

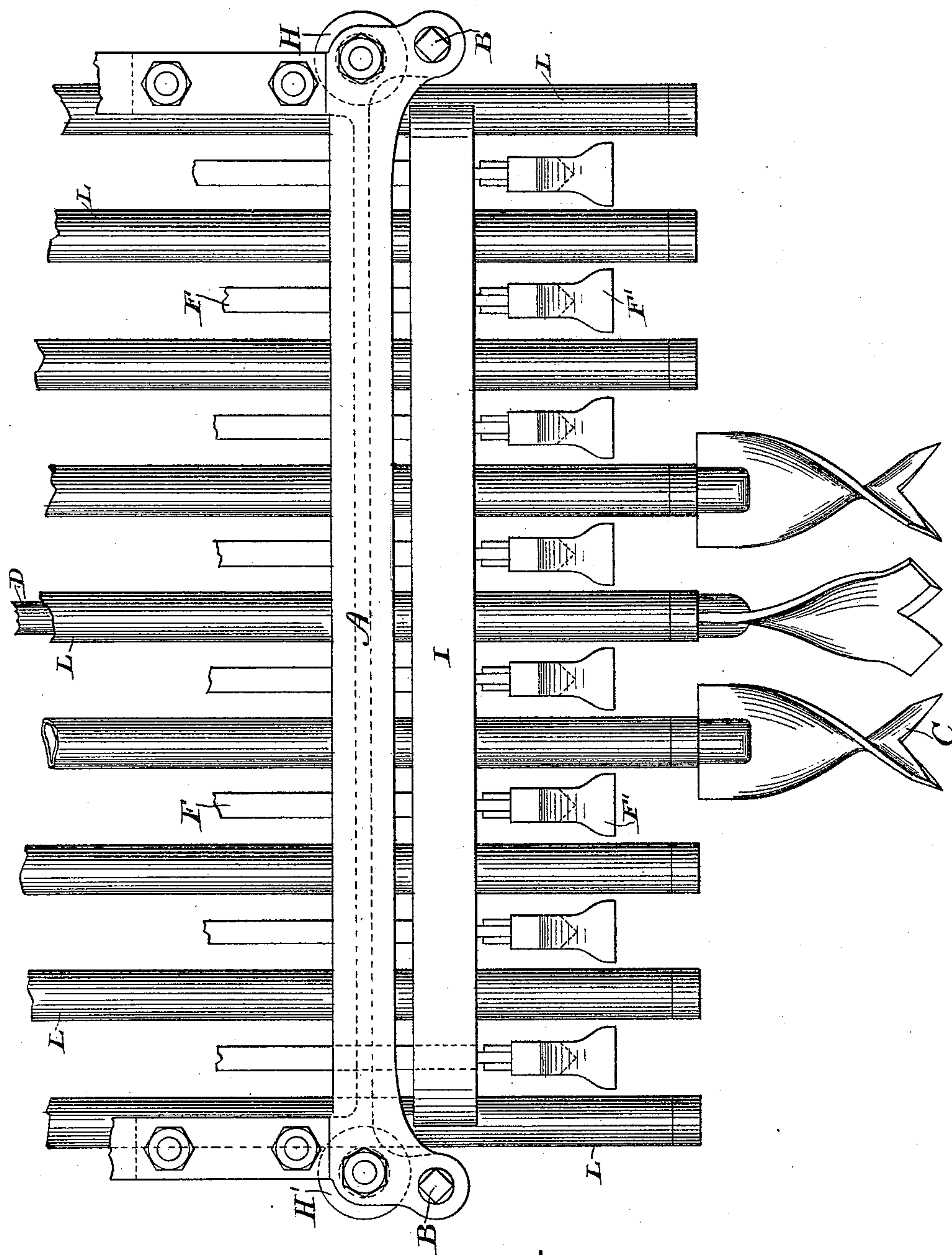
(No Model.)

2 Sheets—Sheet 1.

H. B. WYMAN.  
MINING MACHINE.

No. 454,895.

Patented June 30, 1891.



WITNESSES:

*all true*  
*W. H. Twombly*

FIG. 1—

INVENTOR:

*Horace B. Wyman*  
*by Bentley & Knight*  
ATTYS.

(No Model.)

2 Sheets—Sheet 2.

H. B. WYMAN.  
MINING MACHINE.

No. 454,895.

Patented June 30, 1891.

