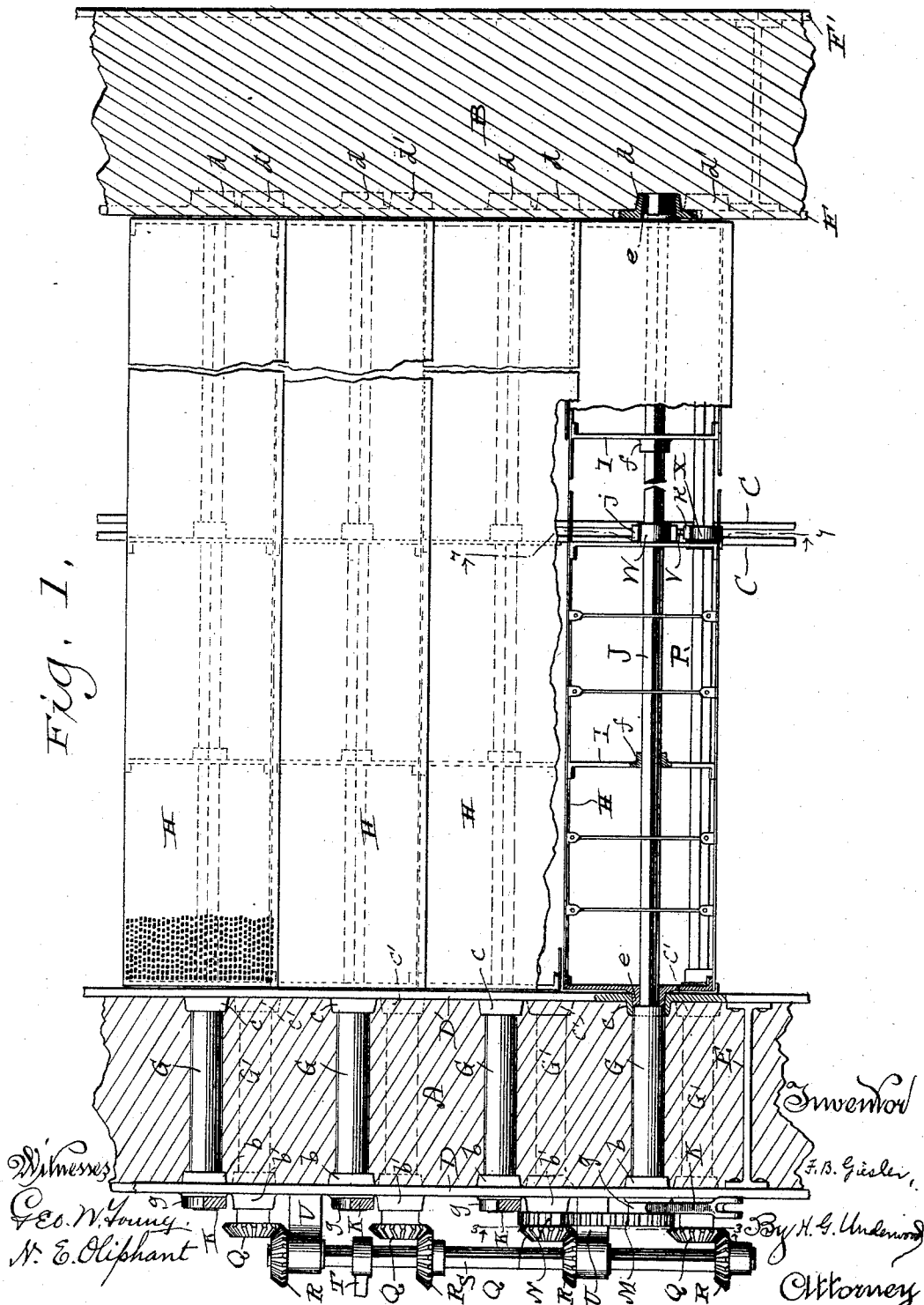


F. B. GIESLER.
MALT KILN FLOOR.

No. 483,781.

Patented Oct. 4, 1892.

Fig. 1.



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Fig. 2.

