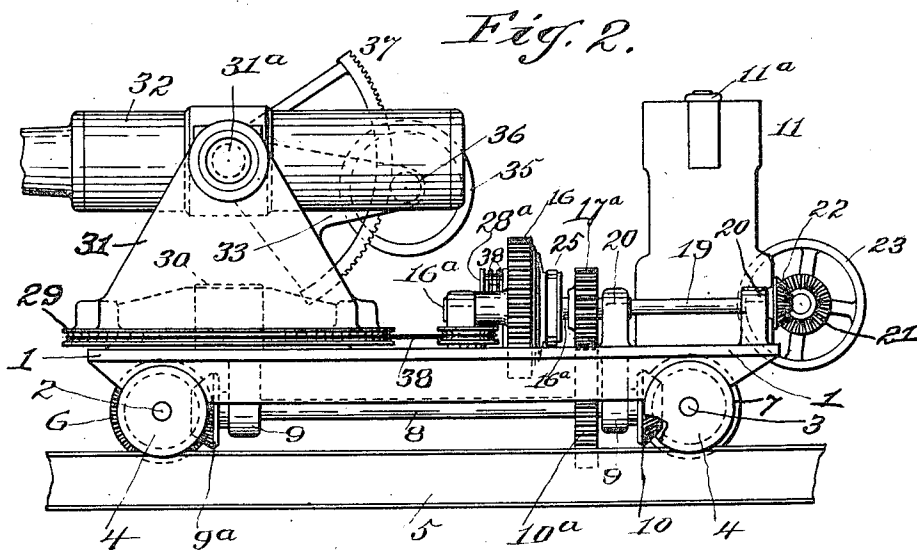


1,017,017.

3 SHEETS-SHEET 1.



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A. POWELL.
MACHINE FOR OPERATING COAL PUNCHES.
APPLICATION FILED JULY 25, 1910.

1,017,017.

Patented Feb. 13, 1912.

3 SHEETS—SHEET 2.

Fig. 3.

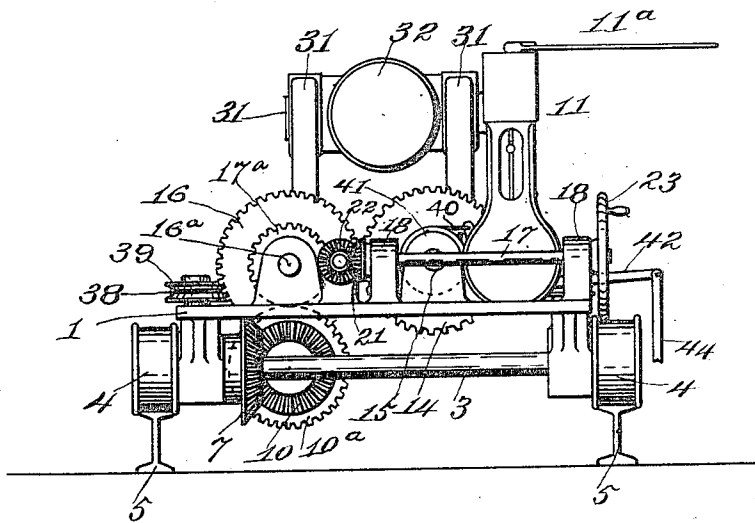
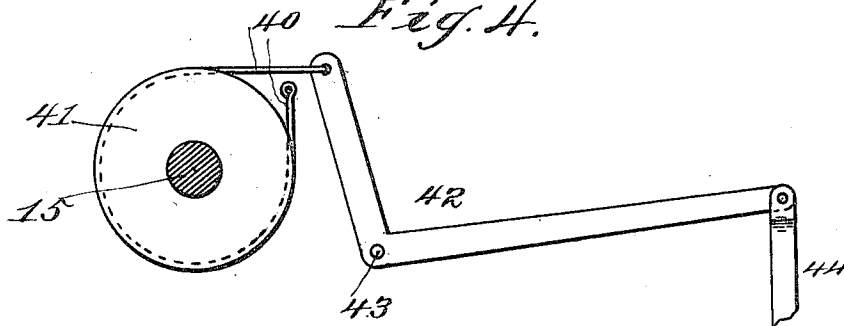


Fig. 4.



