No. 753,092. PATENTED FEB. 23, 1904.

H. V. NEUKIRCH.

MACHINERY FOR CONTINUOUSLY CUTTING COAL.

APPLICATION FILED SEPT. 30, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

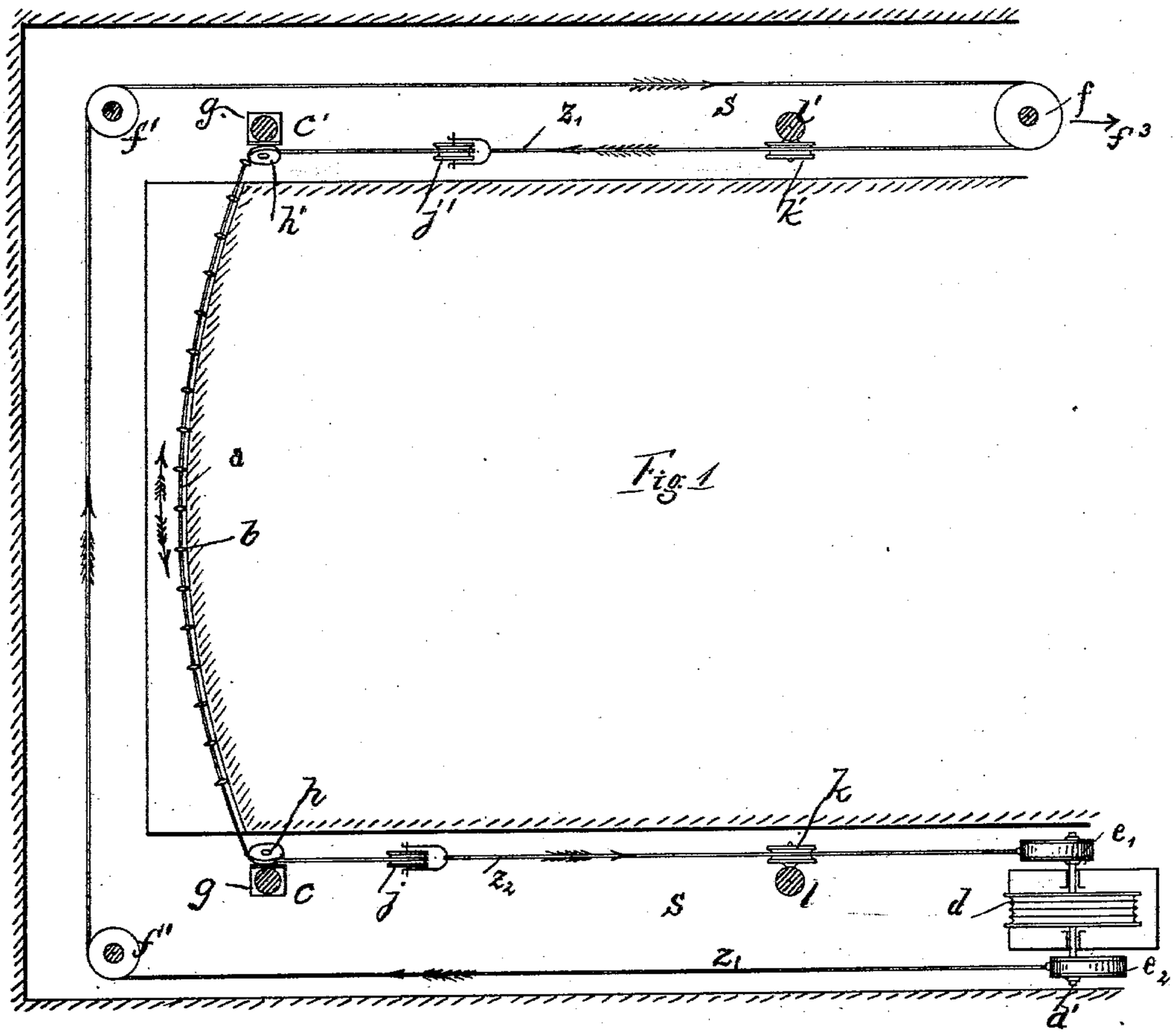

Fig. 1

