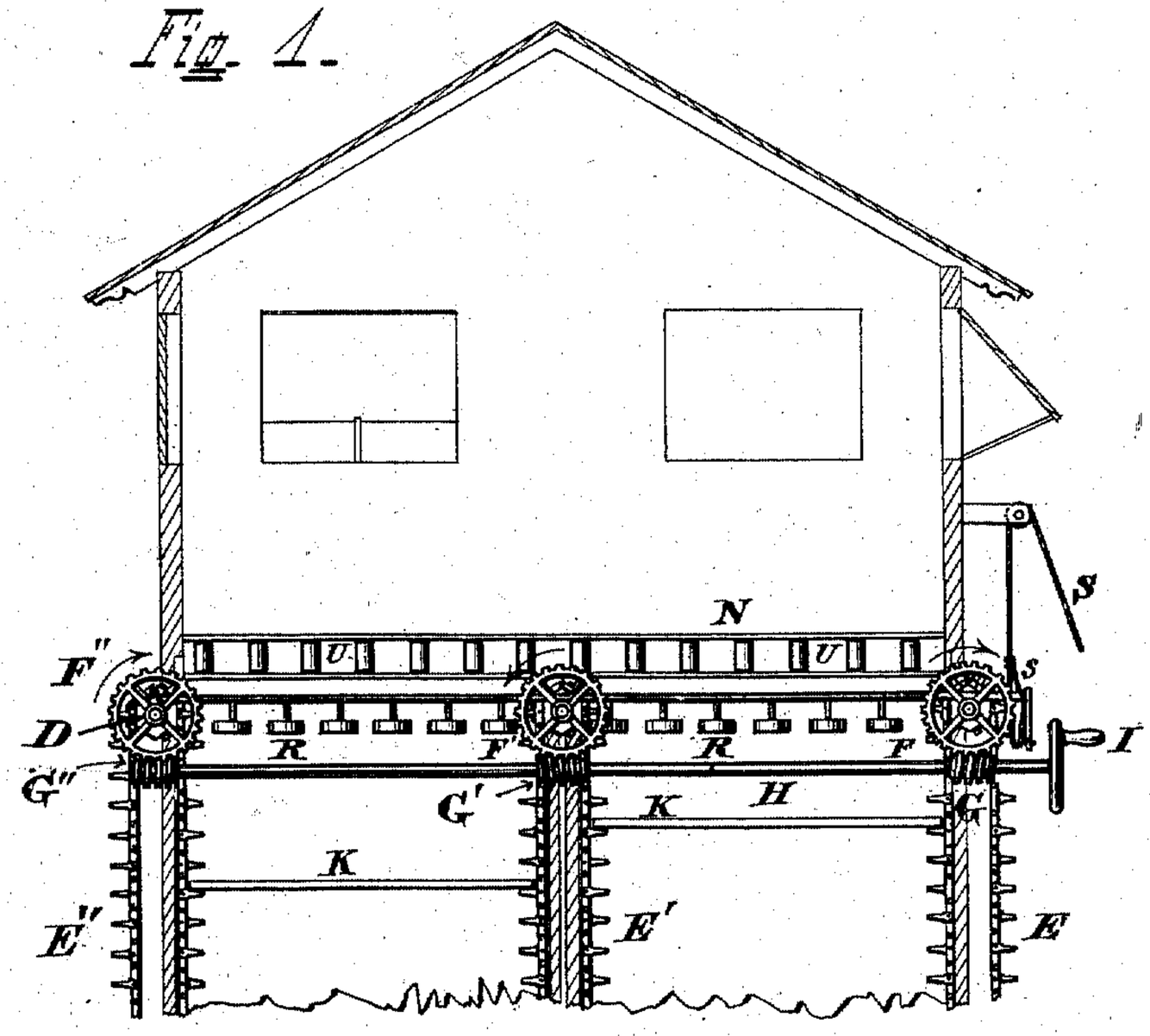
(No Model.) 2 Sheets—Sheet 1.

