(No Model.)

M. HARDSOCG.

MINING MACHINE.

No. 282,632. Patented Aug. 7, 1883.

Fig. 1.

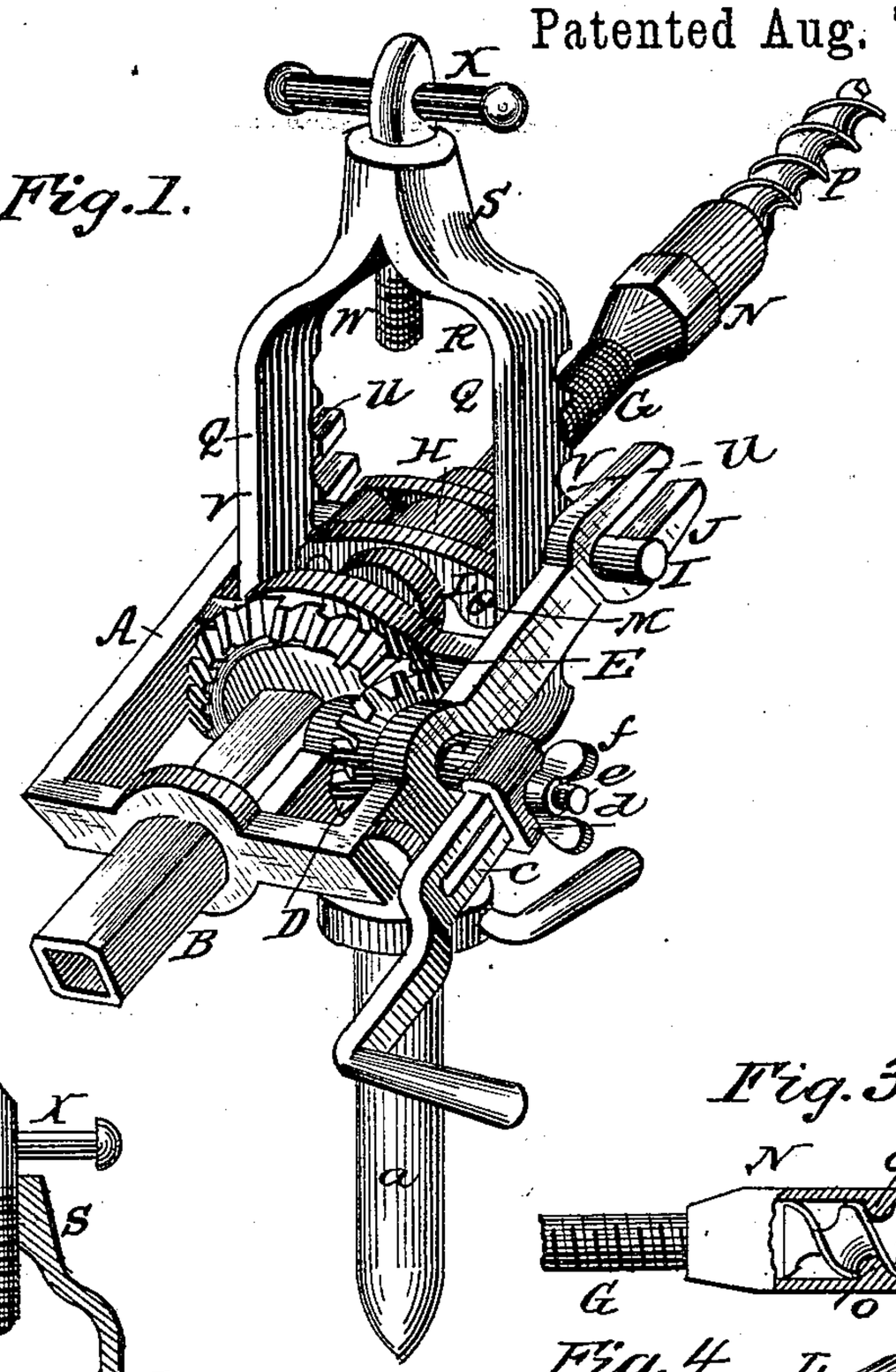


Fig. 2.

