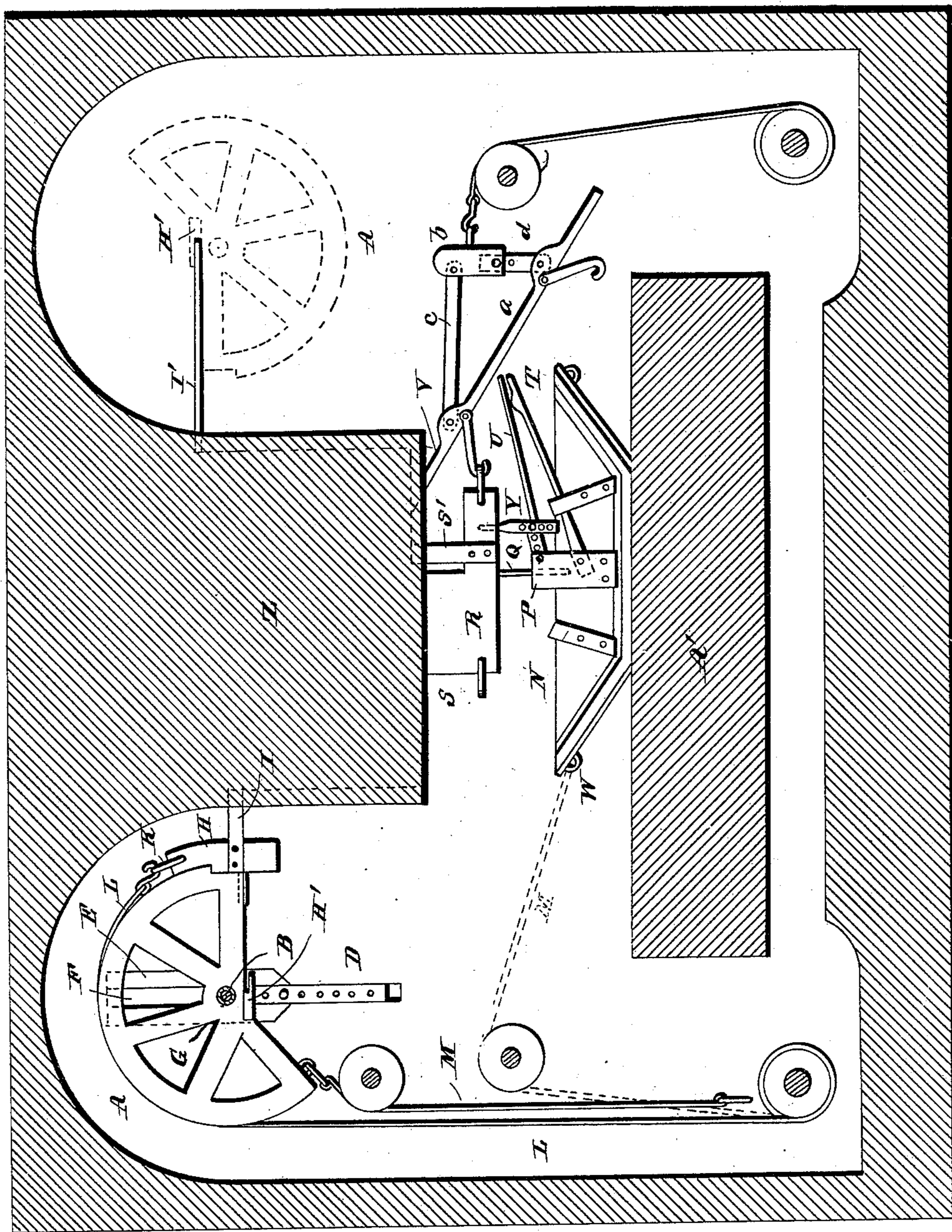


(No Model.)

T. W. CAMPBELL.
MINING APPARATUS.

No. 297,064.

Patented Apr. 15, 1884.



WITNESSES

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THOMAS W. CAMPBELL, OF VALLEY FALLS, KANSAS.

MINING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 297,064, dated April 15, 1884.

Application filed October 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. CAMPBELL, a citizen of the United States, residing at Valley Falls, in the county of Jefferson and State of Kansas, have invented certain new and useful Improvements in Mining Apparatus, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to certain improvements in mining apparatus; and it has for its objects to provide for quickly and effectually undermining the strata of coal in a mine, and removing the clay or other like material generally found stratified between the same by horse or steam power instead of by manual labor, as heretofore practiced. These objects I attain by the means illustrated in the accompanying drawing, in which is represented a plan view of a section of a mine, showing my improved apparatus in position for operation therein.

25 The letter A indicates a section or segment of a wheel, which is grooved on its periphery for the purpose hereinafter described. The said section or segment is pivoted upon a short journal, B, secured to a flat head at one end of a flat bar, D, which is perforated at intervals, as shown.

30 The letter E indicates a metallic casting, having a longitudinal groove, F, in which the bar D is adapted to fit and be moved, so as to adjust the segment to its work, as more fully hereinafter specified. The said casting is adapted to be secured in a recess, G, formed in the floor of a lateral drift, extending from the main drift or tunnel. The segment at one end is provided with a tool-holder, H, carrying a tool or cutter, I, which holder has secured to it a staple, K. To said staple is secured one end of a rope, L, the other end of which is secured to a drum, which may be put in motion by any suitable motor to operate the segment.

45 The letter M indicates an auxiliary rope, attached to the segment, by means of which the segment is returned to its normal position after having detached the cutting apparatus,

and placed in the socket H' a scraper, I', as shown in the other lateral drift.

50 The letter N indicates a carriage or sled arranged to move horizontally in the main tunnel or shaft of the mine. The said carriage or sled is provided with a central post, P, from which extends a rod, Q, which has longitudinal play in its socket in said post, and upon the end of which is pivoted a section, R, having a cutting-edge, S, and to which is secured an additional cutter, S'. The said parts are kept pressed normally against the material to be cut by means of the spring T, lever U, and adjustable bar Y, as indicated.

60 V indicates an excavator, which consists of a compound lever, loosely secured to the rear of the cutter-section. The said lever is composed of a beam, a, block b, and connecting-links c d, the link d being adjustable, as shown, so that the inclination of the beam may be regulated, as required. The carriage or sled is carried forward by attaching the end of the chain M to the link W at one end. It is carried backward by means of the corresponding chain on the opposite side, which is connected to the block b.

75 In practice, two lateral drifts are made at proper intervals leading from the main drifts. In these similar segments are located, and are operated to undercut the underlying stratum of clay or other material under the stratum of coal. When sufficiently excavated, the carriage is put in operation to undermine the intervening portion Z, the loose dirt removed being banked at A' to form a bed, against which the carriage travels. When sufficiently undermined, the portion Z may be easily broken up and removed.

80 The cutting and excavating mechanism of the carriage may be reversed, so as to operate in the opposite direction when desired.

85 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the segment having a peripheral groove, of the flat perforated bar, to which said segment is journaled, the longitudinally-grooved cast-metal section, and

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means for adjusting the bar thereto, and the drive ropes and pulleys, the whole being adapted to be secured to the floor of the mine-drifts and operated by a suitable motor, substantially as specified.

5 2. The combination, with the carriage and the mechanism for moving the same, of the cutters and the spring and lever for holding the same to their work, and the excava-

tor secured to the cutter-section, the whole is arranged to operate substantially in the manner and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS W. CAMPBELL.

Witnesses:

D. B. NORTHRUP,

WILSON BICKFORD.