(No Model.) 2 Sheets—Sheet 1.

W. N. COSGROVE.

MACHINE FOR SURFACING ROLLS.

No. 262,375. Patented Aug. 8, 1882.

Fig. 1.

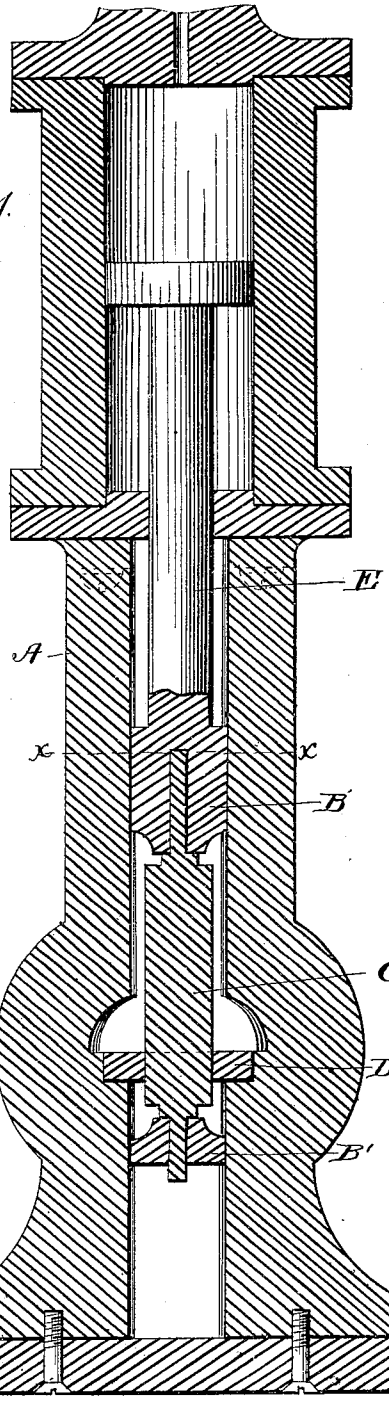


Fig. 2.

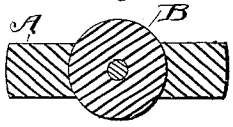


Fig. 3.

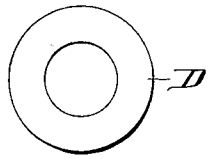


Fig. 4.

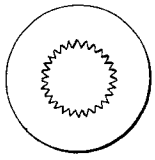
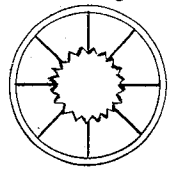


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

W. N. COSGROVE.

MACHINE FOR SURFACING ROLLS.

No. 262,375. Patented Aug. 8, 1882.

Fig. 7.

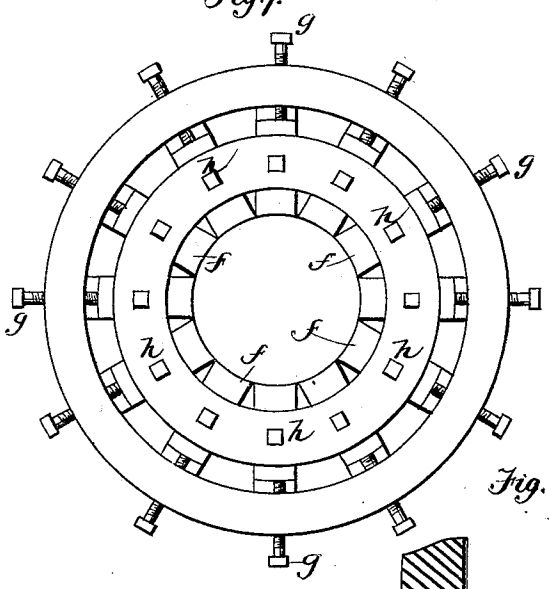


Fig. 6.

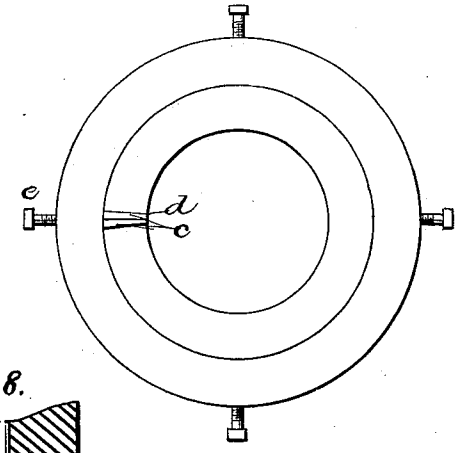
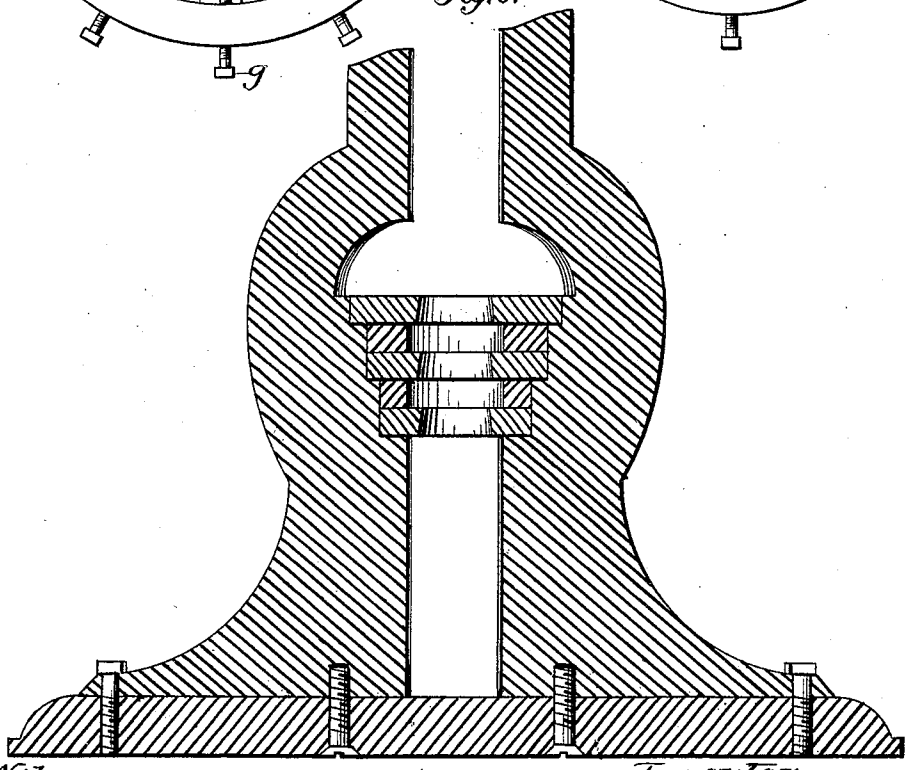


