

No. 639,267.

Patented Dec. 19, 1899.

W. T. MOSS.  
MINING MACHINE.

(Application filed Nov. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.

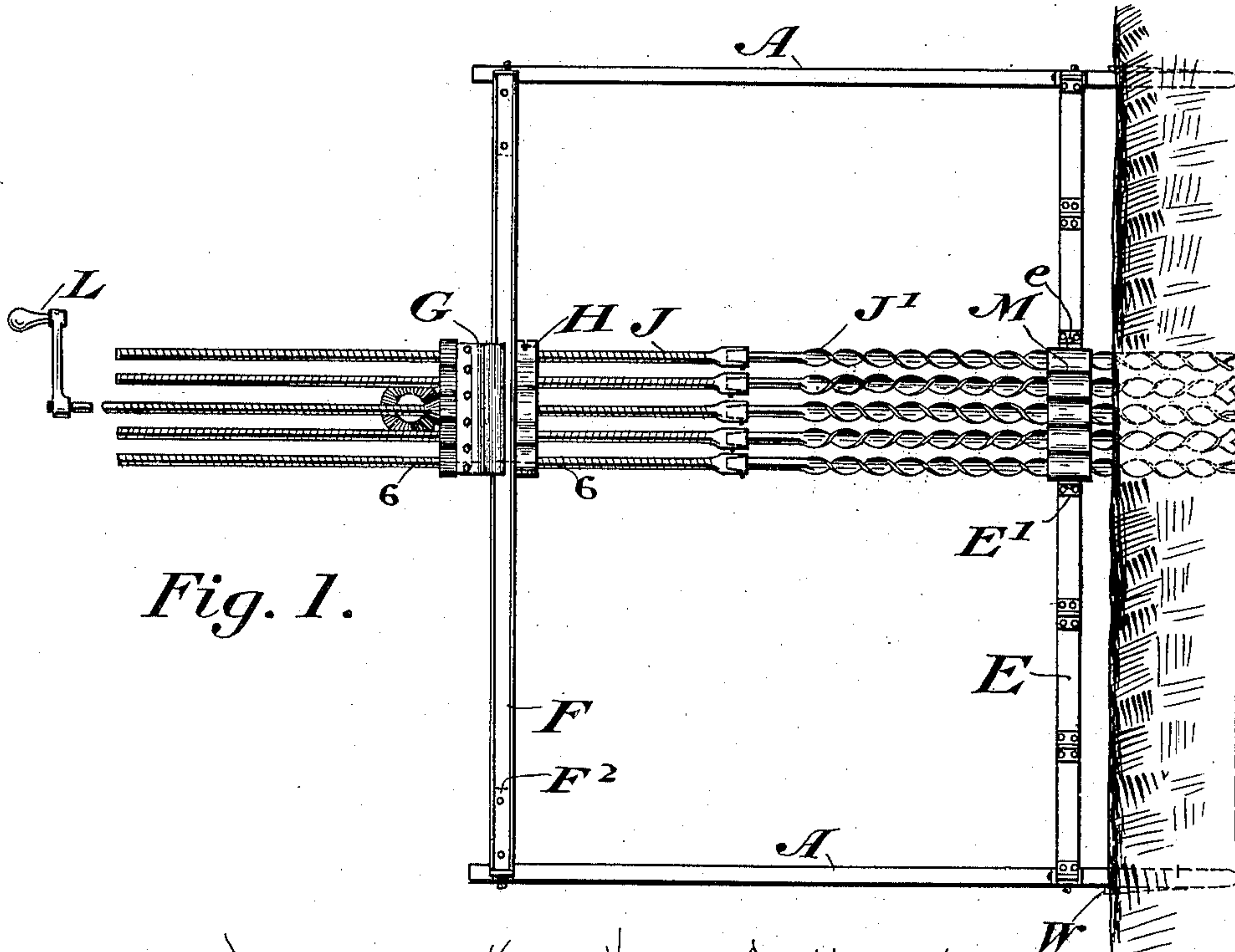


Fig. 1.

