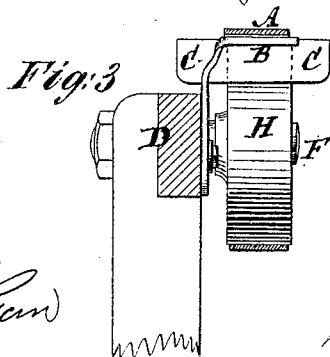
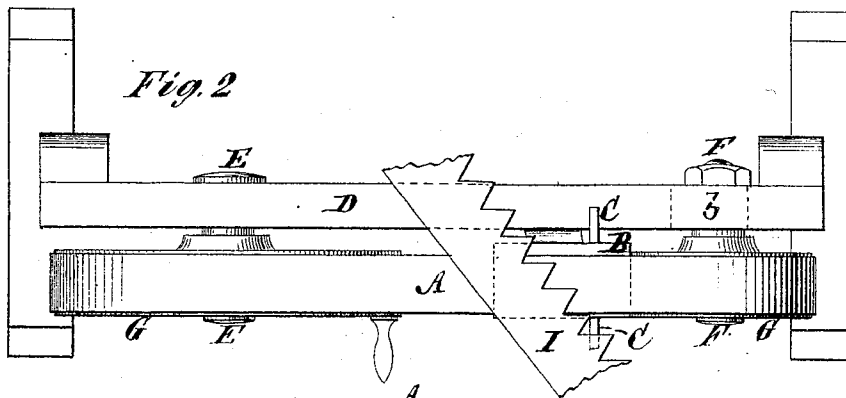
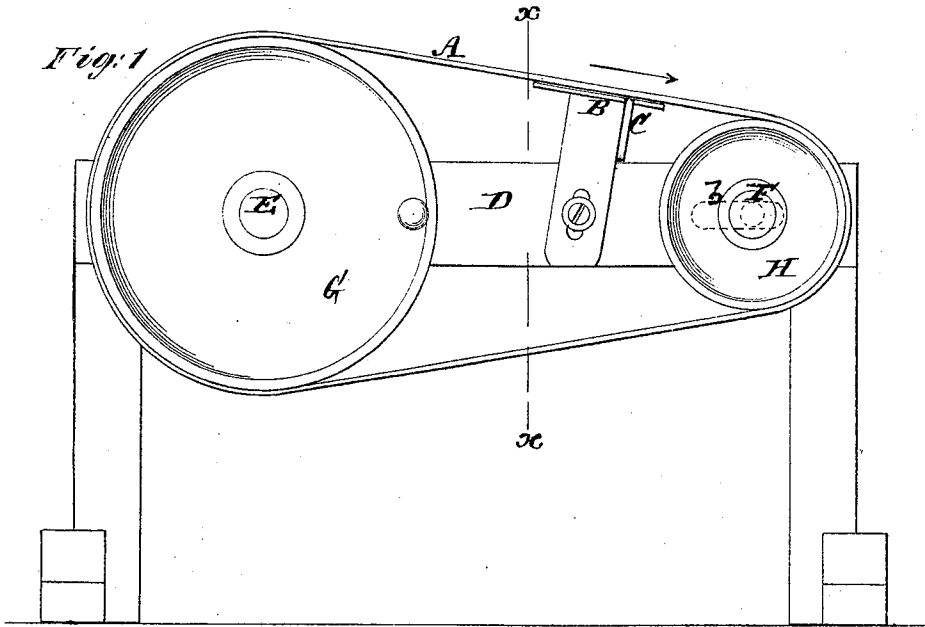


G. SANFORD.

Portable Sharpening-Machines.

No. 150,086.

Patented April 21, 1874.



Witnesses.

Michael Ryan
Fred Warner

Gelston Sanford
By his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

GELSTON SANFORD, OF STROUDSBURG, PENNSYLVANIA.

IMPROVEMENT IN PORTABLE SHARPENING-MACHINES.

Specification forming part of Letters Patent No. **150,086**, dated April 21, 1874; application filed February 26, 1874.

To all whom it may concern:

Be it known that I, GELSTON SANFORD, of Stroudsburg, in the county of Monroe and State of Pennsylvania, have invented certain Improvements in Grinders, of which the following is a specification:

This invention is more particularly designed to be applied to the knives of mowing and reaping machines; and one of the objects sought to be obtained is to supply a cheap and light or portable grinder for such purpose, and which is capable of being readily taken into the field, where the work is often required to be done. The invention consists in a hand-machine, consisting of two pulleys, coupled by an emery or other endless grinding belt or band, and intermediate rest for support of the knife or article to be ground, substantially as hereinafter described.

In the accompanying drawing, Figure 1 represents a side view of a grinder suitable for grinding the serrated knife or cutter of a mowing-machine; Fig. 2, a plan of the same, with a portion of said cutter as in the act of being ground; and Fig. 3, a vertical transverse section on the line *x x*.

A is an endless emery or other grinding belt or band, arranged to travel over pulleys G H, the larger one, G, of which may be the driver of the belt, by means of a crank or handle attached thereto. D is the main frame, constructed of a horizontal bed or beam, mounted on legs or standards, and fitted at or near either end with studs E F, arranged to project from the one side of the beam to form bearings outside or on one side only of the frame for the pulleys G H, which run loosely thereon, and the one or both of said studs made adjustable, as at *b*, in direction of the length of the frame, for the purpose of tightening the grinding belt or band A.

This construction and arrangement of the parts is not only a cheap and simple one, but is very convenient as regards the use of the grinding-band, and materially adds to lightness, consequently to the portability, of the grinder, which is an important object in moving the grinder to and from the field.

An endless grinding belt or band is much more advantageous in many respects than an emery-wheel. Thus, the emery may be

sprinkled or laid on the glued surface of the band or belt, so as to present clearer or sharper cutting-edges than when worked up with a wheel. Likewise, said grinding-band will do its work much faster than an emery-wheel or grindstone, and may travel at a slower speed, with less liability of heating the knives or articles being ground upon it. Furthermore, in its application to grinding serrated knives or cutters it has a decided advantage over an emery-wheel in preserving a clean, sharp edge to work up into the roots of the teeth, and retain a grinding line of action for said edges which is straight with the cutting-edges of the teeth, whereas an emery-wheel soon wears round on its edges, and, accordingly, is deficient in this respect.

Attached to the main frame is a body-rest or main bearing, B, for support of the knife or article to be ground by the belt or band A as the latter travels over said rest, which latter is arranged between the pulleys beneath the upper line of travel of the band. To adapt this main or body rest to the grinding of serrated knives, such as used in mowers or reapers, it is provided with side bearings or rests C C—that is, one on either side.

I represents, in part, a serrated knife or cutter being ground. It is held by the operator, who stands in front of the pulley H, so that it lies obliquely across the grinding-band, and with its one end tipped up, to bring the beveled edge of the tooth being ground flat on the band over the main rest B, and with an adjacent tooth bearing against either one of the two side rests C C, according to the edge of the tooth being ground, a reverse obliquity and inclination of the knife being necessary to grind the opposite edges of the teeth.

I claim—

In combination with an endless emery or other grinding belt or band, A, a rest or bearing, B, located intermediate of the belt, for supporting the article to be ground by the belt during the latter's travel over the rest, substantially as described.

GELSTON SANFORD.

Witnesses:

MICHAEL RYAN,
FRED. HAYNES.