

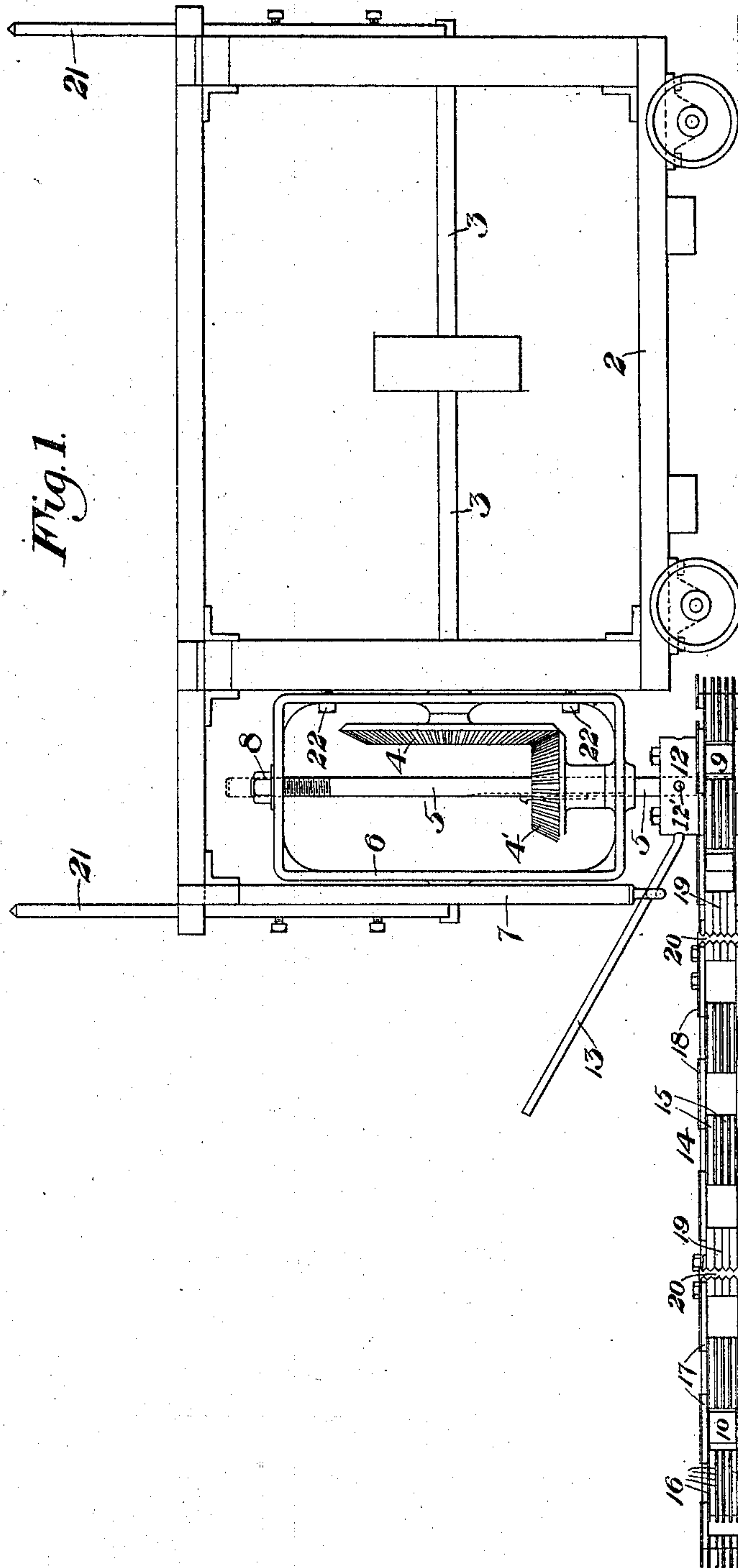
(No Model.)

4 Sheets—Sheet 1.

J. M. HOUSHOLDER.
MINING MACHINE.

No. 573,271

Patented Dec. 15, 1896.



