

J. SECRIST.
MINING MACHINE.
APPLICATION FILED MAY 6, 1914.

1,160,660.

Patented Nov. 16, 1915.

3 SHEETS—SHEET 1.

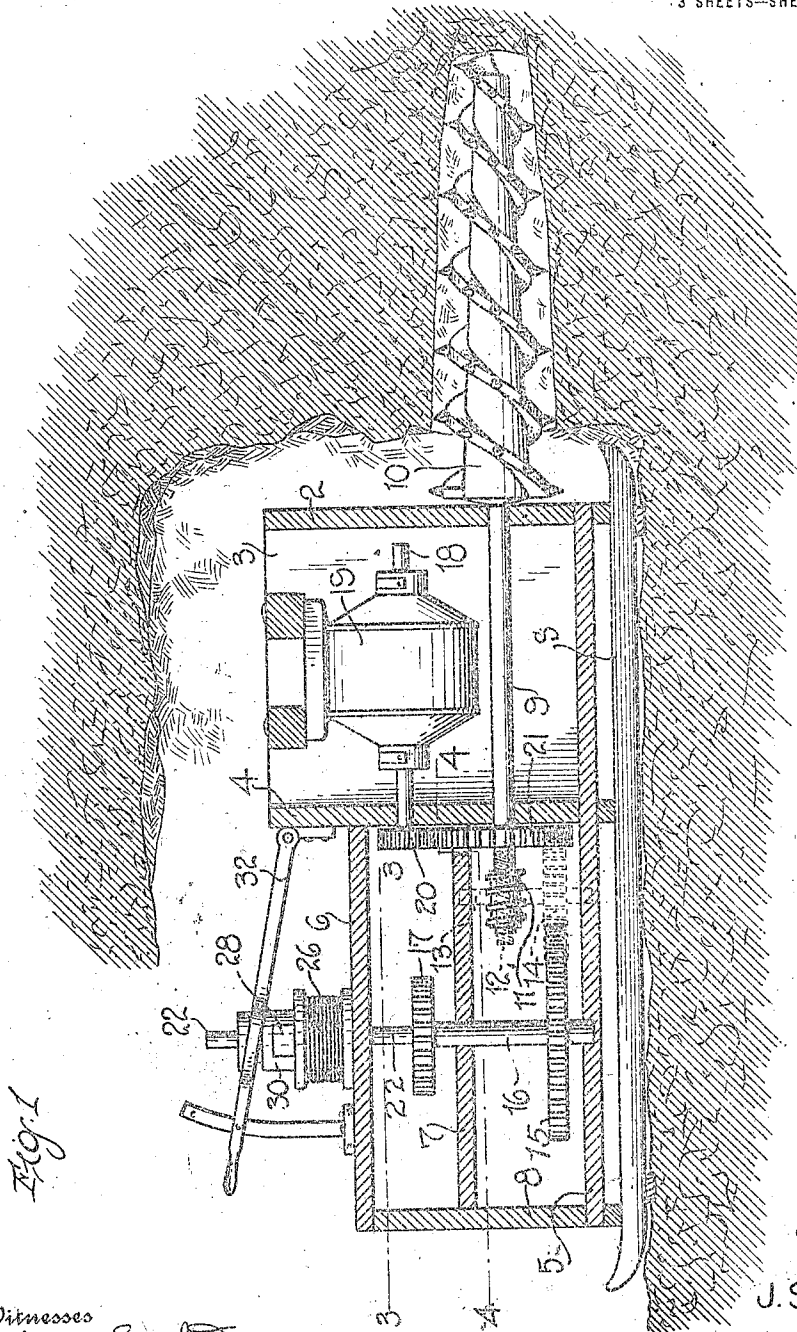


Fig. 1