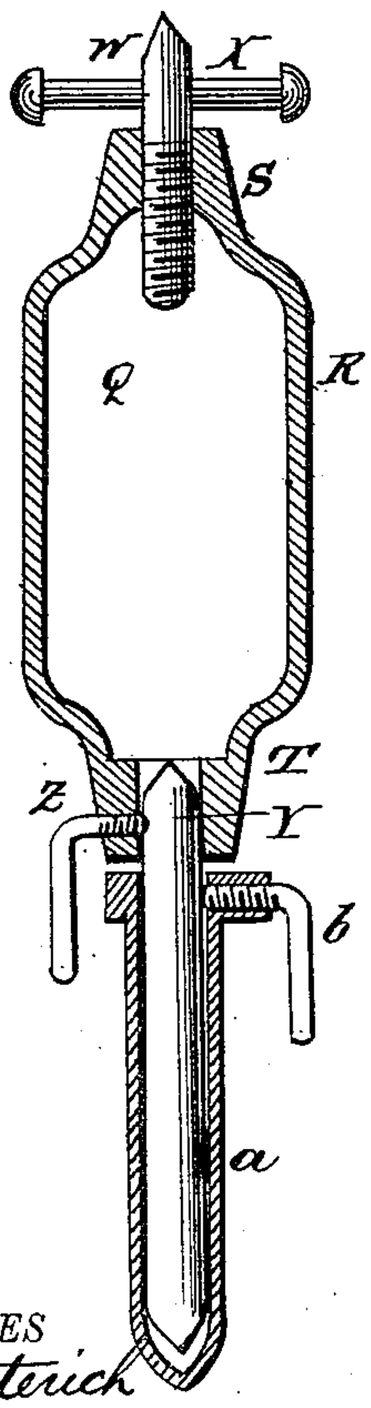


Fig. 3.

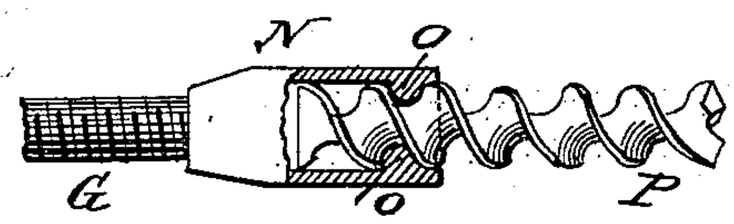


Fig. 4.

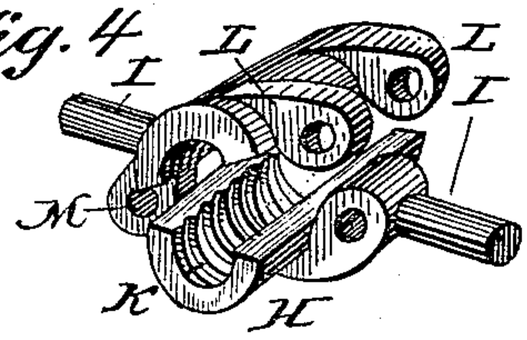
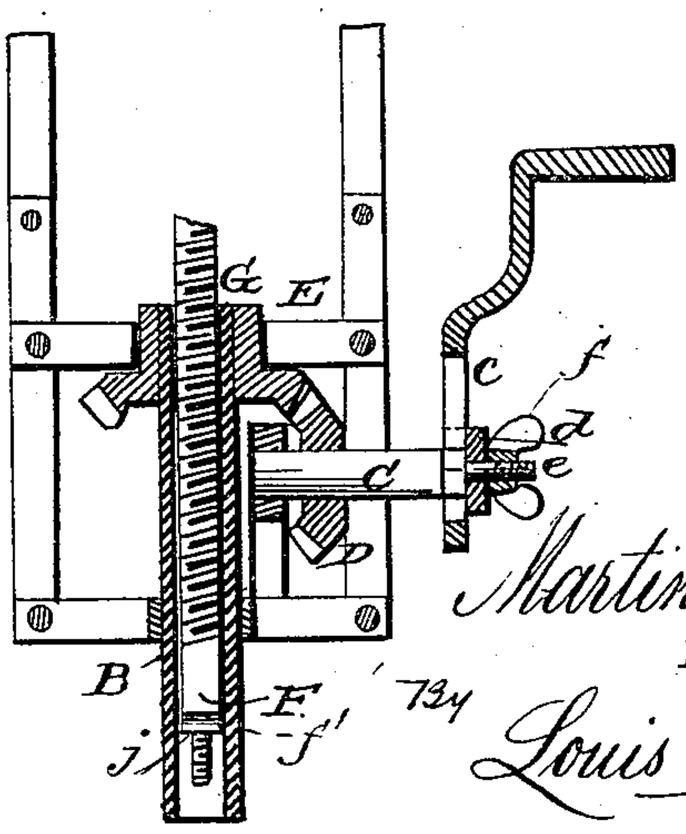