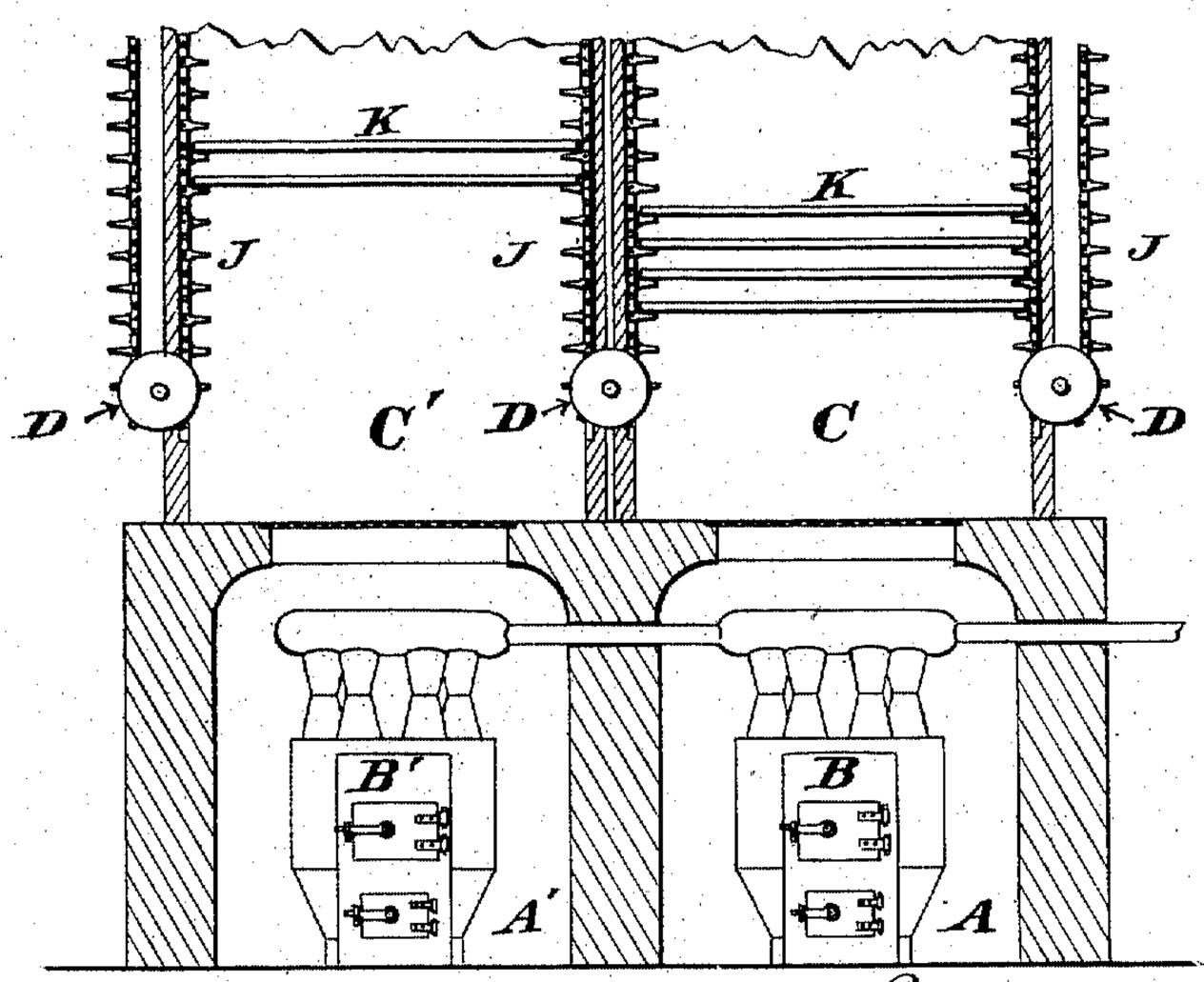
W. H. LOUGHEAD & J. B. FLEMING.

FRUIT DRIER.

No. 286,936. Patented Oct. 16, 1883.

Fig. 1.





Attest
Carl Spengel
Geo. L. Wheelock.

Inventors:
William H. Loughead
Joseph B. Fleming
by Knight Bros. Attys

(No Model.) 2 Sheets—Sheet 2.

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FRUIT DRIER.

No. 286,936. Patented Oct. 16, 1883.

Fig. 2.