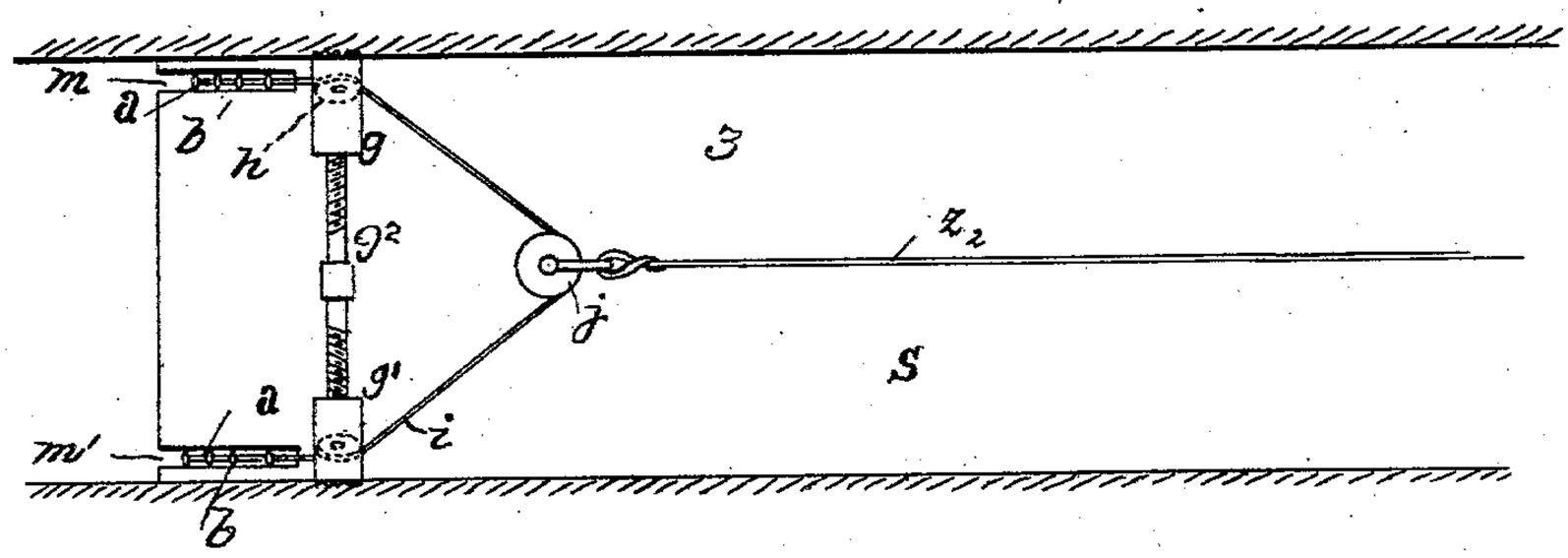

Fig. 2

Witnesses:
Geo. H. Smith
Hugh Toomey

Inventor H. V. Neukirch
by J. Dittmar
atty.

No. 753,092. PATENTED FEB. 23, 1904.

H. V. NEUKIRCH.

MACHINERY FOR CONTINUOUSLY CUTTING COAL.