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By

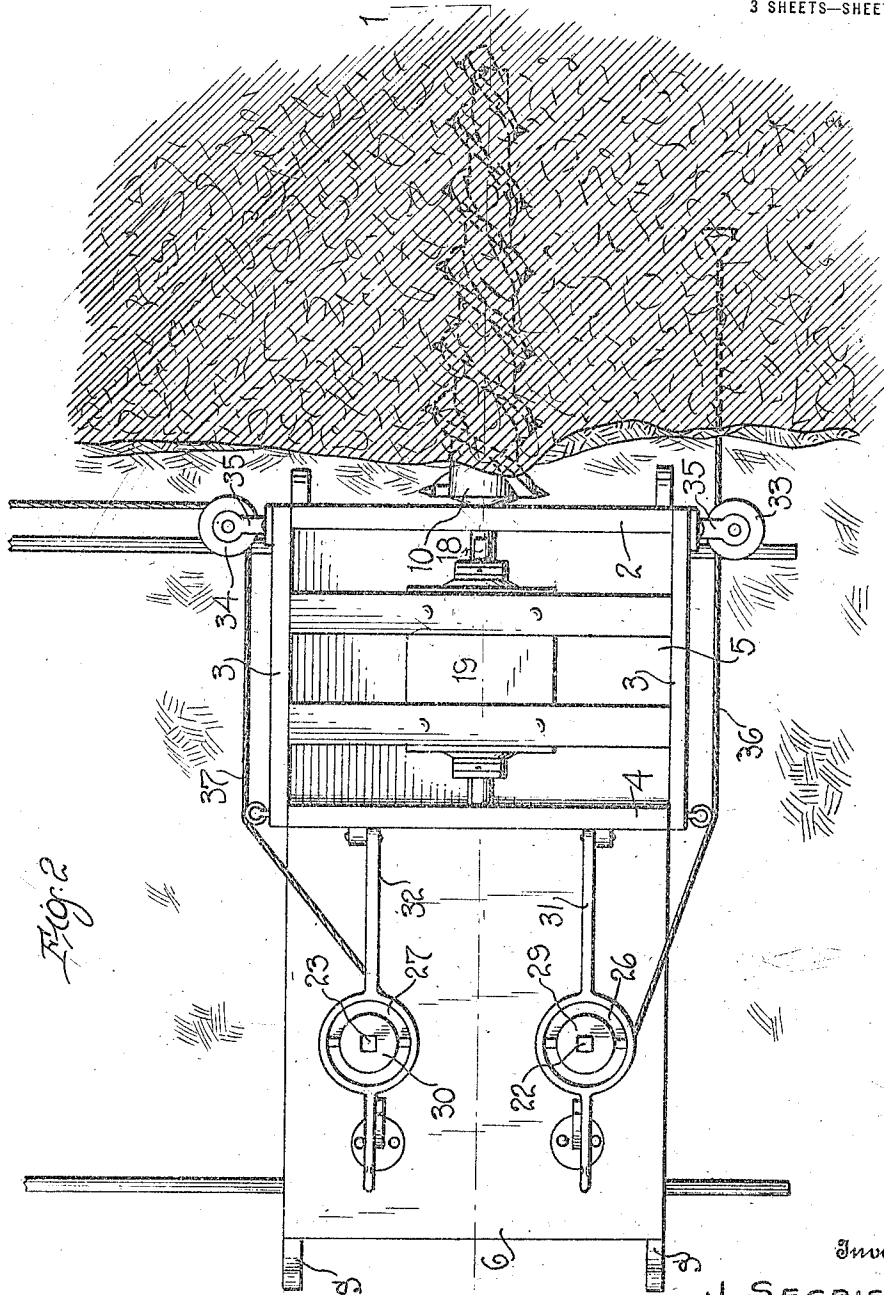
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2 SHEETS—SHEET 3.

