

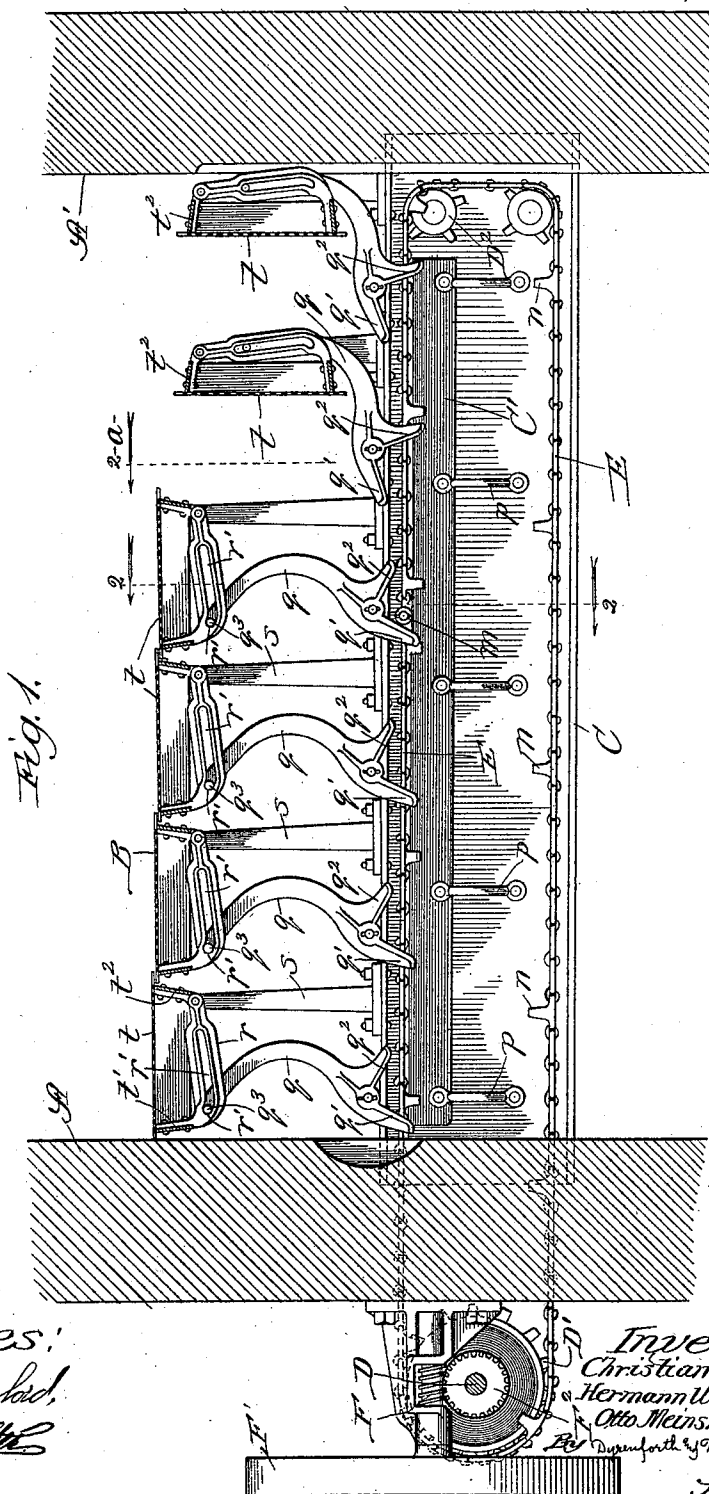
(No Model.)

2 Sheets—Sheet 1.

C. MACHER, H. W. KUEHL & O. MEINSHAUSEN.
DUMPING MALT FLOOR.

No. 595,883.

Patented Dec. 21, 1897.