APPLICATION FILED SEPT. 30, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

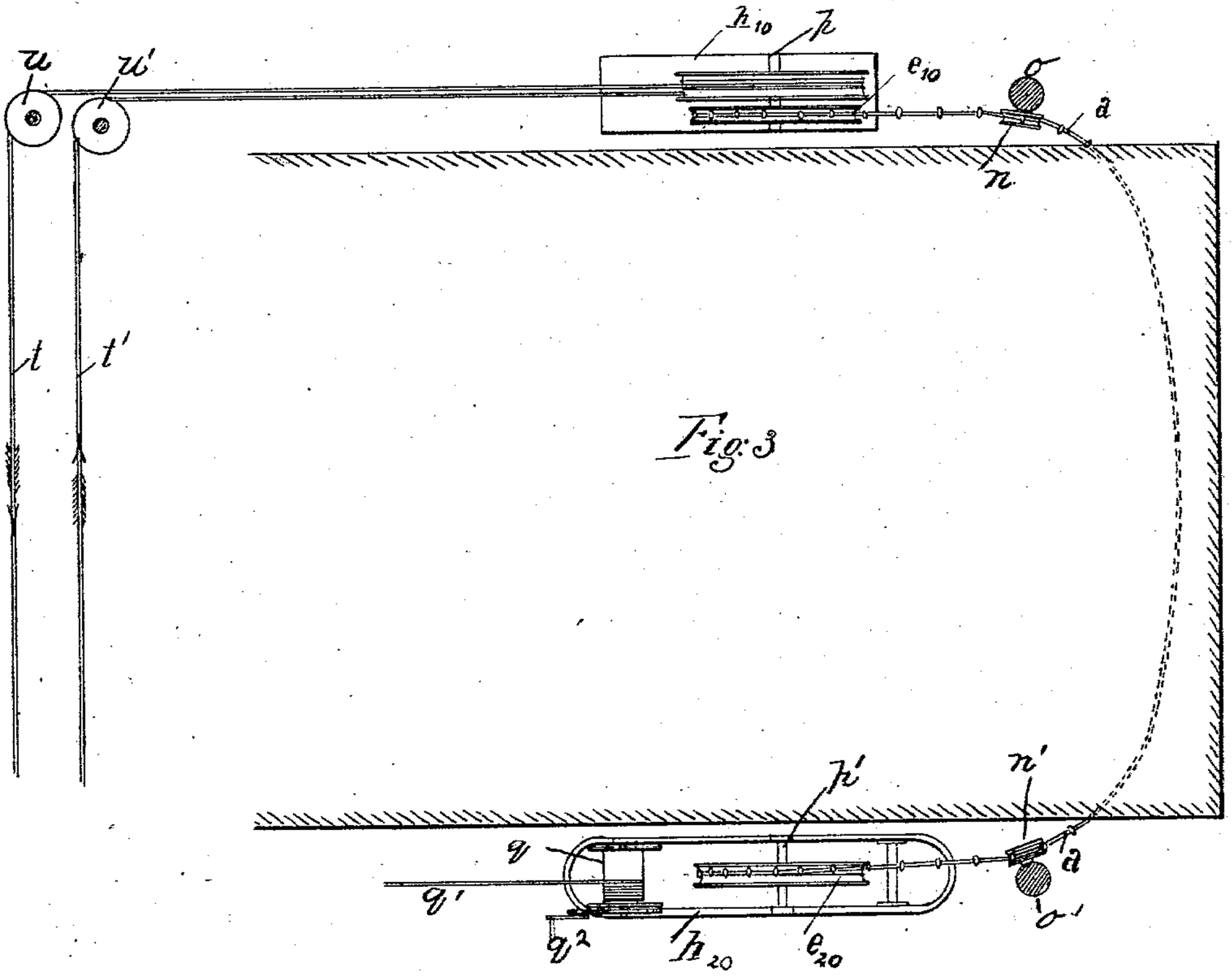

Fig. 3

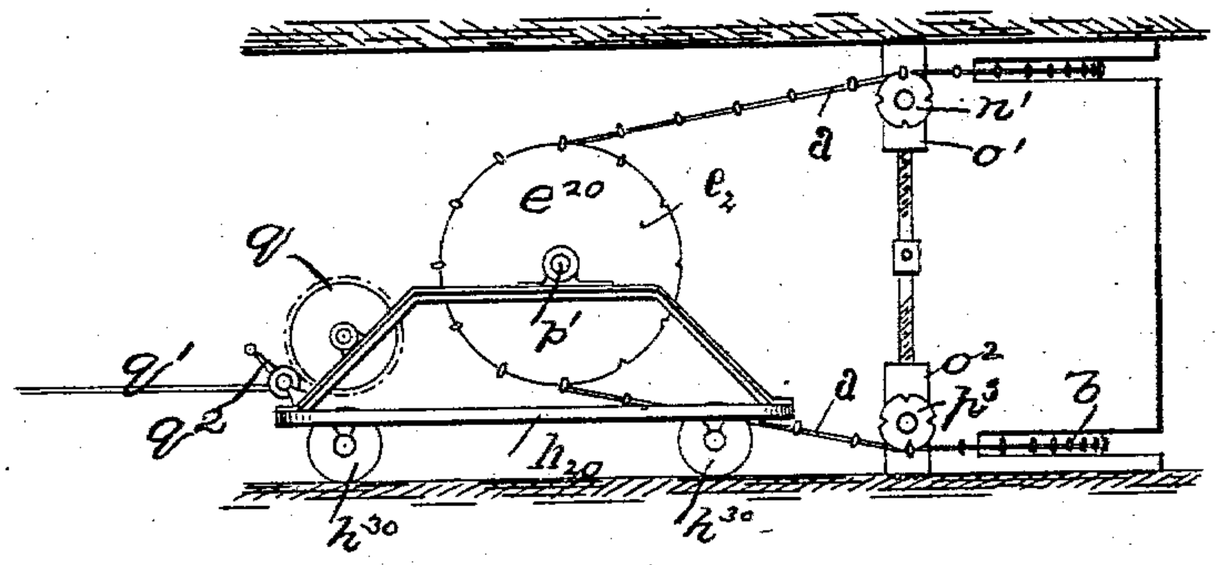

Fig. 4

Witnesses:
Geo. Heinrich
Hugh Toomey

Inventor: H. V. Neukirch
by G. Sittman
Atty.

No. 753,092. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

HUBERT VALENTIN NEUKIRCH, OF ZWICKAU, GERMANY.

MACHINERY FOR CONTINUOUSLY CUTTING COAL.

SPECIFICATION forming part of Letters Patent No. 753,092, dated February 23, 1904.

Application filed September 30, 1902. Serial No. 125,430. (No model.)

To all whom it may concern:

Be it known that I, HUBERT VALENTIN NEUKIRCH, a subject of the German Emperor, residing at Zwickau, Saxony, Germany, have invented certain new and useful Machinery for Continuously Cutting Coal, of which the following is a specification.

This invention has for its object to provide improved means for continuously cutting coal in coal-mines in order to economize in the cost of production; and with this object in view the invention consists in the machinery hereinafter described, the particular points of novelty in which are afterward specifically claimed.

In the accompanying drawings, in which I have illustrated machinery constructed in accordance with my invention, Figure 1 represents in plan view machinery in position for operation. Fig. 2 represents in elevation that portion of the same contained in the forward part of the tunnel in which the driving mechanism is located. Fig. 3 represents in plan view machinery in which the rope carrying the cutting-tools is arranged for continuous operation in one direction. Fig. 4 represents in elevation the means for governing the tension of the rope carrying the cutters and feeding the cutters into the cuts as they progress.

