2 Sheets—Sheet 1.

G. W. JONES.

PORTABLE GRINDING MACHINES FOR PLATE OR OTHER ROLLS.

No. 193,255. Patented July 17, 1877.

Fig. 1.

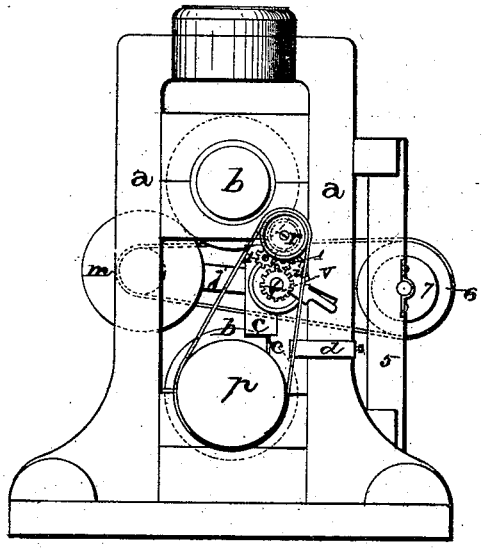
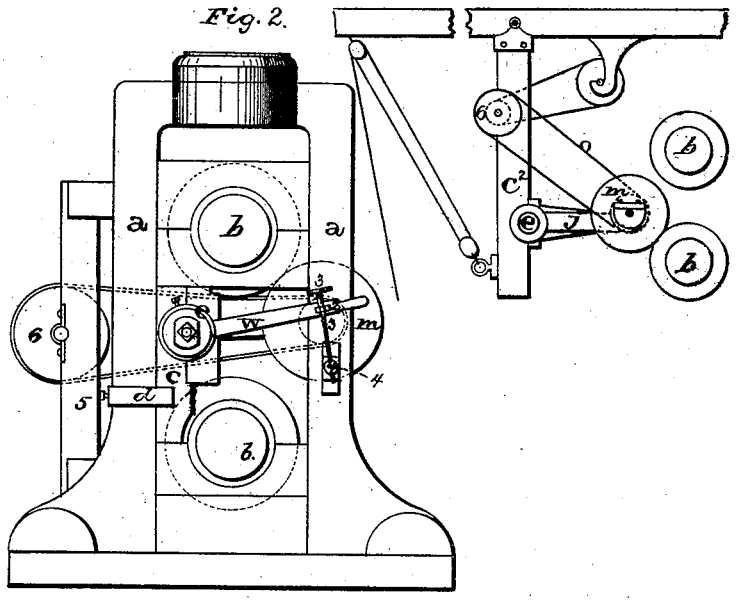


Fig. 7.

Fig. 2.



WITNESSES

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INVENTOR.

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Atty.

2 Sheets—Sheet 2.

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PORTABLE GRINDING MACHINES FOR PLATE OR OTHER ROLLS.

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Fig. 3.

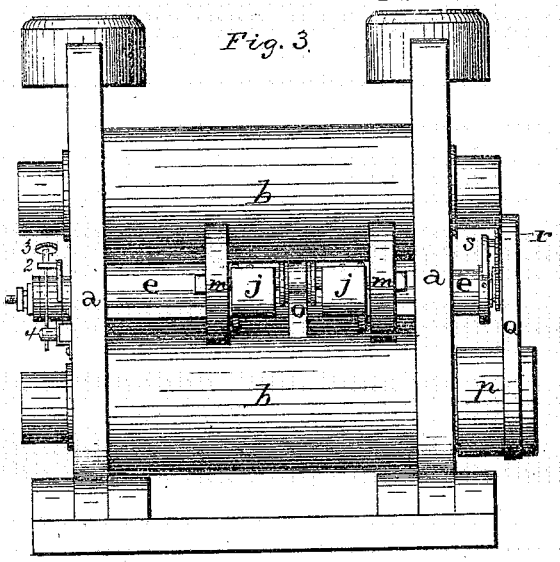


Fig. 4.

