

(No Model.)

3 Sheets—Sheet 1

W. L. LEECHMAN.
HOP DRIER.

No. 418,730.

Patented Jan. 7, 1890.

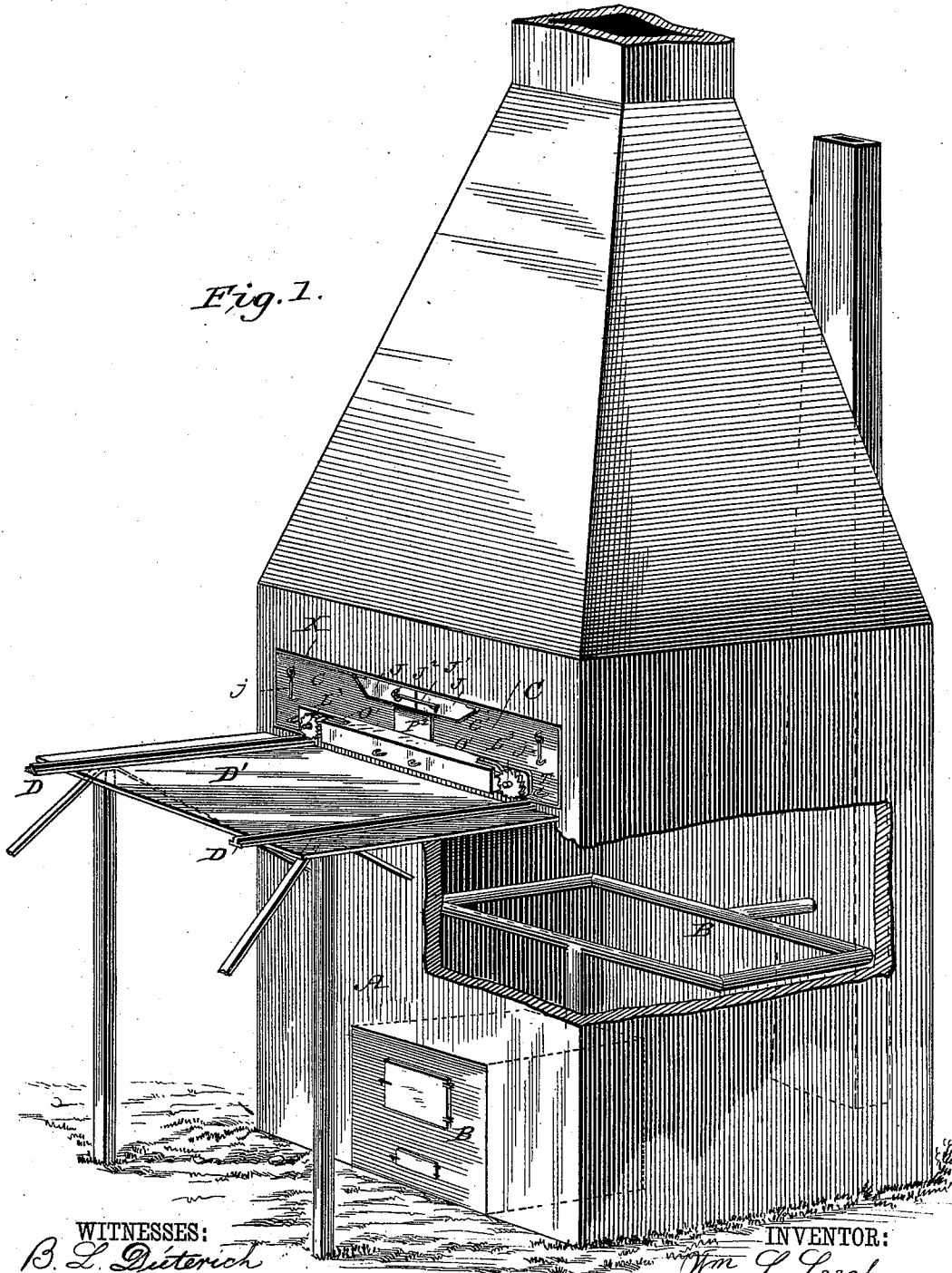


Fig. 1.