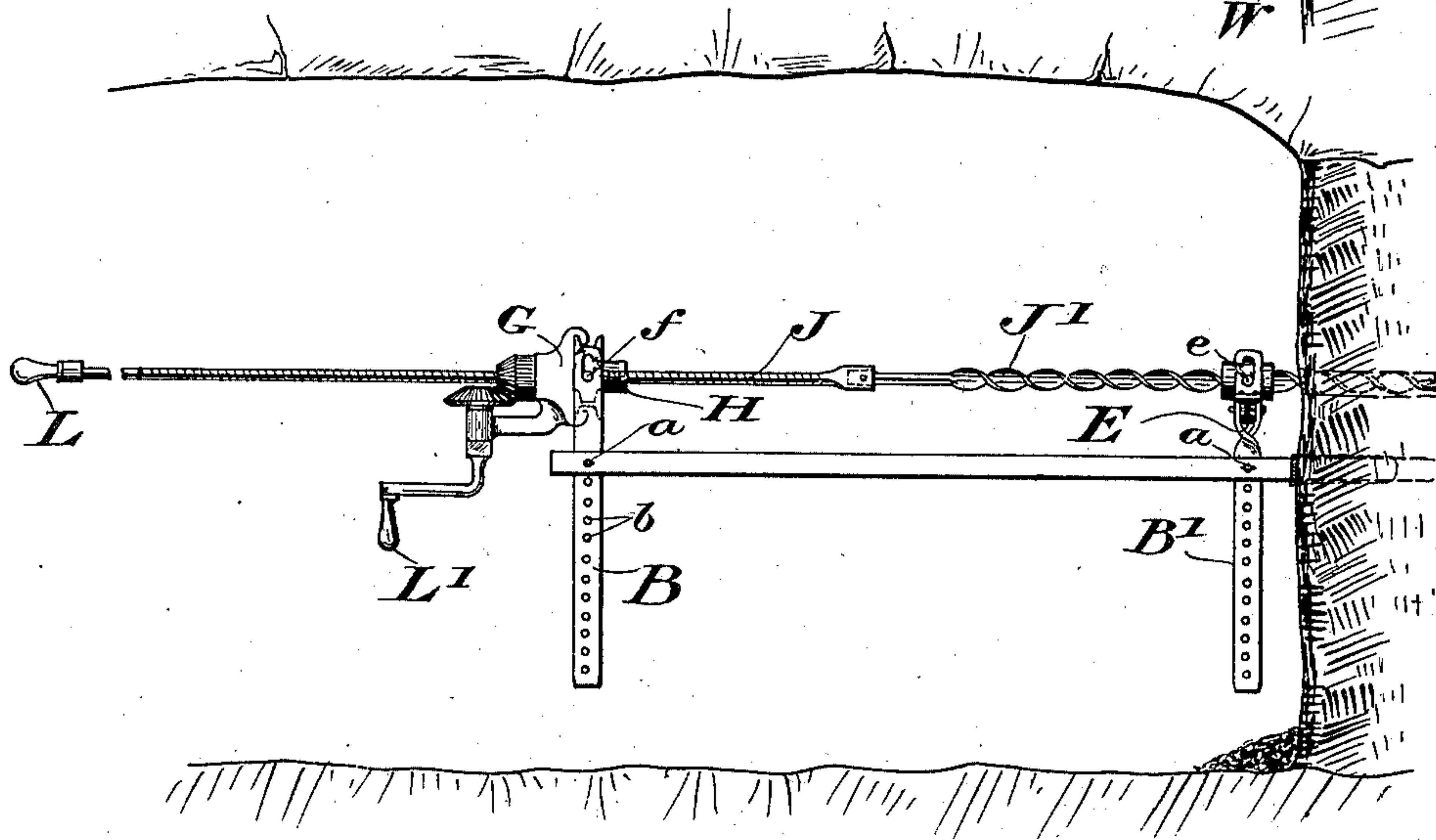


Fig. 2.

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2 Sheets—Sheet 2.