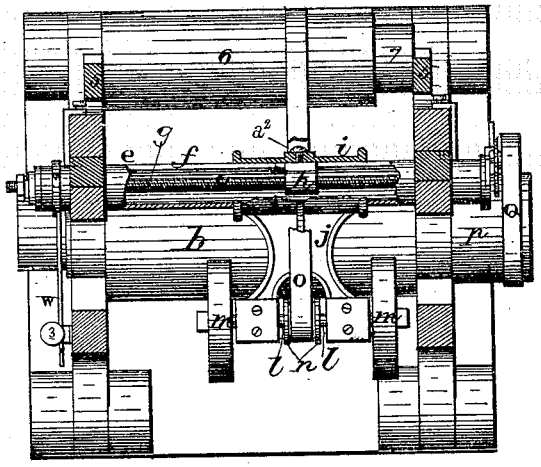


Fig. 5.

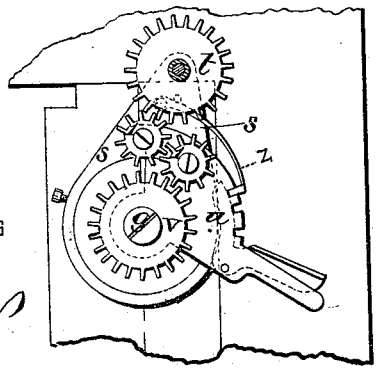
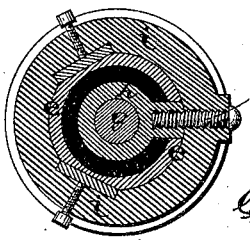


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

GRIFFITH W. JONES, OF READING, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM McILVAIN & SONS, OF SAME PLACE.

IMPROVEMENT IN PORTABLE GRINDING-MACHINES FOR PLATE OR OTHER ROLLS.

Specification forming part of Letters Patent No. **193,255**, dated July 17, 1877; application filed June 26, 1877.

To all whom it may concern:

Be it known that I, GRIFFITH W. JONES, of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Portable Grinding-Machines for Plate or other Rolls; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in portable grinding-machines for turning or truing up plate or other rolls; and it consists in the arrangement and combination of parts, that will be more fully described hereinafter, whereby a portable machine is produced that can be applied to the housings of the rolls so as to true the rolls up without removing them from their housings.

The accompanying drawings represent my invention.

Figures 1 and 2 are views taken from opposite ends of the machine. Fig. 3 is a side elevation. Fig. 4 is a plan view with a part of the top removed. Figs. 5 and 6 are detail views. Fig. 7 is a modification of my invention.

a represents the housings, and *b* the rolls. These rolls are here shown as widely separated from each other, in their housing, so as to admit of the application of my machine between them. In the opening in each end, in which the upper roll traverses up and down, are secured the chuck-bearings *c*, which are held securely in position by means of the clamps *d* or any other suitable devices. In these chuck-bearings is placed the square or round tube *e*, which is made hollow its entire length and has a slot, *f*, cut through one of its sides. In this bar is journaled a long screw, *g*, upon which traverses back and forth a nut, *h*, which is secured, by means of a set-screw, a^2, to the slide *i*.

The tube *e* may be squared along its surface, in between the housings, so as to prevent the slide from turning upon it, but the bar is round where it passes through its bearings, so that it can be turned partially around, as will be more fully described hereinafter.

Projecting from one side of the slide is the arm or bracket *j*, in the outer end of which is journaled the shaft *l*, to which shaft are secured the two emery or other suitable grinding-wheels *m*. Upon the center of this shaft *l* is secured the small flanged driving-pulley *n*, around which passes the belt *o* for imparting a rapid motion to the grinding-wheels. It will be noticed that the arm or bracket projects through between the two rolls, so that the grinding-wheels may be used in grinding or truing up either one or both, alternately. Upon the end of the lower roll is the driving-pulley *p*, over which pulley passes the belt Q for the purpose of giving motion to a small pulley, *r*, which is journaled upon the arm or projection *s* that is rigidly clamped, by means of set-screws, to one end of the tube *e*. Upon the inner side of this pulley *r* is a spur-wheel, *t*, which communicates motion to the two small pinions 1 that are journaled upon the swinging lever *u* that is pivoted upon one end of the screw *g*. These two pinions are always in gear with each other, and by moving the lever up or down they may be alternately thrown in gear with the spur-wheel *t*. This swinging lever is provided with notches and a spring-catch, *z*, to hold it in any desired position, so that when either one of the pinions have been thrown in gear with the spur-wheel, or the two pinions have been turned so that neither one of them will engage with the spur-wheel, this lever cannot accidentally move. Upon the end of the screw *g* is placed a second spur-wheel, *v*, with which one of the pinions always meshes.