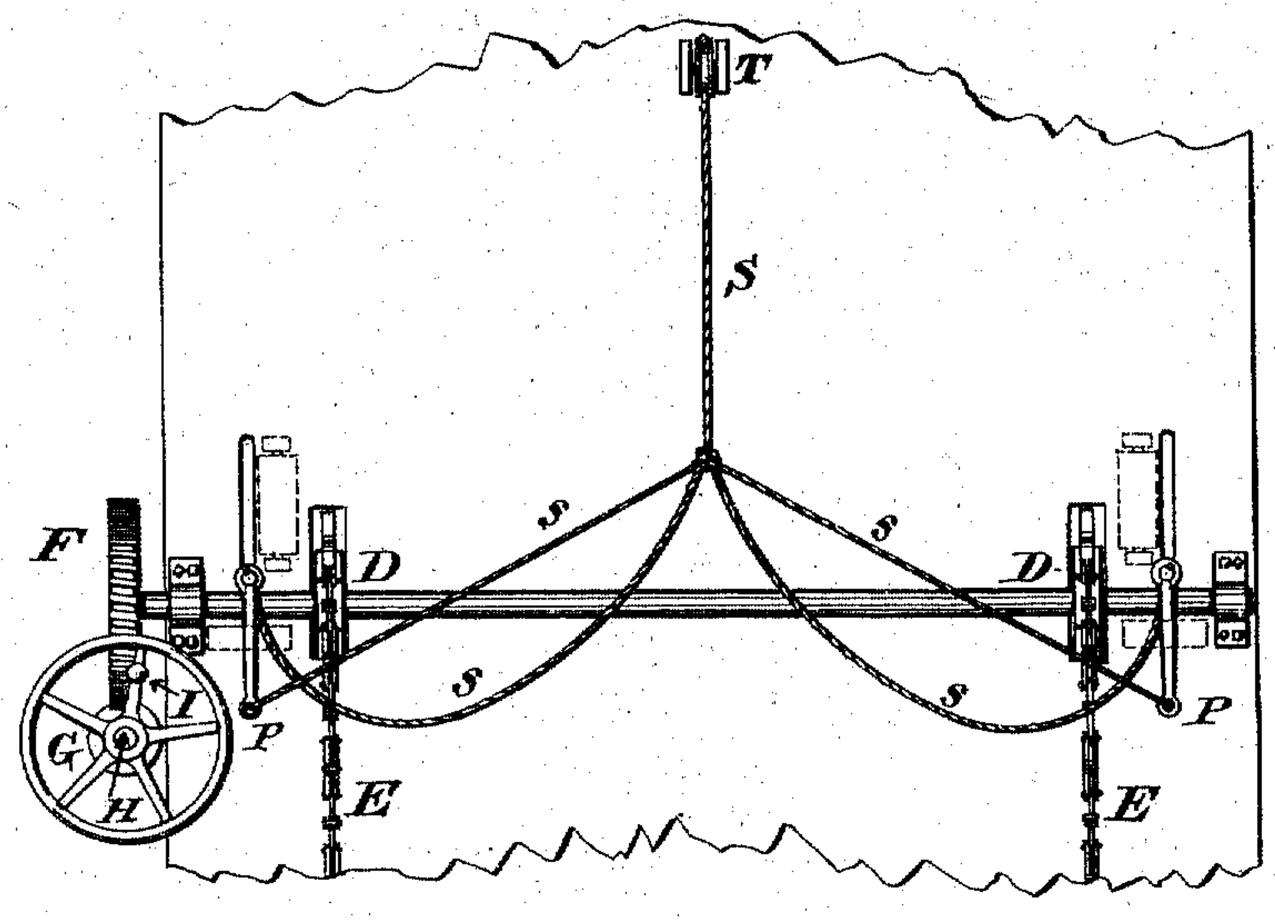


Fig. 3.

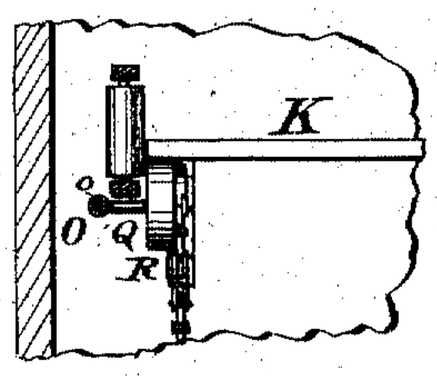


Fig. 4.

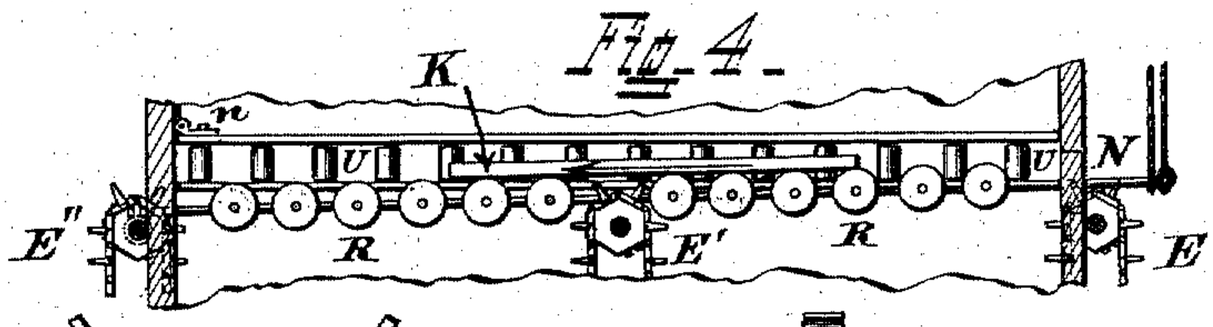


Fig. 5.

