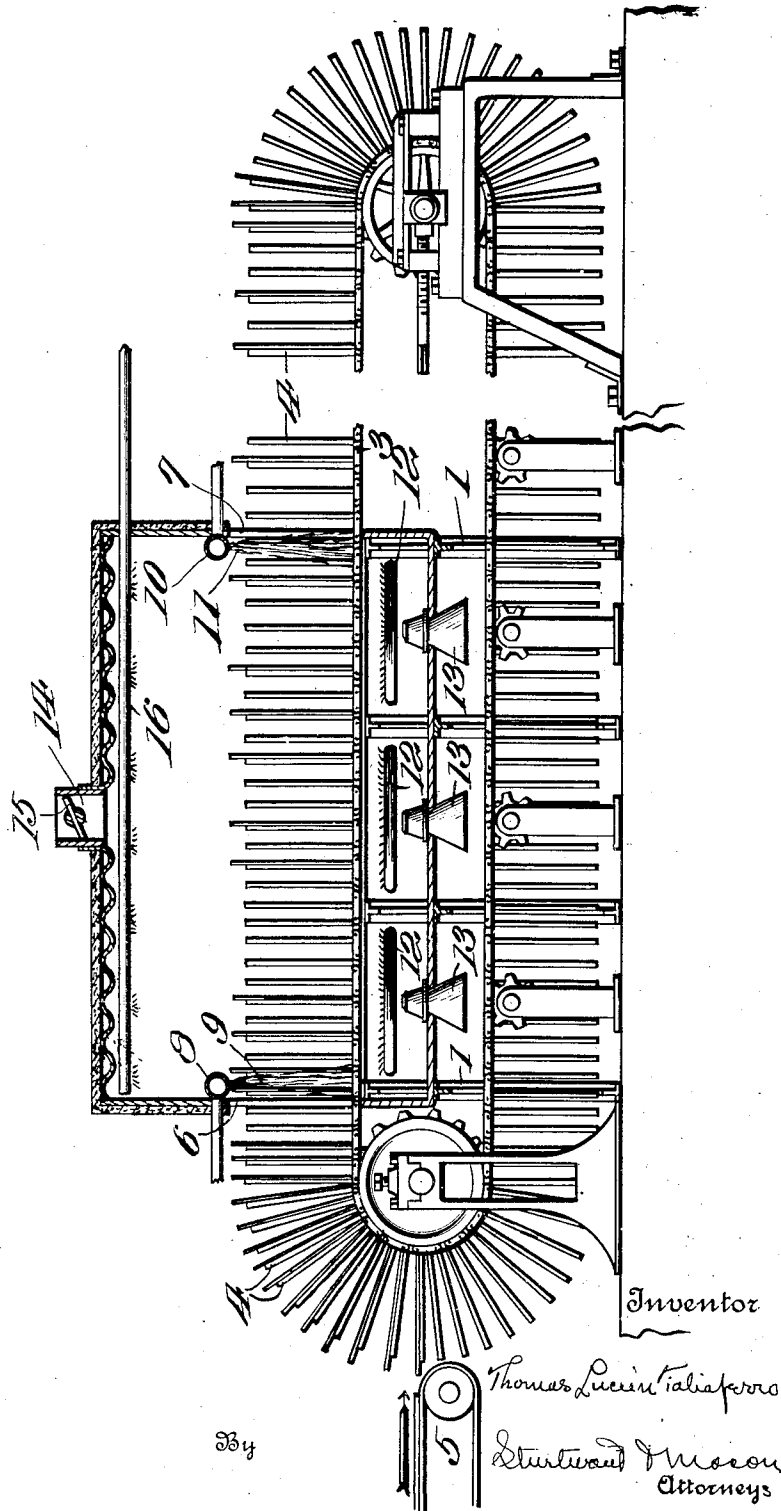


APPARATUS FOR DRYING LITHOGRAPHED METAL SHEETS.

Patented Dec. 6, 1921.