Witnesses:
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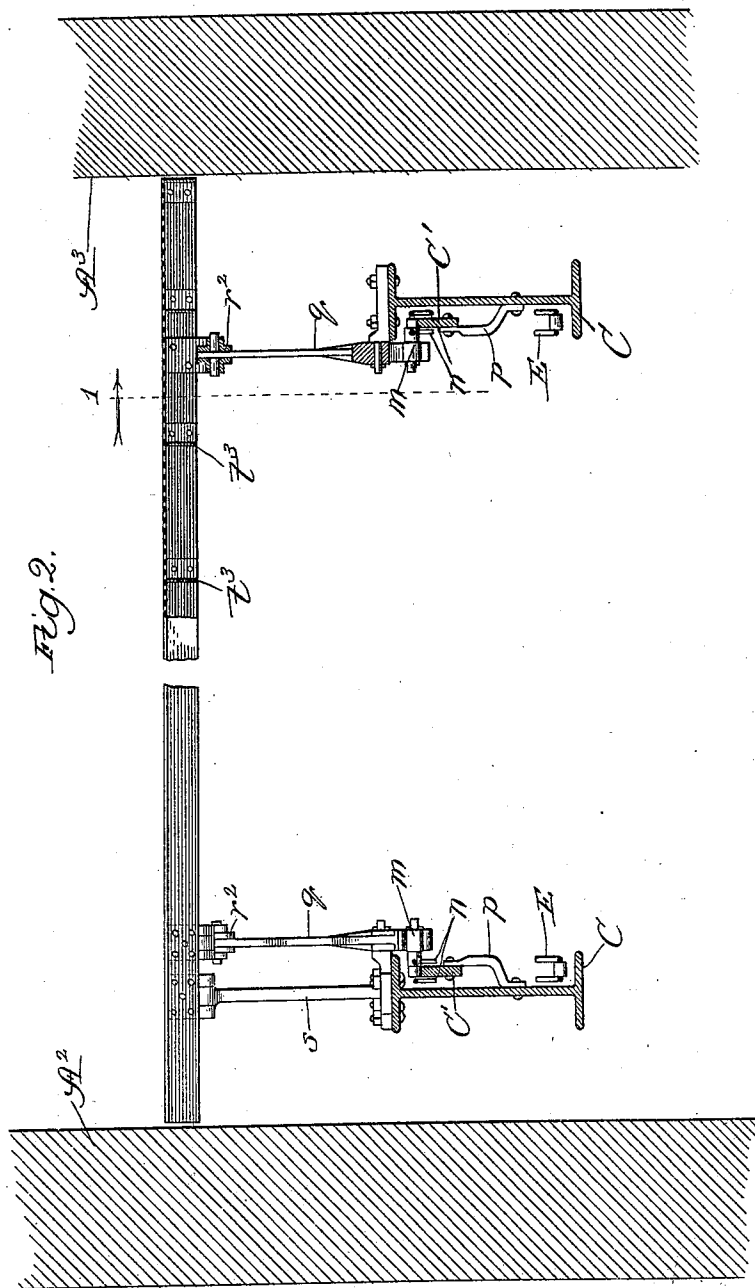
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Witnesses:

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UNITED STATES PATENT OFFICE.

CHRISTIAN MACHER, HERMAN W. KUEHL, AND OTTO MEINSHAUSEN, OF
CHICAGO, ILLINOIS.

DUMPING MALT-FLOOR.

SPECIFICATION forming part of Letters Patent No. 595,883, dated December 21, 1897.

Application filed May 12, 1897. Serial No. 636,217. (No model.)

To all whom it may concern:

Be it known that we, CHRISTIAN MACHER, HERMAN W. KUEHL, and OTTO MEINSHAUSEN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Dumping Malt-Floors, of which the following is a specification.

Our invention relates to improvements in dumping or upsetting floors for malt-houses, wherein the germinating grain is caused to descend and spread upon one floor after another to stir it and expose it to the air.

Our object is to provide a sectional dumping or upsetting floor of improved construction wherein the operation of dumping the malt to the floor beneath is performed by upsetting but one or a limited number of the sections at once, thus requiring comparatively little power and relieving the strain upon the floor beneath over what it would be subjected to were the entire mass of malt dumped thereon at once.

Our object is further to provide improved mechanism for upsetting and righting the floor-sections of simple and durable construction, easy to operate, and free from danger of getting out of order.

In the drawings, Figure 1 is a broken cross-section showing a floor of our improved construction and its supporting-walls; and Fig. 2, a broken longitudinal section of the floor, the part to the left being taken on line 2^a of Fig. 1 and the part to the right being taken on line 2 of Fig. 1, viewed in the direction of the arrows, and showing also the end walls of the malt-house.

A and A' are the side walls of a malt-house, and A² A³ the end walls thereof.

B is a malt-floor, formed of parallel, preferably perforated, sections or plates *t*, overlapping at the edges and extending the full length between the end walls A² A³.

Mounted in the side walls A A' at desired intervals are I-beams C C, and upon the I-beams at a distance apart equal to the width of the plates *t* are stationary standards or supports *s*. On the under sides of the plates, toward opposite edges, are longitudinally-extending reinforcing-bars *t'* *t'*², the sections being braced by cross-bars *t'*³, extending at in-

tervals between the bars *t'* *t'*². The sections are hinged at their bars *t'*² to the upper ends of the standards *s*. On the under sides of the sections, adjacent to the standards *s*, are guide-pieces *r*, fastened at opposite ends, respectively, to the bars *t'* *t'*² and provided with guide-slots *r'*, extending at an angle to the plane of the respective plates *t* and terminating at one end in an offset or socket *r'*. Each guide-piece *r* is also provided with a slot *r'*² at right angles to the guide-slot *r*. At each section and pivotally mounted toward its lower end upon the I-beams are upsetting props or supports *q*, of the bowed shape shown in Fig. 1, and provided with cam extensions or fingers *q'* *q'*², which extend down one side of the I-beams at approximately right angles to each other. On the side of each I-beam C is a longitudinally-extending guide-bar C', held in place by brackets or stay-pieces *p*.

