

(No Model.)

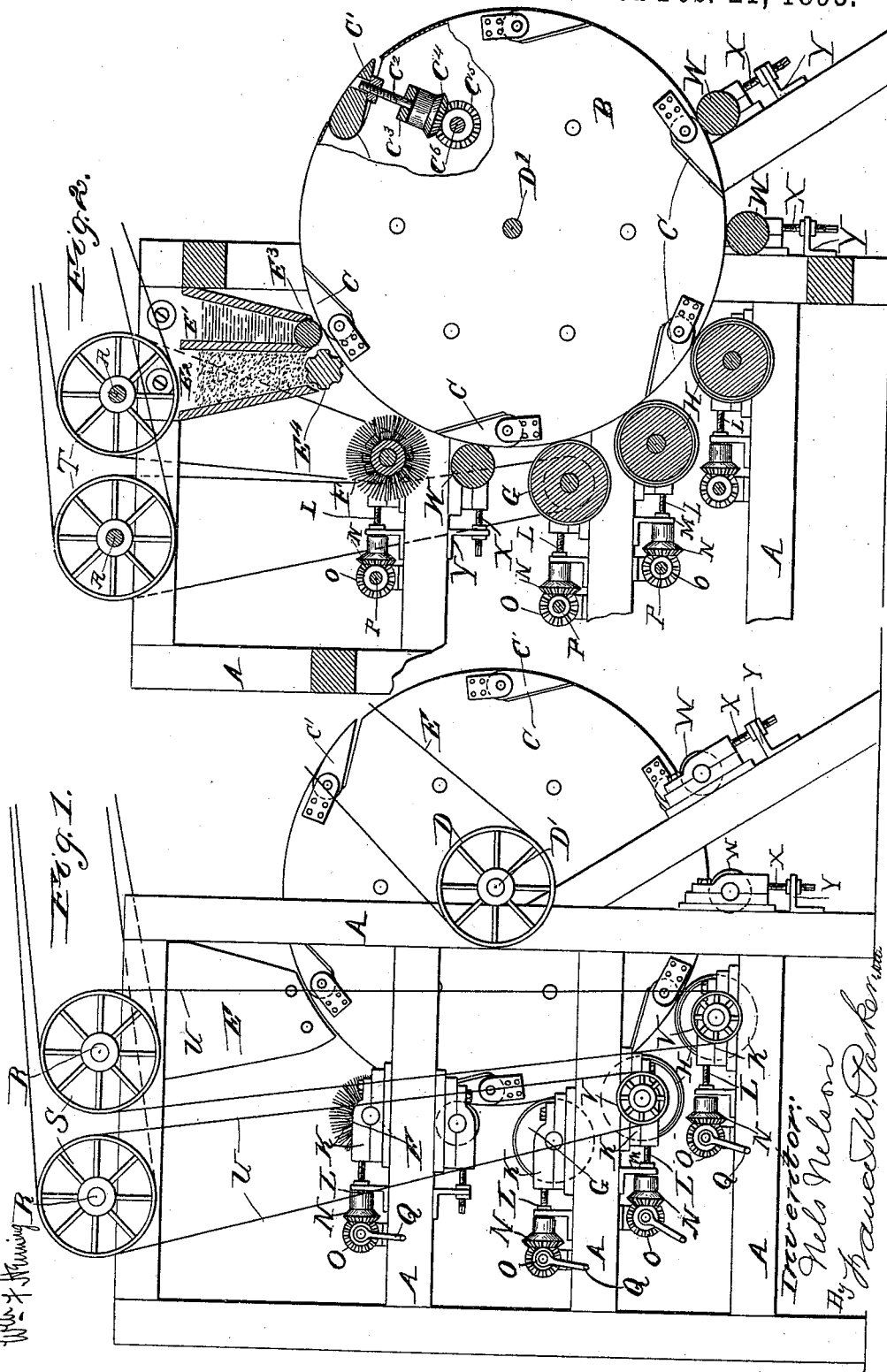
2 Sheets—Sheet 1.

N. NELSON.

COMBINED SCOURING, POLISHING, AND BUFFING MACHINE.

No. 492,099.

Patented Feb. 21, 1893.



15053427

Yours M. Schreier.

Wm. F. Fleming

102210221

Nels Nelson

Q. 1. A triangle ABC is right-angled at A. A line segment AD is drawn from A perpendicular to BC. Prove that $AD^2 = BD \cdot DC$.

(No Model.)

