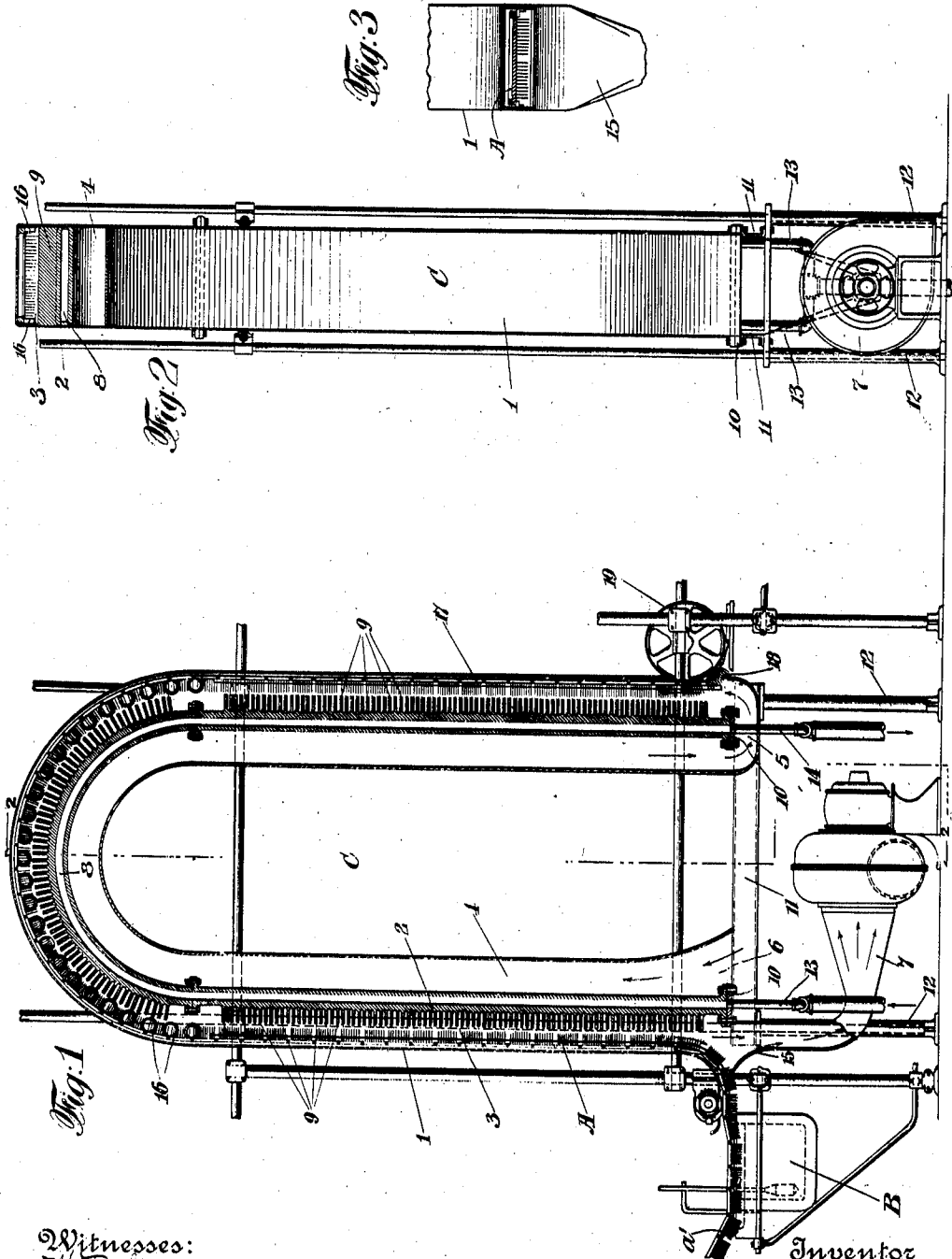


H. A. RUDD.
 SPLINT DRYING MEANS FOR MATCH MACHINES.
 APPLICATION FILED JUNE 21, 1912.

1,044,343.

Patented Nov. 12, 1912.



Witnesses:
 W. B. Rogers
 J. C. Griffin

Inventor
 Henry A. Rudd
 By his Attorney John T. McKee

UNITED STATES PATENT OFFICE.

HENRY A. RUDD, OF BARBERTON, OHIO, ASSIGNOR TO THE DIAMOND MATCH COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SPLINT-DRYING MEANS FOR MATCH-MACHINES.

1,044,343.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed June 21, 1912. Serial No. 705,090.

To all whom it may concern:

Be it known that I, HENRY A. RUDD, a citizen of the United States, and resident of Barberton, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Splint-Drying Means for Match-Machines, of which the following is a specification.

This invention relates to splint drying means for match machines, having reference more especially to continuous machines wherein an endless carrier chain receives the splints row by row and transports them through the match making path, including a bath of impregnating material adapted to render the splints nonglowing after the same, as finished matches, have been ignited and the flame extinguished.

The object of my invention is to provide, in such match machines, a drying structure into and through which the wet splints, after they have been subjected to the bath of impregnating material are carried and thereby effectually dried in a relatively short space of time without materially increasing the length of the match machine or retarding the regular speed of travel of the carrier chain, as will be hereinafter described and claimed.

