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G. RITTER

APPARATUS FOR HEATING SHEET MATERIAL IN PREPARATION FOR FOLDING

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FIG. I.

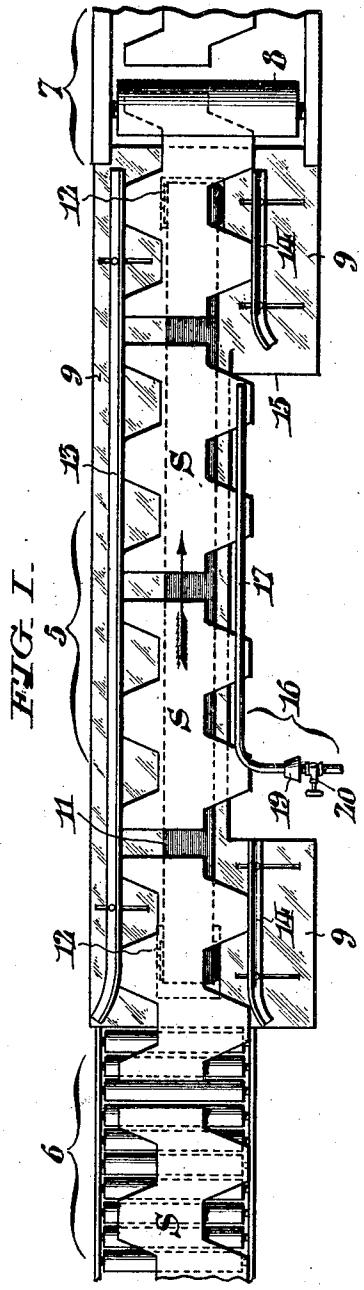
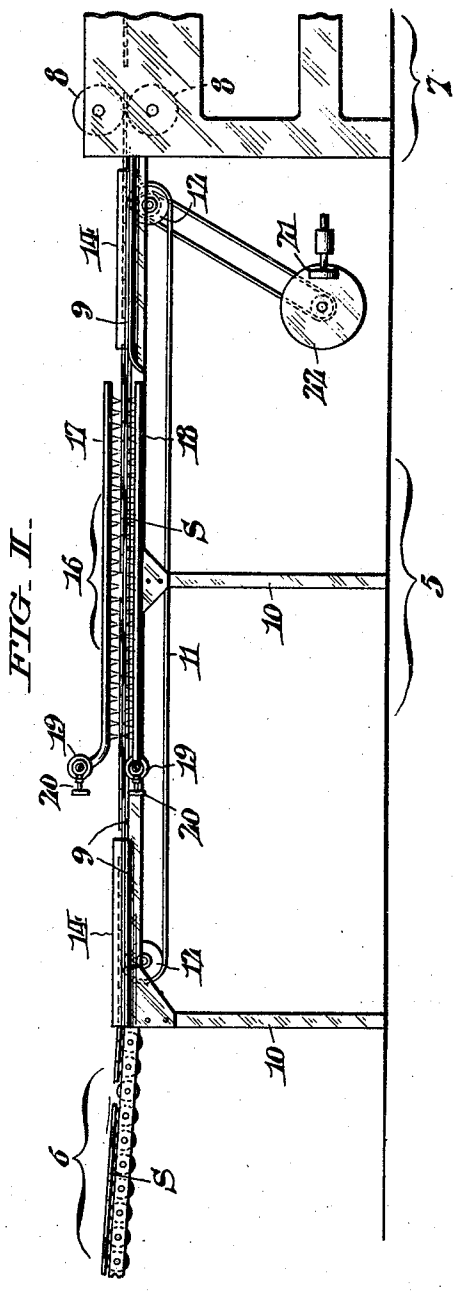


FIG. II.



WITNESSES

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HEATING SHEET MATERIAL IN PREPARATION FOR FOLDING.

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This invention relates to apparatus for continuously heating sheet material to facilitate subsequent folding. Such preparation is necessary for example in the manufacture of certain types of prepared flexible roofing shingles in order to avoid, during folding, fracture of the fibrous base material or cracking of the bituminous weather resistant surfacing with which it is coated, and to render permanent the creases resulting as a consequence of the folding.

In apparatus heretofore designed for the purpose above outlined, steam pipes or ovens were invariably used as the heating means; these allowing very little latitude in the way of controlling the heat applied, and entailed heating of a very much larger area than actually necessary.

