No. 794,704. PATENTED JULY 11, 1905.

O. S. FELLOWS & A. E. HOPKINS.

# MEANS FOR REMOVING SUPERFLUOUS METALLIC COATING FROM SHEET METAL.

APPLICATION FILED NOV. 1, 1904.

*Fig. 1.*

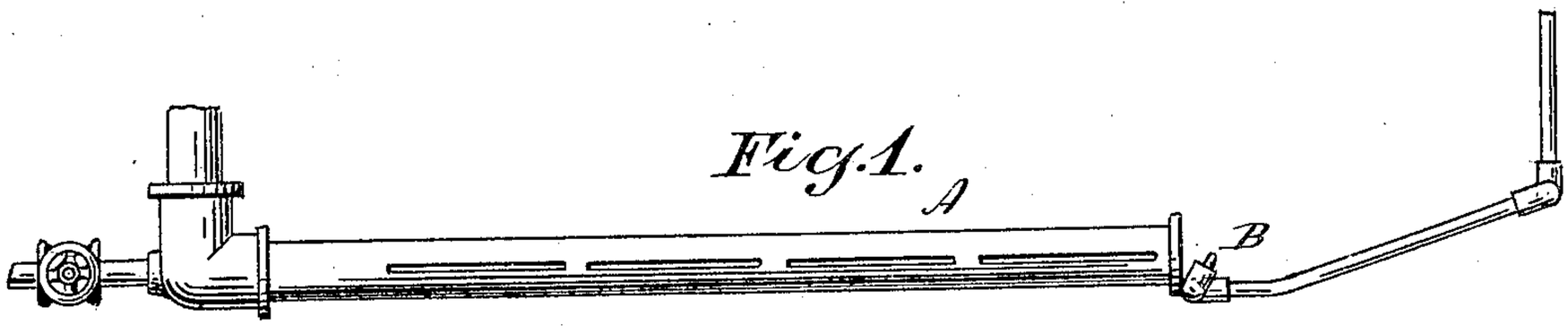



*Fig. 2.*


*Fig. 3.*

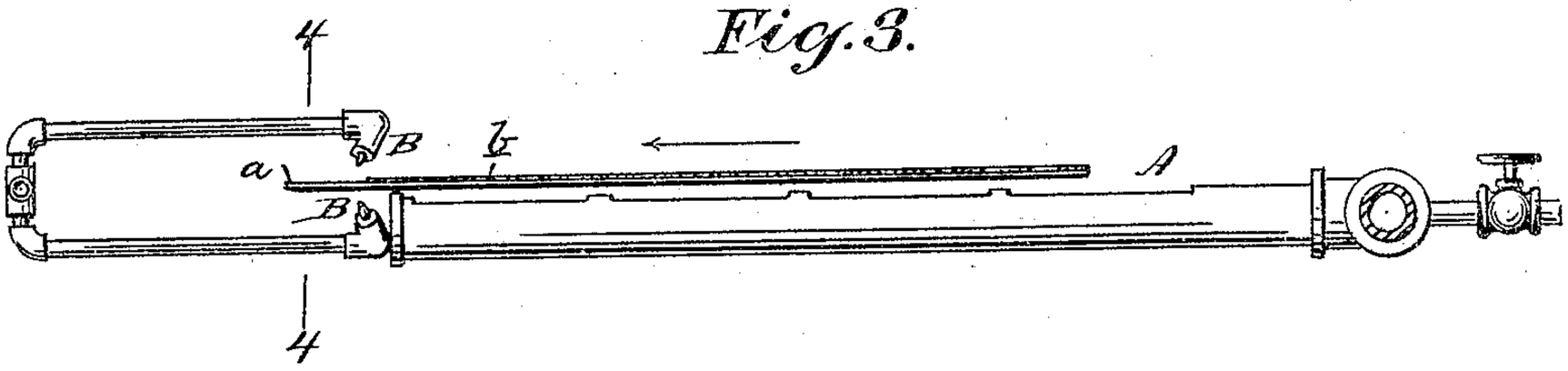
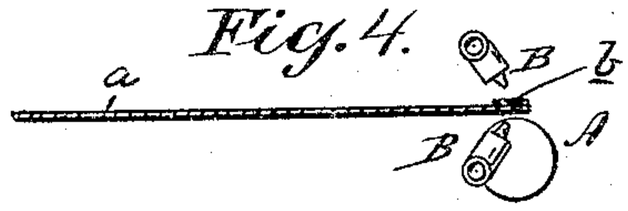



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

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## MEANS FOR REMOVING SUPERFLUOUS METALLIC COATING FROM SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 794,704, dated July 11, 1905.

Original application filed September 29, 1904, Serial No. 226,441. Divided and this application filed November 1, 1904. Serial No. 230,994.

*To all whom it may concern:*

Be it known that we, OLIN S. FELLOWS and ARCHIBALD E. HOPKINS, citizens of the United States, residing at Middletown, Orange county, and State of New York, have invented certain new and useful Improvements in Means for Removing Superfluous Metallic Coating from Sheet Metal, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

This application is a subdivision of our application filed September 29, 1904, Serial No. 226,441, in which we claim the method of treating coated sheet metal herein disclosed.

