A. WARTH.

Grinding-Machine.

No. 202,899. Patented April 23, 1878.

Fig.1.

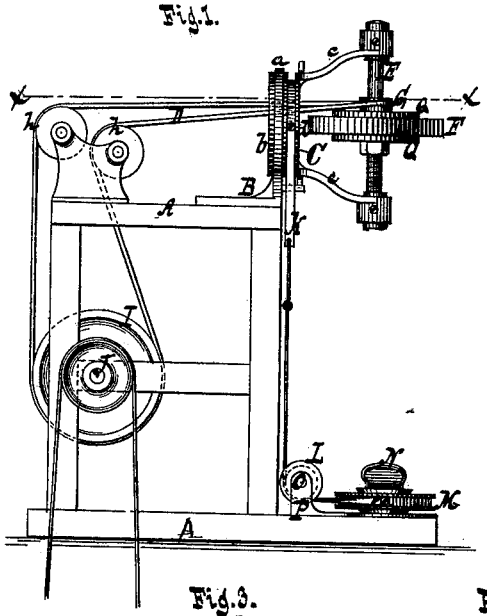


Fig.2.

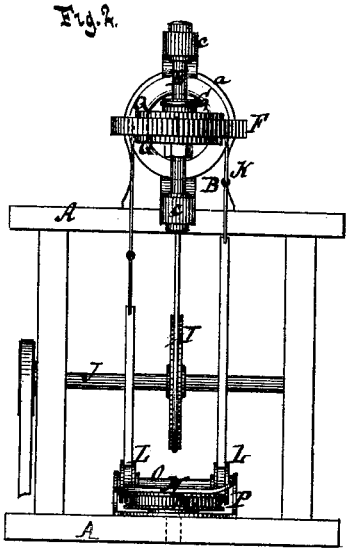


Fig.3.

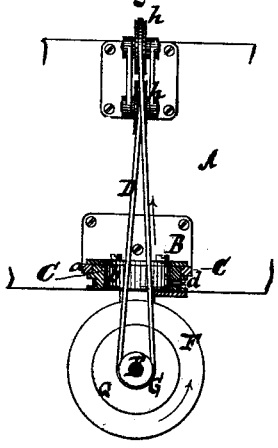


Fig.4.

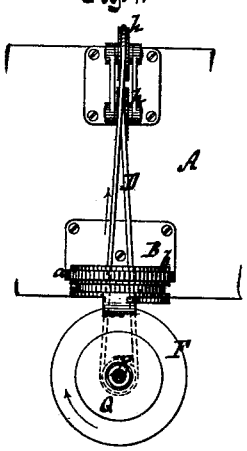


Fig.6.

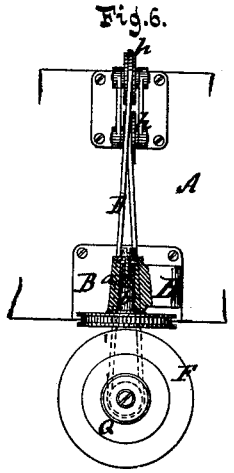


Fig.5.

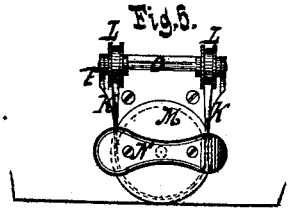
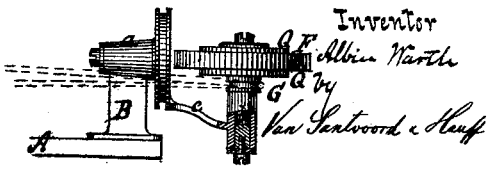


Fig.7.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBIN WARTH, OF STAPLETON, NEW YORK.

IMPROVEMENT IN GRINDING-MACHINES.

Specification forming part of Letters Patent No. **202,899**, dated April 23, 1878; application filed March 13, 1878.

