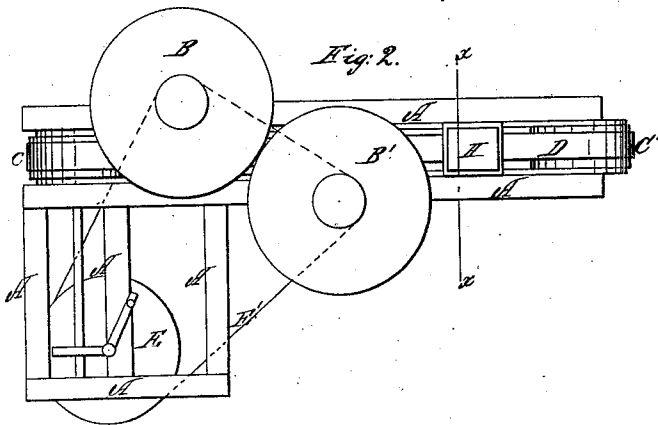
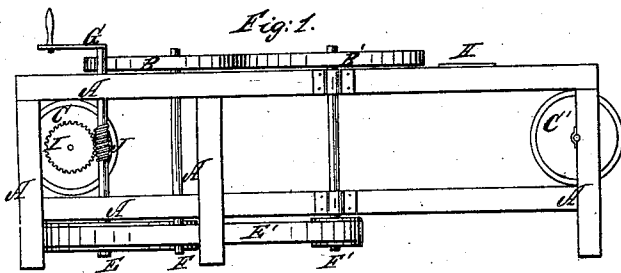
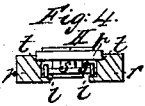


S. Haggaman,

Polishing School Slates.

N^o 82,828.

Patented Oct. 6, 1868.



Witnesses:

J. L. Coombs
J. W. Ward

Inventor:

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Attorney.

United States Patent Office.

STINSON HAGAMAN, OF WEISSPORT, PENNSYLVANIA.

Letters Patent No. 82,828, dated October 6, 1868.

IMPROVED MACHINE FOR GRINDING AND POLISHING SCHOOL-SLATES.

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, STINSON HAGAMAN, of Weissport, in the county of Carbon, and State of Pennsylvania, have invented a new and useful Improvement in Machines for Grinding and Polishing School-Slates; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of the machine.

Figure 2 is a plan view of same.

Figure 3 is a side elevation of one of the slate-carriers, detached; and

Figure 4 is a cross-section of one of the top rails of the frame and carrier, in line *x x*, fig. 2.

Like letters indicate the same parts in all the figures.

A is the main frame of the machine.

B and B' are two rubbing-wheels, of different grades of grit, the first, or B', to grind down the slate, and the next, B, to polish it.

C and C' are two pulley-wheels, carrying an endless belt, D, and on this endless belt are to be mounted as many slate-holders or carriers, H, as may be desired.

The crank-shaft G is the shaft, to which any suitable motive-power is to be applied, to give it a rotary motion.

On the lower end of this shaft is a large pulley-wheel, E, and in the same plane, on the lower ends of the vertical shafts on which the rubbing-wheels B and B' are mounted, are two smaller pulley-wheels, F and F'. An endless belt, E', passes around all three of these pulley-wheels, and so gives motion to the rubbing-wheels B B'.

I is a pinion-wheel, mounted on the same shaft with the pulley-wheel C, and meshes into a worm-screw, J, on the crank-shaft G, and by this means said pulley-wheel C is so rotated as to carry the endless belt D, with its slate-carriers H, at the proper rate of speed to move said carriers successively under the rubbing-wheels, and subject each slate a sufficient length of time to the action of said wheels thereon.

The slate-carriers or holders are each mounted on four friction-rollers, *r*, by means of two springs, *s*. These friction-rollers run upon ledges or tracks, *l*, upon the upper rails of the main frame. The springs *s* hold the slates up against the rubbing-wheels with sufficient force to cause them to be properly ground and polished, but at the same time allow the slate-bed to yield sufficiently to accommodate the machine to slates of different thicknesses, and prevent breakage thereof.

The slate-beds *h*, while passing under the rubbing-wheels, are guided by shoulders, *t t*, on the upper rails of the frame, so that they cannot be depressed below a defined line, or pass through the machine without being reduced to a limited and definite thickness.

The upper rails of the frame, or the ledges thereon which guide the carriages, should be slightly depressed at the narrow end of the machine, to allow the slates to pass freely under the first rubbing-wheel, and cause them afterwards to rise up and press against it.

The slates are to be fastened to their beds on the carriages by a slide and thumb-screw, or by any other suitable known means for performing similar operations.

The tender stands at the narrow end of the machine, and fastens a slate on each carriage as it passes.

I design using a canvas endless belt to run underneath and parallel with the carriages, to catch any slates that may happen to fall from them while they are inverted, and carry them back to the tender. Each slate may be permitted to pass as many times under the rubbing-wheels as may be necessary to finish it, when it will be removed by the tender and replaced by another. The carriages will move slowly enough to permit this being done while the machine is in motion.

The rubbing-wheels are to be made adjustable in respect to their height above the frame, which may be done by obvious means, not necessary to here describe. Said rubbing-wheels may be made of wood, and coated

with emery, or any other suitable gritty material, or the wheels themselves may be made of any other suitable material besides wood.

Having thus fully described my machine, and its mode of operation, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with one or more horizontally-rotating rubbing-wheels, an endless belt, with slate-carriages mounted thereon, for the purpose of carrying the slates under the rubbing-wheel or wheels, substantially as described.

2. In combination with one or more rubbing-wheels, as described, and an endless belt, for the purpose of carrying the slates, as set forth, I claim the slate-carriages H, with their friction-wheels and springs, as described.

3. In combination with the endless belt, and slate-carriages mounted thereon, as described, I claim the ledges or tracks *l* and shoulders *t*, on the rails of the machine, for the purposes set forth.

4. I claim the combination of the driving-shaft G, the pulley-wheels E, F, and F', with the endless belt E', for rotating the rubbing-wheels, and the pinion I, worm-screw J, and pulley-wheels C and C', for carrying the endless belt D, all arranged and operating substantially as described.

STINSON HAGAMAN.

Witnesses:

A. S. CHRISTINE,
LEWIS W. GREENZWEIG.