Our present invention relates to means for removing superfluous metallic coating from sheet metal after such coating has positively set or hardened upon the surface of the sheet, particularly what is known as "list" from the selvage edge of the metallic plates coated with tin, lead, zinc, or other metal or alloy, the list being occasioned by the collection of an excess of the metallic coating upon the lower edge of the sheet of metal as drawn from the rolls or bath, resulting ordinarily heretofore in a waste both of the metallic coating and of the sheet metal, since the selvage edge of the plate with the list on it is not available for use for reasons well known in the arts in which coated sheet metal is employed.

The object of our invention is to save the list or excess of metallic coating and at the same time to render all parts of the coated sheet, including the selvage edge, available for practical use, the plate being thus perfected and rendered more valuable commercially and otherwise; and our invention consists in the combination and arrangement of means for effecting the remelting or reliquefying *in situ* of the set or hardened list or superfluous metallic coating in conjunction with means for effecting the forcible removal of such liquated excess of metallic coating from the surface of the sheet metal. Our invention includes the combination, with the means for remelting and liquefying the metallic excess, of means for effecting the removal thereof by a fluid blast or blasts, substantially as hereinafter described and claimed specifically.

In the drawings, Figure 1 is a plan of parts essential in treating coated sheet-metal plates according to our invention. Fig. 2 is a side elevation of the same. Fig. 3 is an elevation taken upon the side opposite to that shown in Fig. 2 and illustrating diagrammatically the position of the selvage edge of a coated sheet-metal plate under treatment. Fig. 4 is a transverse section upon plane of line 4 4, Fig. 3.

In describing the practical application of our invention to the reduction and removal of any superfluous metallic coating or list that may have collected and positively solidified upon the surface of sheet metal during the process of coating the same we herein refer to the treatment of tinned sheet-iron only by way of illustration, it being understood that we do not limit ourselves in this respect and that sheet-metal plates and metallic coatings of all kinds are included within the scope of our invention.

In the drawings, *a* represents the plate, and *b* the list thereon. This plate in its presentation to the remelting device and to the list-removing means may be supported in any suitable manner. (Not shown.)

A represents an elongated gas-burner or equivalent means of heating the selvage edge or other portion of a tin-coated plate, and B one or more nozzles, arranged to direct a blast or blasts of a suitable fluid, as steam, air, or heated water, against the heated portion of the plate, the direction of the blast with relation to the plate being such as to drive the liquefied list or excess of metallic coating from the edge thereof, as will be understood by reference more particularly to Fig. 4. The excess of tin or other metallic coating thus removed from the plate may be collected and utilized in any suitable manner.

We are aware that various expedients have been proposed for the prevention of an excess

of coating on metal plates during manufacture; but we are not aware that list or excess of metallic coating after it has set or hardened on sheet metal has ever been remelted and displaced therefrom as herein described and claimed.

By our method of remelting or liquefying the list or excess of metallic coating after the preliminary steps in the manufacture of the plate we attain certain practical advantages. The manipulation of the sheet metal to thus finish it after it has been coated and cooled may be accomplished with ease and convenience in a simple manner and by simple means, and a perfectly uniform plate of increased commercial value may thus be produced in which the so-called "selvage edge" may be said to be eliminated, since it is rendered available for use like the rest of the plate. It is obvious that in accomplishing this result various modifications and mechanical expedients may be resorted to in effecting the liquation and displacement of the list or excess of metallic coating from the sheet metal without departing from the spirit and intent of our invention, and we do not, therefore, limit ourselves to the identical construction and arrangement of parts shown.

It is to be understood that our invention relates, essentially, to a supplementary or finishing process distinct from the operation of applying a metallic coating to sheet metal. We do not seek to prevent the formation of list or excess of metallic coating upon the plate; but we do effect the removal or elimination of such list or excess subsequent to the formation thereof and after the same has set or hardened upon the surface of the sheet metal. Hence we herein expressly disclaim any method or means for preventing the formation of an excess of metallic coating upon sheet or other form of metal during the operation of coating the same or before the coating has set or hardened on the surface of the sheet metal.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In apparatus for removing superfluous metallic coating from sheet metal after the same has been coated and the coating positively set or hardened on the latter, means for applying heat to such excess of metallic coating to remelt the same and liquate it *in situ*, and means for forcibly removing such liquated excess of metallic coating from the surface of the sheet metal.

2. In apparatus for removing superfluous metallic coating from sheet metal after the same has been coated and the coating positively set or hardened on the latter, means for applying heat to such excess of metallic coating to remelt the same and liquate it *in situ*, and means for directing a fluid blast against such liquated excess of metallic coating for the purpose of removing it from the surface of the sheet metal.

3. In apparatus for removing superfluous metallic coating from sheet metal after the same has been coated and the coating positively set or hardened on the latter, means for applying heat to such excess of metallic coating to remelt the same and liquate it *in situ*, and means for directing a plurality of fluid blasts against such liquated excess of metallic coating for the purpose of removing it from the surface of the sheet metal.

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