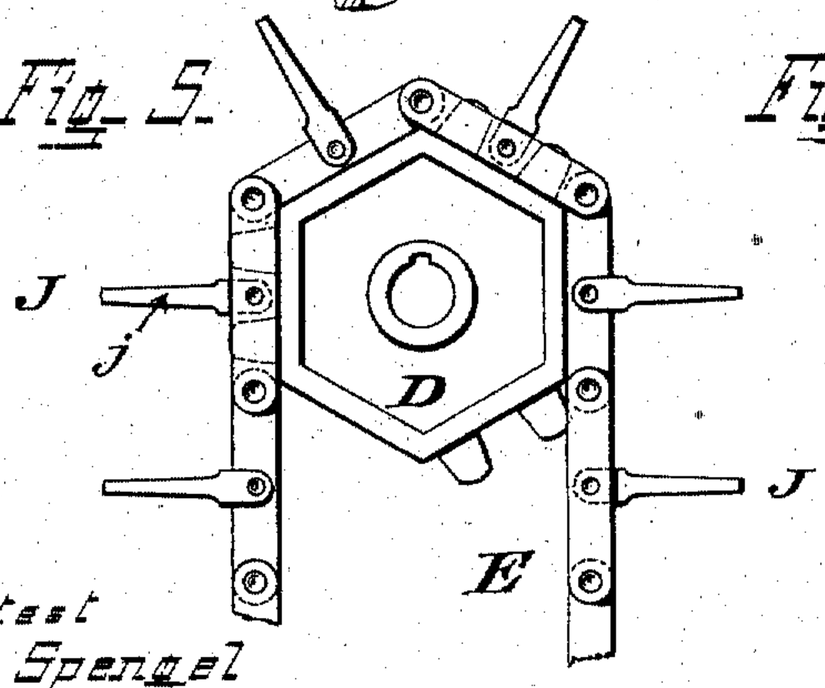
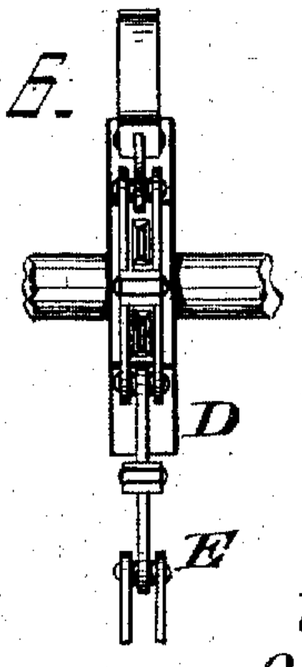


Fig. 6.



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Inventors:
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Joseph B. Fleming
By Knight Bros Attys.

UNITED STATES PATENT OFFICE.

WILLIAM H. LOUGHEAD AND JOSEPH B. FLEMING, OF XENIA, OHIO.

FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 286,936, dated October 16, 1883.

Application filed August 8, 1883. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. LOUGHEAD and JOSEPH B. FLEMING, both of Xenia, Greene county, Ohio, have invented new and useful Improvements in Fruit-Driers, of which the following is a specification.

Our invention relates to improvements in those apparatus for drying fruits and other edibles in which the objects to be dried are spread upon grated or perforated trays or pallets, which are carried slowly up one heated chamber and down another one, from which latter the trays, with their dried contents, are then removed; and our improvements are particularly directed to the means for such movement of the trays within the said chambers and their transfer from one to the other.

In the accompanying drawings, Figure 1 is a vertical section of a drying apparatus embodying our improvements, only the lower and upper portions of the apparatus being shown. Fig. 2 is an elevation at right angles to Fig. 1, showing portions of the tray-shifting mechanism in its inactive condition. Fig. 3 shows a portion of the same mechanism in position preparatory to lifting of the shifting-frame. Fig. 4 shows the tray-shifting mechanism in operation. Figs. 5 and 6 show, by end and side elevations, a sprocket-wheel and portion of carrying-chain.

