No. 720,669. PATENTED FEB. 17, 1903.

J. M. CHAPIN.

SHINGLE KILN.

APPLICATION FILED JULY 21, 1902.

NO MODEL.

Fig. I

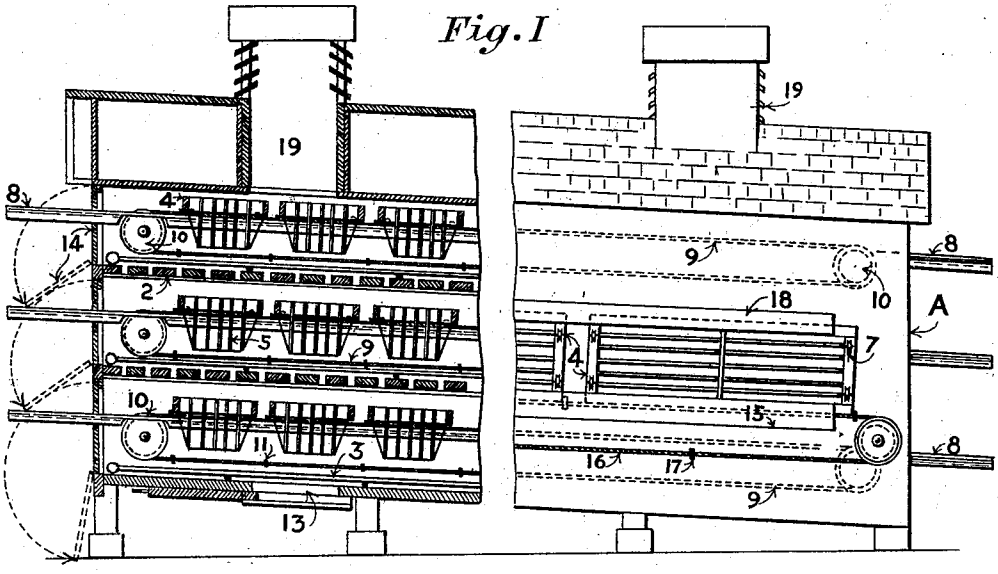


Fig. 2

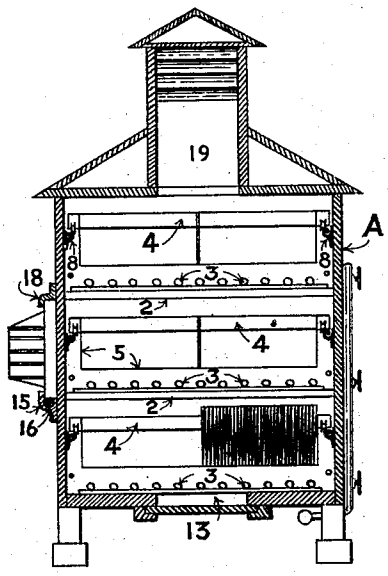


Fig. 3

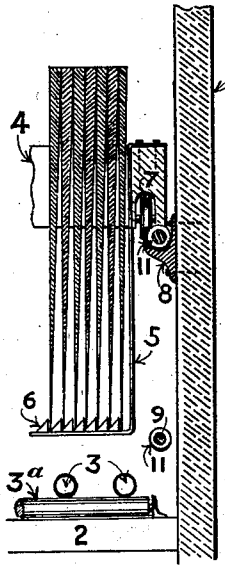


Fig. 4

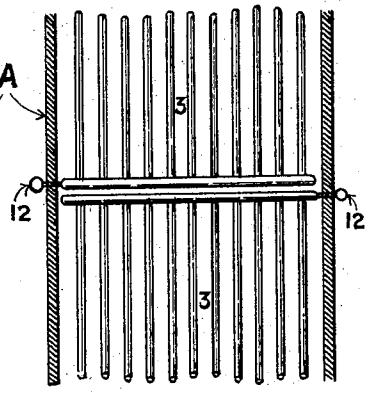
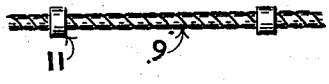


Fig. 5



Witnesses,
R. H. Rouse
F. F. I. Kelsey

Inventor,
James M. Chapin
By Dewey & Wright
Attys

UNITED STATES PATENT OFFICE.

JAMES M. CHAPIN, OF NEWARK, NEW JERSEY.

SHINGLE-KILN.

SPECIFICATION forming part of Letters Patent No. 720,669, dated February 17, 1903.

Application filed July 21, 1902. Serial No. 116,415. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. CHAPIN, a citizen of the United States, residing at Newark, county of Essex, State of New Jersey, have invented an Improvement in Shingle-Kilns; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in apparatus for drying shingles by artificial heat. Its object is to provide a kiln particularly designed for drying redwood shingles within a much shorter space of time than it has been possible to dry them satisfactorily heretofore.

It consists of the parts and the constructions and combinations of parts, which I will hereinafter describe and claim.

Figure 1 shows a longitudinal section of a part of kiln and a side elevation of a part. Fig. 2 shows a cross-section of kiln through ventilator. Fig. 3 is an enlarged view of portion of basket loaded with shingles and resting on track. Fig. 4 shows an arrangement of steam-pipes. Fig. 5 shows catch-rings on cables.