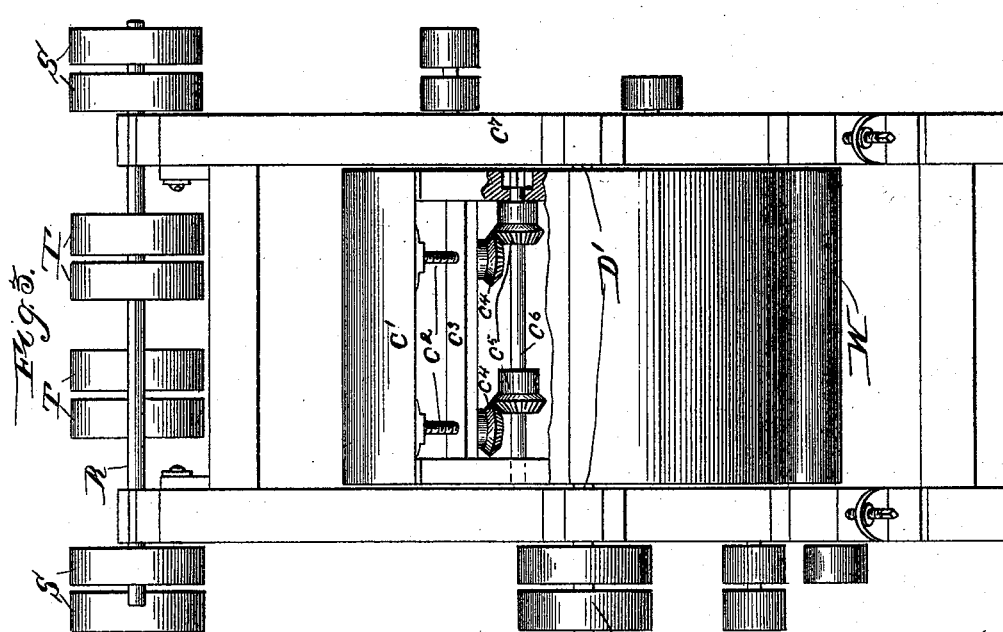
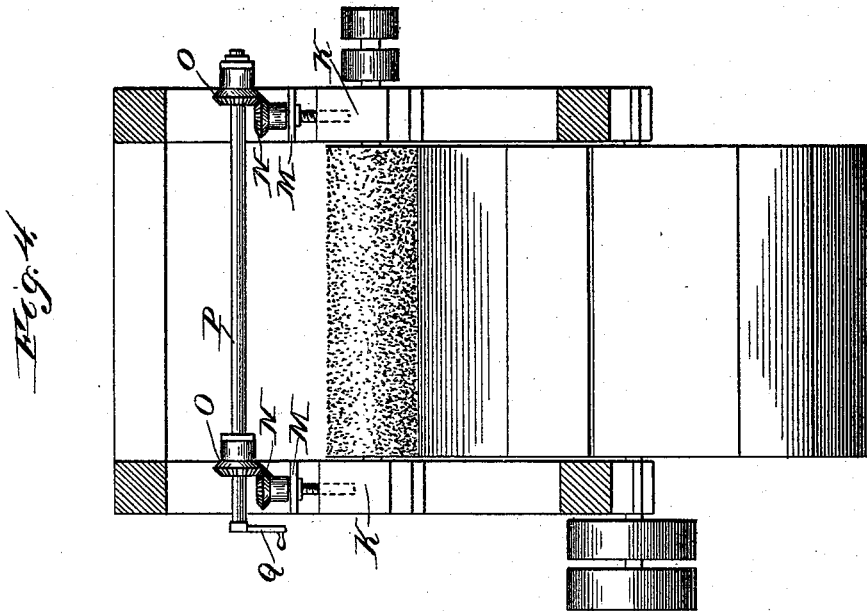
2 Sheets—Sheet 2.

N. NELSON.

COMBINED SCOURING, POLISHING, AND BUFFING MACHINE.

No. 492,099.

Patented Feb. 21, 1893.



Witnesses:

Wm. M. Rheem.
Wm. F. Fleming

Inventor:

Nels Nelson
By James W. Parker, atty.

UNITED STATES PATENT OFFICE.

NELS NELSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO GUSTAV DITTMANN,
OF SAME PLACE.

COMBINED SCOURING, POLISHING, AND BUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,099, dated February 21, 1893.

Application filed September 29, 1892. Serial No. 447,309. (No model.)

To all whom it may concern:

Be it known that I, NELS NELSON, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Combined Scouring, Polishing, and Buffing Machines, of which the following is a specification.

My invention relates to scouring, polishing and buffing machines, and has for its object to provide means for treating metallic plates, particularly such as stove-board plates. It is illustrated in the accompanying drawings, wherein:

Figure 1, is a side view of the machine. Fig. 2, is a longitudinal section. Fig. 3, is a front view with parts broken away. Fig. 4, is a cross section.

Like parts are indicated by the same letter in all the figures.

A A are the framing pieces whereby a suitable frame is made. B is a drum thereon having the adjustable clamping strips C C arranged about its circumference, and the pulley D at one side, on which runs the driving belt E. These adjustable clamping devices consist each of a pivoted transverse strip C', which is adapted when in position to complete the periphery of such drum. At each end of these strips there is a screw-threaded aperture into which the bolt C² takes, and these screw bolts are secured in the cross bar C³ and have each a beveled gear C⁴ engaging each a like gear C⁵ on the shaft C⁶ which projects through the side of the drum at C⁷ and is adapted to be engaged and driven by a key or crank to raise and lower, and thus operate the clamping strip. There may be any desired number of these adjustable clamping strips. The driving pulley D is in two parts, fast and loose, and it is supported on the axle or shaft D'. Above the drum and supported on the frame is a receptacle E, having the fluid chamber E' and the powder chamber E². At the bottom of the chamber E' is a close fitting roller E³, and at the bottom of the chamber E² is a grooved roller E⁴. Both of these rollers are operated by frictional contact with the drum. Disposed about the drum and journaled on shafts on the frame, are four rollers, F being a brush roller, G a grinding roller, covered with emery or the like and H H

buffing rollers, covered with buffing cloth. Each of these rollers is mounted at each end in a sliding box into which works a propelling screw rod L suitably journaled in the bearing M and having a beveled gear N to mesh with the beveled gear O on the rod P, which is operated by the crank Q.

