

No. 617,720.

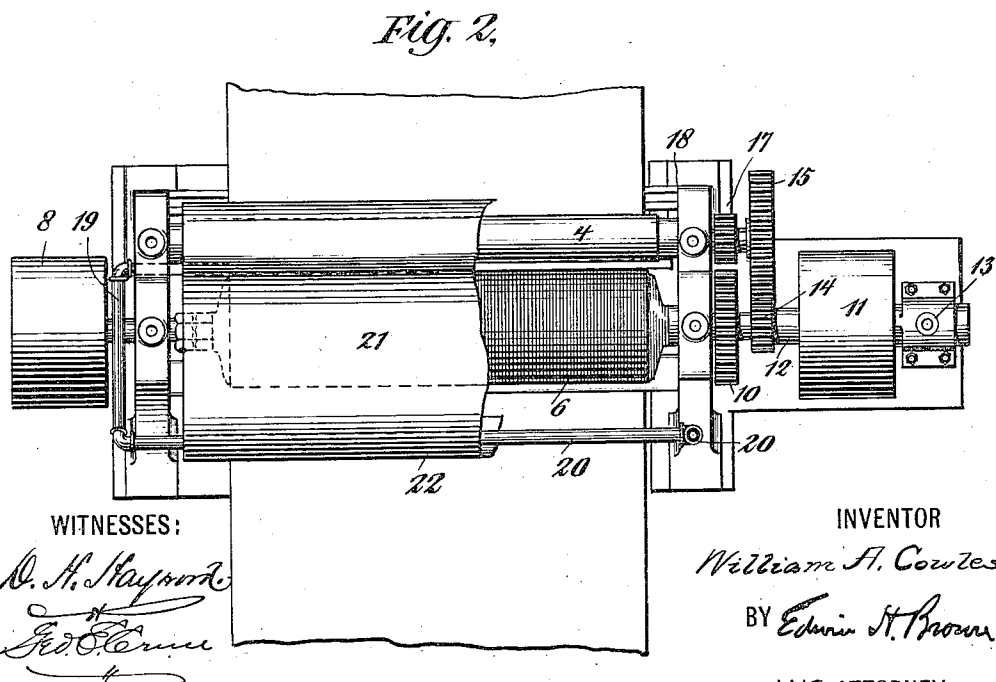
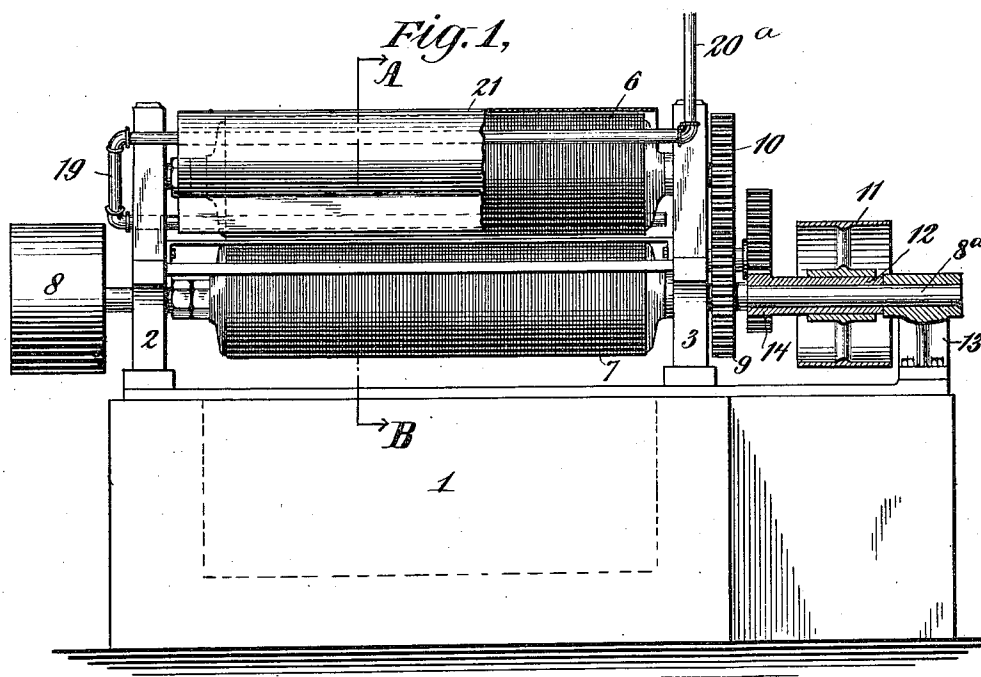
Patented Jan. 17, 1899.