My invention is directed toward overcoming the objections just noted; or, in other words, toward providing perfect control of the treatment to the end of assuring uniform results regardless of variations in the composition or thickness of the material, and toward making possible confinement of heat application to those regions where the folds or creases are to be made.

With reference to the drawings, Fig. I is a plan view of a shingle pre-heating apparatus conveniently embodying my invention; and,

Fig. II is a side elevation of the same.

In these illustrations, the apparatus is comprehensively designated 5, and shown as occupying an intermediate position between a roller trestle 6 by which shingles S are successively directed to it, and a folding machine 7 (only partly shown) into which the heated shingles are drawn by cooperating nip rolls 8. The apparatus 5 comprises an elongated table 9 which is sustained at a convenient height from the floor by legs 10, and which affords the shingles S support while traveling thereover—in the direction indicated by the arrow on Fig. I—under conveyance of an endless carrier belt 11 running about rollers 12, 12. Incidentally to progression as just noted, the shingles S are guided to a pre-determined course by angle bars 13, 14 capable of lateral adjustment relative to the table 9, for a purpose to be later explained.

At one side, the table 9 is recessed as at 15 to permit the tips of the shingles S to overhang, and to accommodate the heating means 16, which, in accordance with my invention, consists of a pair of longitudinally, extending parallel gas pipes 17—18 that are symmetrically arranged above and below the table 9, and perforated along their lengths to provide a linear series of opposing jet flames, as conventionally represented in Fig. II. Each of the pipes 17, 18 is equipped with a standard type of Bunsen control means 19, as well as a hand valve 20 whereby the gas flow and terminal intensity may be adjusted as required or desired in meeting various exigencies of practice.

In operation of the apparatus, as the exposed overhanging tips of the shingles S are passed edgewise through the hot zone between the pipes 17, 18 of the heating means 16, the opposing flame jets play simultaneously upon the upper and lower surface of the material over a limited lateral area and along a straight line in the direction of travel, such line being pre-determinable by adjustment of the guides 13, 14 in accordance with the desired allocation at which the material is to be folded. Such concentration and localized application of heat is not only conducive to economic fuel consumption, but precludes the possibility of injury likely to ensue from unnecessary heating of the entire shingles S as ofttimes occurred with operation of previous forms of heating apparatus. By proper adjustment of the Bunsen devices 19 and the hand valves 20, the intensity of the jet flames may be easily regulated compensatively with respect to the speed of travel of the carrier 11 in adapting the apparatus 5 to treating materials of different thicknesses.

As an alternative or further aid in controlling the performance of the apparatus 5, I may employ an adjustable speed regulating means in connection with the drive of the carrier belt 11, for example a pair of friction discs, such as diagrammatically shown in Fig. II, and whereof the driver

21 is radially adjustable relative to the axis of the driven disc 22. With this adjunctive asset, it will be apparent that the rate of travel of the shingles S over the table 9 may be varied to suit special operating conditions without necessitating adjustment of the heating means 16.

Although I have shown and described my invention as being particularly adapted for treatment of strip shingles S, it may obviously be used, with like advantages, in treating continuous roofing or any other sheet material, the nature of which requires pre-heating to insure a perfect and permanent bend or crease.

Having thus described my invention, I claim:

1. In apparatus for heating bituminous roofing material in preparation for folding, the combination of a table having one side recessed and over which the material is continuously passed, and heating means including opposed jet burners accommodated in the table recess and between which the material is passed edgewise for heating over a limited lateral area in the line of travel.

2. In apparatus for heating bituminous roofing material in preparation for folding, the combination of a table having one side recessed and over which the material is continuously passed with one edge thereof overhanging said recess, and heating means including opposed jet burners with means for varying the thermal intensity between which the overhanging edge of the material is passed for localized heating over a limited area in the line of travel.

3. In apparatus for heating bituminous roofing material in preparation for folding, the combination of a source of concentrated heat, means enabling regulation of the intensity of such heat, means with an adjustable speed control to continuously move the material past the source of the heat so as to be affected over a limited lateral area extending in the direction of travel, and guide means for the material adjustable laterally relative to the heating means.

In testimony whereof, I have hereunto signed my name at Maurer, N. J. this 17th day of December, 1925.

GEORGE RITTER