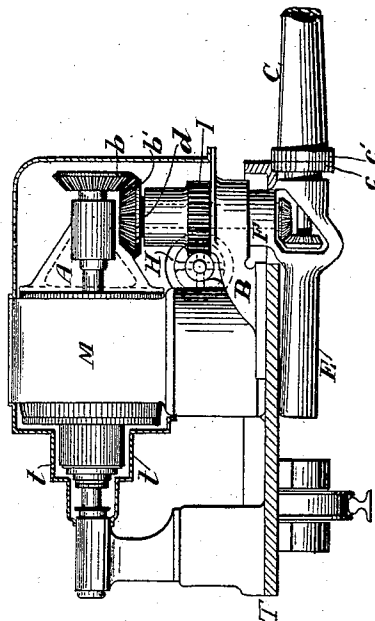


FIG. 1.

Attest
Malvern Malbourn
J. L. Middleton

Inventors
Walter Thomas Goolden
Llewelyn Birchall Atkinson
by Richard & Co
ATTYS

UNITED STATES PATENT OFFICE.

WALTER T. GOOLDEN AND LLEWELYN B. ATKINSON, OF LONDON, ENGLAND.

MACHINE FOR WORKING COAL OR OTHER MINERALS.

SPECIFICATION forming part of Letters Patent No. 488,606, dated December 27, 1892.

Application filed August 18, 1891. Serial No. 403,074. (No model.) Patented in England January 23, 1888, No. 1,014.

To all whom it may concern:

Be it known that we, WALTER THOMAS GOOLDEN and LLEWELYN BIRCHALL ATKINSON, residing at London, England, have invented an Improvement in Machinery for Working Coal or other Minerals, (which has been patented to us in Great Britain, No. 1,014, dated January 23, 1888,) of which the following is a specification.

10 This invention relates to improvements in machinery for cutting, or working coal, or other mineral, and has for its object the provision of means for undercutting the coal, or other mineral, at the bottom of the seam, the
15 cutter, or drill, being kept as low as possible so as to insure the least waste of the coal, or other mineral, to be worked.

To allow this invention being carried into effect the cutter, or drill, is suitably coupled
20 to, or may form part of a shaft which rotates in a long bearing hung from a center about which it may swing in a horizontal, or nearly horizontal, plane. The same center serves also to carry a vertical shaft having a bevel
25 wheel and this engaging with a similar bevel wheel, on the rotating cutter shaft, admits of motion being transmitted to the cutter shaft in any position in the horizontal plane. The shaft to which the cutter is attached is preferably
30 carried by its bearing, under a table, or frame, mounted on wheels so as to run on the usual trams, or rails, and supporting the prime mover, or source of power, such as an electric, steam, or air motor, or rope wheel,
35 and may be arranged so as to only just clear the rails on which the table, or frame, travels. The center, or trunnion, about which the cutter shaft rotates, in the horizontal plane, may preferably be carried in front of the table so
40 as to allow of cutting being effected on either side of the table or at any intermediate point in the arc described by the rotation of the cutter bar in a horizontal plane. When the prime mover is an electric, steam, or air motor,
45 it may remain fixed, horizontally, upon the table, or frame, and transmit its motion to the vertical shaft, which in turn imparts motion to the cutter bar by a second pair of bevel wheels.

50 To allow of the cutter bar being fed forward to its work, when working with its axis at right angles to the rails on which the table,

or frame, travels, it may be formed as a square bar, or provided with a sufficiently long feather key so as to allow of its being fed forward, by a screw, or other device, axially through the bevel wheel by which motion is imparted to it; or the table, or frame may be so constructed as to allow of that part of it which supports the trunnion, or center, and
60 the long bearing in which the cutter shaft rotates, being traversed in a direction at right angles to the rails on which the table, or frame, runs, or similarly the whole top of the table, or frame, may be made to so traverse. 65

Having now set forth the nature of our invention and shown in what manner the same is to be carried into effect we will now proceed to more particularly describe the same by reference to the accompanying drawings. 70

Figure 1 is an end elevation and Fig. 2 a side elevation of a coal cutting machine constructed in accordance with this our invention.

Suitably mounted on the frame, or table T
75 is an electro motor M the spindle A of whose armature imparts motion by means of the bevel wheels *b, b'*, to the vertical spindle *d*. This vertical spindle *d* is provided at its lower end with a bevel wheel, as shown in
80 Fig. 1, which in turn imparts, by means of a second bevel wheel, motion to the drill, or cutter, shaft D, carried in the long bearing E and attached by the coupling *c, c'*, to the drill, or
85 cutter, C. The long bearing E is cast or otherwise formed with the vertical sleeve piece F which passes through and is supported by the bracket B suitably secured to the frame or table T. The sleeve piece F is provided
90 with the toothed wheel I and the worm J on the spindle of the hand-wheel H engaging with this toothed wheel I allows of its being rotated and so causing the long bearing E, and with it the drill, or cutter, C, to be rotated in a horizontal plane. 95

The electro motor together with the whole of the working parts, is inclosed in a dust tight casing *t, t*, as shown.

Having now particularly described and ascertained the nature of our said invention, 100 and in what manner the same is to be performed, we declare that what we claim is:—

1. In combination the carriage, the vertical shaft at one edge thereof, the bearing

therefor the cutter shaft extending transversely across the lower end of the vertical shaft, the gearing between said shafts, the long bearing for the end of the cutter shaft
5 extending laterally in line therewith said bearing having a sleeve extending upwardly through and above the bearing for the vertical shaft and about the said shaft, and means connected with the upper exposed end of the
10 sleeve for turning the long bearing and the cutter shaft to different lateral positions and the means for operating the vertical shaft, substantially as described.

2. In combination the carriage frame, the
15 vertical shaft at one edge thereof the cutter

extending below the same the long bearing for the cuttershaft having a sleeve extending upwardly about the vertical shaft through an opening in the floor of the carriage, the said long bearing forming a lateral extension 20 from the sleeve in line with the cutter shaft, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WALTER T. GOOLDEN.
LLEWELYN B. ATKINSON.

Witnesses:

TOM. M. TULEY,
CHARLES F. ARROWSMITH.