WITNESSES:

B. L. Dietrich
W. H. Robbins

INVENTOR:

Wm L Leechman
BY
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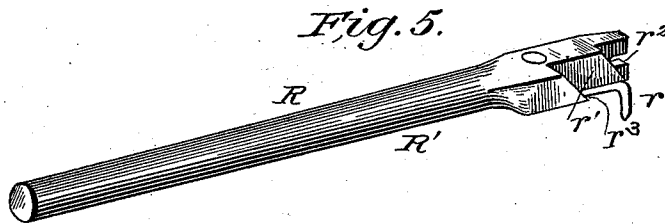
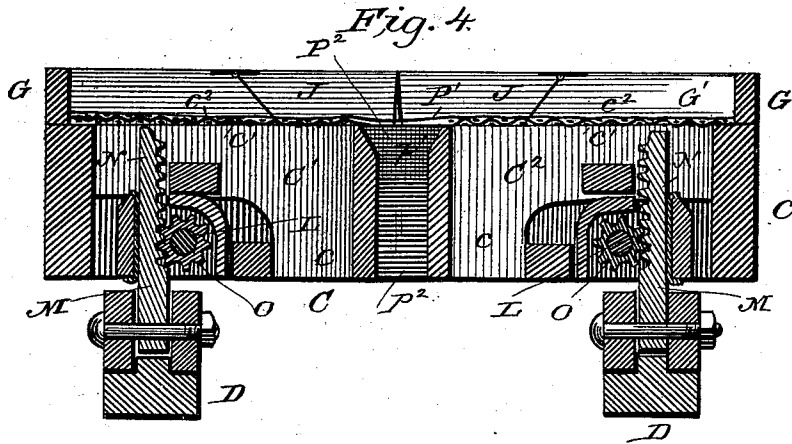
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UNITED STATES PATENT OFFICE.

WILLIAM LINDLEY LEECHMAN, OF SLAUGHTER, WASHINGTON.

HOP-DRIER.

SPECIFICATION forming part of Letters Patent No. 418,730, dated January 7, 1890.

Application filed November 10, 1888. Serial No. 290,418. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LINDLEY LEECHMAN, residing at Slaughter, in the county of King, Washington Territory, have invented certain new and useful Improvements in Hop-Driers, of which the following is a specification.

The present manner of drying hops consists, generally, in laying the green hops upon cloth supported by a platform consisting of narrow slats laid close together, said platform being fixed within the kiln above the heating devices. These kilns are generally square in plan and very high, and are now usually built at a distance from the storage-barns to avoid the danger of setting said storage-barns on fire and destroying the crop. In the present manner of drying the hops they are, after having been properly cured, removed by hand from the kiln to the store-room, requiring several trips by the attendant before the contents of one floor are conveyed to said store-room. This method of conveying the dried hops is very objectionable, because in handling hops by scooping them up and carrying them they are frequently badly broken, and by being thus broken great waste occurs, as the essential feature of the hops is sifted out to a considerable degree and falls direct to the earth, or evaporates to such an extent that the tiny globules are bursted. Another great objection to this manner of curing the hops is the great waste of time and labor necessary to accomplish the desired ends.

The object of my invention is to avoid all of the said objectionable features of drying hops, and at the same time produce a device which will be cheap in construction, effective in operation, and easy to manipulate.

To this end my invention consists, essentially, in a portable drying platform or chamber, which can be readily slid into place in the drying-kiln and quickly conveyed from said kiln with the cured hops, in a mechanical manner; and it further consists in the peculiar arrangement and combination of parts, as will be hereinafter fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view illustrating

the drier as in position for operation. Fig. 2 is a perspective view of the drying-floor detached. Fig. 3 is a vertical section on the line 3 3, Fig. 2, but showing the drying-floor in position in the kiln. Fig. 4 is a similar section on line 4 4, Fig. 2; and Fig. 5 is a detail view of one of the levers.

Referring by letters to the drawings, A indicates the drying-kiln, B the heating devices within said kiln, and C the portable drying-box or hop-floor.

D denotes a permanent track, which is connected with the kiln above the heating-chamber and extends across the same, as at *d d*. This track D is intended to be connected with the store-house in any suitable manner, and may be so arranged with suitable inclines as to run the portable hop-floor C by gravity to and from the store-house. A suitable platform D' is arranged on the track-frame adjacent to the kiln, which forms a support for an attendant when said hop-floor is moved into or withdrawn from the kiln.

F F are rails secured to the sides of the kiln and serving to support the weight of the hop-floor C when the same is pushed into the kiln.

The hop-floor C, which is shown in detail in Figs. 2, 3, and 4, consists of a box-like frame formed of two sections C' C², each section consisting of a rectangular frame consisting of the slat floor *c*, which is formed of narrow slats arranged on edge and usually about four inches apart. The top of the slat floor *c* is covered by a coarse wire-mesh *c'* and a cloth cover *c²*, which is placed above the wire-mesh *c'*. The two sections are connected together by the connecting-pieces P P.

P' denotes a cloth which covers the intervening space *p'* between the sections, and P² are metal plates which close the side spaces *p²*, as shown.