WITNESSES

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W. D. Conner

INVENTOR

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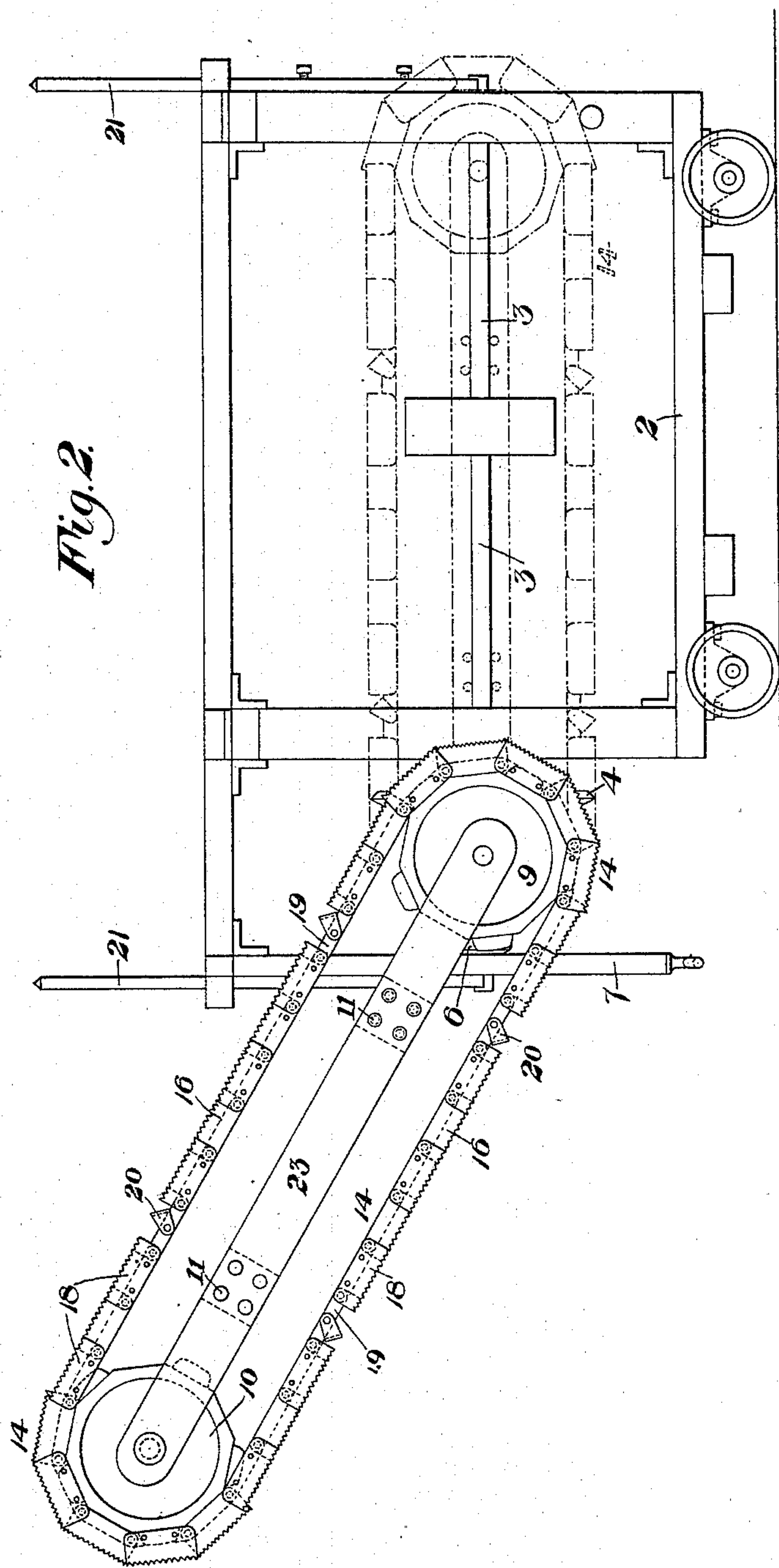