When the pinion 1 that is nearest to the upper end of the lever is in gear with the spur-wheel *v*, the screw *g* is caused to revolve in one direction; and when the second pinion, 1, is in gear with the spur-wheel *v*, the screw is caused to reverse its motion; and when the two pinions are so placed that neither one of them meshes with the spur-wheel *t*, the screw remains still and does not revolve in either direction. As the screw is turned in either direction, by means of the nut *h*, the slide *i*

is made to traverse back and forth upon the tube *e*, so as to move the grinding-wheels along over the surface of one of the rolls from end to end.

Secured to the opposite end of the tube *e* from the reversing mechanism just described, by means of a set-screw or other equivalent device, is the lever *w*, which has secured to it, near its outer end, a swivel-collar, 2, in which is placed the set-screw 3, the lower end of which screw passes through the swivel-nut 4. By turning this screw so as to raise the outer end of the lever upward the tube *e* is partially turned in its bearings, so as to throw the bracket which carries the grinding-wheels upward, so as to bring the wheels in contact with the surface of the upper roll. By depressing the outer end of the lever the bracket is turned downward, so as to bring the grinding-wheels in contact with the surface of the lower roll.

Clamped or otherwise secured to one side of the housings, or any suitable distance from them, to any other suitable object, are the bearings 5, in which is journaled the large driving-roll 6, which has a pulley, 7, formed upon one of its ends. As the slide *i* has suitable projections upon its surface for causing the belt which drives the grinding-wheels to move along with it as the slide moves back and forth upon the bar, the belt is made to traverse back and forth upon this large driving-roll from end to end.

It will be seen that my machine is portable, and can be used for truing up the rolls without the trouble and expense of removing the rolls from their housing.

After my invention has once been set in motion the grinding-wheels traverse back and forth along the surface of the rolls, and require but little attention in their management.

Instead of the grinding-wheels being secured to the frame by chuck-bearings, as shown, they may be secured upon a swinging frame that is pivoted overhead, so as to be let down when they are needed and drawn up out of the way when not in use. In this case the driving-roll 6 will be journaled above the bracket *j* on a hanging pivoted beam, c^2. The bar *e* will be secured to the side of the beam, near its lower end, and the bracket *j* will project straight out from its side. With the exception that these parts are differently located, their operation is just the same.

Having thus described my invention, what I claim, and desire to obtain from Letters Patent, is—

1. The combination of the pulleys *p r*, belt Q, wheels *t v*, pinions 1, arms *s*, and lever *u*, whereby the motion of the screw is reversed, substantially as shown.

2. In combination with the housing and rolls, the chuck-bearings *c*, and the tube *e*, the same being applied in the openings in the housing of the rolls, substantially as described.

3. The tube *e*, having a slot, *f*, cut in its side, screw *g*, nut *h*, slide *i*, grinding-wheels, and a mechanism for reversing the motion of the screw, so as to cause the grinding-wheels to traverse back and forth over the surface of the rolls, substantially as specified.

4. The tube *e*, having the lever *w*, secured to one end, in combination with a set-screw for raising or depressing the end of said lever, slide *i*, having grinding-wheels attached thereto, whereby the grinding-wheels may be brought in contact with the surface of the upper or lower roll, substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 13th day of June, 1877.

GRIFFITH W. JONES. [L. S.]

Witnesses:

MORTON C. MCILVAIN,

LEWIS CRATER.