Fig. 2

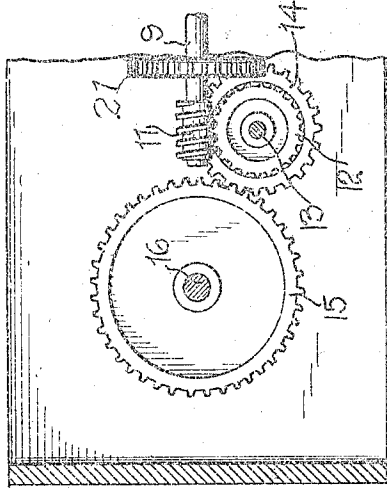


Fig. 6



Fig. 3

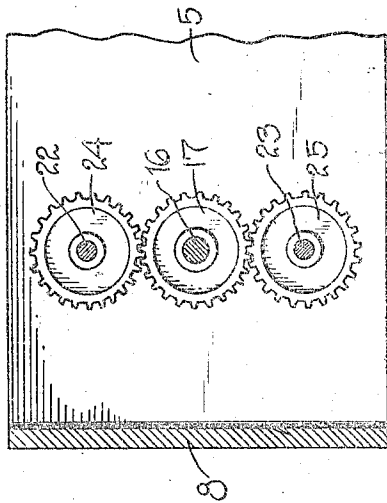
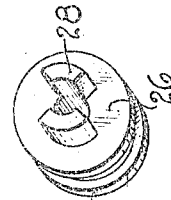


Fig. 5



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UNITED STATES PATENT OFFICE.

JOSEPH SECRIST, OF NUTTALLBURG, WEST VIRGINIA.

MINING-MACHINE.

1,160,660.

Specification of Letters Patent.

Patented Nov. 16, 1915.

Application filed May 6, 1914. Serial No. 836,780.

To all whom it may concern:

Be it known that I, JOSEPH SECRIST, a citizen of the United States, residing at Nuttallburg, in the county of Fayette and State of West Virginia, have invented certain new and useful Improvements in Mining-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to new and useful improvements in mining machines, and more particularly to a machine for mining coal, and one object of the invention is to provide an apparatus of this character that shall combine simplicity of construction with the highest practicability and durability in use and the maximum of efficiency in operation, and that shall in many instances, be adapted to supersede the mining machines in common use.

A further object is to arrange the mechanism in such manner that power employed to operate the auger shall also be utilized in propelling the apparatus in forward and lateral directions.

With the above and other objects in view as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a coal mining machine and as will be hereinafter fully described and claimed.

In the accompanying drawing forming a part of this specification, and in which like characters of reference indicate the corresponding parts: Figure 1 is a view in vertical longitudinal section through an apparatus constructed in accordance with the present invention, the section being taken on the line 1—1 of Fig. 2; Fig. 2 is a top plan view; Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1; Fig. 4 is a similar view taken on the line 4—4 of Fig. 1; Fig. 5 is a perspective detail view of one of the drums; and Fig. 6 is a similar view of one of the clutch members.

Referring to the drawings, 1 designates generally a housing or casing, to the under side of which are secured skids S such as are usually employed in connection with machines of this character to facilitate their being moved over the floor of the mine. The housing comprises a vertical end wall 2, two vertical side walls 3, an intermediate wall 4, a bottom wall 5, a top wall 6, a horizontal wall 7, and a vertical end wall 8 lo-

cated at the end of the casing opposite that at which the wall 2 is disposed.

Journaled in the walls 2 and 4 is a shaft 9 carrying on its outer end an auger 10 which projects free of the wall 2 and at its inner end a worm 11, the latter meshing with a worm wheel 12 carried by the upper end of a shaft 13 journaled in the wall 7, the lower end of the shaft being journaled in the bottom wall 5, and carries thereon a pinion 14 that meshes with the gear wheel 15 mounted on the lower end of a shaft 16, the upper end of which projects through the wall 7 and carries a pinion 17.

Journaled in the walls 2 and 4 is a shaft 18 that carries a motor 19 of any preferred type, the inner end of the shaft within the wall 4 having secured to it, a pinion 20 that meshes with a pinion 21 on the shaft 9, back of the worm 11. By this means, it will be seen that when the motor is driven, its motion is transmitted through the gears 20 and 21 to the auger shaft 9 and through the worm 11 to the worm wheel 12, thence through the shaft 13 to the pinion 14 and through the latter by the medium of the gear wheel 15 to the shaft 16 and pinion 17.