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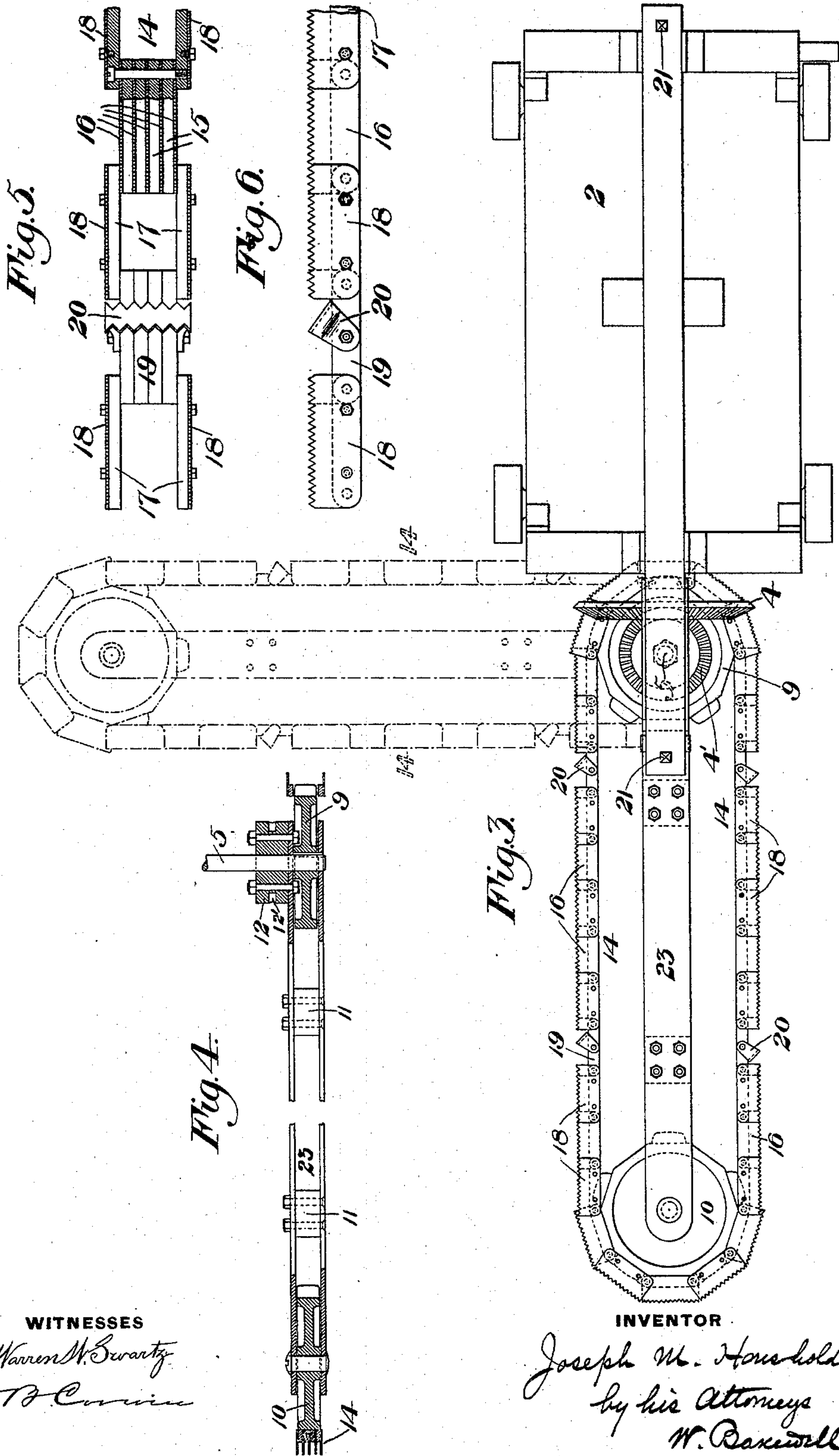
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(No Model.)