A represents a dry-house of any suitable size and preferably built upon a slight incline, as shown. The interior of the dry-house is divided lengthwise by horizontal skeleton partitions 2, upon which rest the heating-pipes 3. If desired, there may be interposed between the partitions or supports 2 and the pipes the rollers 3^a, upon which the pipes may travel during periods of expansion and contraction. Above these pipes are suspended the box-like shingle-carriers, each of which consists of the transversely-disposed wooden frame portion 4, having its ends connected by the downwardly-looped metal straps 5. Upon the horizontal portion of the loops are secured the wedge-like spacing-guides 6, between each of which a shingle is adapted to be supported upon its thin end. This allows the drying medium free circulation through the carrier and around each and every shingle. The ends of the frames carry trolley-wheels 7, which run upon the inclined guides or tracks 8, secured to the walls of the kiln. These tracks are formed with a trough or groove in which endless cables 9, passing over sprockets 10 at either end of the house, are adapted to travel. These cables have annular bands or projections 11 secured to them at suitable intervals, generally equivalent to the width of a trolley-carrier, by which the frame of the latter is engaged to propel it through the kiln. The carriers may be spaced more or less, according as it is desired to facilitate or retard the upward passage of the air and heat.

The hot-air or steam pipes 3 are formed, preferably, in sections, each having an independent connection with the main supply-pipe 12, whereby the heat to any particular portion of the kiln may be regulated as desired.

Cold air is admitted to the kiln at different points through slide-regulated apertures 13 in the floor. These regulators are for the purpose of securing proper circulation at different points and thereby assist evaporation to the fullest extent. This is very important, owing to the fact that redwood contains a large amount of water, especially the butt-logs, commonly termed "sinkers," which are so water-soaked that they will not float.

In kilns of large capacity the weight of the drying shingles is enormous and by inclining the tracks of the carriers the latter are assisted through the kiln by gravity, thereby requiring less power to run the cables. Also by inclining the floored bottom draining necessary on account of condensation is provided for.

The shingles are inserted in the carriers before the latter are placed on the tracks with the thin end of each shingle downward and resting in one of the guides 6. The carriers are then placed upon continuations of the tracks 8, which extend beyond the elevated front end of the kiln. They are then pushed in above a suitable flap or door 14, which latter normally closes the carrier-apertures in the ends of the kiln for the purpose of retaining the heat therein. The carriers engaging the rings 11 on the cables are slowly propelled through the length of the kiln, and the rate of travel is so timed that when the carriers issue from the opposite end of the kiln they will be completely dried. The carriers are removed from the cables, the shingles removed and sent thence to the bundlers, and the empty carriers are returned to the front of the kiln by means of a conveying apparatus on the exterior of the dry-house.

This apparatus consists of a shallow trough 15, in which runs an endless cable 16, with projections 17 similar to rings 11 on cables 9. Above and parallel to this cable and trough and a distance just the width of a carrier is an angle-iron guide 18. The empty carrier is laid with one side in the trough and the other side engaged by the flanged guide 18, while a projection 17 on the cable engages the end of the carrier to propel it through the trough with the upper edge of the frame resting against the side of the house.

Suitable ventilators 19 are provided in the roof with their vents disposed at right angles to the length of the kiln, so that the interior of the latter will be as little affected as possible by the wind blowing in from above.

With a kiln having its carriers, its heating-pipes, its means for admitting air, and its ventilating-passages constructed and arranged as herein described the shingles are quickly and thoroughly dried without warping, twisting, or burning the shingles, as the circulation of the drying medium to every section and to every shingle is under perfect control.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a shingle-drying kiln, the combination of a dry-house, inclined tracks therein at a point above the floor of the dry-house, shingle-supporting carriers adapted to run on said tracks and including a substantially horizontal open-center frame and downwardly-extending open-center portion, shingle-spacing means on the downwardly-extending portion, endless cables, and means upon said cables engaging said carriers to transport the latter through the dry-house.

2. In a shingle-drying kiln, the combination in a dry-house, elevated tracks supported therein, shingle-supporting carriers on said tracks and including a horizontally-disposed open-center trolley-frame and a depending open frame provided with shingle-spacing means, endless cables in conjunction with said tracks, and projections on said cables engaging the carriers to transport the latter through the dry-house.

3. In a shingle-drying kiln, the combination of a dry-house, rigid inclined elevated tracks extending through said house, endless cables, elevated troughs supporting said cables, horizontal trolley-carriers on said tracks, said carriers having depending loop portions provided with spacing means by which shingles are supported vertically on end and means upon said cables engaging said carriers to transport the latter through the dry-house.

4. In a shingle-drying apparatus, the combination of a dry-house divided into sections by horizontal foraminous partitions, heating-pipes upon the floor of each section, and trolley-carriers above said heating-pipes and including a horizontal wheeled portion and a depending loop portion provided with shingle-spacing means and adapted to support the shingles upon end.

5. In a shingle-drying apparatus, the combination with a dry-house having heating-pipes and ventilating-apertures arranged substantially as described, of horizontal open-center shingle-carriers supported on tracks on the interior of said house, said carriers having depending loop-shaped portions provided with spacing means by which shingles are supported in vertical position.

6. In a kiln of the character described, a carrier comprising a horizontal open-center upper portion, and a depending open-center loop portion said loop portion provided with wedge-shaped guides in the bottom between which a shingle is spaced and supported on end.

7. A shingle-drying apparatus consisting in combination, of a drying-house, inclined tracks therein, trolley-carriers disposed transversely of said house running upon said tracks, means upon said carriers by which shingles are supported in vertical position and separate from each other, endless cables by which said carriers are transported through the house, heating-pipes disposed in sections beneath said carriers, air-draft regulators below said heating means, and means by which the empty carriers are returned to the front of the kiln, said means including a trough, an endless cable therein and a flanged guide above and parallel with said trough.

In witness whereof I have hereunto set my hand.

JAMES M. CHAPIN.

Witnesses:
HERBERT H. GIBBS,
JOHN H. BARNES.