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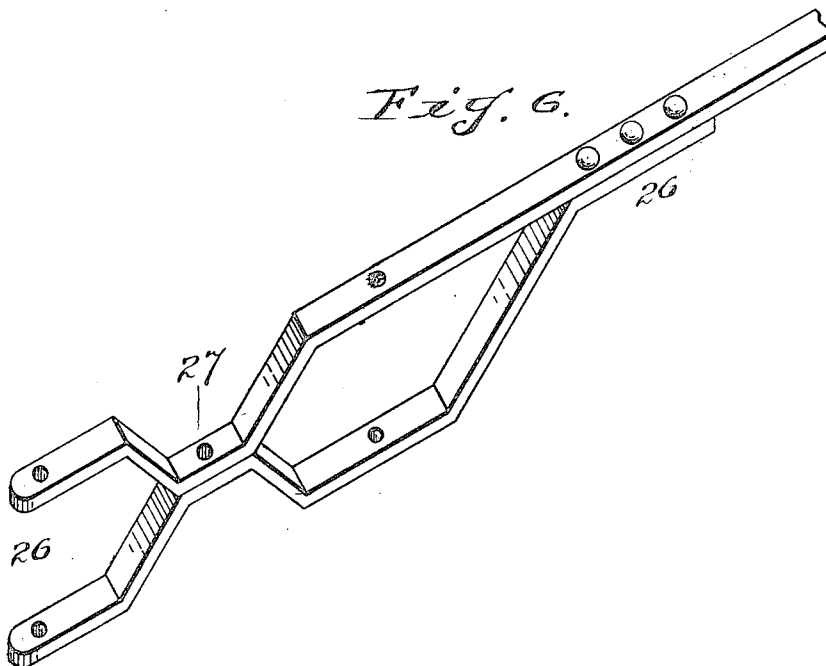
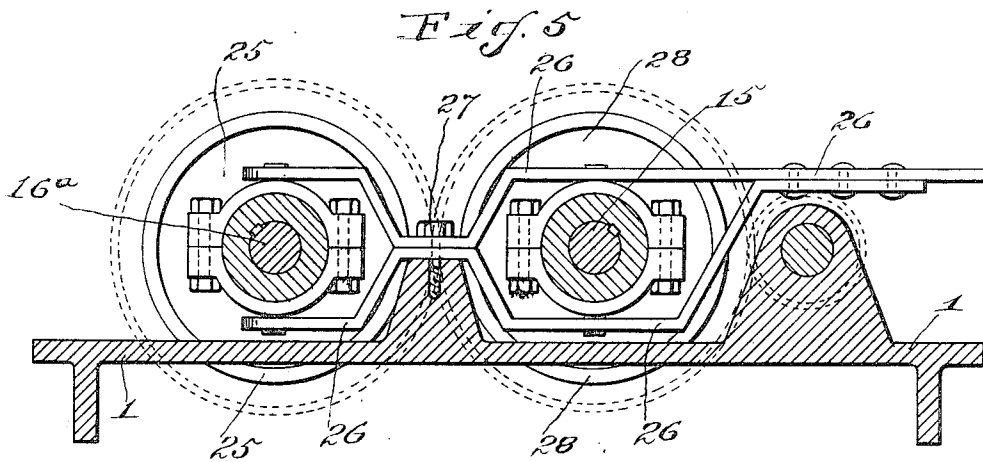
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR OPERATING COAL-PUNCHES.

1,017,017.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed July 25, 1910. Serial No. 573,621.

To all whom it may concern:

Be it known that I, ANDREW POWELL, citizen of the United States, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Operating Coal-Punches, of which the following is a specification.

This invention relates to coal mining apparatus, and pertains especially to a machine for operating coal punches.

The object of the invention is to provide a punch table revolubly mounted on a truck and having the punch pivoted on the table so as to be swung vertically, and to furnish novel and peculiar mechanism for propelling the truck and revolving the table.

A further object of the invention is to provide a motor truck with special shaft and gearing connections adapted to give a punch table circular motion on the truck, and to propel the truck (upon which the table is mounted) forward and backward, and to provide peculiar shifting means for having certain of the said shafts and gearing operate the truck together or independently.

A still further object of the invention is to provide a motor truck, having a punch revolubly mounted thereon, with means operated by the motor, for reciprocating the truck and revolving the punch, and with hand mechanism for giving the punch punching movement.

The invention consists in the novel construction and arrangement of parts, and resides essentially in the mechanisms for operating the punch table and the truck upon which it is mounted, and devices for shifting such mechanisms from motor to hand power.

In the accompanying drawings forming part of this application: Figure 1 is a plan top view. Fig. 2 is a side elevation. Fig. 3 is a rear end view. Fig. 4 is a detail elevation of the brake shoe and its levers. Fig. 5 is an enlarged cross section taken through the clutches. Fig. 6 is an enlarged perspective view of the clutch lever partly broken away.