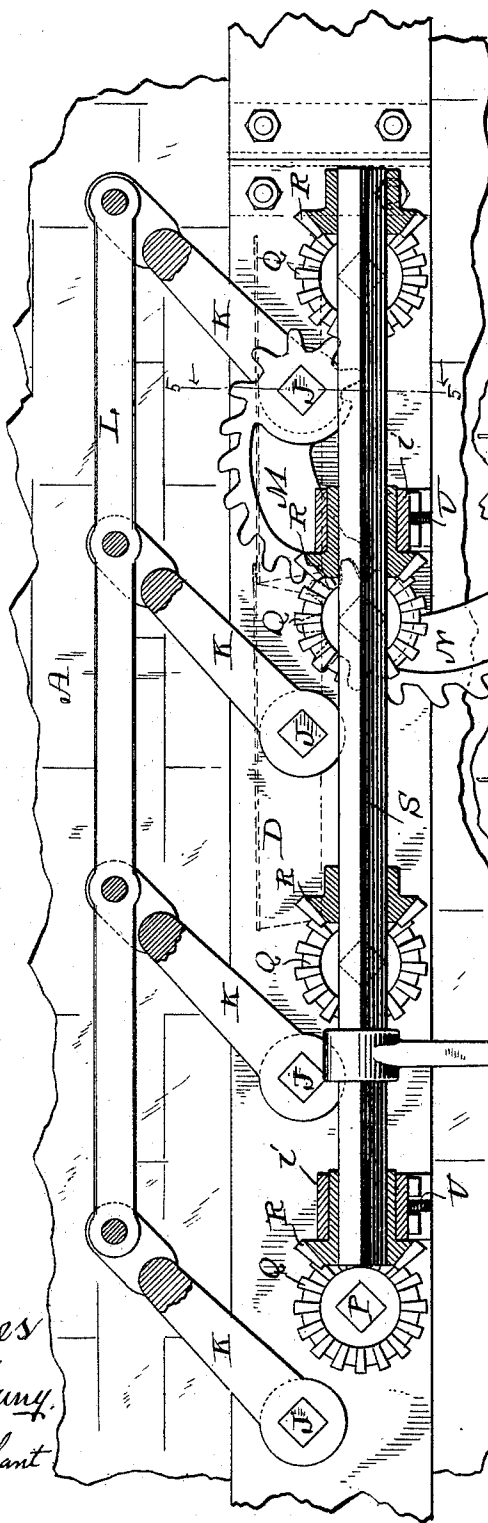


Fig. 3.

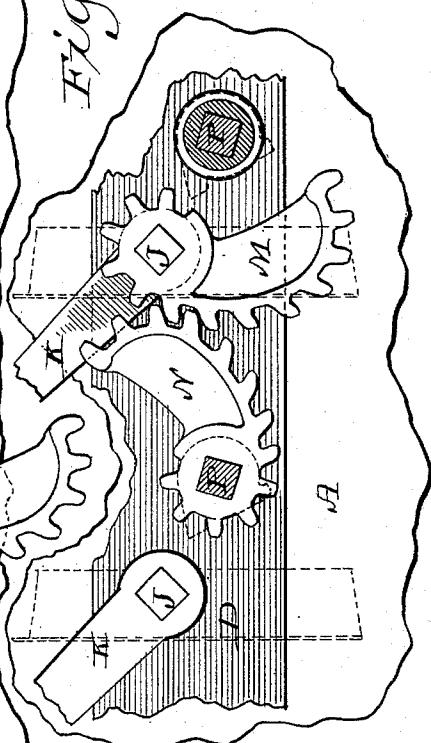
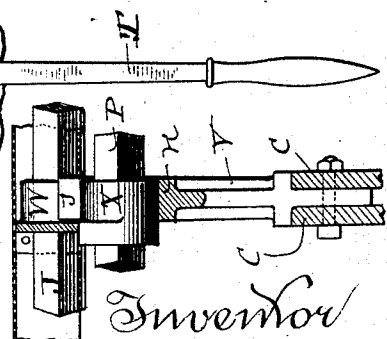


Fig. 8.



Witnesses
Geo. W. Young
N. E. Oliphant

Inventor
F. B. Giesler
By H. G. Underwood
Attorney

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Fig. 4.

