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A. J. DIESCHER.

METHOD OF TREATING METAL PLATES OR SHEETS.

APPLICATION FILED JAN. 8, 1901.

NO MODEL.

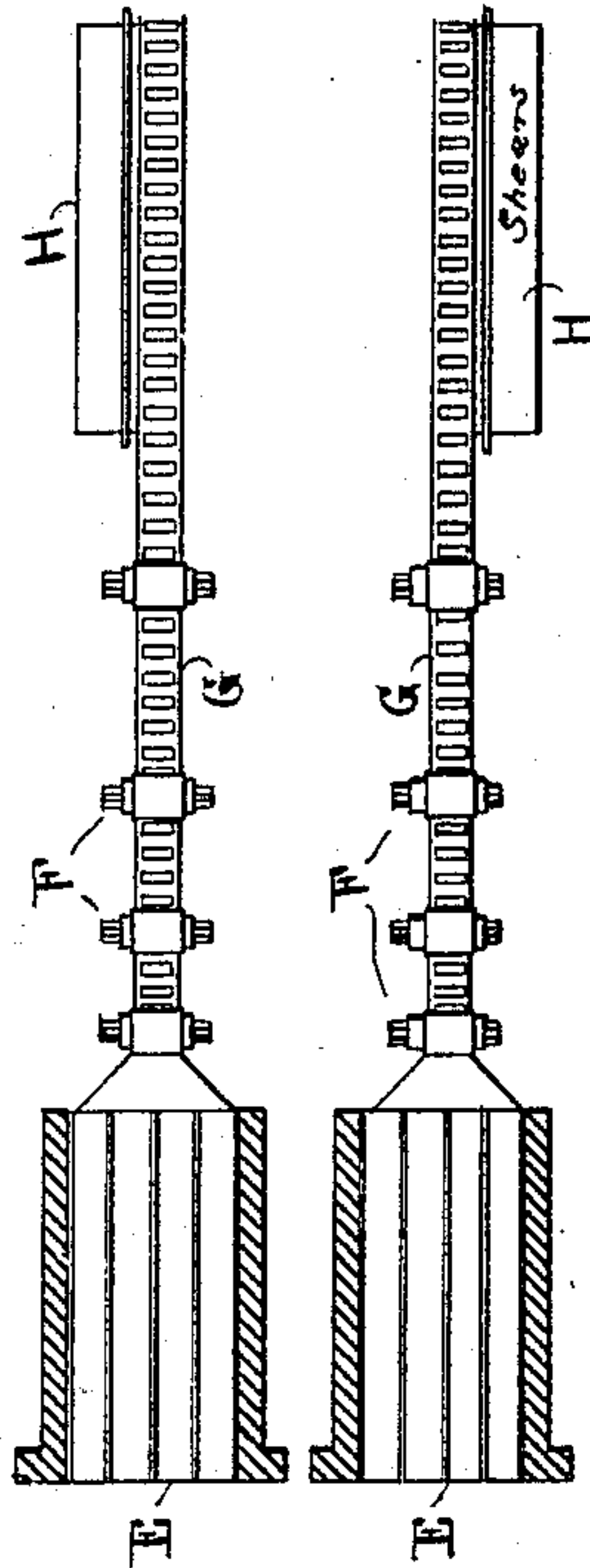


Fig. I.

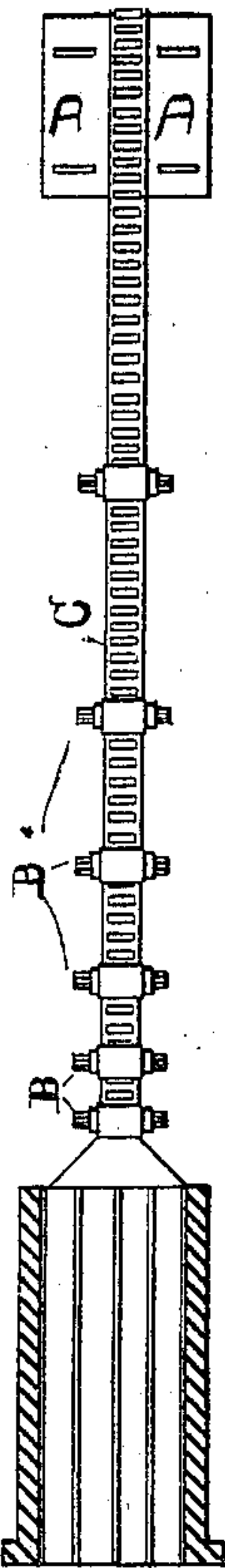


Fig. II.