W. A. COWLES.
SCOURING MACHINE.

(Application filed Dec. 29, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

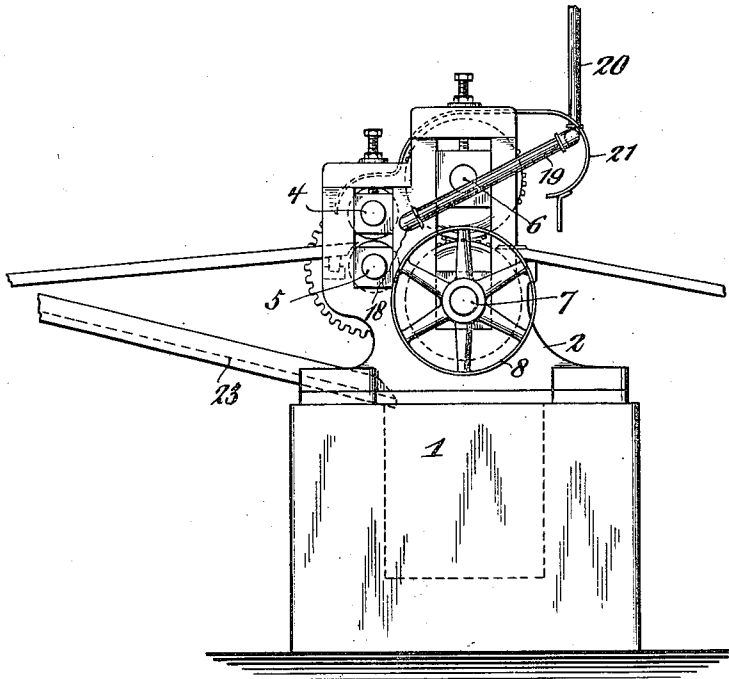


Fig. 4,

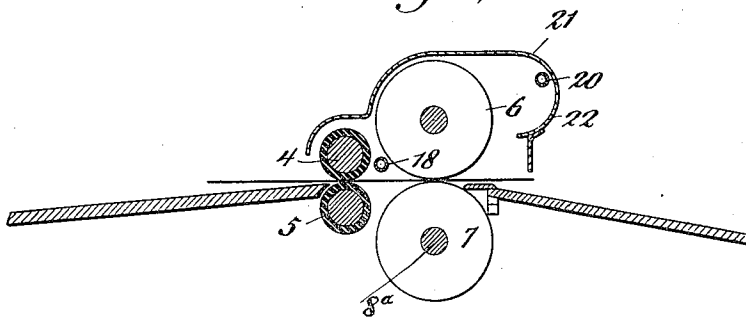
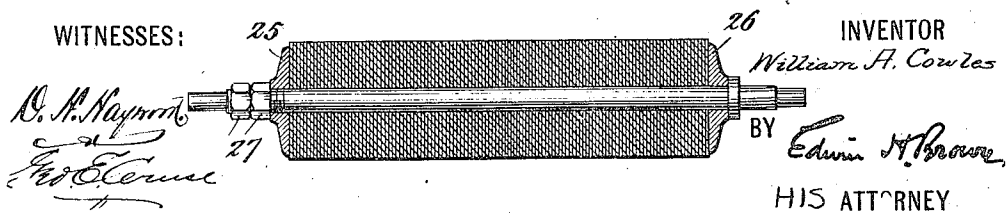


Fig. 5,



UNITED STATES PATENT OFFICE.

WILLIAM ABERNETHY COWLES, OF ANSONIA, CONNECTICUT, ASSIGNOR TO
THE ANSONIA BRASS AND COPPER COMPANY, OF SAME PLACE.

SCOURING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 617,720, dated January 17, 1899.

Application filed December 29, 1897. Serial No. 664,182. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ABERNETHY COWLES, a citizen of the United States, residing at Ansonia, in the county of New Haven, State of Connecticut, have invented a new and useful Scouring-Machine, of which the following is a true and exact specification.

My invention relates to a machine for scouring or cleaning copper plates preparatory to the tinning thereof.

I will describe a machine embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a view in elevation, partly in section, of the machine. Fig. 2 is a top view thereof. Fig. 3 is an end elevation. Fig. 4 is a vertical transverse section taken on the line A B of Fig. 1; and Fig. 5 is a detail view, partly in section, of one of the scouring or cleaning rollers.