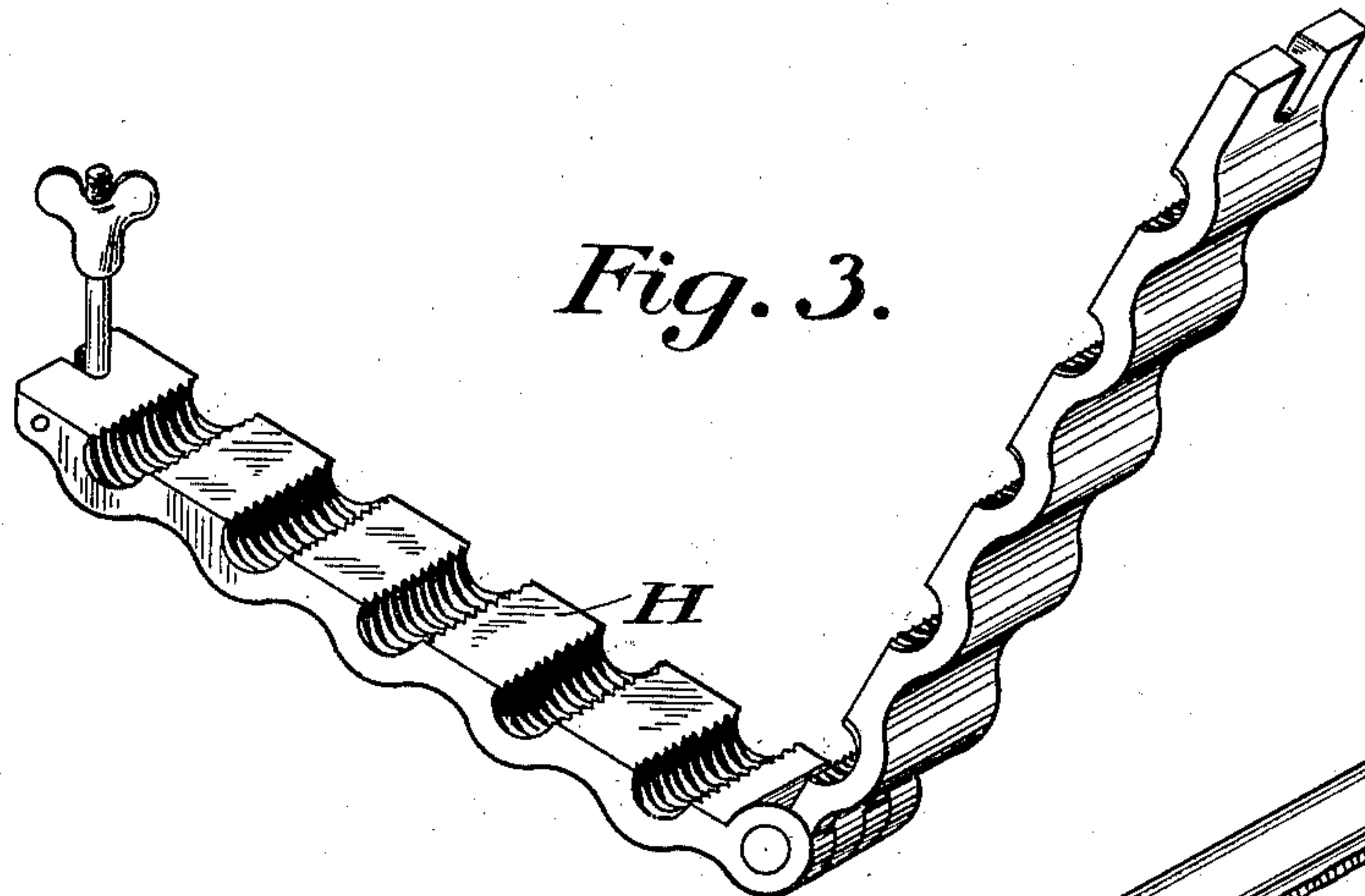


Fig. 3.

