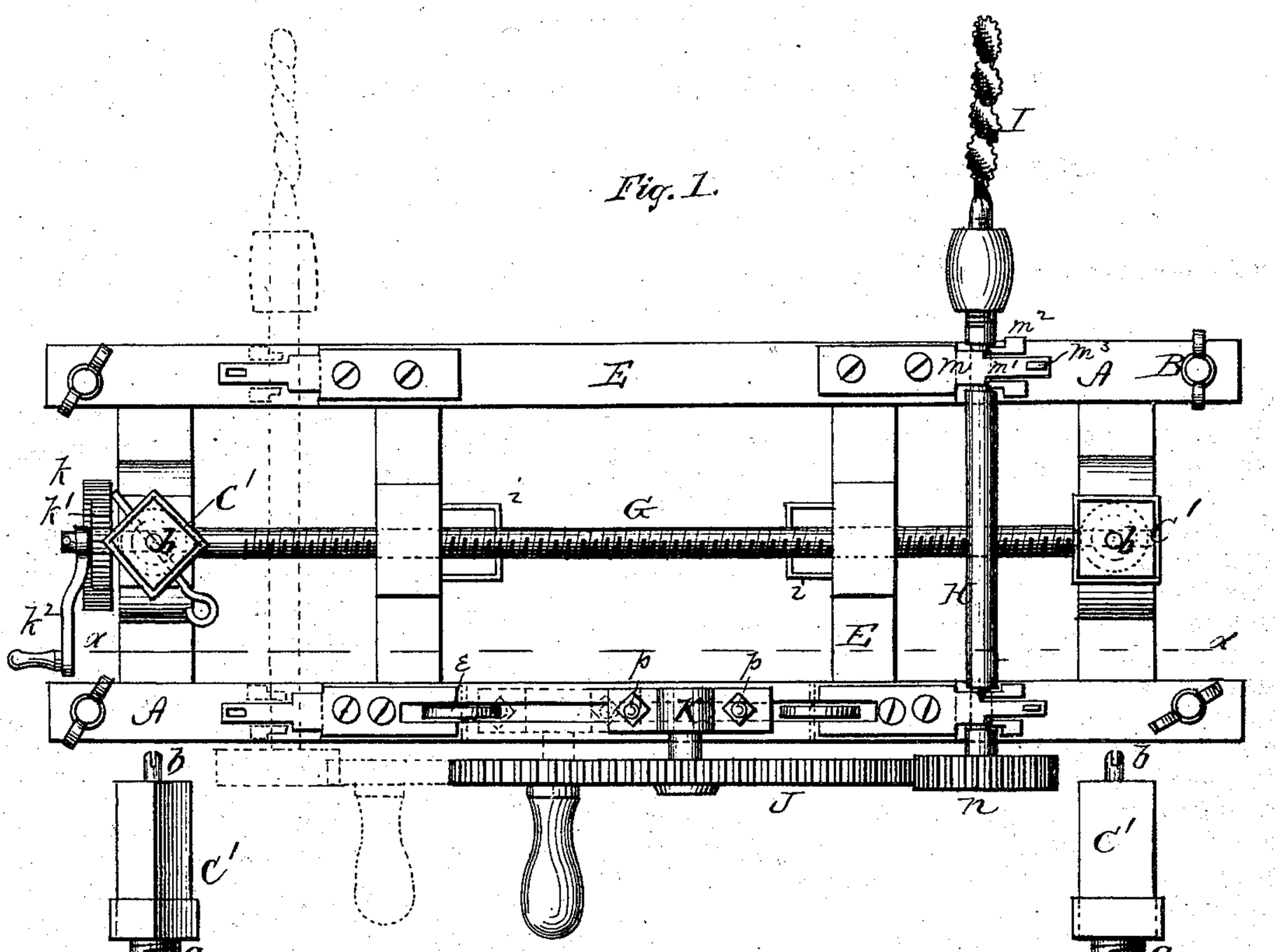
R. FLETCHER.

Coal-Mining Machines.

No. 156,339. Patented Oct. 27, 1874.