In the drawings—Figure 1 is a longitudinal vertical section of a splint drying structure embodying my invention, the impregnating tank and a portion of the splint carrier chain being shown. Fig. 2 is a transverse vertical section of the structure, as on the line 2—2 of Fig. 1. Fig. 3 is a similar section through the chain inlet of the structure.

A designates a portion of an endless carrier chain by means of which rows of splints are transported in spaced relation to each other through the match making path.

B designates a tank in which the solution of impregnating material is contained, which tank is suitably supported beneath the path of the carrier chain. The track for this chain is appropriately constructed (as at *a'*) to effect the vertical movement of the traveling plates or sections of the chain in respect to the top of the tank after the chain leaves the splint-inserting station of the match machine, and thus the splints during their progress are periodically dipped into and raised from the liquid contents of the

tank in order to effect the requisite impregnation of the splints.

C designates a splint-drying structure through which travels the chain with its wet impregnated splints after leaving the tank B. This drying structure comprises an inverted U-shaped casing 1, a similarly shaped heat radiator 2 supported therein to afford on one side of the radiator a drying chamber 3 through which the carrier chain is directed with the splints pointing toward the radiator in a manner to be exposed to the efficient drying action of the radiated heat; and to afford on the other side of the radiator an air trunk 4 which communicates with the said chamber by means of a duct 5 at the foot of one of the limbs of the radiator. The other adjacent ends of the air trunk and chamber lead respectively to the open air, as at 6, and to an exhaust fan 7, whereby a continuous circulation of fresh air through the air trunk and splint chamber is established; that is to say, the air enters the mouth of the trunk, passes therethrough adjacent to and in contact with the opposing walls of the radiator, enters the drying chamber through the duct 5, flows through such chamber in contact with the splints and radiator, and finally escapes by way of the fan. The air in its prolonged travel through the air trunk is highly heated before entry to the splint chamber and while flowing therein the hot air not only contributes to the effective drying of the splints but carries off the resulting vapors.

The radiator preferably comprises two vertical sections connected at their top by an arch section, as shown, the whole having formed therein a chamber 8 for the efficient circulation of steam or other heating medium. The outer faces of the radiator sections, that is, the faces within the drying chamber, are preferably provided with a multiplicity of transversely-disposed ribs which afford an increased heat-radiating surface. The lower extremities of the vertical sections of the radiator are closed by cap plates 10 which are bolted to rails 11 supported by suitable posts 12. These cap plates are pierced by pipes 13, 14, which communicate with the respective ends of the radiator chamber 8; the pipes 13 at the inlet end of the radiator leading to a suitable source of supply of steam, &c., and the other

pipes 14 leading to a point of discharge. Thus a continuous circulation of the heating medium is maintained within the radiator chamber.

- 5 The casing 1 is preferably a sheet metal structure bolted or otherwise secured to the radiator therein contained, and is of proper form and dimensions to afford in conjunction with the radiator, the drying chamber
 10 3 and air trunk 4 above described. The chain inlet portion of the chamber 3 is connected with the outwardly curved flaring mouth of a conduit 15 leading to the exhaust fan, the wall of the casing at such inlet portion being curved correspondingly with and
 15 connected to the mouth of the conduit in order that efficient communication between such conduit and the drying chamber may be had.
- 20 The inner side walls of the curved top of the drying chamber are provided with a series of flanged rollers 16 for the support and guidance of the chain during its travel, and the like walls of the vertical portions of
 25 the chamber are also furnished with guide bars 17 for the same purpose. Adjacent the outlet opening 18 from the drying chamber is arranged a guide wheel 19 under which the carrier chain is drawn and thereby de-
 30 flected to a horizontal path as it leaves the chamber.

I claim—

- 35 1. In splint drying means for match machines having splint carrier chains, a radiator, a casing therefor providing with the body of the radiator on the respective sides of the latter an air-trunk and a drying chamber, a connection between one end of the air trunk

and one end of the drying chamber, means for exhausting air from the other end of the drying chamber, and means for guiding the carrier chain through the drying chamber.

2. In splint drying means for match machines having splint carrier chains, an inverted U-shaped casing, a similarly shaped radiator therein dividing the casing into two chambers, one of which constitutes an air-trunk and the other a splint-drying chamber, a connection between a limb of the air-trunk and a limb of the drying chamber, means for exhausting air from the other limb of the drying chamber, and means for guiding the carrier chain through the said drying chamber.

3. In splint drying means for match machines having splint carrier chains, an inverted U-shaped casing, a similarly shaped radiator therein dividing the casing into two chambers, one of which constitutes an air-trunk and the other a splint-drying chamber, a connection between a limb of the air-trunk and a limb of the drying chamber, means for exhausting air from the other limb of the radiator, a series of rollers arranged within the arch of the drying chamber for the support and guidance therein of the carrier-chain, and guides for the chain in the vertical limbs of said drying chamber.

Signed at Barberton, in the county of Summit and State of Ohio, this seventh day of June, A. D. 1912.

HENRY A. RUDD.

Witnesses:

V. A. JOHNSTON,
C. E. JONES.