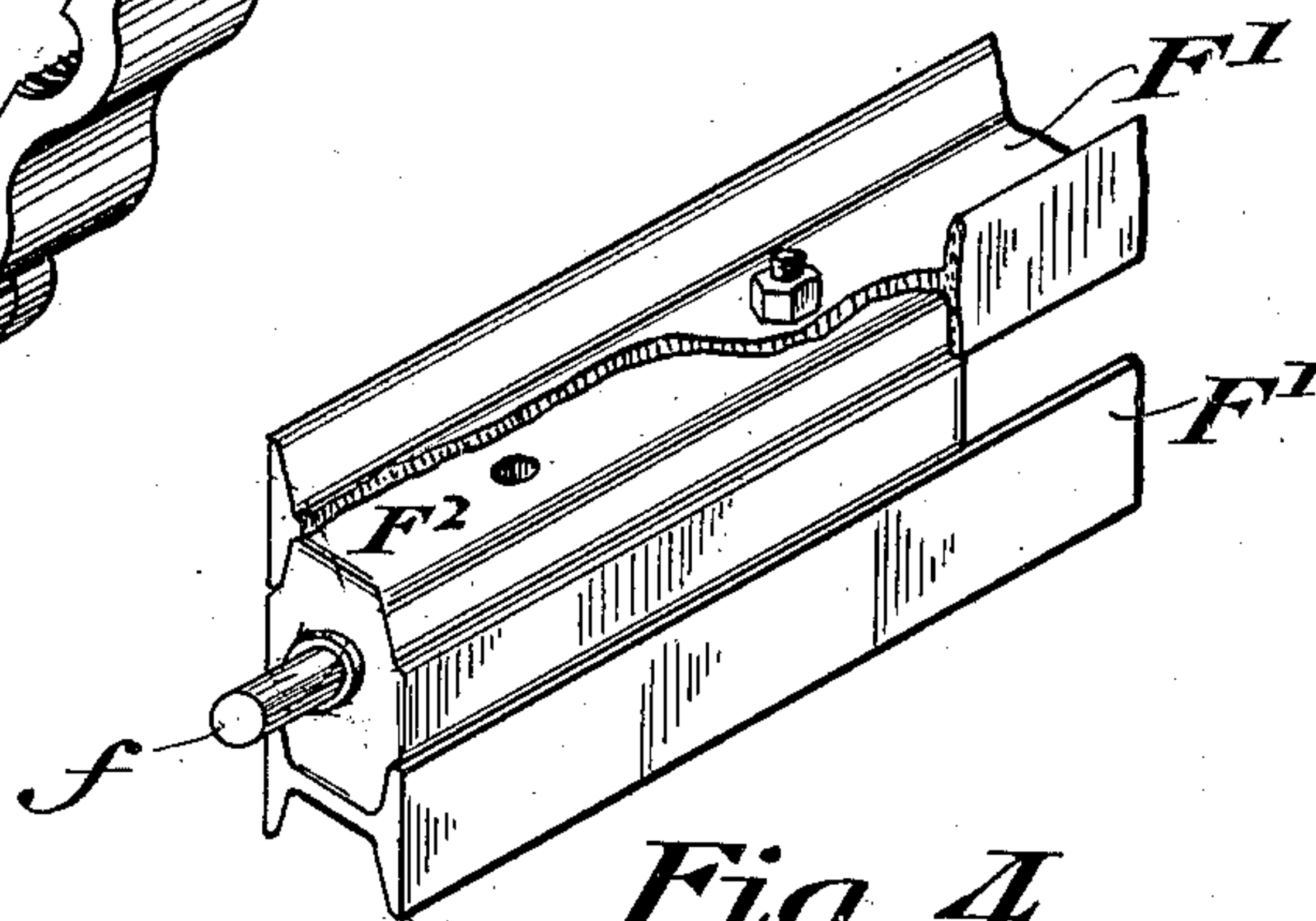


Fig. 4.

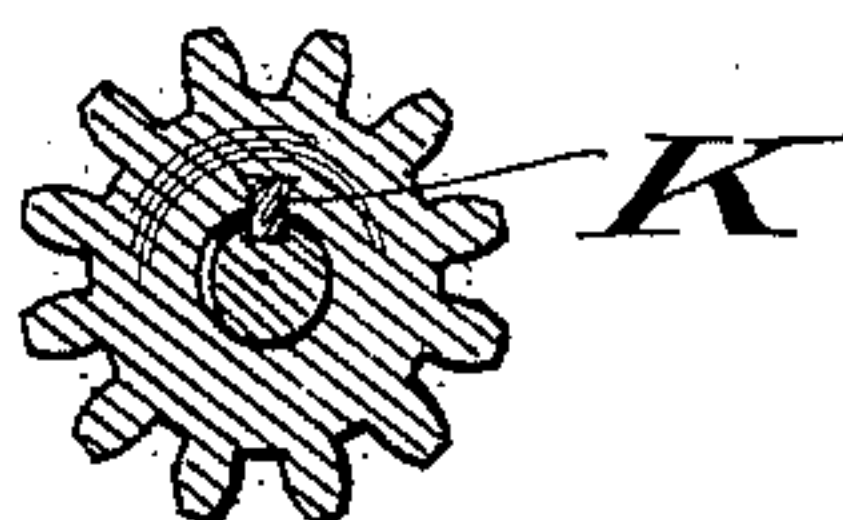


Fig. 5.

