

(No Model.)

B. YOCH.
BRAKE FOR MINING ENGINES.

No. 529,991.

Patented Nov. 27, 1894.

Fig. I.

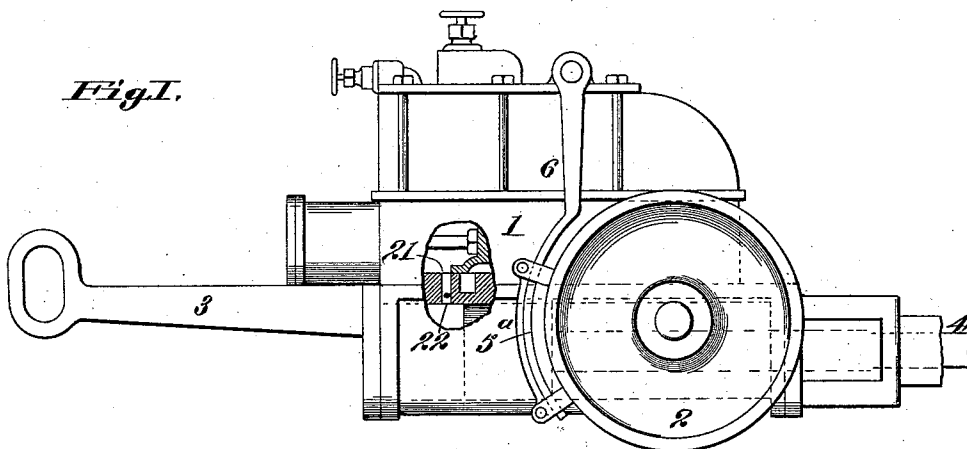


Fig. II.

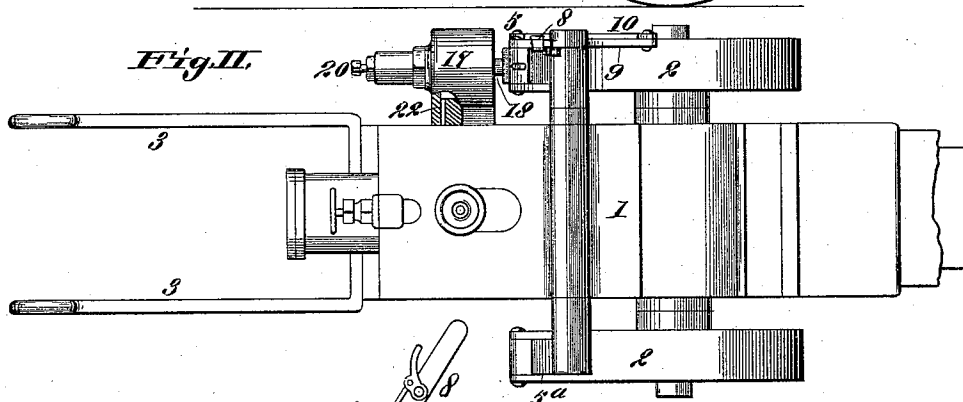
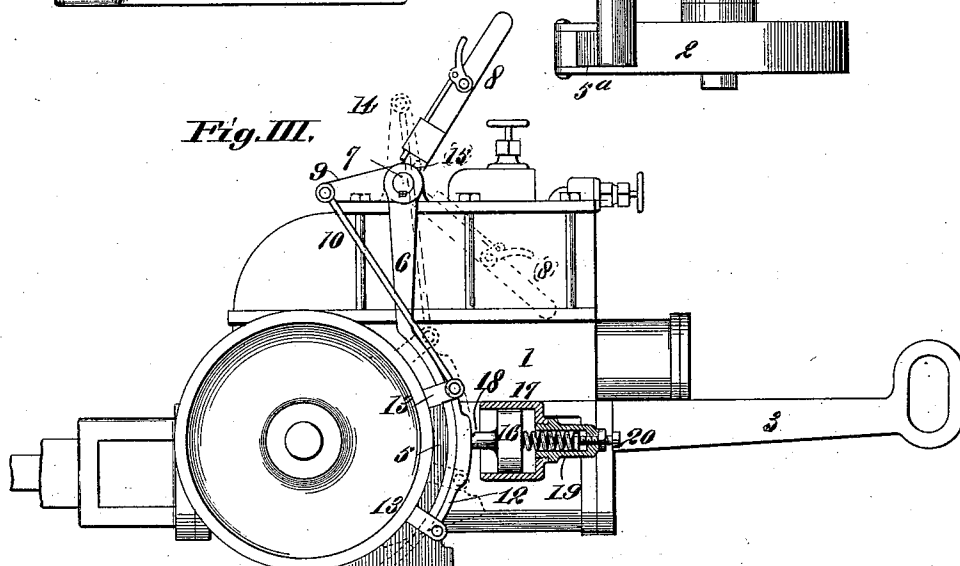


Fig. III.



Attest: A 11 B
A. W. Eberzole
C. G. Edwards

Inventor:
Benhard Yoch
By Wright & Bro
attys

UNITED STATES PATENT OFFICE.

BENHARD YOCH, OF BELLEVILLE, ILLINOIS.

BRAKE FOR MINING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 529,991, dated November 27, 1894.

Application filed February 24, 1894. Serial No. 501,423. (No model.)

To all whom it may concern:

Beit known that I, BENHARD YOCH, of Belleville, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Brakes for Mining-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved form of brake mechanism, to check or resist the retrograde movement of the machine, as the pick or tool strikes the material operated upon.

My invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a side elevation, part broken away, and part in section, and illustrative of my invention, the operating lever being removed. Fig. II is a plan view, part in section. Fig. III is a side elevation, part in section, of the opposite side of the machine to that shown in Fig. I.

Referring to the drawings, 1 represents an ordinary mining machine, such, for instance, as the machine shown in my Patent No. 306,570, dated October 14, 1884.

2 are the supporting wheels, 3 the handles of the machine, and 4 the tool carrying rod, which is also the piston rod of the machine.

My present invention relates entirely to the mechanism for preventing the retrograde or backward movement of the machine, as the tool strikes the material being operated upon.

5 and 5^a represent shoes adapted to bear against the wheels 2, and one of which is adapted to fit, after the manner of a wedge, between the support upon which the machine rests and the wheel, as shown in Fig. III, and as shown and described in my Patent No. 286,105, dated October 2, 1883. The shoes are connected to the lower ends of hangers 6 rigidly secured to a rod or shaft 7, journaled to the top of the machine. Mounted loosely

on the shaft 7 is a lever 8, having a crank or arm 9, connected by a rod 10 to the shoe 5. The shoe 5^a has a fixed connection with its hanger 6, for it is designed to act only as a friction brake upon its wheel 2, but the shoe 5

has a movable connection with its hanger as it is designed to act either as a friction brake against its wheel 2, or as a wedge brake by

fitting between the wheel and the support of the machine. This shoe is permitted to move on the hanger by the latter fitting in a slot 11 in the shoe, and the shoe having a backing 12 held by clamp plates 13 and between which and the inner portion of the shoe the hanger fits. When it is desired that the shoe 5 shall operate as a friction brake, as well as a wedge brake, the shoe, the lever 8, and the rod 10, are in the position shown by full lines in Fig. III, and when it is desired that the shoe shall act as a friction brake only, it is raised by the lever 8 until the pawl 14 of the lever engages behind a lug 15 on the hanger 6, when the shoe will be held up off the machine support and allowed to act only as a friction brake on the wheel, and when it is desired to move the machine from place to place, the shoe may be held in the elevated position shown by dotted lines, Fig. III, by moving the lever to the position shown by dotted lines with the point of connection between the rod 10 and the arm 9 a little back of the shaft 7, so that the parts are self-locking.

The brake shoes are applied by means of a piston 16, located in a cylinder 17, formed upon or secured to one side of the machine. The piston has an end 18 that bears against one of the shoes, preferably the shoe 5, and behind it is a spring 19, the tendency of which is to always keep the shoes in their forward position. The tension of the spring may be adjusted by a set screw 20. The cylinder 17, back of the piston 16, communicates with the port 21 that leads from the steam chest of the machine to the main cylinder back of the piston that carries the pick or tool; this communication being made by a port or passage 22. See Figs. I and II. The effect of this arrangement is that as the pick advances, and before it strikes, the air enters the cylinder behind the piston 16, and the brake shoes are forcibly applied just at the proper time. As the air exhausts from the main cylinder, behind its piston, it exhausts also from the cylinder 17, and the machine is free to be moved by the operator. Thus each time the tool advances, the brake shoes are applied, and each time it recedes the brake shoes are released, which is highly desirable.

When the shoe is acting as a wedge brake, and is forcibly pressed forward by the piston,

the tendency of the machine to rock on the supporting wheels, as the tool strikes, is overcome from the fact that there is a long bearing from A to B, Fig. III, at such times, and thus the strain on the operator is diminished.

I claim as my invention—

1. In a mining machine, a shoe adapted to operate as a friction brake against a wheel of the machine, or as a wedge brake between the wheel and the support of the machine, in combination with means for raising and lowering the shoe, and means for applying pressure to the shoe, substantially as set forth.

2. In a mining machine, a shoe adapted to operate as a friction brake against a wheel of the machine, or as a wedge brake between the wheel and the support of the machine, in combination with means for applying pressure to the shoe, and means for raising and lowering the shoe, consisting of a shaft, a lever on the shaft, and a rod and arm connection between the shoe and the lever; substantially as set forth.

3. In a mining machine, having wheels resting upon a support, a fixed and a movable brake shoe connected to the lower ends of hangers, a shaft to which the hangers are secured, a lever on the shaft, provided with a pawl adapted to engage with a lug on one of said hangers, an arm connecting with said

lever, a rod connecting the arm to said movable shoe, and means for applying pressure to the shoes; substantially as set forth.

4. In a mining machine, having wheels and a brake shoe, an auxiliary cylinder and piston for applying pressure to said shoe to cause the shoe to bear on one of said wheels; said auxiliary cylinder communicating with the main cylinder of the machine, or its supply port so that as the tool advances the brake shoes will be applied, substantially as set forth.

5. In a mining machine, having wheels and a brake shoe, an auxiliary cylinder, and piston for applying pressure to said shoe to cause the shoe to bear on one of said wheels, and a spring located behind said piston; substantially as and for the purpose set forth.

6. In a mining machine, having wheels resting on a support, a fixed and a movable brake shoe supported on hangers connected together by a shaft or rod, means for raising and lowering said movable shoe, and an auxiliary cylinder, and piston for applying pressure to said shoes; said piston bearing against said movable shoe; substantially as and for the purpose set forth.

BENHARD YOCH.

In presence of—

A. M. EBERSOLE,
C. G. EDWARDS.