J. B. DAVIES & G. LEWIS.

MACHINES FOR CLEANING THE SURFACE OF SHEET-METAL.

No. 184,146. Patented Nov. 7, 1876.

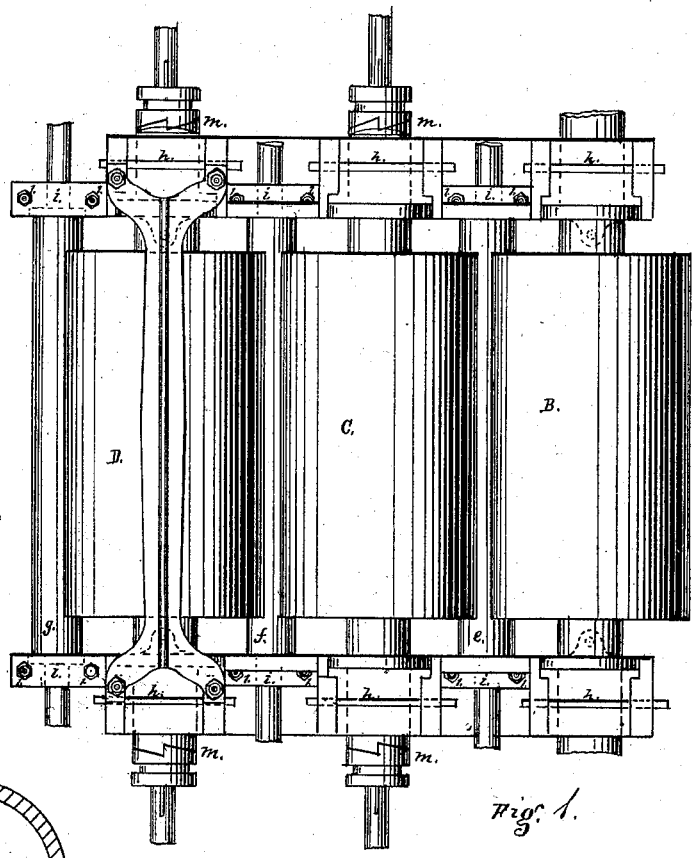

Fig. 1.

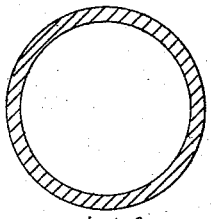

Fig. 3.

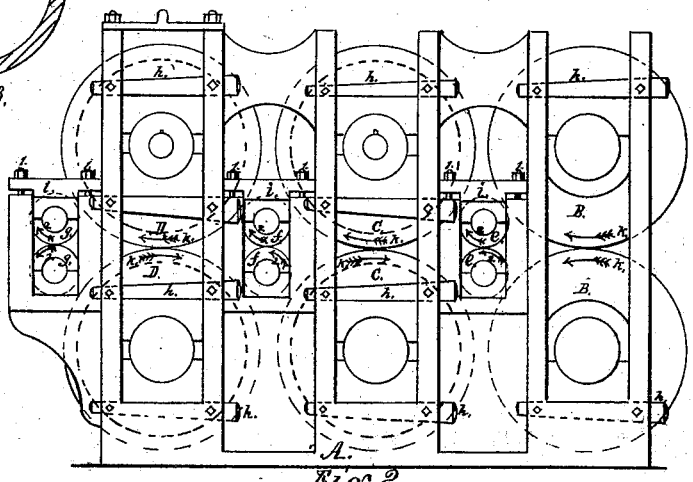

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN B. DAVIES, OF ALLEGHENY, PA., AND GEORGE LEWIS, OF NEWARK, OHIO, ASSIGNORS TO THEMSELVES AND WILLIAM SUNDERMAN.

IMPROVEMENT IN MACHINES FOR CLEANING THE SURFACE OF SHEET METAL.

Specification forming part of Letters Patent No. **184,146**, dated November 7, 1876; application filed November 13, 1875.

