

UNITED STATES PATENT OFFICE.

PAUL A. MEEHAN, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN DRESSLER TUNNEL KILNS, INC., OF CLEVELAND, OHIO, A CORPORATION OF NEW YORK.

SHEET-STEEL ANNEALING.

No Drawing.

Application filed August 11, 1927. Serial No. 212,364.

The present invention relates to the art of heat treating sheet metal, and particularly to the simultaneous heat treating of a plurality of strips or sheets of sheet metal in a tunnel kiln, and the object of the present invention is to minimize or eliminate an objectionable sticking together of such sheets heretofore experienced in the annealing operation.

10 In the annealing process in which the present invention is particularly designed for use, as ordinarily carried out, a number of relatively thin sheets or strips of sheet metal are placed in superposed relation in a rectangular metal box, slightly larger in size than the metal strips, and the box is passed through an annealing kiln. This process is widely used in the manufacture of automobile bodies and fenders where the highly finished strips of sheet metal require annealing in order to give the finished product the proper ductility. The sheets or strips are generally of rectangular shape and from 12 to 15 feet in length. After the sheets are piled in the box, the latter is passed through the continuous annealing kiln on a suitable carrier, ordinarily formed by one or more kiln cars. In the kiln the strips of sheet material are first heated to a temperature ranging from 1400° to 1700° F., depending on the composition of the metal, and are then slowly cooled after passing through the heating sections.

35 It has been found in practice that in the described treatment there is considerable tendency for the sheets to adhere together, thereby necessitating the forcible separation of the sheets after the annealing treatment. The forcible separation of the sheets often results in an undesirable surface marring and bending of the sheets, to an extent which in some cases, prohibits their use for automobile bodies and fenders where a high degree of finish is required.

45 I have discovered that the undesirable adherence of adjacent sheets and consequent

waste may be effectively and inexpensively overcome by the simple expedient of providing a layer of suitable material between the adjacent metal sheets. The material used 50 should be in powdered or finely divided form and of such a character that it does not undergo any chemical or physical change in the range of temperatures occurring in the annealing operations. Advantageously, the 55 material employed is kieselguhr, or other infusorial or diatomaceous earths, but I may also employ other substances as flint, talc or powdered quartz. The material may be spread by hand or suitable apparatus on the sheets as the latter are being piled in the boxes. With such material there will be no adherence between the adjacent layers of sheet metal and no chemical reactions with the metal tending to stain or otherwise dis- 65 color the metal sheets.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The improvement in the art of simultaneously heat treating a plurality of strips of sheet metal which consists in separating the sheets by a layer of finely divided solid material of a diatomaceous nature, which is chemically and physically inactive throughout the range of temperatures to which the metal is subjected. 75

2. The improvement in the art of heat treating sheet metal in superposed layers which consists in providing a layer of material of a diatomaceous nature between each pair of adjacent metal layers. 80

3. The improvement in the art of heat treating strips of sheet metal in superposed layers in an annealing furnace which consists in providing a layer of powdered infusorial earth between adjacent layers of metal before the metal is heat treated. 85

Signed at Cleveland, in the county of Cuyahoga, and State of Ohio, this 3rd day of August A. D. 1927. 90

PAUL A. MEEHAN.