1 represents a suitable bed, having mounted thereon the supporting-standards 2 3, in which the feeding and scouring rolls, together with their driving mechanism, are carried.

4 and 5 represent rolls which feed the plates to cleaning or scouring rolls 6 7, located in the rear of said feed-rolls. The scouring or cleaning rolls are preferably driven at a much greater speed than the feed-rolls, and by this arrangement I am enabled to hold the plates or sheets by the feed-rolls while they are being moved forward, so that the scouring or cleaning rolls may thoroughly clean them.

A convenient way for driving the cleaning or scouring rolls consists of a pulley 8, carried on a shaft 8^a of the lower cleaning-roll, one end of which shaft is journaled in a standard 13 and provided with a gear 9, meshing with a gear 10, carried by the shaft of the upper cleaning or scouring roll. A convenient way for driving the feed-rolls consists of a pulley 11, carried on a sleeve 12, loosely journaled on one end of shaft 8^a, said sleeve being provided with a pinion 14, which is in engagement with a gear 15, carried on the shaft of the lower feed-roll. This shaft is also provided with a similar pinion 16 in engagement with a pinion 17, carried on the shaft of the upper feed-roll.

Located immediately in the rear of the feed-

roll is a spray-pipe 18, connected at one end with a pipe 19, and at the other end of this pipe 19 is a second spray-pipe 20, located immediately in the rear of the cleaning or scouring rolls. Water is supplied to these spray-pipes through the pipe 20^a.

21 represents a screen located over the feed and scouring or cleaning rolls to prevent the water being thrown off the rolls by the centrifugal force. One end is provided with a curved portion 22 adjacent the spray-pipe 20 for guiding the water from the spray-pipe to the cleaning or scouring rolls and also onto the sheet being scoured to give it a final washing. The water from the spray-pipe 18 drops over the plate being cleaned and from the feed-rolls onto a chute 23, from where it is conducted away through a waterway located in the bed. The water from the spray-pipe after flushing the plate is guided away by means of the chute 24.

The feed-rolls may be conveniently covered with rubber to prevent the plate slipping, and the scouring-rolls are preferably provided with a somewhat-roughened surface, which is also absorbent, so that the dirt and particles clinging to the plate may be loosened therefrom in order that they may be carried away by the water from the spray-pipe. A convenient way of forming these rolls is shown in Fig. 5, and consists of a number of disks of canvas, which are held and clamped on the shaft of the rolls by means of the plates 25 and 26 and the clamp-nuts 27. As soon as water is supplied to these rolls the canvas disks swell, so that a hard and compact roll with a sufficiently rough abrading-surface is formed. It is obvious that any other material than canvas may be employed. Hence I do not care to limit myself to the use of canvas for the rolls.

The operation of my machine is as follows: The plates to be cleaned after being taken from the bath are fed to the feed-rollers, which move them forward to the scouring-rollers at a slow rate of speed, water being supplied thereto continuously. The scouring or cleaning rolls, as hereinbefore stated, are rotated at a much more rapid speed than the feed-rolls, and as the plate is moved between them they loosen all dirt and impurities from the

sheets, which are carried away by the water from the spray-pipe 20.

What I claim as my invention is—

5 1. In a scouring-machine, the combination with feed-rolls, the cleaning or scouring rolls made of absorbent material, means for rotating said rolls, and a water-supply for said feed and cleaning or scouring rolls.

10 2. In a scouring-machine, the combination of the feed-rolls, the cleaning or scouring rolls, means for rotating said rolls, said feed-rolls being each provided with a soft covering and said cleaning or scouring rolls being each formed from a number of fabric disks, and
15 a water-supply for said feeding and cleaning or scouring rolls, substantially as described.

20 3. In a scouring-machine, the combination with feed-rolls, cleaning or scouring rolls, means for rotating said feed and cleaning or scouring rolls, a water-supply, and a branch from said supply leading to each set of rolls

for supplying water to said rolls, one of said branches extending between the rolls so as to supply water to the material being cleaned, substantially as described. 25

4. In a scouring-machine, the combination with feed-rolls, cleaning or scouring rolls, means for rotating said feed and cleaning or scouring rolls, a water-supply for each set of said rolls, and a screen located over said rolls, 30 said screen being provided with a curved portion for directing the water from one of said supplies to the cleaning or scouring rolls, substantially as described.

In testimony whereof I have signed my 35 name to this specification in the presence of two subscribing witnesses.

WILLIAM ABERNETHY COWLES.

Witnesses:

WM. H. MATHEWS,
EDWIN D. ROBINS.