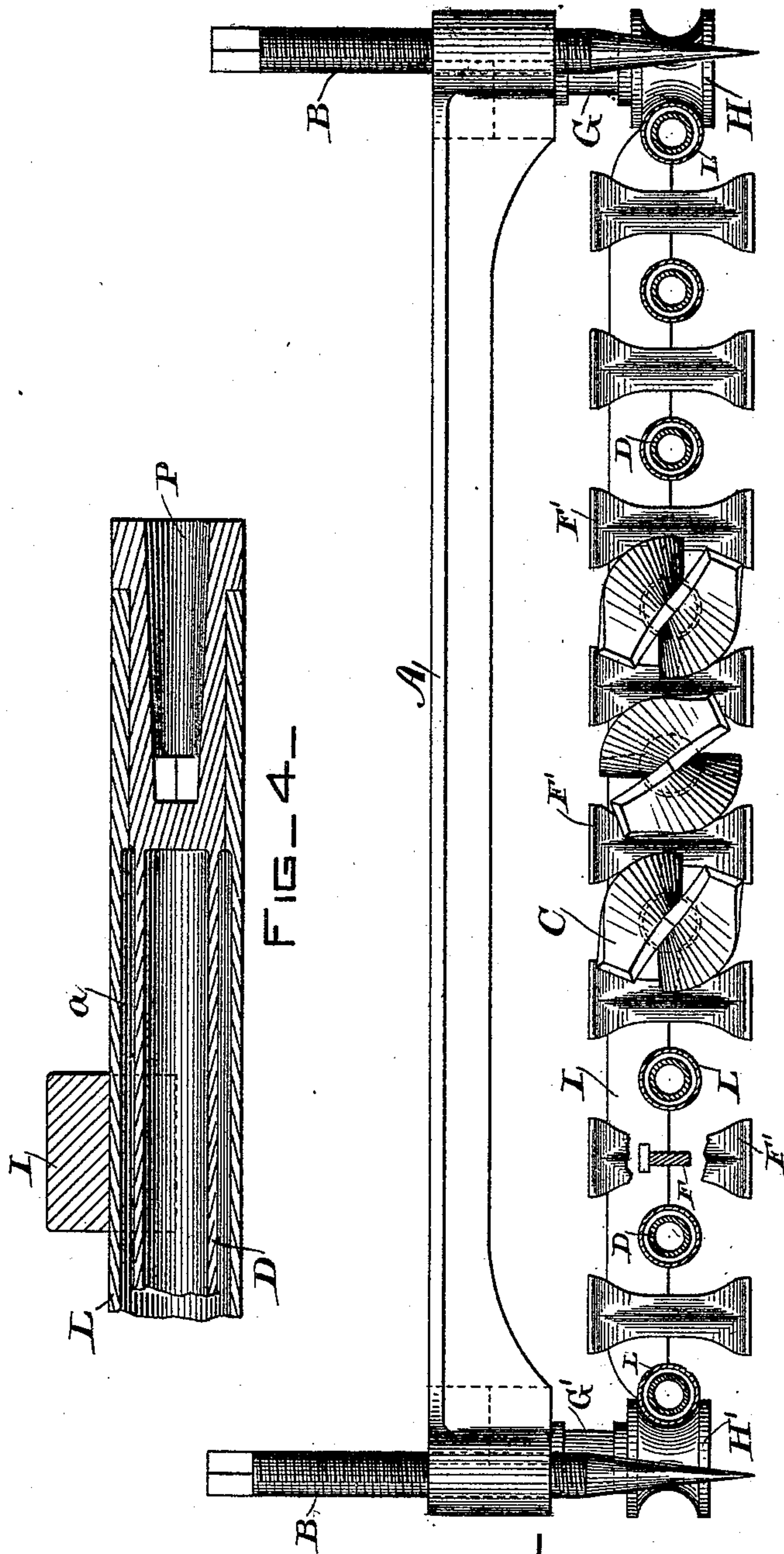


FIG-4-

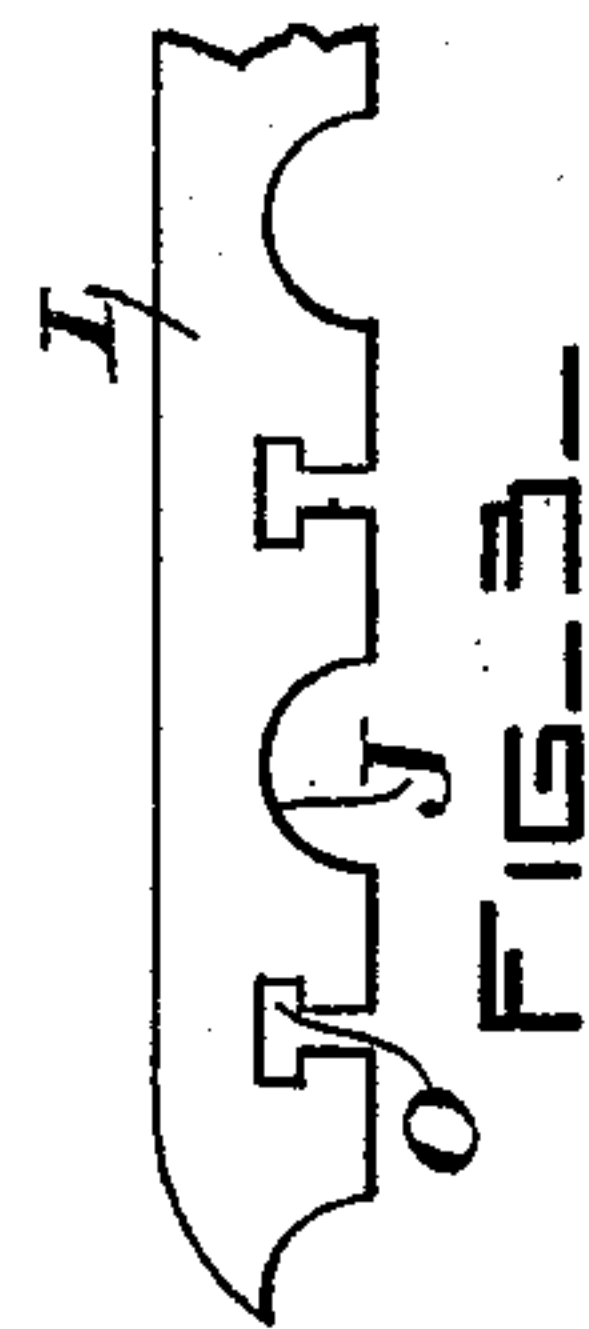


FIG-3-

WITNESSES:

*A. C. Line*  
*W. M. Twombly.*

INVENTOR:

*Horace B. Wyman*  
*by Bentley & Knight*  
ATTYS.



# UNITED STATES PATENT OFFICE.

HORACE B. WYMAN, OF BYFIELD, MASSACHUSETTS, ASSIGNOR TO THE THOMSON-VAN DEPOELE ELECTRIC MINING COMPANY, OF MAINE.

## MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,895, dated June 30, 1891.

Application filed August 1, 1890. Serial No. 360,660. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE B. WYMAN, a citizen of the United States, residing at Byfield, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Mining-Machines, of which the following is a specification.

My invention relates to mining-machines, and especially those designed for boring coal, which have a horizontally-arranged set of augers and a cutter or drill between each pair of augers, all adapted to co-operate in producing a clean cut from side to side of the machine.

In machines of this character it is desirable to have the cutting apparatus as near the surface of the drift as possible, and a cross-bar fixed upon the frame has been used to support the front ends of the cutter-bars and auger-shafts. These have passed through the center of the cross-bar, leaving a portion of the latter extending down low, where it strikes against the cuttings which collect in front of the machine and prevent its being fed forward as the cut is made. To overcome this difficulty I have devised a machine in which the cross-bar is so shaped as to pass above the cutting apparatus, and has bearings upon its under side by which the cutter-bars and shafts are suspended from the bar. The cross-bar also moves forward freely upon the machine with the cutting apparatus as the cut is made.

My improvements are illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view showing the front end of the machine. Fig. 2 is a front view showing certain of the auger-shafts and bearings in section. Fig. 3 is a detail view of a portion of the cross-bar, and Fig. 4 is a longitudinal sectional view of the auger-shaft and bearing upon an enlarged scale.

The frame of the machine, with the exception of the cross-bar hereinafter referred to, is the same as in others of this general type, and is shown in part at A, together with the screw-threaded standards B B, which furnish means for vertical adjustment.

The cutting apparatus consists of a series of augers C, each mounted upon the outer

end of an auger-shaft D, and a similar set of cutter-bars F, carrying chisels F', all arranged in a straight line from side to side of the machine, the chisels alternating with the augers.

