3 Sheets--Sheet 1.

N. GAVIT.

Machines for Grinding Rolls.

No. 146,247. Patented Jan. 6, 1874.

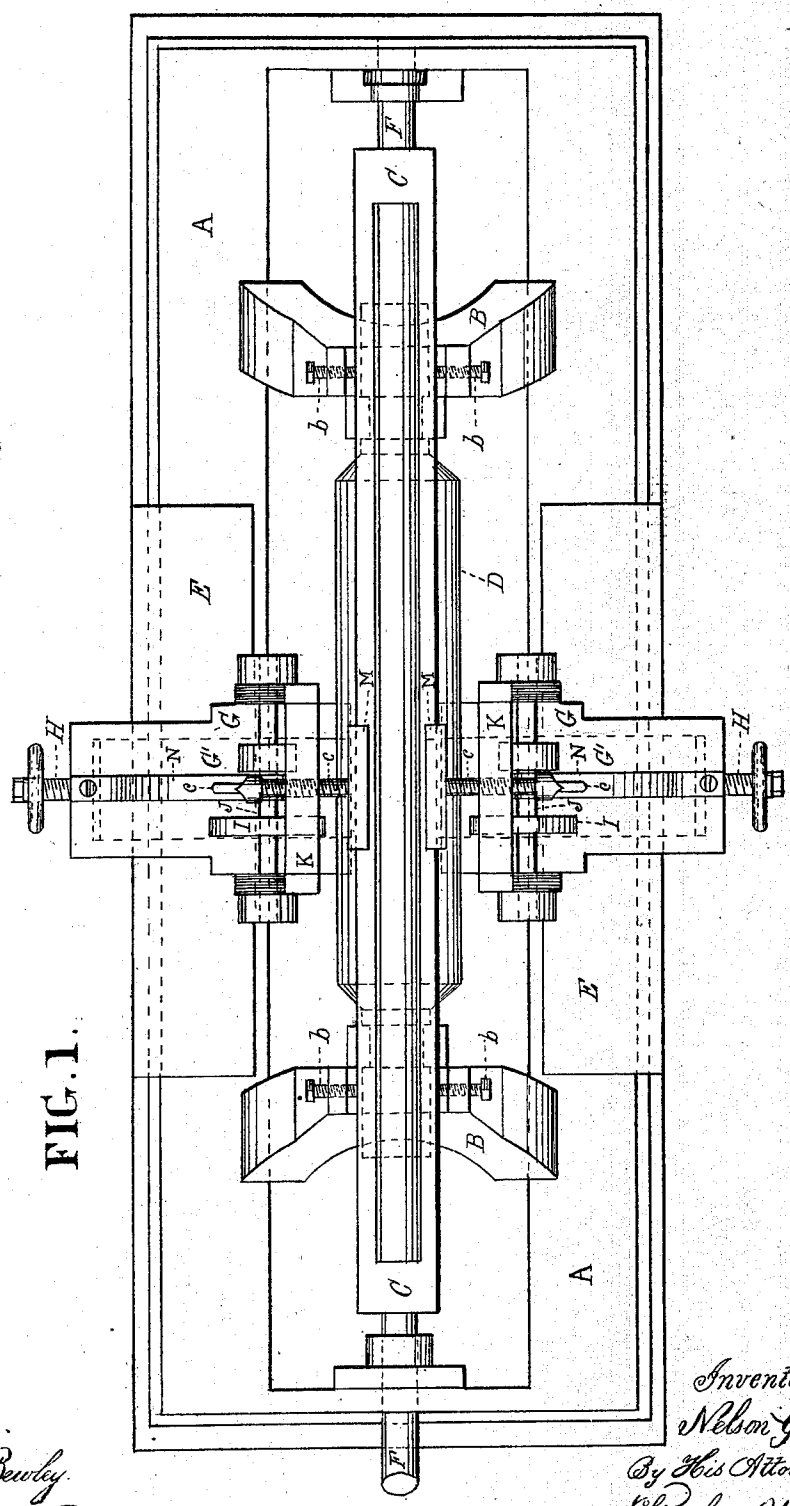


FIG. 1.

Witnesses.
Thomas J. Bewley.
Isaac Rinage

Inventor.
Nelson Gavit
By His Attorney
Stephen Ustick

AM. PHOTO-LITHOGRAPHIC Co. N.Y. (OSBORNE'S PROCESS)

3 Sheets--Sheet 2.

N. GAVIT.

Machines for Grinding Rolls.

No. 146,247. Patented Jan. 6, 1874.