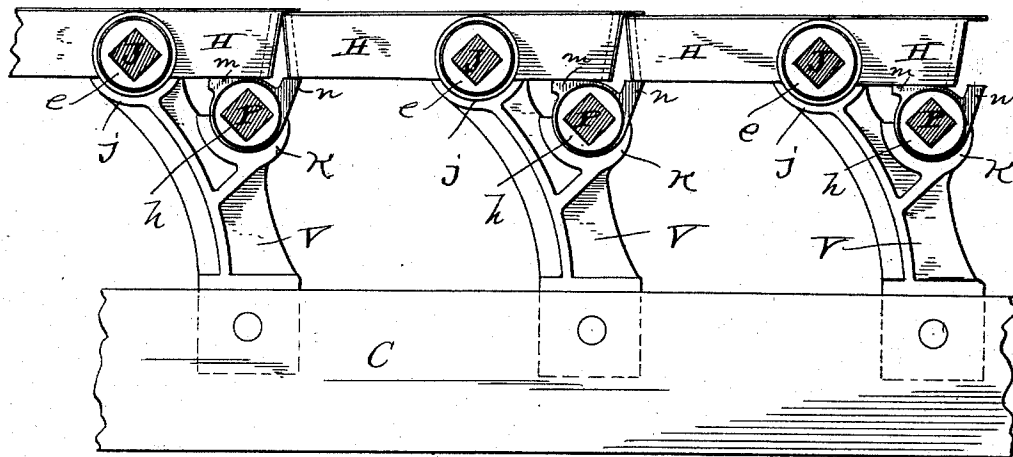


Fig. 5.

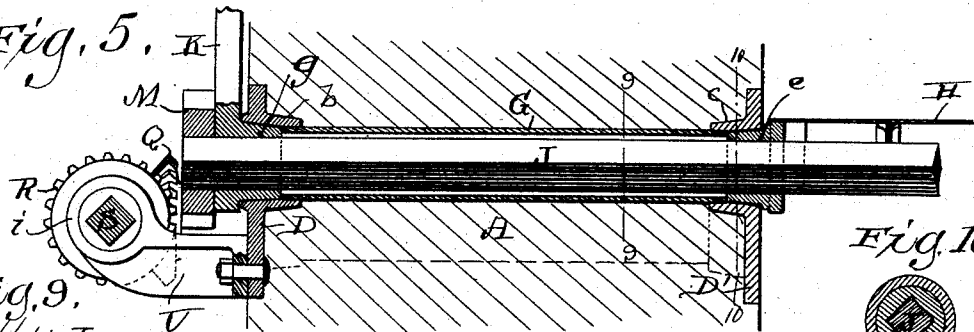


Fig. 9.

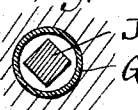


Fig. 6.

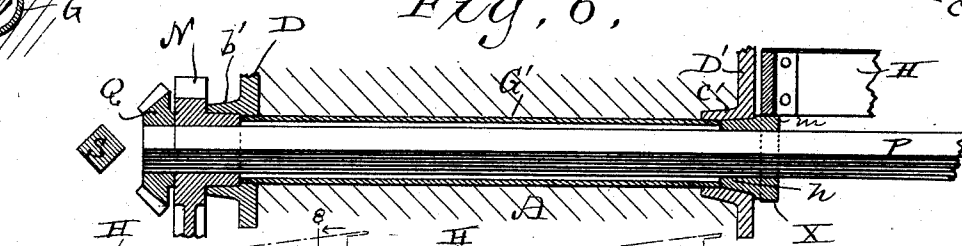


Fig. 10.

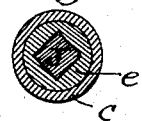
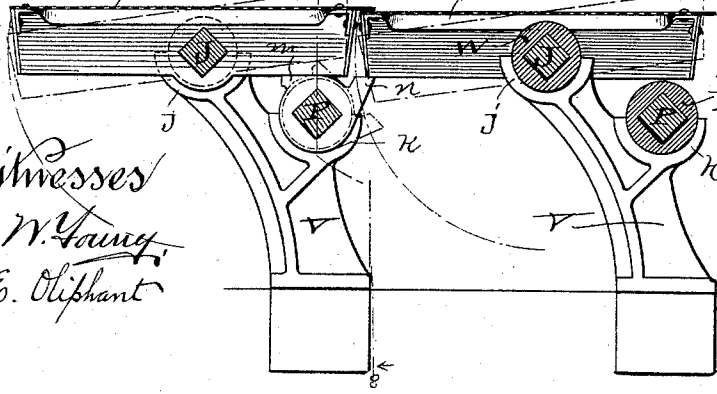


Fig. 7.



Witnesses
Geo. W. Young,
N. E. Oliphant

Inventor
F. B. Giesler.

By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

FRANKLIN B. GIESLER, OF MILWAUKEE, WISCONSIN.

MALT-KILN FLOOR.