G G' denotes a rim or ledge disposed upon the upper edges of the sections C' C², which rim or ledge forms the sides and ends of the hop-floor. Hinged sections J J are formed in the sides G' of the kerf, which are turned back laterally when it is desired to empty the hops, and held in such position by the hooks *j* and staples *j'*.

J' J² represent a hook and staple for holding the sections in their closed positions.

L L represent longitudinal shafts journaled

one in each of the outer edges of the sections C' C², and have their outer ends l project through the side pieces and extend into the connecting-pieces P, which pieces form bearings for the said shafts L. Arranged near each end of the shafts L, inside the side bars of the sections, are short vertical standards M, which have each journaled at their lower ends a pair of rollers which fit the flanged track D, and serve to readily carry the hop-floor along on said track. The upper ends of the standards M are formed with rack portions N N, which engage with pinion-wheels O O upon the shafts L.

One end L' of each of the shafts L is provided with a ratchet-wheel L², which is engaged by a spring-pawl O', pivoted in one of the connecting-pieces P. The ends L' of the shafts L are provided with short studs L³, which form a fulcrum for the operating-lever R, the construction of which is shown in detail in Fig. 5, and consists in a stout bar R', provided at its outer end with a hook r, which is adapted to engage with a staple T upon the front edge of each of the sections when it is desired to withdraw the portable hop-floor from the kiln. It is also provided with cut-away portion r', the outer face of which is provided with a slot r². When it is desired to operate upon the ratchet-wheel L², the slotted end of the lever is slid over one of the studs L³, and the reduced portion r' fitted over said wheel, the inner edge r³ of said portion engaging with the ratchet-teeth and acting as a pawl to turn said wheel, as will be clearly understood from the drawings.

The operation of my improvement is as follows: The two sections being arranged in the same horizontal plane, the hinged sections of the rim or ledge being closed, the green hops are placed upon the cloth-covered bottom. The portable floor is then slid along the track through an opening X in one side of the kiln, which opening corresponds to the size of the height of the floor and casing. The portable floor then remains in the kiln until the hops are properly cured. The attendant then inserts the hooks r' of the levers into the staples T and withdraws the floor, with the hops, and sends it along the track to the store-room. The levers are then applied to the ratchet-wheels, which causes the shafts L to turn and raise the ends of the two sections by means of the pinion-wheel and rack-bar N, and thereby causes the hops to fall toward the center of the floor. The hinged sections are then opened and the cured hops are dumped out or gently brushed through the openings in the rim or ledge.

From the foregoing description, taken in connection with the drawings, the advantages of my invention will be readily understood.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a portable floor, the combination of the sections C' C², connected by the pieces P and supporting a screen or sieve, horizontal shafts running through each of said sections and carrying pinion-wheels mounted thereon within the sections, and vertical rack-bars engaging with the said pinion-wheels and supporting the floor and whereby the sides of the sections are raised or lowered, substantially as and for the purpose set forth.

2. In a portable floor, the combination of the adjacent sections C' C², consisting of the cross-slats c c, wire-mesh c', and cloth cover c², placed above the wire-mesh, the connecting-piece P, the cloth cover P', and the metal plates P², the parallel horizontal shafts L L, passing through the sections, each shaft carrying a pinion-wheel O, and the vertical standards M, carrying rollers at their lower ends and rack-bars N at their upper ends, adapted to engage the pinion-wheels, as and for the purpose set forth.

3. In a hop-drier, the portable floor C, consisting of two sections C' C², each section formed of a rectangular frame having an open slat bottom, a screen covering the top of said bottom, and a rim G, disposed upon the upper edges of said sections C' C², said rims provided with hinged portions J J, substantially as and for the purpose specified.

4. The combination, with the kiln A and the track D connected therewith, of the portable hop-floor, said floor consisting of the sections C' C², said sections being arranged adjacent to each other, the tops of said sections provided with a screen covering forming the bottom of a trough or receptacle, a rim G, disposed on the upper edges of the sections, said rim forming the sides and ends of the trough, said rim provided with hinged sections J J, each section provided with a longitudinal shaft L, mounted in one end thereof, each provided with a pinion-wheel O, the outer ends of said shafts journaled in connecting-pieces P, one end of each of said shafts provided with ratchet-wheels for turning said shafts, and the standards M, having guide-rollers journaled in the lower ends thereof, the upper ends of said standards guided in the frames of the sections and provided with a rack portion N, engaging the pinion-wheels O, whereby the sides of the sections may be elevated, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WM. LINDLEY LEECHMAN.

Witnesses:

JOHN MARTIN,

EDWIN L. PILLMAN.