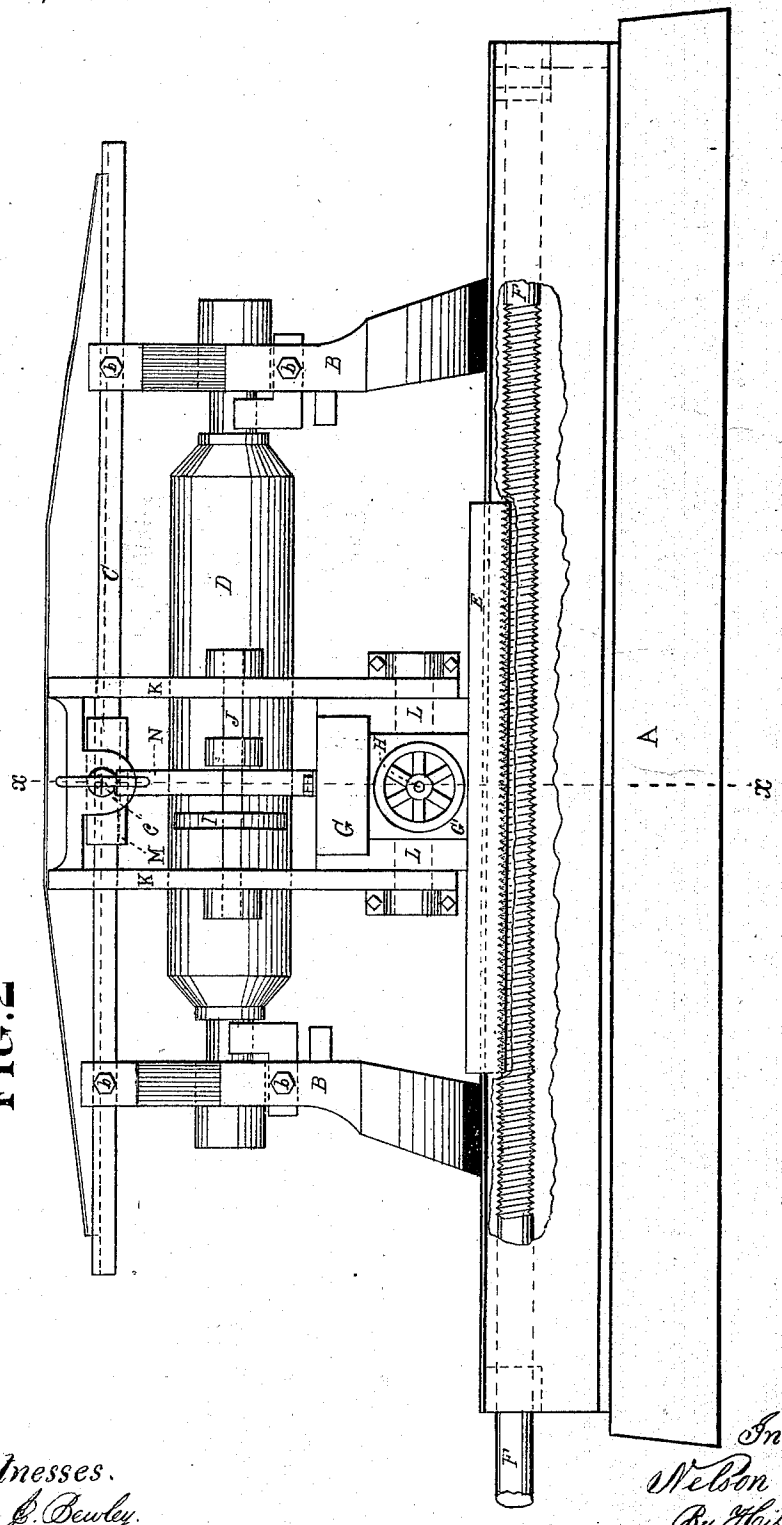


FIG. 2.

Witnesses.
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3 Sheets--Sheet 3.

N. GAVIT.

Machines for Grinding Rolls.

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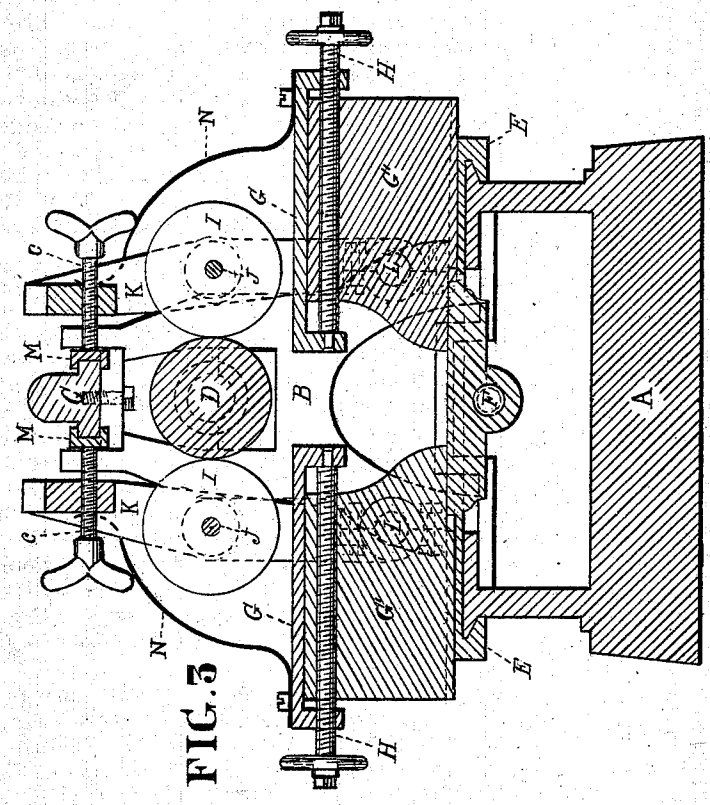


FIG. 3



FIG. 4.

