B. E. SPERRY.

Polishing-Machine.

No. 167,858. Patented Sept. 21, 1875.

Fig. 1.

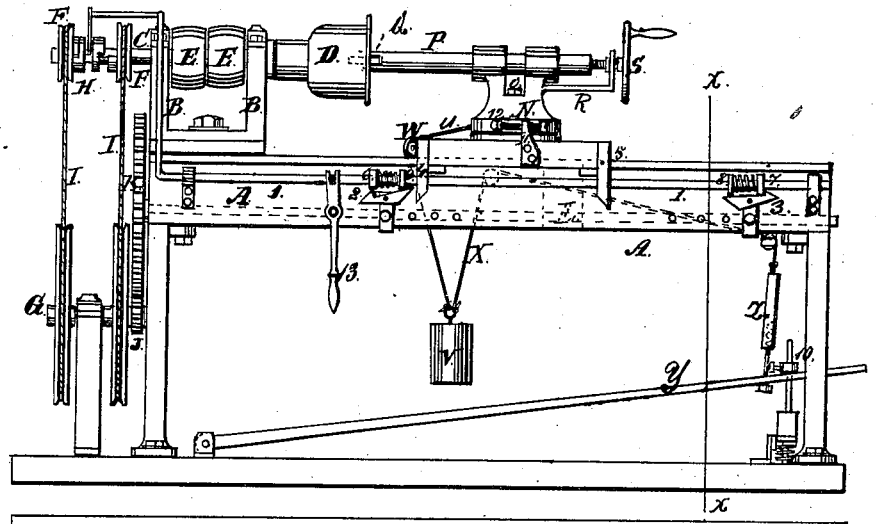


Fig. 2.

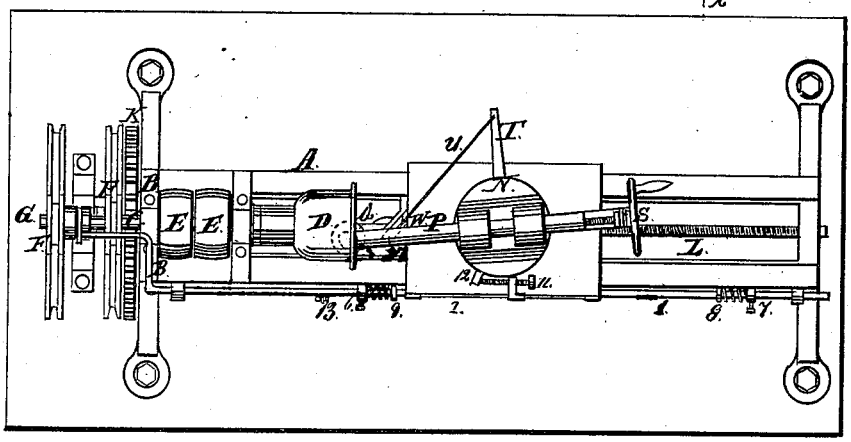
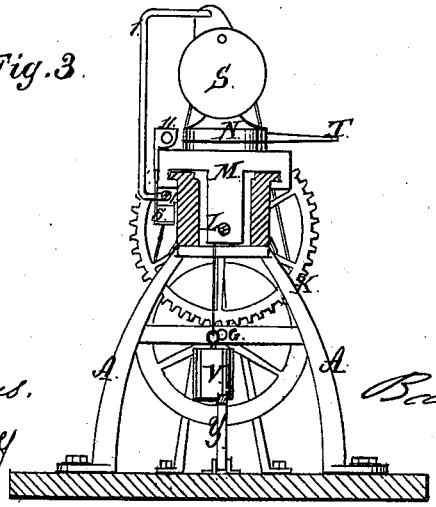


Fig. 3.



Witnesses

Henry L. Bruns.

H. C. Whitney

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UNITED STATES PATENT OFFICE.

BARTON E. SPERRY, OF BATAVIA, ILLINOIS.

IMPROVEMENT IN POLISHING-MACHINES.

Specification forming part of Letters Patent No. **167,858**, dated September 21, 1875; application filed May 10, 1875.

To all whom it may concern:

Be it known that I, BARTON E. SPERRY, of Batavia, of the county of Kane and State of Illinois, have invented a Machine for Grinding and Polishing Hollow Ware, of which the following is a specification, reference being had to the accompanying drawings, which form a part hereof.

The object of my invention is to make an automatic-machine which carries and revolves the article to be polished, and an emery-wheel, in such a manner that the emery-wheel is held in contact with the interior surface of the article, and is adjusted to the configuration of said surface, as hereinafter more fully described.

My invention consists of the mechanisms and their combinations which produce the above-described results, and which are hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents the side elevation of my machine; Fig. 2, a top view of the same; Fig. 3, a vertical sectional view, taken at line *x x*, in Fig. 1.