Fig. 5.



WITNESSES

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MARTIN HARDSOCG, OF AVERY, IOWA.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 282,632, dated August 7, 1883.

Application filed May 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, MARTIN HARDSOCG, of Avery, in the county of Monroe and State of Iowa, have invented certain new and useful Improvements in Mining-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved mining-machine. Fig. 2 is a longitudinal sectional view of the adjustable standard. Fig. 3 is a longitudinal section of the drill-fastening. Fig. 4 is a detail view of the clamp; and Fig. 5 is a sectional detail view of the drill-frame.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to mining-machines; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates a frame forming bearings for a hollow sleeve, B, passing longitudinally through the frame, and for a short transverse crank-shaft, C, provided at its inner end with a bevel-pinion, D, which engages a bevel-pinion, E, upon sleeve B.

The interior of sleeve B is polygonal, and the correspondingly-shaped head F of the drill-shaft G slides in the same and turns with it, while the screw-threaded drill-shaft turns in a female screw-threaded clamp, H, having two laterally-extending arms, I, which are straddled by the bifurcated lower end, J, of the side pieces of frame A. This clamp H consists of a body portion, K, from which the arms I extend, the inner portions of which are transversely perforated, and fit in between two sets of perforated laterally-extending lugs or ears, L, upon the hinged portion of the clamp, where they are secured by two removable pintles, M. By removing one of these pintles the clamp may be opened and the drill-shaft removed when desired.

The end of the drill-shaft is provided with a socket, N, secured to the end of the same, and having two lugs, O, projecting from the inside of the socket diametrically opposite to each other, near the open end of the same, and the drill-bit P, which is preferably a spiral auger, may be inserted into the socket by simply placing the upper end of the spiral bit between the two projections and screwing it into the socket, the two projections fitting in between the flanges of the auger. In this manner, if the bit breaks, the broken off portion having the point may be inserted into the socket and held there, as well as the entire bit, and it may be inserted or removed in a moment of time.

The point of the auger or bit is cut down in the center, so that the sharpened ends of the flanges will cut from the periphery of the bore instead of, as usually is the case, from the center, whereby the result is accomplished that the bit will cut truer than where a central projection first enters the object to be bored, and the flanges cut the outer portions of the bore away, and that, there being no point to be worn off, while, on the contrary, the wear upon the ends of the flanges will sharpen the same, the bit will keep itself in good order for boring, and requires comparatively little sharpening.

To brace the drill when in operation I provide an adjustable standard, Q, consisting of an oblong frame, R, having two bearings, S and T, one at each end, and having a series of notches, *w*, in the edges of its two parallel sides, V, which fit into the space between the ends of the side pieces of frame A in such a manner that the transverse arms upon the clamp may rest in one notch on each side of frame R and be rocked in the same.