R R are counter shafts on the top of the frame, provided each with a fast and loose pulley S at each end and a fast and loose intermediate pulley T. By means of the intermediate pulleys the two counter shafts are driven, and by means of belts U U each shaft drives two of the rollers, the said rollers being provided with pulleys V V to receive such belts.

W W are a series of friction rollers about the drum and adjustably supported by means of the screw-bolts X X which pass into the journal boxes of such rollers and through supporting pieces Y Y on the frame.

Many of these features and details could be changed or omitted, or their relative positions varied somewhat without departing from the spirit of my invention.

The use and operation of my invention are as follows: The sheets of metal to be treated are cut in proper lengths and are clamped under the clamping strips so as to be secured at one end to the drum. The drum is belted to the driving shaft so as to rotate very slowly and the two rollers at the bottom of the receptacles are quite closely held against the drum. As the plate advances, it is moistened by the liquid, and any suitable liquid can be employed for this purpose, and as it still farther advances a certain amount of grinding or polishing material, as of some suitable powder is discharged upon the moistening plate. The plate continuing to slowly revolve is met by the brush roller which is driven at a relatively high rate of speed, as are all of the rollers except the friction rollers and the surface of such plate is cleansed and purified. The plate continues its course until it encounters the grinding roller, where its surface is sharply ground or polished. The rotation of the drum carries the plate forward and as it successively passes under the buffing rollers, it is brought to a high polish. The arrangement of belts and pulleys is such that any one or more

of these said rollers may be simultaneously in operation. By operating the crank handle connected with the mechanism for moving such rollers to or from the drum any one or
 5 all of them may be withdrawn from operative contact with the drum, or may be held with greater firmness against the drum. The friction rollers serve to hold the plate in close contact with the drum as it passes around
 10 and they may be adjustable, according to wear or the thickness of the plate being treated. When the plate emerges, the speed of the rotation of the drum is such that the key may be applied, the plate loosened and
 15 another be inserted and clamped without interfering with the operation of the machine or the progress of the drum, thus the action of the machine is continuous and any given plate may be suffered to remain in operation until
 20 it is satisfactorily polished. The treatment of the plate between curved surfaces, that is, by a curved roller which engages the plate as it is bent about a curved roller, renders the cleaning and polishing operation more complete and perfect, for the line of actual contact at any given instant is very narrow.

I claim—

1. In a scouring, polishing and buffing machine the combination of a drum driven at
 30 slow speed, with a series of rollers about the same and each independent driven at relatively high speed, and a series of clamps whereby metallic plates may be secured to the surface of such drum the rollers rotating in
 35 a direction opposite to the drum.

2. In a scouring, polishing and buffing machine the combination of a drum with means for securing metallic plates on the surface thereof, polishing rollers, and a two-part receptacle for liquid and powder, and rollers at
 40 the bottom of each and in frictional contact with the drum.

3. In a scouring, polishing and buffing ma-

chine the combination of a drum with means for securing metallic plates on the surface
 45 thereof, polishing rollers, and a two-part receptacle for liquid and powder, and rollers at the bottom of each and in frictional contact with the drum, and the fluid roller being cylindrical and the powder roller being grooved.
 50

4. In a scouring, polishing and buffing machine the combination of a drum with a series of clamps for securing metallic plates thereon, and a series of rollers about the same and each independently driven at a relatively
 55 higher speed than the drum, the first roller a brush roller, the second an emery roller, and the third buffing cloth rollers the rollers rotating in a direction opposite to the drum.

5. In a scouring, polishing and buffing machine the combination of a drum with a series of clamps for securing metallic plates thereon, and a series of rollers about the same and each independently driven at a relatively
 60 higher speed than the drum, and a series of friction rollers about the drum, all of said rollers being adjustable to and from the drum the rollers rotating in a direction opposite to the drum.

6. The combination of a drum with a series
 70 of transverse clamping strips, screw rods connected therewith and a shaft and gears, so that by the turning of said shaft the clamping strips may be raised or lowered.

7. The combination of a drum with a series
 75 of rollers to engage therewith, a series of clamps on the drum to hold the metallic plates and carry them beneath the rollers, screw rods associated with the boxes, by which such rollers are supported, and pinions and a
 80 transverse shaft and crank whereby such rollers may be reciprocated to or from the drum.

NELS NELSON.

Witnesses:

FRANCIS W. PARKER,
 WALTER J. GUNTHERP.