2 SHEETS—SHEET 1.

704

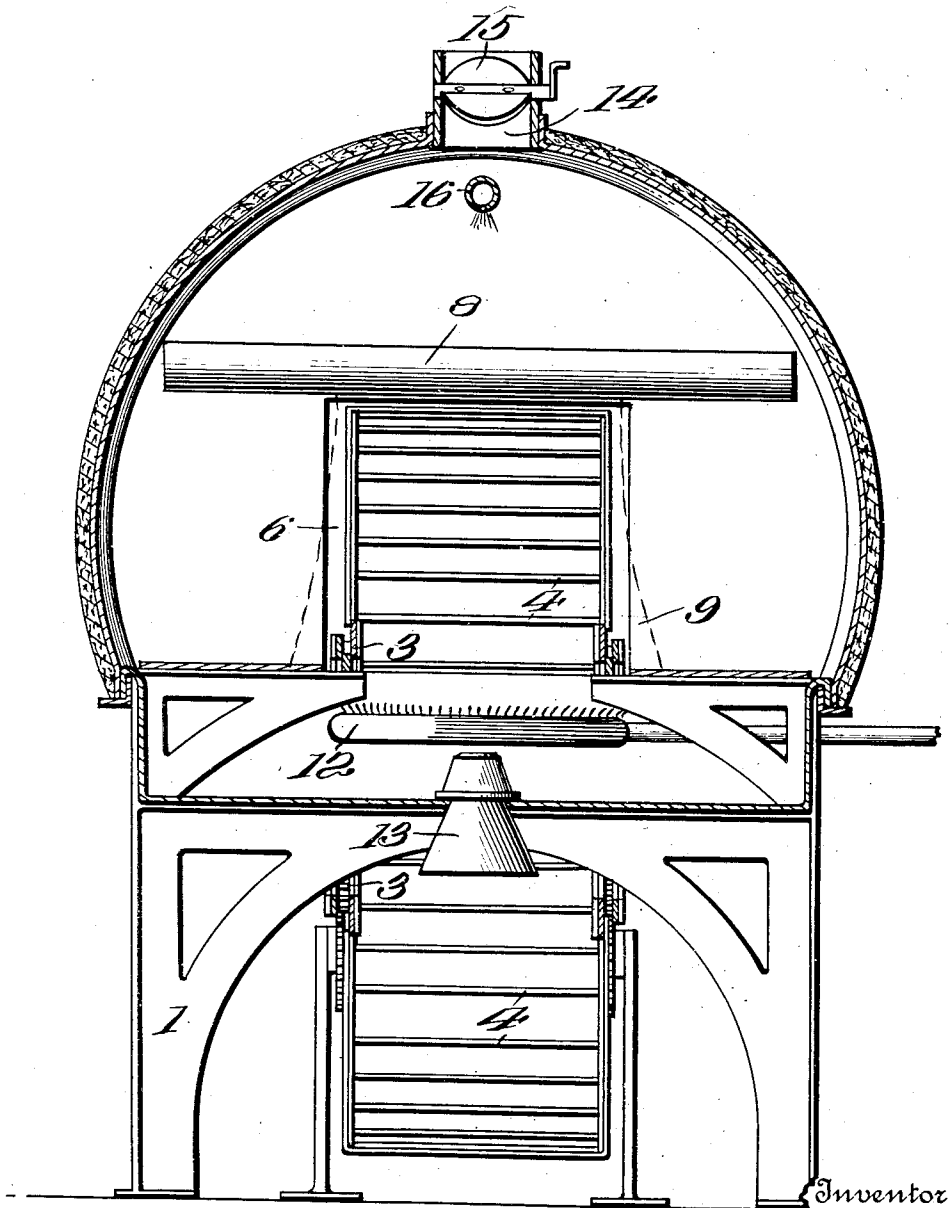


T. L. TALIAFERRO.
 APPARATUS FOR DRYING LITHOGRAPHED METAL SHEETS.
 APPLICATION FILED APR. 15, 1920.

1,399,415.

Patented Dec. 6, 1921.
 2 SHEETS—SHEET 2.

Fig. 2.



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APPARATUS FOR DRYING LITHOGRAPHED METAL SHEETS.

1,399,415.

Specification of Letters Patent.

Patented Dec. 6, 1921.

Application filed April 15, 1920. Serial No. 374,033.

To all whom it may concern:

Be it known that I, THOMAS L. TALIAFERRO, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Apparatus for Drying Lithographed Metal Sheets, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in an apparatus for drying lithographed sheets.

An object of the invention is to provide a drying oven wherein the temperature may be kept uniform or substantially so from end to end thereof so that the sheet as it enters the oven will at once be subjected to the intense or high heat of the oven.

A further object of the invention is to provide a means for closing the entrance and the exit of the oven which will readily permit sheets to pass therethrough continuously one after the other.

A still further object of the invention is to provide means for circulating the heated air within the oven for further aiding in securing a uniform temperature of heat throughout the entire region of the oven.

A still further object of the invention is to provide a drying oven wherein a continuously moving conveyer presents the sheets in vertical position to the drying temperature of the oven and maintains the sheets in vertical position for a considerable period of time after they leave the oven so as to bring about a thorough cooling of the same.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings:

Figure 1 shows more or less diagrammatically and in longitudinal section a drying oven embodying my improvements, and

Fig. 2 is a transverse sectional view of the same.