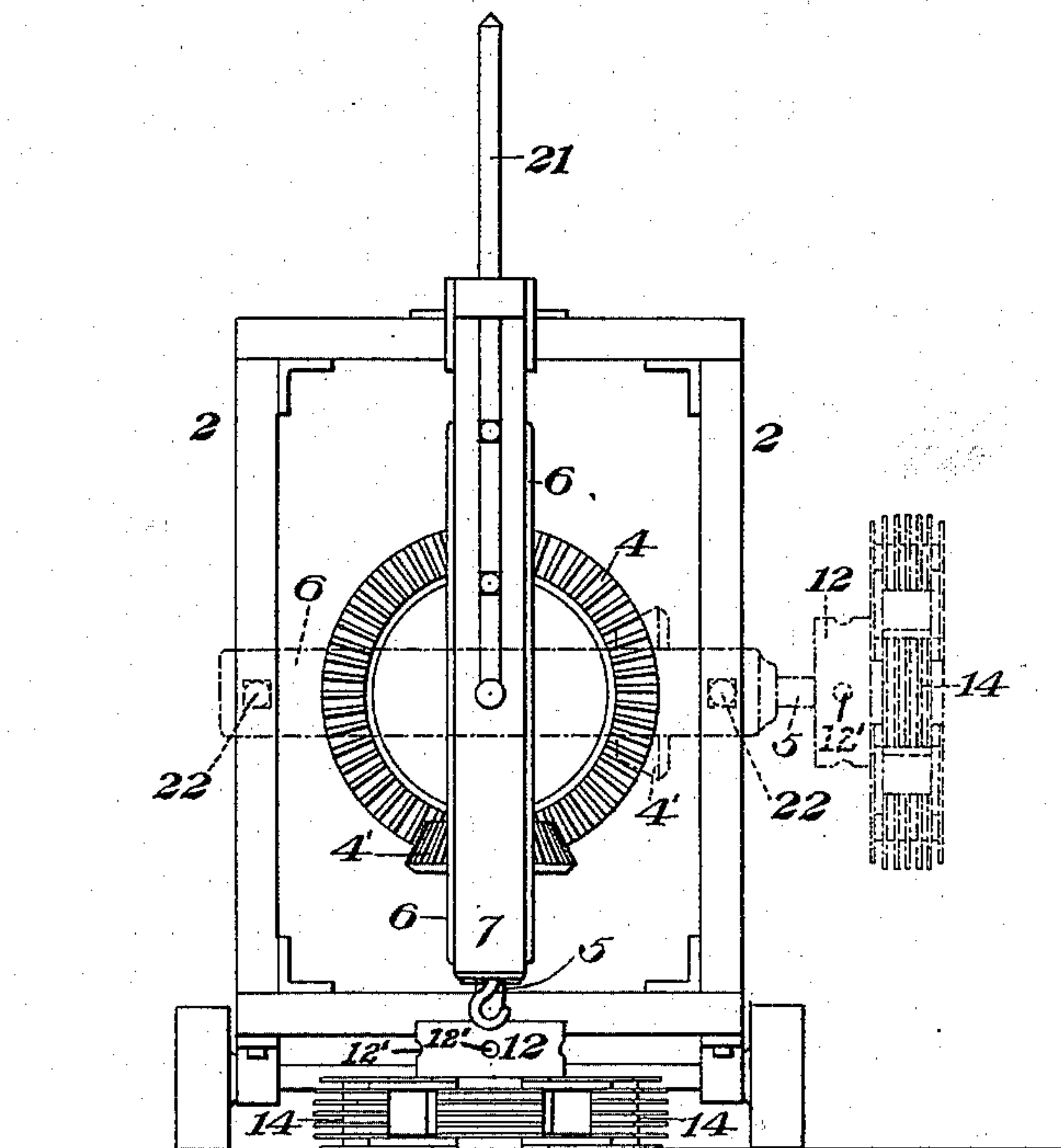
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Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH M. HOUSHOLDER, OF WEST ELIZABETH, PENNSYLVANIA.