Bearing S of frame R is screw-threaded, and a screw-threaded pin, W, having a transverse perforation, through which passes a rod, X, headed in both ends, fits into and turns in the same, and the outer end of the pin being pointed, it may be placed against an object, and the other end of the standard being placed against another object, the standard may be secured between the two objects by turning the pin W by means of rod X.

A pin, Y, pointed at both ends, slides in the bearing T in the other end of the frame, and may be adjusted by means of a set-screw, Z, passing through the side of the bearing, and

bearing with its end against pin Y, and a long sleeve or thimble, *a*, pointed at its closed end, slides upon the outer end of pin Y, and may be secured upon the same by means of a set-screw, *b*.

It will be seen that by this construction of the standard it may be braced between two rigid objects by adjusting pin Y and sleeve *a* till it nearly spans the space between the two objects, whereupon it may be finally secured by screwing pin W out until it bears firmly against the rigid object it is forced against, and that when the drill-frame is placed over the open portion of the standard the arms upon the clamp may be placed into any of the notches and the drill be adjusted in any direction, the latter rocking with the arms of the clamp in the notches upon the standard and the standard turning upon the pointed ends of the screw-threaded pin and of the sleeve.

It will also be seen that by having the pointed sleeve sliding adjustably upon the double-pointed pin Y the sleeve may be removed where the space will not admit a standard of the length it has with the sleeve, and the double-pointed pin may be slid back in its bearing, and when one point is worn out on the pin it may be reversed and the other point used.

The crank *c* upon the crank-shaft is slotted and slides with its slot upon the end of the shaft, and may be adjusted upon the same by means of a clamp, *d*, through the center of which the screw-threaded outer end, *e*, of the crank-shaft passes, and which clamps the sides of the crank and may be brought to bear upon the crank by tightening a thumb-nut, *f*, upon the screw-threaded end of the crank-shaft. This crank, with its clamp and thumb-nut, may be removed from the crank-shaft if the narrowness of the space where the drill is to be worked will not admit of the crank and the frame, with its gearing, being used, when the crank may be placed upon the upper end of the drill-shaft, which is reduced to form two parallel sides, *f'*, upon which the slotted portion of the crank slides, which thereupon may be secured by means of the clamp *d* and the thumb-nut, which is screwed down upon the upper reduced and screw-threaded end of the drill-shaft. When used in this manner, the drill-shaft, with its crank, clamp H, and the adjustable standard alone are used, the entire frame and gearing being removed.

It will be seen that by turning the crank the sleeve B will be rotated, and with it the drill-shaft, which will turn in the screw-threaded clamp and be fed toward the work, its square head sliding inside the sleeve, as it also may be withdrawn out of the bore by reversing the motion.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the drill-shaft, having means for rotating and feeding it, and provided at its outer end with the socket N, having diametrically-opposite lugs O projecting from its inner surface, with the spirally-flanged auger-bit P, as and for the purpose shown and set forth.

2. In a mining-machine, the standard, consisting of an oblong frame, forming a screw-threaded and a smooth bearing, one in each end, and having means for adjusting the drill mechanism upon it, a screw-threaded pointed pin passing through the screw-threaded bearing in the frame, and having a double-headed bolt passing through and sliding in its outer portion, a double-pointed pin sliding in the smooth bearing, and having a set-screw for adjusting it in the same, and a sleeve or thimble pointed in its closed end and sliding upon the outer end of the double-pointed pin, having a set-screw for adjusting it, as and for the purpose shown and set forth.

3. In a mining-machine, the combination of the clamp guiding the drill-shaft and having laterally-extending arms, the adjustable standard-frame having notches in the side pieces for the reception of the arms of the clamp, and the rectangular frame forming bearings for the drill-operating mechanism, and having bifurcated lower ends straddling the clamp-arms outside the sides of the standard-frame, as and for the purpose shown and set forth.

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

MARTIN HARDSOCG.

Witnesses:

BENJAMIN MILLESON,

JOHN L. ANDERSON.