In my prior Patent No. 1,318,187, granted October 7, 1919, I have shown and described a drying or baking oven through which an endless conveyer passes, and which is adapted to hold metal sheets in vertical position and to continuously pass the sheets one after another through said oven. The present invention is directed to an oven of the above

type and consists particularly in providing means for closing the openings through which the sheets pass into and out of the oven, which means is so constructed as to prevent the heat from escaping from the oven, and at the same time, readily permits the sheet to pass through the opening. The invention further consists in providing means for circulating the air within the oven so as to bring about a uniform temperature, which particularly adapts the oven for a drying oven wherein the sheets are heated to a relatively high temperature or from two hundred and fifty to three hundred and fifty degrees.

Referring in detail to the drawings, my improved oven consists of a supporting structure 1 having a closed body portion or casing forming a drying chamber, preferably formed of corrugated metal covered by suitable insulating material as shown and described in my prior patent. The sheets are conveyed through the oven by means of an endless conveyer 3 having vertically extending arms 4-4, between which the sheets are placed. At the receiving end the sheets are fed by means of a conveyer 5 between these vertical arms 4-4, one sheet being placed between each pair of arms. The sheets are then carried in a vertical position by the conveyer and while held in vertical position, are carried through the oven. The entrance opening 6 of the oven is slightly larger than the sheet so as to permit the same to freely pass into the oven. The same is true of the exit opening 7. The entrance opening 6 is closed by means of a blanket of cold air. This is accomplished by providing a pipe 8 which is connected to a suitable source of air supply, under pressure, and a continuous blanket of air, indicated at 9 is formed, which is parallel with and substantially covers and closes the opening 6. At the exit end of the oven there is a similar pipe 10 which forms a blanket of air 11, likewise closing the exit end. This blanket of air effectively prevents the heat from escaping from the oven, and at the same time, permits the sheet to readily pass into the oven.

The oven is provided as shown in the drawings with suitable burners 12 whereby the oven may be heated. Suitable openings 13 adjacent each burner provide means for allowing air to enter the oven, and an open-

ing 14 controlled by a damper 15 permits some of the air to escape, thus the fumes from the sheets being dried may be carried off through a chimney or the like. In the upper part of the oven there is a pipe 16 extending from end to end thereof which is formed with openings, and this pipe is connected by suitable means to a source of air supply so that a small quantity of air may continuously issue from said openings and thus stir or cause a circulation of the heated air within the oven. This tends to bring about a uniform temperature throughout the entire extent of the oven.

My improved drying oven is particularly adapted for drying lithographed sheets of metal and in order to bring this about, it is desirable to heat the sheet just as quickly as possible to a high temperature, maintain it at this high temperature for a given length of time, and then cool the sheet quickly. By this process of drying, which is shown, described and claimed in my co-pending application, Serial No. 372,055, filed of even date therewith, I am able to very quickly dry lithographed sheets and without causing any discoloration of the pigments of the ink. The discoloration of the pigments of the ink is brought about through the extended heat at a relatively high temperature. By confining the heating to a short interval of time, such as four or five minutes, and the quick cooling of the sheet, this discoloration is prevented. By the use of the air blankets at the ends of the oven, the temperature of the oven is substantially uniform throughout the entire length and therefore the sheet will pass from atmospheric temperature to the temperature of the oven quickly, as the temperature outside of the air blanket and adjacent thereto is substantially atmospheric temperature, and the temperature inside the air blanket and adjacent thereto is substantially the maximum temperature of the oven. The same is true as the sheet passes from the oven, it will pass from this maximum tem-

perature very quickly to atmospheric temperature. The conveyer is of considerable length outside of the oven, and as the sheets pass along in vertical position, they will be quickly cooled.

It is obvious that changes in the form of construction of the oven may be widely varied without departing from the spirit of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent, is:—

1. A drying oven including in combination a casing forming a drying chamber, means for heating the chamber, said chamber having inlet and outlet openings, an endless conveyer passing through said openings and said chamber for carrying the sheet through the oven, and means for projecting a blanket of air across the inlet and exit openings.

2. A drying oven including in combination, a casing forming a drying chamber, means for heating the chamber, said chamber having inlet and outlet openings, an endless conveyer passing through said openings and said chamber for carrying the sheet through the oven, means for projecting a blanket of air across the inlet and exit openings, and means for causing a circulation of heated air within the oven.

3. A drying oven including in combination, a casing forming a drying chamber, means for heating the chamber, said chamber having inlet and outlet openings, an endless conveyer passing through said openings and said chamber for carrying the sheet through the oven, means for projecting a blanket of air across the inlet and exit openings, means for causing a circulation of heated air within the oven, and said endless conveyer having means for holding the sheets in vertical position.

In testimony whereof, I affix my signature.

THOMAS LUCIEN TALIAFERRO.