A represents a frame of the machine, to one end of which the standards B are firmly secured. C is a shaft, which has bearings in the standards B. D represents a kettle or other article of hollow ware, which is attached to the shaft C, so as to be made to revolve with it in any well-known manner. E E are belt-pulleys for communicating motion to the shaft C. One of these pulleys is loose and the other tight upon the shaft C. F F are pulleys on the shaft C, which carry belts to communicate motion to the shaft G. There are two of these pulleys with the sliding notched sleeve H between them, for the purpose of reversing the motion of shaft G, one of the bands I being crossed. J and K are cog-wheels, which communicate motion from the shaft G to the long screw L. This long screw passes through the block M, and slides it back and forth upon the frame A of the machine, as hereinafter described. N is a turn-table, turning horizontally on the block M, being pivoted thereon by the screw O. This turn-table N has bearings, in which the sliding rod P is held, which holds and carries the emery-wheel Q. R is an arm, which is also attached to the turn-table N, and forms a support for the hand-wheel S, by which the sliding rod P is adjusted in its bearings. T is an arm, also attached to the turn-table N, and to which the cord or chain U is attached, as shown. The weight V is suspended from this cord or chain, which passes over a pulley, W, attached to the frame A of the machine. There is another cord or chain, X, attached to this weight, which passes over suitable pulleys on the frame A, as shown, and is connected to the pivoted lever *y*, through the spring Z. This weight V, being suspended from the arm T of the turn-table N, keeps the emery-wheel pressed against the side of the kettle, as shown in Fig. 2. 1 is a sliding rod, which rests in bearings attached to the side of the frame A. This rod extends up to the shaft C, and is connected with the sliding collar H in such a manner as to slide it with the rod 1. There are pivoted hooks 2 and 3 pivoted to the side of the frame A, as shown, against which projecting arms 4 and 5, which are rigidly attached to the sliding block M, strike, as hereinafter described. 6 and 7 are rings or projections rigidly attached to the sliding rod 1. Coiled springs rest against these projecting collars, and also the projecting collars 8 and 9, which are loose on the rod 1.

It will be observed that as the screw L turns the sliding block M is gradually moved toward the kettle, and the emery-wheel polishes the inner surface of the kettle, as it approaches its bottom.

The machine is so arranged that when the projecting arm 4 strikes the collar 9 on the rod 1 it presses upon the spring until the projection also strikes the tilting-catch 2. When it removes this from the ring 6 the pressure of the arm 4 moves the rod 1, and carries the coupling-collar H along to couple with the pulley F. This reverses the screw L, and the block M is carried back until the projecting arm 5 strikes the collar 8 on the sliding rod 1, and the same operation above described takes place to slide the rod 1, and change the coupling-collar H to engage with the pulley E, when the screw L is reversed again, and the emery-wheel is carried back over the inner surface of the kettle. 10 is an adjustable stop, against which the pivoted lever Y strikes, which causes the cord or chain X to take the

weight V from the cord U when the block M has moved forward to a certain point, in order to admit of the turn-table N turning back, and carrying the emery-wheel toward the center of the kettle. 11 is a set-screw, against which a stop, 12, strikes. This set-screw adjusts the position to which the cord U turns the turn-table. 13 is a hand-lever for sliding the coupling-rod 1 to reverse the motion of the machine.

These collars 6 and 7, which serve as stops to reverse the motion, may be adjusted upon the coupling-rod 1, so that the machine may be set to reverse itself at any desired point in the motion of the carriage M. This is governed entirely by the kettle that is being polished. The spring which is placed upon the coupling-rod 1 is also adapted to prevent too violent a pressure of the emery-wheel upon the bottom of the kettle before the machine is reversed.

My machine saves labor, from the fact that it needs no attention only in placing the articles to be polished in the machine, and adjusting the machine to the size of the kettle that is to be polished. It will be observed that the side pieces of the frame A have laterally-projecting lips at their upper edges, over which grooves in the sliding block or carriage M fit, as clearly shown in Fig. 3. This holds the carriage M securely in place.

I claim—

1. The combination of the carriage M, turn-table N, the arm T, the weight V, the shaft P, and polishing-wheel Q, whereby the polishing-wheel is caused to press constantly against the inner surface of the kettle, and at the same time yield to its varying size and shape, as described.

2. The spring Z, in combination with the pivoted lever *y*, stop 10, cord or chain X, and weight V, for gradually relieving the arm T of the weight, so as to allow the turn-table N to gradually turn and carry the emery-wheel toward the center of the kettle, as specified.

BARTON E. SPERRY.

In the presence of—
HEINRICH F. BRUNS,
L. A. BUNTING.