Like letters indicate the same parts where they are shown in more than one figure of the drawings.

Referring to the drawings by letters, *a* indicates a rope or cable carrying cutting-tools *b*. Posts are temporarily erected in the tunnels, as at *c c'*, consisting of blocks *g g'*, Fig. 2, rigidly held against the top and bottom of the tunnel 3 by right-and-left screw g^2, and the rope is passed over guide-pulleys *h h'*, mounted on the blocks *g*, and under guide-pulleys on the blocks *g'*, one of which is shown in dotted lines in Fig. 2 at *i*, and around pulleys *j j''*, making an endless belt of the cutter-rope passing across the breast at two levels, one in the plane of the top of pulleys *h h'* and the other in the plane of the bottom of the pulleys *i*.

d indicates a driven pulley actuated by suitable motor (not shown) and mounted on a shaft *d'*, upon which are secured eccentrics *e'* and e^2 on opposite sides of the pulley and set diametrically opposite to each other on the shaft. To the strap of eccentric *e'* is attached a cable z_2, which passes over a guide-pulley *k*, mounted on a temporary post *l*, and is attached to the shaft of pulley *j*, while a cable z'_1, attached to the strap of eccentric e^2, passes around guide-pulleys *f f' f'* and over guide-pulley *k'*, mounted on a temporary post *l'*, and is attached to the shaft of pulley *j''*. The pulley *f* may be actuated in the direction of the arrow f^3 in order to keep the rope *a* taut and feed it and the cutters into the cuts as they progress.