Journaled in the walls 6 and 7 are two shafts 22 and 23 upon which are mounted pinions 24 and 25 that mesh with the pinion 17. Each of the upper ends of the shafts 22 and 23 above the wall 6 carries a drum 26 and 27, respectively, the upper end of each drum being provided with a clutch member 28, and these clutch members are in turn engaged by clutch members 29 and 30 keyed to the upper ends of the shafts 22 and 23. As will be understood, the drums are loose on the shafts, and are only rendered operable for rotation when the two clutch members of each drum are in locked engagement. In order to manipulate the clutch members 29 and 30, there is combined with each of these members a clutch lever 31 and 32, respectively, which, in the manner common to such mechanical devices, will operate to control the action of the drums through the medium of the clutched faces.

Arranged on each side of the casing at its forward or auger carrying end, are two sheaves 33 and 34 which are mounted on brackets 35 secured to the side walls of the casing. These sheaves are designed to be engaged by cables 36 and 37 which are wound about the drums, and one end of the

cable 36 will be secured in any rigid manner
 adjacent to the wall to be operated upon by
 the auger, while the other cable will be car-
 ried to the end of the cut and secured in any
 5 suitable manner, the functions of the first
 cable being to hold the auger to its work,
 and that of the second to permit a lateral
 movement to be imparted to the casing, thus
 to enable the auger to make a face cut and
 10 carry across the drift or coal wall.

In the operation of my mining mechanism,
 after both the cables have been anchored to
 the breast of the coal the motor is started
 and the clutches controlling both drums are
 15 thrown into engagement to clutch the drums
 to their respective shafts, whereupon the
 supporting frame or casing will be moved
 forward toward the breast of the coal and
 the cutting auger will be driven thereinto
 20 until the full depth of cut has been made.
 If the mining machine is to be moved to the
 left as in Fig. 2, then the cable 37 is an-
 chored laterally as illustrated in Fig. 2 and
 then the clutch member of the drum 26 is
 25 shifted to disengage the drum 26 from its
 shaft, and thus power is applied to the drum
 27. This winds up on the cable 37 and
 causes the casing to be moved laterally, the
 cable 36 being paid out gradually by any
 30 suitable means as the machine moves along
 the breast of the coal, it being understood
 that only enough of the cable 36 is paid out
 to permit just sufficient transverse move-
 ment of the machine without permitting the
 35 adjacent end of the machine to move out-
 ward away from the wall of coal. When
 the limit of movement in this direction has
 been reached the drum 27 is disengaged from
 its driving shaft and the drum 26 engaged,
 40 whereby the device may be brought back to
 its original position.

It is to be noted that the cables are so

connected to the supporting framework or
 casing of the machine that a rotation of both
 drums will draw the framework toward the
 45 breast of coal, while a rotation of one drum
 in one direction with the release of the other
 drum and slackening of the corresponding
 cable will cause the transverse movement of
 the machine. This is secured by passing 50
 the cables 36 and 37 around the pulleys 33
 and 34 respectively, instead of passing these
 cables directly from the casing to the lateral
 walls of the shaft or to lateral anchoring
 means. 55

Having thus described my invention, what I claim is:

In a mining machine, a supporting frame,
 a horizontal shaft mounted thereon and carry-
 ing a cutter elongated in the direction of
 the axis of the shaft, a motor mounted above
 the shaft and including a shaft carrying a
 gear wheel, a gear wheel on the cutter shaft
 meshing therewith, a screw formed upon the
 cutter shaft, a gear wheel with which said
 65 screw engages, a driven shaft operatively en-
 gaged with the last named gear wheel, op-
 positely disposed drum shafts, gear wheels
 mounted thereon and engaging with the last
 named gear wheel for movement in the same
 70 direction, drums loosely mounted on said
 shafts, clutches whereby either one of said
 drums may be disengaged from its respective
 shaft or engaged therewith, cables mounted
 upon said drums, and pulleys mounted upon
 75 the forward end of said frame over which
 the said cables pass, the ends of said cables
 being adapted to be anchored.

In testimony whereof I hereunto affix my
 signature in the presence of two witnesses. 80
 JOSEPH SECRIST.

Witnesses:

E. A. COMEK,
 BIDDIE BARKER.