Witnesses.
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Stephen Ustick

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UNITED STATES PATENT OFFICE.

NELSON GAVIT, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR GRINDING ROLLS.

Specification forming part of Letters Patent No. **146,247**, dated January 6, 1874; application filed July 11, 1873.

To all whom it may concern:

Be it known that I, NELSON GAVIT, of the city of Philadelphia and State of Pennsylvania, have invented an Improvement in Machines for Grinding Rolls of Irregular Diameters, of which the following is a specification:

My invention relates to that class of machines in which a form-plate is used to guide the grinding wheel or wheels in their longitudinal movement from end to end of the roll to be ground. The invention consists in the combination of swinging frames carrying grinding-wheels with a sliding bed-plate moving on a stationary bed-plate, and with a pattern-plate situated above the roll to be ground. The said frames, which are situated at opposite sides of the machine, are connected at their lower ends with adjusting-screws. Their upper ends are connected, by means of springs and adjusting-screws, with slides, which move along the opposite edges of the pattern-plate. The proximate distance of the grinding-wheels from the center of the roll to be ground may be given by the adjustment of both the upper and lower screws; but the exact adjustment is given by means of the lower screws, as a very accurate adjustment may thereby be made on account of the much greater distance of these screws than the grinding-wheels from said slides.

I am not aware that any plan has heretofore been adopted to give the exact form required in an expeditious manner.

Figure 1 is a plan view of my improved machine. Fig. 2, Sheet No. 2, is a side elevation of the same. Fig. 3, Sheet No. 3, is a cross-section at the line *x x* of Fig. 2. Fig. 4 is a top or side view of the form-plate, showing, by means of parallel lines, the amount of swell of the plate.

Like letters in all the figures indicate the same parts.

A is the bed-plate of the machine. B B are standing heads, which support the pattern or form plate C and the roll D to be ground. The pattern-plate is confined on the top of the heads B B by means of screws *a a*, being first adjusted so as to be perfectly vertical with the axis of the roll D by means of the set-screws *b b b b*. E is a sliding bed-plate on the permanent bed-plate A, and capable of being moved from end to end of the machine by means of the carrying-screw F. In combination with the bed-plate E are sliding stocks G G, which are adjusted by means of the screws H H, which pass through the blocks G′ G′. I I are grinding-wheels on the revolving shafts J J, which are supported by the swinging frames K K. The frames are hung at their lower ends on the pins L L, which project from the stocks G G. They are adjusted at their upper ends, so as to bring the grinding-wheels I I to their proper position for grinding the roll D, by means of the set-screws *c c*, which bear against the grooved slides M M, and bear them against the edges of the form-plate, as seen in Figs. 1, 2, and 3, the ends of the screws being held tight against the slide by means of the springs N N, the heels of which are permanently secured to the stocks G G.

The grinding-wheels may be set in proper position from the roll D by regulating either the set-screws H H or *c c*, or both, and the exact adjustment may be made by the turning of either pair of screws; but the accurate adjustment is more conveniently made by means of the lower screws H H, and with greater ease than with the upper ones, as the grinding-wheels are situated above the middle of the frames K K, and consequently the same movement of the lower screws H H as would be given to the upper ones *c c* would move the grinding-wheels proportionately less.

The roll D and carrying screw-rod F are connected by means of gearing. (Not shown in the drawings.)

As the sliding bed-plate E travels forward, so as to cause the grinding-wheels I I to pass from one end of the roll D to the other, their distance apart is varied by means of the pattern-plate C and adjustable frames K K, arranged as above described, so as to cause the roll to be ground of the exact form of the pattern-plate, the diameter of the roll being regulated by means of the set-screws H H and *c c*.

It will be seen that rolls may be ground smaller in the middle instead of swelled, or of any desired curvature longitudinally, by giving the exact form desired to the pattern-plate C.

I claim as my invention—

The combination of the swinging frames K K, carrying the grinding-wheels I I, the pattern-plate C, arranged above the roll to be ground, slides M M, set-screws *c c*, springs N N, sliding stocks G G, and adjusting-screws H H, substantially as described.

Witnesses: NELSON GAVIT.

STEPHEN USTICK,

CHAS. GRIGGS.