The same reference numerals denote the same parts throughout the several views of the drawings.

The truck bed or frame 1 is mounted on front and rear axles 2 and 3 respectively, which have wheels 4 for a track 5. When the machine is to be transported or not operated on a track, suitable traction wheels

are substituted for the wheels 4. The front axle 2 is provided with a beveled gear 6 and the rear axle carries a similar gear 7. A longitudinal shaft 8 is journaled in hangers 9 depending from the truck-bed 1, and this shaft has beveled gears 9^a and 10, which mesh with the gears 6 and 7 respectively. Motion is imparted to the said gears from a motor 11 having a controlling or reversing lever 11^a, and mounted on the truck-bed, for operating a motor shaft 12, having a pinion 13 which meshes with a gear 14, on a shaft 15, which meshes with a like gear 16, on a shaft 16^a. The operation of these shafts and gears by the motor operates the truck and gives to the punch a punching movement, but in order to afford means for effecting short strokes of the punch without operating the motor, I provide a shaft 17, journaled at 18 on the rear end of the frame or bed 1, a shaft 19 journaled in bearings 20 projecting upwardly from the frame or bed 1, a bevel gear 21 on the shaft 17, a like gear 22 on the shaft 19, a hand wheel 23 on the shaft 17, and a pinion 24 on the shaft 19. Such pinion 24 meshes with a gear 17^a, on the shaft 16^a, which meshes with a gear 10^a, on the longitudinal shaft 8, which in turn operates the truck axles.

A clutch 25 is slidably mounted on the shaft 16^a, and a similar clutch 28 is slidably mounted on the shaft 15, these clutches are operated by means of a clutch lever 26, fulcrumed at 27. By moving the lever 26 forward it slides the clutch 28 into locked position and simultaneously unlocks the clutch 25. A reverse movement of the clutch 26 will lock the clutch 25 and release or unlock the clutch 28. The drum 28^a is only revolved when the clutch 28 is in locked position. The engine is reversed to reverse the movement of the drum 28^a, and said drum is not used when the punch is being moved forward or backward.

A circular turn-table 29 is swiveled at 30 to the frame or bed 1, and has a pair of uprights 31 in which the trunnions 31^a of the punch 32 are journaled. One of the uprights has a projection 33 in which is journaled a shaft 34, having a hand operated wheel 35, and a pinion 36 meshing with a toothed segment rack 37, keyed to one of the trunnions for swinging the punch vertically. The periphery of the table 29 is grooved or sheave-like for an endless chain, rope or cable 38, which works over guide

sheaves 39, and is operated by the drum 28, for imparting circular or rotary motion to the table.

A brake-shoe 40 engages a brake-wheel 41, on the shaft 15, and is operated by an angle-lever 42, fulcrumed at 43, and the outer end of this lever is connected with a foot-lever 44. This lever is operated to hold and release the table in its circular movement.

It is obvious that the motor is used for placing the machine in proper relation to the face of a coal bed, and then the motor reciprocates the punch in a coal punching operation by moving the truck back and forth. The hand wheel 23 is operated to give the truck and hence the punch short strokes, or for feeding the punch, and for assisting the motor in working the truck and the punch.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a machine for operating coal punches, the combination, with a truck, truck axles having pinions, a longitudinal shaft under the truck and geared with the truck axles, a turn-table revolubly mounted on the truck, a vertically swinging punch mounted on the table, and a motor on the truck and having a driving shaft, of a drum,

a drum shaft geared with the driving shaft, a shaft geared with the drum shaft and with the said longitudinal shaft, a clutch between these gears, an endless cable operated by the drum for revolving the table, a clutch mechanism for coupling and uncoupling the drum shaft with the driving shaft and means for operating the clutches.

2. In a machine for operating coal punches, the combination with a truck, a motor mounted on the truck, a longitudinal shaft geared with the truck axles, and a revoluble punch-table mounted on the truck, of a pair of shafts one of which projects from the motor, a drum mounted on the other shaft of said pair, an endless cable operated by the drum for revolving the table, a short shaft between the longitudinal shaft and the drum shaft, gears connecting the motor shaft with the drum shaft and the latter and the short shaft with the said longitudinal shaft, a clutch on the drum shaft, a clutch on the short shaft, and a clutch lever fulcrumed between the clutches for operating them.

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

ANDREW POWELL.

Witnesses:

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JOSEPH KACUR.