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UNITED STATES PATENT OFFICE.

ROBERT FLETCHER, OF BROOKFIELD, OHIO.

IMPROVEMENT IN COAL-MINING MACHINES.

Specification forming part of Letters Patent No. **156,339**, dated October 27, 1874; application filed October 10, 1874.

To all whom it may concern:

Be it known that I, ROBERT FLETCHER, of Brookfield, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Coal Mining and Shearing Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for mining coal, as will be hereinafter more fully set forth.

In the accompanying drawing, Figure 1 is a plan view of my machine, and Fig. 2 is a longitudinal vertical section of the same.

A represents the bed-frame of my machine provided at each corner with a set-screw, B, passing vertically down through the projecting ends of the side beams of the frame. In the center at each end of the bed-frame A is a vertical post, C, provided at its upper end with an extension, C′. Each post and its extension are connected by right and left screws *a a* working in a hollow connecting-sleeve, D, provided with corresponding female screw-threads. From the upper end of each post-extension C′ projects a point, *b*, as shown. The bed-frame A thus constructed is adjusted on the bottom of a mining-shaft at any angle desired by means of the set-screws B B, and it is held stationary by running up the post-extensions C′ by means of the sleeves D, and right and left screws *a*, until the points *b* fasten into the roof of the shaft. On the side beams of the bed-frame A runs a carriage, E, which is mounted upon wheels or rollers *e e*. On the under side of this carriage near each end is fastened a casting, *d*, provided with two parallel downward-extending arms, *f f*, between which is placed a sliding block, *h*, held by means of a key, *i*. The under side of the casting *d* and upper side of the block *h* are so constructed and cut with female threads as to form a nut for the passage of a screw-shaft, G, which runs the entire length of the frame A, and has its bearings in the lower ends of the posts C C. One end of the screw-shaft G extends through the post, and is provided with a pinion or cog-wheel, *k*, which gears with a similar wheel, k^1, mounted on a stud projecting from said post, the wheel k^1 provided with a crank, k^2, for revolving it, and by this means the screw is revolved in either direction to move the carriage E back or forth, as desired. By removing the keys *i* so as to move the blocks *h* away from the screw, the carriage can easily be moved from end to end of the bed-frame, as desired, the screw being used when the machine is in operation for feeding the saw. At each end of the carriage E are secured two castings, *m*, each provided with two parallel arms, m^1, between which is placed a block, m^2, held by means of a key, m^3. The adjoining faces of the casting *m* and block m^2 are shaped to form a box or journal-bearing for a cross-shaft, H, to one end of which the saw I is secured. The shaft H may be placed at either end of the carriage E, according as the work may require. The shaft H is provided with a pinion, *n*, which gears with a cog-wheel, J, to be revolved by hand or any suitable power, as desired. This wheel J is mounted on a stud held in a box, K, which is secured on the carriage by means of bolts and nuts *p*. These bolts and nuts pass through a longitudinal slot made in the side beam of the carriage so as to allow of the box being moved to make the wheel J gear with the pinion *n*, whether the shaft H is placed at one or the other end of the carriage. The saw I is made in spiral or auger form and of any suitable dimensions. It is intended to be inserted in a hole previously drilled, and then revolved therein. As the carriage is fed or moved along the saw cuts its way its entire length.

This machine is simple in construction, easily worked, and durable, there being nothing liable to get out of order. It is also easily adjusted in its various parts according to the work to be performed.

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

1. In a coal-mining machine, a spiral or auger-shaped saw operating lengthwise, substantially as herein set forth.

2. The combination of the carriage E, cast-

ings *d*, with arms *f*, blocks *h*, keys *i*, feed-screw G, and gear-wheels *k* k^1, all constructed and arranged to operate substantially as and for the purpose herein set forth.

3. The combination, with the carriage E, having boxes at each end for holding the saw-shaft H, of the movable or adjustable box K with projecting stud, and the gear-wheel J placed on said stud to gear with the pinion *n* on the end of the saw-shaft, substantially as herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT FLETCHER.

Witnesses:

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C. H. WATSON.

1,000 wds.