SPECIFICATION forming part of Letters Patent No. 483,781, dated October 4, 1892.

Application filed June 29, 1891. Serial No. 397,864. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN B. GIESLER, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Malt-Kilns; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 My invention has for its object to provide a malt-kiln dumping-floor in which a series of trays comprising the same are better supported in their normal position and more easily dumped than those in common use.

15 My invention therefore consists in certain peculiarities of construction and combination of parts to be hereinafter described, with reference to the accompanying drawings, and subsequently claimed.

20 In the drawings, Figure 1 represents a plan view, partly in horizontal section, of a portion of a malt-kiln provided with dumping-floors constructed according to my invention, certain of the parts being broken away for the purpose of better illustration; Fig. 2, an elevation, partly in section, of what is shown in the preceding figure; Fig. 3, a like view, partly in section, on line 3 3 of Fig. 1, the tray-actuating mechanism being shown in the position necessary to a dump; Fig. 4, an end elevation illustrating the trays in their normal position, the tilting-rods of these trays being in transverse section; Figs. 5 and 6, sections respectively taken on lines 5 5 and 6 6 of Fig. 2; Fig. 7, a section on line 7 7 of Fig. 1; Fig. 8, a like view on line 8 8 of the preceding figure, and Figs. 9 and 10 similar views respectively taken on lines 9 9 and 10 10 of Fig. 5.

Referring by letter to the drawings, A B represent opposing walls of a malt-kiln, and C C girders arranged in pairs parallel to said walls at such intervals as may be found desirable.

45 Set in the sides of the wall A at the proper elevation are plates D D', connected by tie-bars E, and plates F F', likewise connected, are set in the wall B, the construction being illustrated by full and dotted lines in Fig. 1. The plate D in the wall A is provided with

bearings *b b'*, and the plate D' in the same wall is provided with bearings *c c'*, these latter bearings being directly opposite to the former. Set in the wall A to engage the bearings *b c* on the plates D D' are tubes G, and the bearings *b' c'* on said plates are engaged by tubes G', also set in said wall. The plate F in the wall B is provided with bearings *d d'*, respectively opposed to the bearings *c c'* on the plate D' in the opposing wall. The bearings *c d* on the opposing plates D' F are engaged by trunnions *e* on opposite ends of malt-trays H, the latter being plates of foraminous material supported on suitable frames and arranged in series to overlap one another when in a horizontal position, and thus form a floor.

The trunnions *e* of the trays H and bosses *f* on braces I at intervals of the tray-frames are provided with polygonal openings to engage rods J, having a contour that corresponds to said openings, and these rods extend through the tubes G in the wall A to rigidly engage hubs *g* on arms K, that are pivoted to a link L, said hubs being loose in the bearings *b* on the plate D, and one of the rods in the series is also rigid in a toothed cam M, as best illustrated in Figs. 2, 3, and 5.

Particular attention is called to the fact that the rods J, with the trunnions *e*, constitute the axes of the trays and that these axes are off the center of said trays, whereby the latter are given a preponderance of weight on one side to facilitate the dumping operation, to be hereinafter described.

The toothed cam M meshes with a similar cam N, fast on one of a series of other rods P, that are polygonal in cross-section and passed through the tubes G' in the wall A, and these latter rods are provided with journals *h*, that loosely engage the bearings *c' d'* on the plates D' F in the kiln-walls.

The tubes G G' protect the rods J P from any possible contact with the material composing the wall in which said tubes are located, and the inner ends of these tubes being closed by the tray-trunnions *e* and rod-journals *h* escape of heat from the interior of the kiln is prevented.

The hub of the toothed cam N is loose in one of the bearings *b'* on the plate D in the kiln-wall A, and fast on the rod that carries said cam, as well as on each of the other like rods in the series, is a bevel gear-wheel Q, the hubs of the gear-wheels on the latter rods being loose in the adjacent bearings *b'* on said plate.

Each of the gear-wheels Q is in mesh with a like wheel R, fitted on a squared rod S, the latter being also fast in one end of a lever T, and the hubs of all these latter gear-wheels are loose in bearings *i*, that form parts of brackets U, extending out from the plate D in the wall A of the kiln.