To all whom it may concern:

Be it known that we, JOHN B. DAVIES, of Allegheny, in the county of Allegheny and State of Pennsylvania, and GEORGE LEWIS, of Newark, in the county of Licking and State of Ohio, have invented a new and useful Improvement in Apparatus for Cleaning the Surface of Sheet Metal; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to cleaning the surface of sheet metal prior to being coated with tin or other metallic material; and consists in subjecting the sheet metal to a dry scouring process in contradistinction to a wet one, and also in the use of an apparatus consisting of the combination of a series of rolls arranged in pairs, and operating with relation to each other in the manner hereinafter described.

To enable others skilled in the art with which it is most nearly connected to make and use our invention, we will proceed to describe its construction and operation.

In the accompanying drawings, which form part of our specification, Figure 1 is a top view or plan of our improved apparatus. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse section of one of the scouring-rolls.

In the drawings, A represents the frame of the machine or apparatus. B represents a pair of ordinary finishing-rolls, for finishing sheet metal. C and D represent the scouring-rolls, being hollow cylinders, the surfaces of which are made perfectly "true," and then coated with emery, being mixed with gum-arabic, or other adhesive matter, in the liquid form. After the coating has become sufficiently dry, they are placed in a lathe, and the surfaces trued by the turning process. They are then mounted in the frame A, as indicated in the accompanying drawing. *e f* are feed-rollers, for feeding the sheet metal to the rolls C and D. *g* are rolls used for carrying the sheets off from rolls D. The travel of the rolls B C D is indicated by the arrows K, and they are adjusted with relation to each other through the medium of wedges *h*, or other suitable mechanism. The feed-rolls *e f* and delivering-rolls *g* are adjusted with relation to their gripe on the sheet metal by means of the caps *i* and screws 1. The travel of the rolls *e*, *f*, and *g* is indicated by the arrows 2.

The means used for imparting motion is left to the skill and judgment of the mechanic.

Couplings, as indicated at *m*, may be used, the operation of which is well understood by those skilled in the art of constructing and operating rolling mechanism.

The construction of the several parts of our improved machine or apparatus, and the relation that the parts bear to each other, will be readily understood from the foregoing description and by reference to the accompanying drawings; we will, therefore, proceed to describe the operation, which is as follows:

The sheet metal is sheared to the desired size and form. The scouring-rolls being prepared as hereinbefore described, the operator feeds the sheets (singly) to the rolls B, which impart to the sheets that finish known as "cold-roll finish." The sheet passing from the rolls B is seized by the feed-rolls *e*, and by them fed to the scouring-rolls C, and passing from rolls C, the feed-rolls *f* seize the sheet, feeding it to the scouring-rolls D, and, passing from them, is seized by delivering-rolls *g*, from which it is carried off by boys, or by an endless apron or other mechanism, to the place desired. The rolls C and D are run at a great speed when compared with the travel of the rolls B.

It will be readily observed that the difference in the direction of the travel of the rolls C and D, combined with their speed and coated surfaces, will be that of scouring and cleaning the surfaces of the sheet passing between them.

Sheet metal cleaned as hereinbefore described will take the coating of tin or other metal more readily than when cleaned by the acid process, and will be far more durable, for it will be apparent that no oxidized matter will be on the sheet to hinder the tinning or coating process.

We are aware that the surface of sheet metal has been cleaned by a scouring process

in which water combined with a gritty material has been used; and we are also aware that the surface of sheet metal has been cleaned by what is known as the "dry grinding process," as in the case of polishing and finishing saws.

Having thus described our improvement, what we claim is—

1. The method hereinbefore described for cleaning the surface of sheet metal in the process of coating it with tin or other metal.

2. An apparatus consisting of the rolls B, C, and D, and feed-rolls *e f*, and delivering-rolls *g*, combined, arranged, and operating with relation to each other, substantially as hereinbefore described, and for the purpose set forth.

In testimony whereof we have hereunto set our hands this 14th day of October, 1875.

JOHN B. DAVIES.
GEORGE LEWIS.

Witnesses:
JAMES J. JOHNSTON,
JAMES D. JONES.