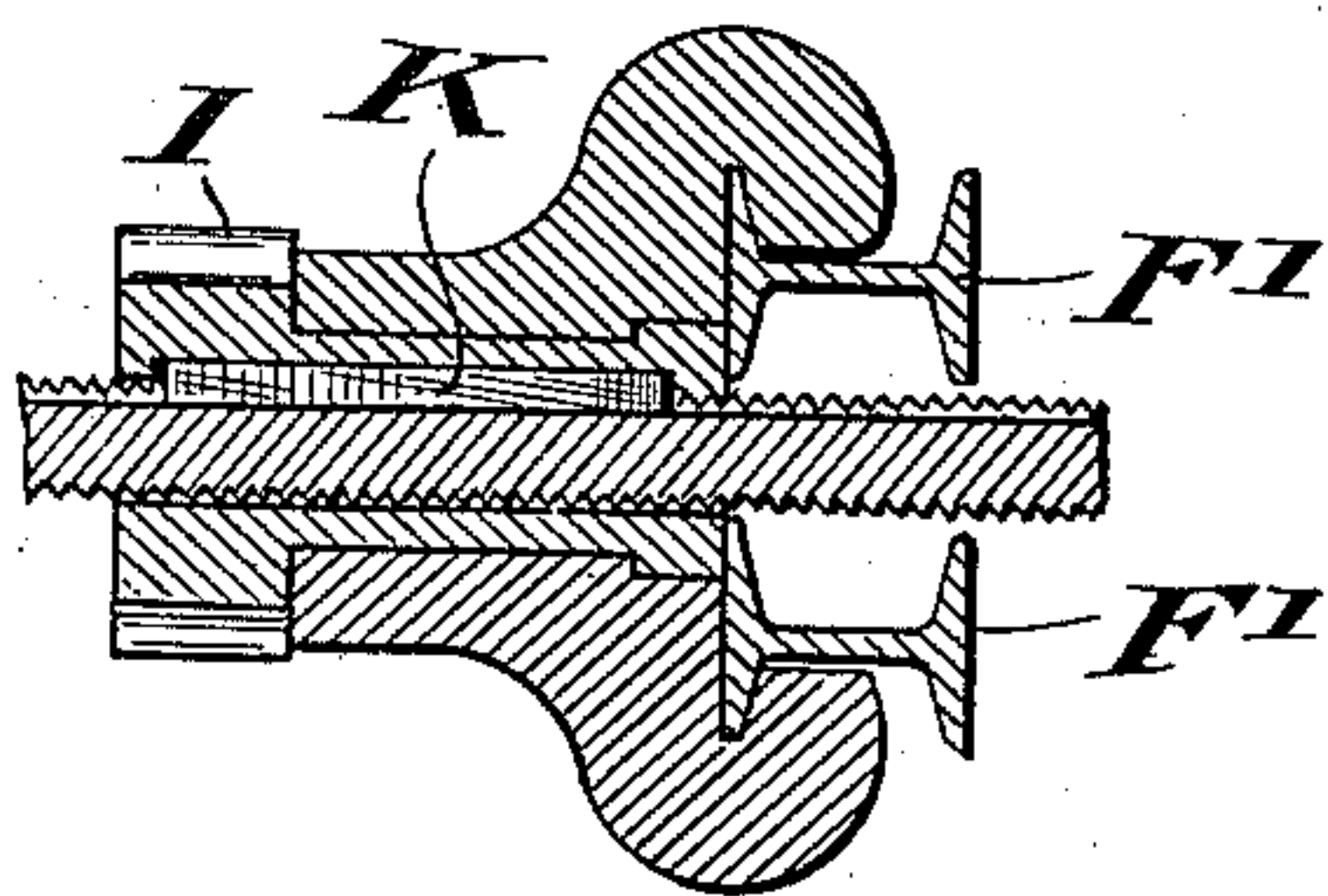


Fig. 6.