A A′ represent two basements, of which each contains a stove or furnace, B B′, which furnaces may be of identical or of diverse forms and dimensions. The respective basements A A′ are surmounted by as many tall chambers or ovens C C′, having sheaves or sprockets D, around which are stretched three pairs of endless chains or carriers E E′ E″. The three shafts of the three upper pairs of sprockets carry worm-wheels F F′ F″, into which mesh the worms G G′ G″ upon shaft H, which shaft is slowly rotated either by means of a hand-crank, I, or by geared or other suitable connection with any driving-power. The intermediate worm, G′, is of reverse spirality to the other two, in order that when the entire apparatus is set in motion the carriers may be so revolved as for their parts which are next to the chambers to travel constantly upward in chamber C and downward in chamber C′, as indicated by the arrows in Fig. 1. Each carrier-chain has rigidly attached to it, at suitable equidistant intervals, T-formed pieces J, whose fingers *j*, extending rectangularly from the chain, constitute the represented rigid horizontal projections into the chambers. The said pieces J are so located upon the chains that in every possible condition of the apparatus there are a series of groups of four fingers, each at equidistant consecutive levels, of which each group serves to uphold a tray or pallet, K.

To enable ready shift of each tray (as it reaches the uppermost position in chamber C′) onto the top of the descending pair of carriers in chamber C′ we provide the following transferring or shifting mechanism: N is a frame, whose rear end is secured by hinge *n* to the remote wall of chamber C′, and whose front end is free to be lifted by the operator from the horizontal position (see Fig. 1) which it assumes when left to itself. Secured by hinge *o* to each side of said frame is a swinging frame, O, that (at the free extremity of frame N) terminates in an arm, P. Each swinging frame O is armed with a series of studs, Q, that carry rollers R. There are also journaled in the frame N two series of vertical rollers, U.

The above-described parts are so placed and proportioned that when the swinging frames O are brought to horizontality (in manner to be presently explained) their rollers R press upward against the under sides of the tray in chamber C, which is at that time the uppermost one. The above-described transferring mechanism is placed under control of the operator by means of a cord or chain, S, which, being conducted over a sheave, T, has four branches, *s*, of which two (that are somewhat shorter than the others) are attached to the ends of the arms P, and of which the other two are attached to the free end of hinged frame N. A tray having reached its uppermost position in chamber C is readily transferred to the carrier in the adjoining chamber, C′, by simply pulling the cord S, an act which brings the parts to the position shown in Fig. 4. The tray, being lifted by the rollers R off of its supporting-fingers of the ascending carrier, runs by its own gravity onto the carrier in the adjoining chamber, it being guided and eased in such passage by the two series of vertical rollers U. Having thus reached the chamber C′, the tray follows its predecessors

in said chamber downward to the place of discharge. This operation is repeated for each tray as it reaches the terminus of its ascending trip, the motion being easily and promptly effected without arresting the necessarily slow progress of the carriers or spillage of the contents of the shifted tray.

We claim herein as new and of our invention—

1. In a fruit-drying apparatus, the described combination, with two contiguous vertical chambers or ovens, C C′, of the three pairs of endless carriers E E′ E″, having the rigid rectangularly-projecting fingers *j*, and whose connection with the worms G G′ G″ is such that the fingers in one chamber are constantly ascending, while those in the other chamber are descending, in the manner and for the purposes set forth.

2. In a fruit or vegetable drying apparatus, the combination, with the three neighboring carriers E E′ E″, operated in the manner described, of the tray shifting or transferring mechanism, consisting of hinged frame N, having the vertical rollers U, and having the attached swinging frames O, whose studs Q carry rollers R, and to whose arms P is attached the operating cord or chain Ss, substantially as set forth.

In testimony of which invention we hereunto set our hands.

WILLIAM H. LOUGHEAD.
JOSEPH B. FLEMING.

Attest:
LUTHER HANES,
E. G. TAYLOR.

Correction in Letters Patent No. 286,936.

It is hereby certified that in Letters Patent No. 286,936, granted October 16, 1883, upon the application of William H. Laughead and Joseph B. Fleming, of Xenia, Ohio, for an improvement in "Fruit Driers," the name of one of the patentees was erroneously written and printed "William H. Loughead;" that it appears from an affidavit filed in the Patent Office that the correct name is *William H. Laughead;* and that this correction should be read in the said Letters Patent to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 6th day of November, A. D. 1883.

[SEAL.]

M. L. JOSLYN,
Acting Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.