W. J. REAGAN.

Grinding-Machine.

No. 162,687. Patented April 27, 1875.

FIG. 1.

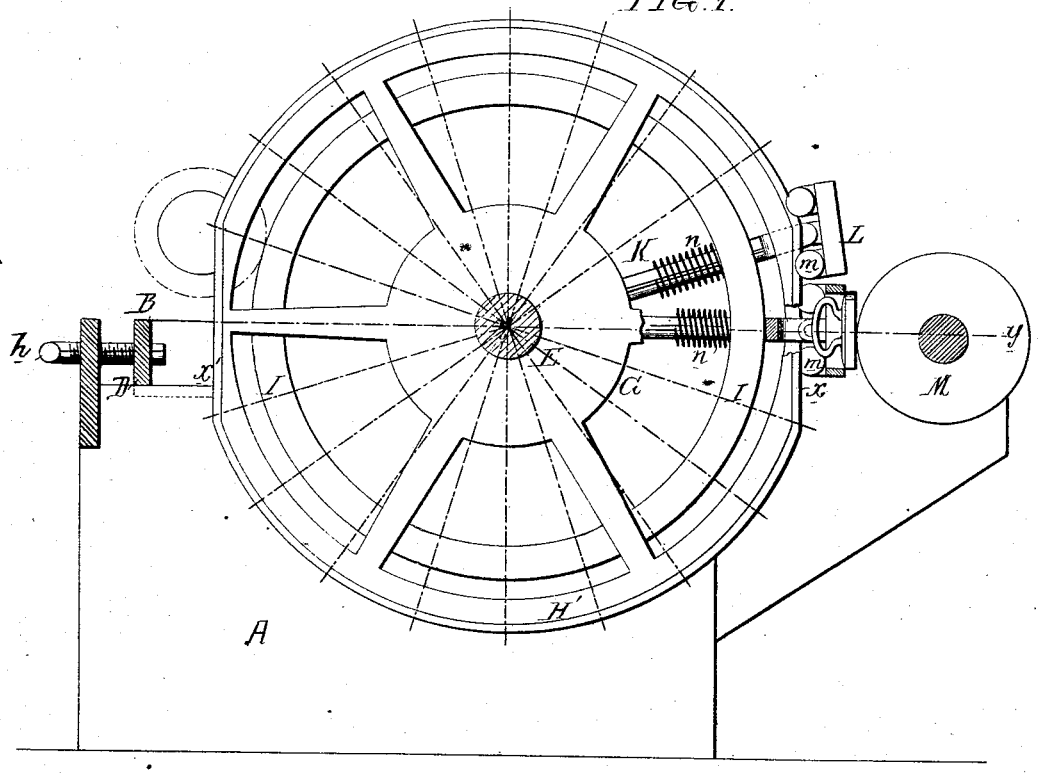
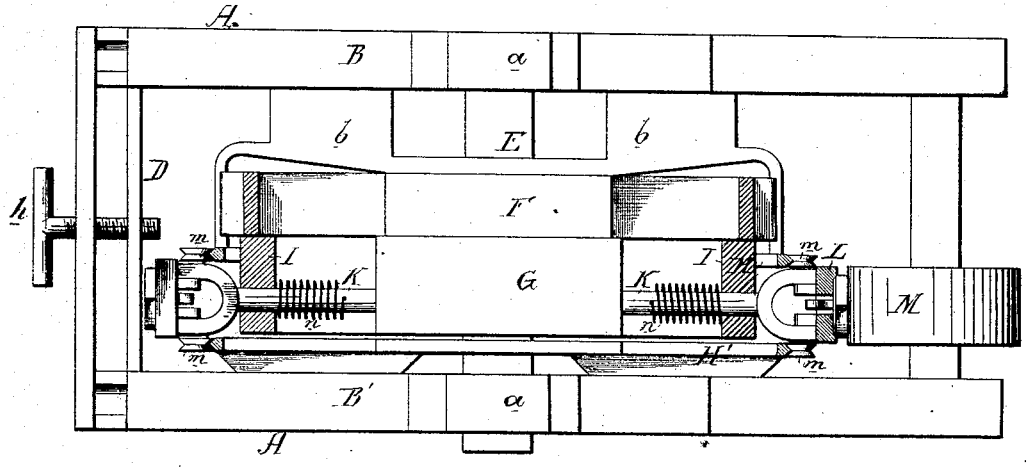


FIG. 2.