From the frame A depend hangers G G', upon which are journaled grooved rollers H H', between and by which is supported the cross-bar I, designed to furnish bearings for the front ends of the cutting apparatus. This cross-bar is placed close to the drill ends of the cutter-bars, and is similar to one such as is now used with the lower half cut away; or it may be otherwise so shaped as to pass above the auger-shafts and cutter-bars, the important thing being that a clear space is left below it, so that forward movement be not impeded by the bar striking against the loose cuttings which collect in front of it. The bar is grooved on its underside, as shown at J, and fitting these grooves are tubes L, brazed or welded to it. Each of these tubes forms a bearing for one of the auger-shafts, which are made somewhat smaller than the internal diameter of the tube to leave an intermediate oil-space a, and the two outer tubes support the bar by taking into the grooves of the rollers H H'. Midway between the pipes are bearings for the cutter-bars, which are shown as consisting of T-shaped slits O, through which pass the correspondingly-shaped bars. The shafts have sockets P to receive the augers and revolve freely in the tubes L. As the cut is formed, the cutting apparatus, cross-bars, and tubes attached thereto are fed forward all together, instead of advancing the tubes through the bar, as has heretofore been the custom.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a mining-machine, of the cross-bar having bearings brazed or welded to its under side, with the cutting apparatus below the said cross-bar and supported by said bearings, as described.

2. The combination, in a mining-machine, of the cross-bar, grooved as shown, with pipes fitting said grooves brazed or welded to the bar, and the auger-shafts journaled in said tubes, as described.

3. The combination, in a mining-machine,  
of the auger-shafts and cutter-bars, with the  
cross-bar placed close to the drill ends of the  
cutter-bars and having bearings in which the  
5 said bars slide, and the tubes brazed or welded  
to the bottom of the cross-bar and forming  
bearings for the auger-shafts, as described.

4. The combination, in a mining-machine,  
of the cross-bar having a pipe at each end

taking into grooved rollers on the frame of the machine and free to slide lengthwise thereof, with the cutting apparatus, having their front ends sustained by said bar, as described.

HORACE B. WYMAN.

Witnesses:

F. E. GARSIDE,

E. L. YOUNG.