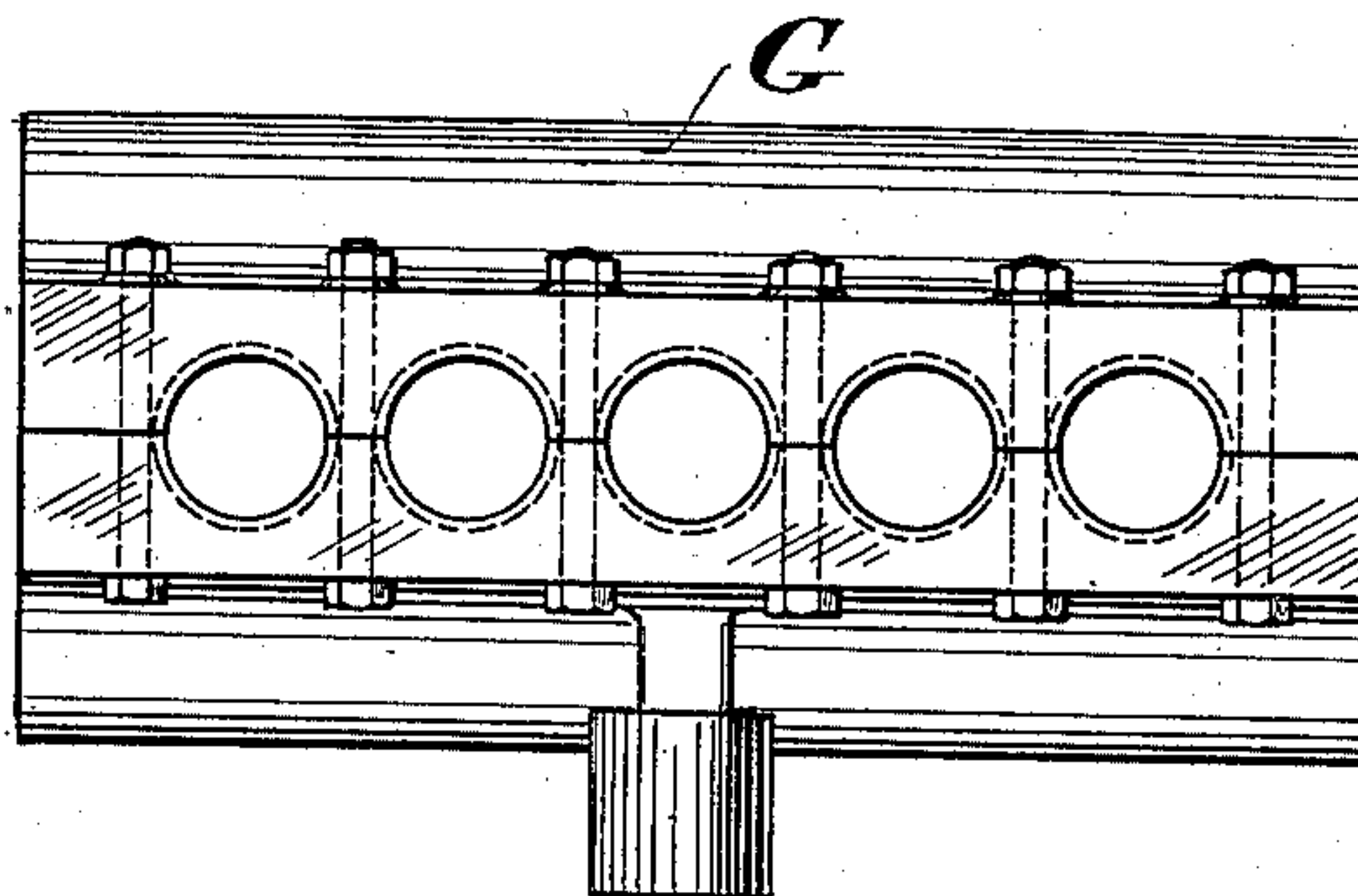


Fig. 7.

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# UNITED STATES PATENT OFFICE.

WILLIAM T. MOSS, OF WALSALL, PENNSYLVANIA.

## MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 639,267, dated December 19, 1899.

Application filed November 9, 1897. Serial No. 857,915. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. MOSS, of Walsall, in the county of Cambria and State of Pennsylvania, have invented a new and useful Mining-Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to mining-tools adapted to cut shelves in a vein of coal or similar material. These shelves are formed for purposes well known in the art. Hitherto two methods have been usually employed to effect their formation. In large mines, where there is a comparatively large amount of working space and from which there is sufficient output to warrant the use of expensive machinery, large power-driven drilling or cutting tools have been provided. In smaller mines it has usually been customary to cut these shelves by manual labor. The workman forms the shelf by cutting out the raw material with a pick or similar tool, but in so doing consumes much time and wastes considerable material.

The object of my invention is to provide a light, cheap, and efficient tool which can be used in small mines, where there is but little space in which to operate, which can be operated by manual labor, which can quickly be adjusted in position, which may be used with equal facility to form a horizontal or an inclined shelf either at the top, bottom, or any intermediate part of the vein, and which will waste a minimum of the raw material.

With these objects in view my invention consists in the improved framework upon which I mount the drilling-tool.

It further consists in the improved drill-press I employ therefor and in the improved construction, arrangement, and combination of parts by which I achieve the objects set forth above.

Referring to the drawings, Figures 1 and 2 are respectively plan and side elevations of my improved tool as it appears in operation. Fig. 3 is a perspective view of the feed-nut H. Fig. 4 is a detail of the support F. Fig. 5 is a section showing one of the drill-stocks secured to the surrounding gear-wheel. Fig. 6 is a section on the line 6 6 of Fig. 1. Fig. 7 is a view of the hanger G.

Into holes drilled in the vein are placed the ends of the posts A, which may be rigidly enough secured therein by wooden wedges W or in any other suitable manner. These posts I provide with the eyes *a*.

B and B' represent standards which have a plurality of eyes *b*. These standards are secured to the posts A by passing a pin through the eye *a* and one of the eyes *b*. Each one of these standards may be independently adjusted in its position with relation to the posts A so that the standards B' may have their ends either parallel with, above, or below the corresponding ends of the standards B. I prefer to form one end of the standard B with C-shaped slots to receive the pins *f* of the support F, so that the standards may be secured to the posts A with the said ends constituting either the top or the bottom of the standards. The supports F, I prefer to form of two I-beams F', secured together at their ends by bolts which pass through the I-beams and through a chuck F<sup>2</sup>, from which the pin *f* projects. The support E, I prefer to construct of a small inverted T-rail, which I secure to the bifurcated end of each of the supports B' by bolts, as shown in Fig. 2. The top of this support is divided into equal portions by the castings E', having C-shaped slots similar to those on the standards B and having the small studs *e*'.

G is a hanger which is preferably formed of two castings bolted together, as shown in Fig. 6, so that it may freely slide along the I-beams F' of the support F. Within this hanger revolve the gear-wheels I, through which pass the threaded drill-stocks J, keyed to the gear-wheels by means of feathers K. The gear-wheels I of the different drill-stocks intermesh, so that movement imparted to one of them, as by the crank L or by the crank L' and bevel-gear, imparts motion to each of the drill-stocks. The drill-stocks are threaded with alternately right-hand and left-hand threads, so as to correspond with the rotary direction of the gear-wheels surrounding them. The clamp H is fitted with threads for each of the drill-stocks and bears against the hanger G, so that it serves as a feed-nut for the drills.

M is a guide-block, which surrounds the ends of the drills J'. This guide-block has



end pins *e*, which rest in the C-shaped slots of the upward projections *E'* on the support *E* and extend between the studs *e'*.

The operation of my invention is now clear.

5 The posts are preferably secured to the vein at about its center. If the mining operation requires that the shelf be formed above the center of the vein, the parts are set together in position shown in Fig. 2. It is clear that  
10 if the shelf is to be drilled at the top of the vein it is only necessary to raise the four standards *B* and *B'*, so that the eyes *a* register with the lower eyes of the standards. It is also clear that if an angularly-disposed shelf  
15 is desired it is only necessary to have the standards *B'* extend either more or less above the post *A* than do the standards *B*. If it is desired to drill a shelf below the center of the vein, the standards may be reversed, for the  
20 C-shaped slots of the standard *B* and of the members *E'* are equally effective in either position. At the same time the hanger *G* can also be secured in a reversed position, so that nothing prevents the shelf from being drilled  
25 at almost the extreme lower end of the vein. In drilling the shelf the drill-press is first placed near one end of the framework. Having drilled to the desired depth, the feed-nut is opened and removed, the drills are drawn  
30 back, the hanger is slid along the support *F*, the guide-block being moved between the two next projections *E'*, the feed-nut is replaced, and the drilling is repeated. In this way a continuous shelf is formed.