When the driven pulley *d* is actuated by any suitable motor, the eccentrics will draw the pulleys *j j* alternately, and as one of them is drawn in one direction the other moves in the opposite direction, thus reciprocating the cutter-rope *a* across the breast and making two cuts at the same time, as indicated at *m m'* in Fig. 2.

In the construction illustrated in Figs. 3 and 4 two cuts are made at the same time, but instead of reciprocating the rope it is moved continuously in the same direction. The rope *a* is of the same construction as in Figs. 1 and 2, carries cutters *b*, and is carried around a pulley e^{10} at one side and a pulley e^{20} at the other side, thus forming an endless belt which passes over guide-pulleys *n n'*, mounted on top blocks *o o'* of a temporary post and under guide-pulleys mounted on bottom blocks of the same post, one of said blocks and pulleys being shown at o^2 and p^3 of Fig. 4, one side of the rope passing across the breast on the level of the top of pulleys *n n'* and the other on the level of the bottom of pulleys p^3, making two cuts at once, as in the mechanism shown in Figs. 1 and 2. The pulley e^{10} is mounted on a shaft *p* on a truck h^{10}, which shaft also carries another pulley driven by means of a belt *t t'* from any suitable motor, (not shown,) said belt being guided by pulleys *u u'*. The pulley e^{20} is mounted on a shaft *p'* on a truck h^{20}, carried on wheels h^{30}, on which truck there is a drum *q*, upon which may be wound a rope *q'* by means of a crank q^2, said rope *q'* being secured to any suitable fixture, (not shown,) so that by winding up the rope on the drum during the operation the endless-belt rope *a* may

be governed as to tension and fed into the cuts as they progress. In this construction the rope *a* moves continuously in the same direction.

The operation of the machinery will be readily understood from the foregoing, and as the cuts progress and bring the front or cutting portions of the cutting-rope too near to the guide-pulleys the temporary posts may be removed and placed farther back in the tunnels.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In machinery for cutting coal, the combination with temporary posts in the side tunnels and upper and lower guide-pulleys carried thereby, of pulleys in the rear of said guide-pulleys, an endless belt of rope carrying cutters, passing over the upper guide-pulleys and across the breast on the level of the top of said upper pulleys, under the lower guide-pulleys and across the breast on the level of the bottom of said lower pulleys, and around the rear pulleys, and suitable driving and feeding means whereby the cutter-rope makes two cuts across the breast at the same time, substantially as described.

2. In machinery for cutting coal, the combination with temporary posts in the side tunnels and upper and lower guide-pulleys carried thereby, of pulleys in the rear of said guide-pulleys, an endless belt of rope carrying cutters, passing over the upper guide-pulleys and across the breast on the level of the top of said upper pulleys, under the lower guide-pulleys and across the breast on the level of the bottom of said lower pulleys, and around the rear pulleys, and suitable driving and feeding means whereby the cutter-rope is driven continuously in the same direction and makes two cuts across the breast at the same time, substantially as described.

3. In machinery for cutting coal, the combination with temporary posts in the side tunnels, and upper and lower guide-pulleys carried thereby, of a truck in one tunnel, a shaft thereon, a pulley on said shaft, a second truck in the other tunnel, a shaft thereon, a pulley on said shaft an endless-belt rope passing across the breast at two levels, over said guide-pulleys and around the truck-pulleys, a driven pulley on the shaft on the first-named truck, a drum on the second truck, and a rope winding thereon and adapted to be secured at its end, substantially as described.

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

HUBERT VALENTIN NEUKIRCH.

Witnesses:
M. L. CREEVEY,
P. KLINGER.