WITNESSES

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# UNITED STATES PATENT OFFICE

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## METHOD OF TREATING METAL PLATES OR SHEETS.

SPECIFICATION forming part of Letters Patent No. 725,324, dated April 14, 1903.

Application filed January 8, 1901. Serial No. 42,487. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED J. DIESCHER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Methods of Treating Metal Plates or Sheets, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I is a plan of a mill designed with the furnace in section, showing my arrangement of apparatus. Fig. II is an end view of a folded pack.

The objections to the ordinary method of making light plates or sheets by means of back-and-forth passes through the same stand of rolls and adjusting the housing-screws for a narrower pass are too well known to those skilled in the art to require detailed explanation.

The purpose of my present invention is to devise a method involving continuous rolling, by which the objections to the method just referred to may be obviated.

In Fig. I, A represents a heating-furnace in which the metal, preferably in slab form, is suitably heated before being passed through a series of roughing-rolls B B. C is any suitable form of conveyer transferring the metal between the various pairs of rolls and the suitable mechanical folders shown in duplicate, D D. E E are heating-furnaces to receive the folded packs, all of the apparatus from the folders down to the end preferably being shown in duplicate to avoid congestion of the operation at this point. F F are finishing-trains, G G suitable conveyers, and H H trimming-shears.

In operation after the metal has arrived at a proper temperature in the furnace A it is carried through a series of roughing-rolls until it is reduced to a plate or sheet of such a thickness that the same can be folded upon itself in the plaited form I. (Shown in Fig. II.) The pack thus constituted of a continuous folded sheet is put into one of the heating-furnaces F and when suitably heated is sent, preferably with its folded edge foremost, through the finishing-train G. If the pack has been reduced to the desired thinness, the folded edges are trimmed by the shears H.

If, however, a further rolling operation is necessary to finish the sheet, it can be sent a second time through the finishing-mill G or through another independent set of finishing-rolls. By the operation thus described I obtain the benefits of continuous rolling without being obliged to shear the plates into small sections before entering the reheating-furnaces. I believe, also, that a folded pack would be more likely to preserve its shape and avoid slipping of the pack than would a pack composed of separate and independent sheets.

By folding the plates in a plaited form I save a considerable waste which would result if the plates were folded with several sheets at each bend, as in shearing off the edges of the folded pack the outside sheets would in the latter case suffer a greater loss than the inside ones. In the plaited pack the loss for each section is only that for the innermost one of a double-folded pack.

Although I have shown in a diagrammatic view mechanical folders D D, such folding may be performed by manual labor instead of machine, if desired.

The drawings given are purely illustrative, although showing the best plan with which I am now acquainted for arranging the mill. It is quite obvious, however, that the roughing-rolls need not be arranged tandem, but may be arranged with the long axis of the rolls in line with each other, and one or more sets of roughing-rolls may be employed, dependent upon the size and shape of the required blank put into the roughing-mills and upon the amount of the reduction desired before the folding operation is begun; nor do I limit myself to the precise number of heating-furnaces shown, as if the operation would be more extended it may be desirable to interpolate a heating-furnace at some stage thereof, the location being determined by ordinary mill experience. During the operation if the sheets become unduly extended it may be found desirable to shear the same, so as to make the same more easy to handle.

By the expression "continuous rolling" I do not mean that the rolls are necessarily arranged in tandem or that the piece should be



simultaneously in the bite of two or more rolls, but only that the rolling operation should be progressive from pass to pass.

Having described my invention, I claim—

- 5 1. The method of treating sheets or plates which consists in suitably heating a blank, roughing the same down to a plate or sheet, folding said plate or sheet in a plaited form, reheating the folded plate or sheet, sending  
10 the folded pack through a finishing-train, and shearing the folded edges.

2. In the manufacture of sheets or plates, the method of forming a sheet into a series of plaited folds, heating said folded sheet, sending said folded sheet through a finish- 15 ing-train, and shearing off the folded edges.

Signed at Pittsburg this 31st day of December, 1900.

ALFRED J. DIESCHER.

Witnesses:

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