Witnesses, Harry Smith
Thomas W. Ilvaine

Wm J. Reagan
by his attorneys
Howson and Sons

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UNITED STATES PATENT OFFICE.

WILLIAM J. REAGAN, OF POTTSTOWN, ASSIGNOR TO ROYER'S FORD IRON FOUNDRY, PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GRINDING-MACHINES.

Specification forming part of Letters Patent No. **162,687**, dated April 27, 1875; application filed February 23, 1875.

To all whom it may concern:

Be it known that I, WILLIAM J. REAGAN, of Pottstown, Montgomery county, Pennsylvania, have invented an Improved Grinding-Machine, of which the following is a specification:

The object of my invention is to grind and polish the faces of sad-irons and other objects rapidly and economically; and this object I attain in the manner I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical section of my improved grinding-machine, and Fig. 2 a sectional plan of the same.

A is the bed of the machine, to the top of which is adapted a sliding frame composed of the two side pieces B and B′, connected together by a cross-piece, D. On the side pieces B and B′ of the sliding frame are suitable bearings *a a*, to which are adapted the journals of the shaft E, and to the latter is secured a cog-wheel, F, and a hub, G, the cog-wheel being driven by a pinion on a driving-shaft, which it has not been deemed necessary to illustrate in the drawing. Two ways, H and H′, are secured, the former to the side piece B of the sliding frame through the medium of the bracket *b*, and the other to the side piece B′ of the said frame. Each of these ways is circular throughout the greater portion of its circumference, and concentric with the shaft E; but each way has a straight portion, *x*, directly opposite a grinding or polishing disk, M, the shaft of which is caused to revolve in bearings on the permanent bed A of the machine; or each way may have more than one of these straight portions *x*, for a purpose explained hereafter.

A number of radial rods, K, are arranged to slide at their inner ends in the hub G, and pass through and are guided by a ring, I, which revolves with the said hub, the outer forked end of each rod being jointed to lugs on a carriage, L, and each carriage having four grooved wheels, *m*, two on one side being adapted to the edge of the way H, and two on the other side to the way H′. A spiral spring, *n*, on each rod tends to force the latter inward, and to cause the wheels of the carriages L to bear against the ways.

It has not been deemed necessary to show more than two rods, K, and two carriages in Fig. 1 of the drawing; but it should be understood that the radial dotted lines in this figure indicate the presence and relative positions of other rods and carriages. These carriages are, in the present instance, arranged for the reception of sad-irons, which may be secured by different appliances.

As the hub G revolves it carries with it the whole of the rods K, the guiding-ring I, and the carriages with the sad-iron, and each carriage, being under the control of the ways H and H′, will traverse in a circular path until it arrives at the straight portions *x* of the ways, when it will traverse the latter, and it is while the carriages are taking this straight course that the sad-irons are subjected to the action of the grinding-disk. As the straight portions of the ways are at right angles to a line, *y y*, drawn from the center of the shaft E to the center of the grinding-disk, it follows that proper surfaces must be imparted to the sad-irons.

In the present instance the sliding frame, which carries the shaft E, disk G, and the spring-rods and carriages, as well as the ways, is made adjustable by means of a screw, *h*, so that the whole can be set up toward the grinding-disk; but it will be evident that the shaft E may revolve in fixed bearings, and that the ways may be permanent, in which case the grinding-disk should be adjustable. This plan is essential when more than one grinding-disk is used—for instance, a polishing-disk may be situated directly opposite the straight portions *x′* of the ways, so as to impart a high finish to the sad-irons, which have been rough-ground by the disk M, as the carriages traversed the straight portions *x* of the ways.

As the carriages traverse at a comparatively slow speed there is ample time to adjust the crude sad-irons to and remove the finished sad-irons from the carriages without any stoppage of the machine.

It will be evident that the carriages may be constructed for the reception of many dif-

ferent objects the surfaces of which have to be ground.

I claim as my invention—

1. In a grinding-machine, the combination of the following elements, namely: a revolving grinding or polishing disk or disks, ways partly circular and partly straight, and a series of yielding carriages for receiving and retaining the objects to be ground, guided by the said ways, and carried by a wheel revolving in a course concentric with the circular portions of said ways, all substantially as set forth.

2. The combination of the revolving hub G and ring I, and their spring-rods K, hinged to the carriages L, with the ways H and H′, and one or more grinding or polishing disks.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM J. REAGAN.

Witnesses:
HARRY SMITH,
HUBERT HOWSON.