COAL-MINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,271, dated December 15, 1896.

Application filed March 19, 1895. Serial No. 542,303. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. HOUSHOLDER, of West Elizabeth, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coal-Mining Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a similar view with the parts in a different position. Fig. 3 is a top plan view. Fig. 4 is a sectional view of the sprocket wheels and chain. Figs. 5 and 6 are enlarged detail views of the jointed chain or saw. Fig. 7 is a front elevation of the machine, showing the means for adjusting the frame 6 to any desired position.

Like symbols of reference indicate like parts in each.

My invention relates to that class of coal-diggers wherein a slot is cut into the coal, which is then broken down; and its purpose is to provide a simple, cheap, and effective machine for such use.

In the drawings, 2 represents a wheeled car having mounted thereon the actuating-shaft 3, which terminates in a bevel-wheel 4, which engages a bevel-wheel 4' upon a shaft 5, which shaft is mounted in a frame 6, journaled at one side upon the shaft 3 and at the other side in a depending frame 7. The bevel-wheel 4' is splined upon the shaft 5, which may move back and forth therein and is adjusted by a nut 8, which rotates upon a washer. Upon the end of the shaft 5 is mounted a sprocket-wheel 9, and loosely surrounding this shaft is an arm 23, composed of two bars or supports in whose outer ends is journaled the sprocket-wheel 10. These bars are bolted or secured together at 11, and to the end portion of the inner bar is secured the hub 12, having a circumferential series of holes 12', which are engaged by a bar 13, by means of which the arm 23 is adjusted and operated. Over the sprocket-wheels passes a sprocket-chain 14, composed of jointed bars provided with saws, as shown in Figs. 5 and 6, a solid link, built up of flat plates 15 with saws 16 between them, alternating with open links composed of outer plates 17, having saws 18 secured on their outer faces, as shown in Fig. 5.

At certain points in the chain, preferably about four links apart, a solid link 19 is built up without saws, and to this link is pivoted the cleaner 20, which consists of a yoke having toothed edges, as shown, which is arranged to rip out and break up the strips of coal left by the saws. This cleaner will act in either direction in which the sprocket-chain moves, it automatically swinging into operative position as the chain changes direction.

To securely hold the car in its operative position, I provide the spears 21, which are thrust into the coal above the machine when in place. To hold the frame 6 in its different positions, I provide bolts 22, which are inserted in a series of holes in the front plate or frame of the machine and secure the frame in any position to which it is swung or rotated. When the car is to be moved about, the chain may be swung into the position shown by dotted lines in Fig. 2.

The action of the device is apparent, the chain-saw slotting its own path and being moved or swung by swinging the hub about its shaft and by rotating the carrying-frame upon its axes.

The advantages of the machine lie in its simplicity, compactness, and the rapidity with which it operates, the saws cutting their paths and the cleaners tearing out the strips of coal left by the saws. After a block is slotted or sawed out it may be broken out in any suitable way.

I claim—

1. In a coal-mining machine, a sprocket-chain having links provided with outer saws or cutting-teeth, and alternate links composed of saws spaced apart by intermediate blocks, the latter saws being located in the plane between the saws of the other links; substantially as described.

2. In a coal-mining machine, a sprocket-chain having cutting or saw teeth, said chain being provided with pivoted cleaners arranged to operate in either direction; substantially as described.

3. In a coal-mining machine, a sprocket-chain having links provided with outer saws or cutting-teeth, and alternate links composed of saws spaced apart by intermediate blocks, the latter saws being located in a plane between the saws of the other links, said chain

having at intervals cleaners arranged to rip out the strips left by the saws; substantially as described.

4. In a coal-mining machine, a frame journaled at one side on the main driving-shaft and at the other side in a frame depending from the main body of the machine, and arranged to rotate in a vertical plane and having supported therein a shaft carrying at one end a sprocket-wheel, an arm loosely surrounding said shaft and having a sprocket-wheel, a sprocket-chain passing over the sprocket-wheels upon the shaft and arm respectively and provided with cutting saws or teeth, and means for swinging the arm in a plane at right angles to the plane of rotation of the frame; substantially as described.

5. In a coal-mining machine, a frame arranged to rotate in a vertical plane and having supported therein a shaft carrying at one end a sprocket-wheel, an arm loosely surrounding said shaft and having a sprocket-wheel, a sprocket-chain passing over the sprocket-wheels upon the shaft and arm respectively and provided with cutting saws or

teeth, a hub upon the shaft and secured to the arm, and a lever arranged to enter a series of radial holes in the hub and swing the same upon the shaft; substantially as described.

6. In a coal-mining machine, a frame arranged to rotate in a vertical plane and having supported therein a shaft carrying at one end a sprocket-wheel, an arm loosely surrounding said shaft and having a sprocket-wheel, a sprocket-chain passing over the sprocket-wheels upon the shaft and arm respectively and provided with cutting saws or teeth, a hub upon the shaft and secured to the arm, a lever arranged to enter a series of radial holes in the hub and swing the same upon the shaft, and bolts arranged to hold the swinging frame in its different positions; substantially as described.

In testimony whereof I have hereunto set my hand.

JOSEPH M. HOUSHOLDER.

Witnesses:

R. P. MURRAY,

H. L. CHRISTY.