Bolted or otherwise rigidly secured to the girders C are standards V, each of which is provided with bearings *j k* for engagement with collars W X, fast on the rods J P, whereby the trays H are supported at suitable intervals of their length. Each of the collars X is provided with a cam-shoulder *m*, designed to normally impinge against a cross-brace of one tray-frame, and a finger *n* on said collar normally impinges against a like brace of the next adjacent tray-frame. I also prefer to make one or both journals *h* on the rods P in one piece with similar collars, one of the trunnions thus made being clearly shown in Fig. 6, and attention is called to the fact that the overbalanced portion of each tray is normally supported by the fingers *n* on said collars, as best illustrated in Figs. 4 and 7.

In Figs. 1, 2, 4, and 7 the trays and dumping mechanism are illustrated in the normal position. Now if the lever T be actuated in the proper direction the rods P will be partially rotated by the action of the gear-wheels R Q, while at the same time the toothed cam N will be turned against the one M to thus partially rotate the rod J, to which the latter cam is secured, and by means of the link-connected arms K this partial rotation is imparted to all the rods J to dump said trays. As the rods P are partially rotated the fingers *n* on the collars X are swung down away from the tray-frames opposed thereto, while, on the other hand, the cam-shoulders *m* on said collars are caused to lift the adjacent tray-frames, and thus aid the dumping of all the trays in a series, the position of said toothed cams and the collars X at the completion of the dumping operation being illustrated by full and dotted lines in Fig. 3, while in Fig. 7 dotted lines are drawn to illustrate the swing of the trays, as well as the position of the same and said collars prior to the time the lifting cam-shoulders *m* have passed out of contact with the opposing tray-frames. By having the trays pivoted off center and employing the collars above described the strain on the axial rods J is materially lessened, and consequently these rods are not liable to twist when leverage is applied thereto, as is often the case

with like rods in malt-trays of the ordinary construction. The dumping operation having been completed, the movement of the lever T is reversed to return the several parts to their normal position.

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

1. A malt-kiln floor comprising a series of pivotal trays, a lever-and-gear mechanism for turning the trays on their pivots, a series of lifting devices arranged under the tray-frames independent of the latter, and a gear connection between the lifting devices and the tray-turning mechanism, substantially as set forth.

2. A malt-kiln floor comprising a series of pivotal trays, lifting devices arranged under the tray-frames independent of the latter, supporting-fingers also arranged under the tray-frames independent thereof, and a tray-turning mechanism in gear with said lifting devices and supporting-fingers, substantially as set forth.

3. A malt-kiln floor comprising a series of trays fast on pivotal rods arranged off center of the trays, lever-arms on all the rods, a link connecting the lever-arms together, a lever-controlled turning-rod, a toothed cam geared to the lever-controlled rod, and another toothed cam in mesh with the first and rigid on one of the tray-rods, substantially as set forth.

4. A malt-kiln floor comprising a series of trays fast on pivotal rods arranged off center of the trays, lever-arms on all the rods, a link connecting the lever-arms together, other pivotal rods provided with collars having cam-shoulders normally opposed to the lighter sides of said trays and fingers that normally support the heavier sides of the same, a lever-controlled turning-rod geared to all the latter rods, a toothed cam fast on one of said latter rods, and another toothed cam in mesh with the first and rigid on one of the tray-rods, substantially as set forth.

5. A malt-kiln having its walls provided with bearings, standards arranged at intervals between the walls and also provided with bearings, a series of trays fast on eccentrically-arranged axial rods journaled in certain of the bearings, other rods journaled in the remainder of the bearings and carrying lifting-cams and supporting-fingers for the trays, and a lever-and-gear mechanism for actuating both series of rods, substantially as set forth.

6. A malt-kiln having opposing walls thereof provided with plates connected by tie-bars, bearings on both plates of one wall, connected by tubes, and bearings on the inner plate only of the opposing wall, standards arranged at suitable intervals between the walls and provided with bearings, a series of trays trunnioned in certain of the plate-bearings and fast on eccentrically-arranged axial rods passed through certain of the tubes, other rods

passed through the remainder of the tubes
and trunnioned in certain others of the plate-
bearings, collars arranged on all the rods to
engage the bearings on the standards, the col-
5 lars on the non-axial rods provided with lift-
ing-cams and supporting-fingers for the trays,
and a lever-and-gear mechanism for actuating
both series of rods, substantially as set forth.

In testimony that I claim the foregoing I
have hereunto set my hand, at Milwaukee, in 10
the county of Milwaukee and State of Wiscon-
sin, in the presence of two witnesses.

FRANKLIN B. GIESLER.

Witnesses:

N. E. OLIPHANT,
WM. KLUG.