35 I do not desire to limit myself to the mere details of construction and arrangement which have been shown and described, as it is clear that my invention is broader than these and that modifications of them will  
40 readily suggest themselves to those skilled in the art.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

45 1. In a mining-machine, the combination of a pair of horizontal supports, vertical standards, two of which are adjustably secured to each of said supports, near opposite ends thereof, a transverse supporting member carried by each end pair of said stand-  
50 ards, a gang-drill press adjustably mounted upon one of said transverse supports, and a drill-rod guide adjustably mounted upon the other transverse support, and means for effecting an angular adjustment of said press and guide.

2. The combination with horizontal supports adapted to be secured to the vein to be shelved, of a pair of vertical standards se-  
60 cured to each of said supports and reversible end for end, whereby either end thereof may constitute the upper end, a pair of transverse supports carried by the said standards, a drill-press carried by the said supports and means  
65 whereby said drill-press may assume an angular position with reference to both of said supports.

3. The combination with a pair of posts adapted to be secured to the vein to be shelved, of vertical standards secured to each of said  
70 supports and capable of independent vertical adjustment and also of being reversed end for end, transverse drill-press supports carried by the said standards, a drill-press mounted on said supports, and means for  
75 effecting an angular adjustment of said press with reference to both of said supports.

4. The combination of a pair of horizontal posts secured to the vein to be drilled, a pair of vertical standards secured to each of said  
80 posts, a pair of transverse supports sustained by one end of the standards, a drill-press carried by the transverse supports, and means for reversing and vertically adjusting, independently of each other, the position of each  
85 standard.

5. The herein-described mining-machine, consisting of a pair of posts adapted to be secured horizontally in the vein to be shelved, a pair of transverse drill-press supports, a  
90 pair of vertical standards adjustably secured to said post and reversible end for end, said standards having means for carrying the said supports in all positions thereof, a gang-drill press mounted on the said supports and mov-  
95 able laterally thereon, and means for effecting an angular adjustment of the said press.

6. In a mining-machine the combination of the independently-adjustable and reversible vertical standards, each having a C-slot in  
100 one end, and the horizontal drill-press supports carried by said C-slots and provided with bearings at opposite ends thereof.

7. A framework comprising the posts *A*, the four standards secured to the same, a pair  
105 of horizontal supports carried by the said standards and parallel with each other and with the vein to be drilled, a hanger slidable along one of said supports and carrying a multiple-drill press, a guide-block for the  
110 other end of the said drill-press and projections upon the other of the said supports carrying the said guide-block.

8. The combination of the posts *A* having eyes *a*, the vertical standards *B* and *B'* hav-  
115 ing pluralities of eyes *b* adapted to register with eyes *a*, the laterally-open C-shaped slot in one end of each vertical standard, and the horizontal drill-press supports resting in and sustained by the C-shaped slots.  
120

9. The combination of the standards having laterally-open C-shaped slots, the horizontal supports *E* and *F* carried in the C-  
shaped slots, the drill-press hanger carried by the said support *F*, and the guide-block  
125 carried by C-shaped slots on the said support *E*.

10. In combination, the posts *A* having eyes *a*, the four standards *B* and *B'* having pluralities of eyes *b*, the C-shaped slots, the  
130 support *F* and guide-block *M* resting on said C-shaped slots, the hanger *G* carried by support *F*, and the multiple-drill press carried by the hanger *G* and guide-block *M*.



11. The frame comprising the posts A and the standards B and B' secured thereto, in combination with the support F composed of the I-beams F' and carried by standards 5 B, and the support E carried by the standards B' and having the projecting distance-pieces E'.

12. A mining-machine comprising the combination of adjustable vertical standards, 10 means for supporting the same, transverse support F, hanger G carried thereby and mov-

able therealong, the drill-press carried by said hanger, transverse support E having distance-pieces E', and guide-block M sustained between two of said distance-pieces. 15

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

WILLIAM T. MOSS.

Witnesses:

H. W. SMITH,  
RICHARD EYRE.