To all whom it may concern:

Be it known that I, ALBIN WARTH, of Stapleton, in the county of Richmond and State of New York, have invented a new and useful Improvement in Grinding-Stones, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view. Fig. 2 is a front view. Figs. 3 and 4 are horizontal sections in the plane *x x*, Fig. 1, showing the the grinding-disk in different positions. Fig. 5 is a plan of the swivel-pedal, which serves to adjust the grinding-disk in the required position. Fig. 6 is a sectional plan or top view of a modification. Fig. 7 is a side view of the same, partly in section.

Similar letters indicate corresponding parts.

This invention consists in a novel construction of swivel-mountings and adjusting devices for grinding and polishing stones.

In the drawings, the letter A designates a table or frame, which supports a standard, B. This standard is provided with a socket, *a*, which forms the bearing for the shank *b* of a swivel-head, C.

In the example shown in Figs. 1 to 4, inclusive, the shank *b* is hollow or tubular, its bore being sufficiently large to allow the driving-belt D to pass freely through it, and the head is provided with two arms, *c c*, which form the bearings for a spindle, E, on which are mounted the grinding-disk F and the pulley G. The belt D extends from the pulley G over guide-pulleys H to a pulley, I, which is mounted on the driving-shaft J. Round the head C is placed a belt, K, which is fastened by screws *d*, and the ends of which extend down under guide-pulleys L, and are carried round a pulley, M, to which they are fastened by screws *e*, Fig. 1, and on which is secured a pedal, N.

The guide-pulleys L are mounted on a horizontal shaft, O, which has its bearings in a bracket, P, which is secured to the bed-plate of the frame A, and from which rises a stud, on which revolves the pulley M. By turning the pulley M the swivel-head C is caused to turn in the standard B, and the grinding-disk can be adjusted so that either of its sides or its face is in working position.

The operation of turning the pulley M is effected by means of the foot, which is placed on the pedal N, and which also serves to retain the grinding-disk in the required position, leaving both hands free for the manipulation of the article to be ground.

The object of this arrangement is to facilitate the operation of grinding tools or cutting-instruments which have to be ground on both faces, each face being placed against one of the sides of the grinding-disk. In grinding one face of a tool of this kind, the grinding-disk is turned to the position shown in Fig. 3, so that the same revolves in the direction of the arrow marked thereon, and the face to be ground is held upon the right-hand side of the disk. In grinding the opposite face of the tool, the grinding-disk is turned to the position shown in Fig. 4, causing in to revolve in the direction of the arrow marked on it in that figure, and the face to be ground is held upon the left-hand side of the disk. By these means the grinding-disk revolves from the operator in grinding either face of the tool, and the operation of grinding can be accomplished with facility and with the least possible waste.

On each side of the grinding-disk F is secured a honing-disk, Q, of leather, wood, cast-iron, or other suitable material, so that the operation of honing the faces of the cutting-tool can be effected immediately after they have been ground.

In the example shown in Figs. 6 and 7, the shank *b* of the swivel-head C is solid, and secured in the socket *a* of the standard B by a set-screw. In this case the swivel-head is provided with two large holes for the passage of the driving-belt, and has only one arm, *c*, which forms the bearing for the spindle E of the grinding-disk F and pulley G.

If the grinding-disk is turned to the position shown in Figs. 6 and 7, its upper face is entirely free and unobstructed, which is of advantage for certain kinds of articles to be ground.

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

1. The combination of the stationary standard B, carrying the annular socket or band *a*, the swiveling head C, having through it a belt-passage, and embraced by said socket or band,

the arms *c*, and the grindstone-pulley G, having its shaft-bearings in the ends of said arms, the belt D, stationary guide-pulleys *h h*, and large pulley I, all constructed and mounted upon a stand, A, substantially as described.

2. The combination, with the swivel-head C, carrying the spindle of a grinding stone or disk, of a swivel-pedal, which connects with the swivel-head by means of a belt, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of March, 1878.

ALBIN WARTH.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.