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM N. COSGROVE, OF FARIBAULT, MINNESOTA.

MACHINE FOR SURFACING ROLLS.

SPECIFICATION forming part of Letters Patent No. 262,375, dated August 8, 1882.

Application filed January 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. COSGROVE, of Faribault, in the county of Rice and State of Minnesota, have invented certain new and useful Improvements in Machines for Surfacing Metal Rolls; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal sectional view of a machine employed in carrying out my invention. Fig. 2 is a sectional view taken on the line *x x* of Fig. 1; Fig. 3, a plan view of the cutting-die. Figs. 4 and 5 are views of modified forms of dies. Figs. 6 and 7 are views of adjustable dies, and Fig. 8 a view of a machine in which several dies are used in succession.

My invention has for its object to provide improved means for dressing or surfacing the metal rolls used in grinding wheat, middlings, &c., in the improved process of milling known as the process of "gradual reduction;" and it consists of a machine of novel construction, which I will now proceed to describe.

In the accompanying drawings, A represents the frame of a hydraulic or other powerful press; B B′, a pair of cross-heads adapted to move up and down in suitable guides in the frame, and having sockets in them for the reception of the journals of the roll to be operated upon.

C represents the roll, and D the die which is to impart the dress to the roll. This die may be smooth or corrugated, and in the latter case the corrugations may run more or less spirally, as preferred. So, also, the die may be constructed in one piece, as shown Figs. 3 and 4, or may be made in sections bound together by a ring, as shown in Fig. 5; or it may be split, as shown in Fig. 6 at *d*, and removable sections *c* provided for increasing or decreasing its diameter, and set-screws *e* provided for holding it in adjusted positions; or, again, as shown in Fig. 7, it may consist of a number of sections, *f*, adapted to be adjusted in and out by means of adjusting-screws *g*, and to be held at adjusted positions by set-screws *h*.

E represents the piston-rod of the press, adapted to bear upon the upper cross-head, B, as in Fig. 1.

The die is supported firmly in the frame, as represented.

In the operation of the machine the roll is placed in position in the cross-heads with its body above the die. Extremely powerful pressure is then applied through the piston E, and the roll is made to descend and pass through the die, the edges of the latter cutting away the metal of the roll and producing a dress on the roll in conformity to the outline of the die, as will be readily understood.

Various sets of dies may accompany a single machine, so that different-sized rolls may be operated upon and old rolls resurfaced or redressed.

It is obvious that the corrugated-metal feed-rolls of wood-planing machines and other corrugated-metal rolls and cylinders may be made by the same process.

The machine shown in the accompanying drawings is arranged in a vertical position, and the piston and rolls move up and down; but it is evident that the machine may be arranged horizontally, or at any angle, and will work with the same effect.

In some cases I prefer to employ a series of dies of gradually-decreasing diameters arranged in succession, as shown in Fig. 8, so that each die shall take off in succession a small quantity of the metal.

With such an arrangement the complete dressing of the roll is effected at one continuous operation and by one stroke of the piston, the same as when one die alone is used, the difference being that instead of one die being made to remove all the metal a number of dies are made to together remove the same quantity, but each separately a smaller quantity.

The adjustable dies, when used in succession, enable channels of any desired depth to be produced with great ease. A single adjustable die may be used and the same roll passed through a number of times at different gages; but this renders the process of dressing longer.

In the ordinary way of forming grinding-rolls the smooth ones are required to be turned in a lathe or to be ground with an emery-wheel,

while the corrugated ones are required to be first turned or ground and then corrugated by means of a metal-planing machine, the planing of a whole roll or cylinder taking from twenty to thirty hours. With my improved machine, however, I am enabled to dress the entire surface of the roll at one continuous operation, and within five minutes after commencement of the work.

I claim as my invention—

In a machine for surfacing metal rolls, the combination of a press-frame, a cutting die or dies, cross-heads sliding in the frame to support and guide the roll while passing through the die or dies, and the piston of the press for imparting motion to the roll and cross-heads, substantially as described.

WILLIAM N. COSGROVE.

Witnesses:
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E. J. MCMAHON.