H. W. Harper.

Stone Polishing Mach.

No. 95,343. Patented Sept. 28, 1869.

Fig. 1.

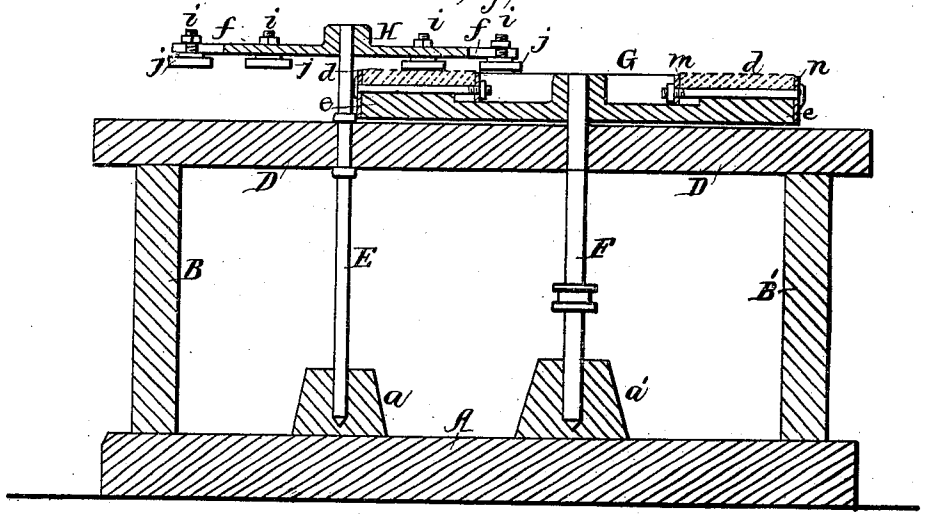
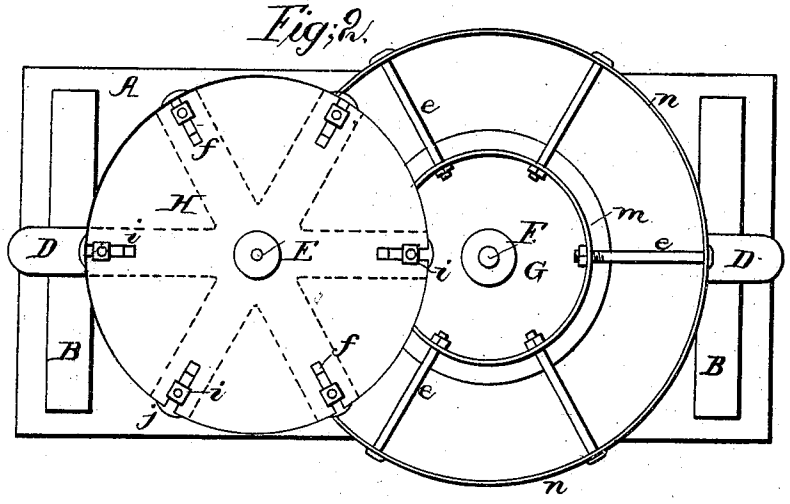


Fig. 2.



Witnesses.
Wm. Albert Steel
John Parker.

Inventor;
H. W. Harper
By his Attys
H. Howson

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

HENRY W. HARPER, OF BERLINSVILLE, PENNSYLVANIA.

Letters Patent No. 95,343, *dated September* 28, 1869; *antedated March* 29, 1869.

IMPROVED MACHINE FOR GRINDING SLATE, STONE, MARBLE, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY W. HARPER, of Berlinsville, Northampton county, Pennsylvania, have invented an Improved Machine for Grinding and Polishing Slates and other Materials; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of a revolving disk, or its equivalent, to which are secured a number of grinding or polishing blocks, arranged apart from each other, in combination with a rotating disk or reciprocating bed, for receiving the object to be ground or polished, all being fully described hereafter.

My invention further consists in rendering the said blocks adjustable on the disk, or its equivalent, in the manner explained hereafter.

The improved machine, although adapted to the reduction and smoothing of various materials, is especially applicable to the grinding and polishing of slates.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a vertical section of my improved slate-grinding and polishing-machine, and

Figure 2, a plan view of the same.

The frame-work of the machine consists, in the present instance, of the base A, and two standards, B and B', connected together by the horizontal beam D, in which, and in suitable steps *a a'* on the base, turn the two vertical shafts, E and F.

To the upper end of the latter shaft is secured the disk G, for holding the slates *d*, which are confined between an inner ring, *m*, and outer ring, *n*, the last of which is permanently secured to the disk, while the inner ring *m* is split, and can be expanded and contracted at pleasure, by means of bolts *e*—expanded when the slates are admitted to and released from their places on the disk, and contracted when the slates have to be secured to the same.

Further allusion to this disk, with its rings, will be unnecessary here, as it forms the subject of an application for a patent heretofore filed; and as it is immaterial in the present instance how the disk or its appliances may be constructed, providing the plates can be held on it, and as a reciprocating bed for holding the slates may be used in place of the revolving disk.

To the upper end of the shaft E is secured a circular plate or disk, H, having a number of radial slots, *f*, each of which receives the stem *i* of a grinder or polisher, *j*, which is secured to the plate H by a suitable nut, adapted to the screwed end of the stem.

These grinders or polishers may be made of different materials heretofore used for the purpose, although I prefer the use of ordinary vulcanite emery as a material specially well adapted to the purpose.

The two disks may revolve in the same or in contrary directions, but the disk with the grinding-blocks should revolve much faster than that which holds the slates.

When the grinding or polishing-blocks have to be applied to the slates, the shaft F and its disk G are elevated by any suitable appliances until the surface of the slates come in contact with the blocks, or the shaft E may be so arranged as to be raised and lowered, in which case the disk H is depressed until its grinding or polishing-blocks are in contact with the slates.

The shape of the blocks *j* is immaterial. They may be round, as shown, or square, or of other form, but in all cases care should be taken to arrange them at a distance apart from each other; for if crowded together they would approach in their action to that of a continuous grinding or polishing-ring, which is not only more expensive than the blocks, but inferior to the latter, the ring being apt to clog, while the blocks arranged apart from each other clear themselves from the pulverized material, and are superior to the rings as regards cutting, grinding, and polishing effect.

I prefer to make the blocks adjustable from and toward the centre of the disk H, as it may be advisable to alter their relative position. In fact, it would be preferable in many cases for some of the blocks to be nearer to the centre of the disk than others.

In place of the disk H, a central heel, with arms, as illustrated by dotted lines in fig. 2, may be used.

I am aware that a revolving disk, carrying a number of revolving grinders or polishers, has been used for operating on glass. This I do not claim, as I consider the securing of the grinders or polishers to the disk essential in carrying out my present invention.

It will be evident that although I have heretofore referred to my invention as applied to the grinding and polishing of slates, it is well adapted to the reduction and smoothing of other materials, such as marble or other stone, metals, &c.

I claim as my invention, and desire to secure by Letters Patent—

1. The revolving disk H, or its equivalent, to which are secured a number of grinding or polishing-blocks, arranged apart from each other, in combination with a rotating disk or reciprocating bed for containing the object to be ground or polished.

2. Rendering the said blocks adjustable to and from the centre of the disk H, or its equivalent, by means of slots *f f* in the latter for the reception of the stems of the blocks, as set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

H. WM. HARPER.

Witnesses:
JOHN M. HOWER,
STEPHEN KINDT.