Extending parallel with the wall A, on the outer side thereof, in about the plane of the center of the I-beams, is a rotary shaft D, carrying adjacent to each I-beam C a sprocket-wheel D'. The tops of the sprocket-wheels D' are in the plane of the upper surfaces of the guide-bars C, and extending over the said sprocket-wheels, along the guide-bars, and over sprocket-wheels D², adjacent to the wall A', are carriers or chains E. Interposed in each chain at intervals are guide-fingers *n*, which in the movement of the chain as hereinafter described slide upon opposite sides of the respective guide-bar C', operating thus to hold the chain against lateral play upon the bar. On each chain E is a laterally-projecting roller *m*, affording an upsetting shoulder to engage the cam-fingers *q'* *q'*² in the movement of the chain. The supports *q* at their upper or free ends extend into or through the slots *r'*² of the respective guide-pieces *r*; and toward their upper ends they are provided with laterally-extending pins or rollers *q'*³, which move in the guide-slots *r'* of the guide-pieces. When the supports *q* are swung to the left in Fig. 1, the engagement of the pins or rollers *q'*³ with the guide-slots *r'* raise the floor-sections upon their pivots to a substantially horizontal plane until the pins or rollers *q'*³ reach the sockets *r'*. In approaching this position the pins or rollers *q'*³ pass

beyond a vertical line with the pivots of the supports, whereby downward strain upon the swinging edges of the floor-sections causes the pins or rollers q^3 to bear more firmly into the sockets r' and thus hold the floor-sections securely in their raised or horizontal positions. When the supports q are swung on their pivots to the right in Fig. 1, the pins or rollers q^3 move to the right in the guide-slots r' until they pass beyond the vertical plane of the pivots of the supports. This causes the floor-sections by their weight to drop and the pins or rollers to move to the opposite ends of the guide-slots, as shown, to the right in Fig. 1.

Journalled in a suitable bracket on the outer wall A at any convenient point along the shaft D is a worm-shaft F, carrying a drive-pulley F'. The worm-shaft F meshes with a worm-wheel F² on the shaft D. Rotation of the wheel F' in one direction causes the shaft D to be turned and move the chains E to the left in Fig. 1. Turning of the wheel F' in the opposite direction causes the chains to be moved to the right in Fig. 1. In the movement of the upper length of the chain to the left in Fig. 1 the roller or shoulder m passes beneath the cams q^2 and engages the cams q' to raise them and swing the supports q in the direction of upsetting the floor-sections. In the movement of the roller or shoulder m to the right it passes beneath the cams q' and engages the cams q^2 to raise them and right the floor-sections.

It is to be understood, of course, that the shaft D extends the full distance between the I-beams C, where it carries the sprocket-wheels D' and chains E, the shoulders or rollers m on the respective chains being coincident to strike the corresponding cams of the same section simultaneously. Thus force is applied at the same time to opposite end portions of the floor-sections for the purpose of upsetting or righting them. When all the floor-sections are righted, the shoulders or rollers m are adjacent to the wall A', and when the shaft D is caused to turn to move the chains to the left in Fig. 1 the shoulder or roller engages cams q' one after another to upset the sections consecutively. When all the sections are upset, the shaft D is rotated in the opposite direction, causing the roller to move from the wall A to the wall A' and engage the cams q^2 one after the other and right the floor-sections consecutively.

In operation malt or germinating grain is spread to a suitable depth upon the floor B, and when it has lain thereon for a sufficient length of time the wheel F', which may be belted to a suitable driving power, is caused to rotate and move the shoulders or rollers m in the direction of the wall A. As a floor-section upsets the material which it supported falls to the floor beneath. In dropping each floor-section strikes against its stationary supports s , causing the section to be jarred and thus release any particles of grain which

would tend to adhere thereto. As the sections are upset one at a time comparatively little of the mass of grain falls to the floor beneath at one time. This prevents straining of the floor under the impact and, furthermore, affords a more even spreading and desirable handling of the grain than where all the sections of a floor are upset at one time.

If desired, each chain may be provided with two or more rollers m , whereby two or more of the sections would be upset at one time, and if such an arrangement were provided while using the upsetting mechanism which we provide it would still be within the spirit of that part of our invention.

The mechanism itself may be variously modified and still be within our invention as defined by the claims.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a malt-floor, the combination of floor-sections, stationary supports upon which said sections are pivotally mounted, movable props for maintaining the floor-sections in a substantially horizontal plane, and mechanism for upsetting the props to permit dumping of the sections, substantially as and for the purpose set forth.

2. In a malt-floor, the combination of floor-sections, stationary supports upon which said sections are pivotally mounted, movable props for maintaining the floor-sections in a substantially horizontal plane, and mechanism for flexing and extending the props to dump and right the floor-sections, substantially as and for the purpose set forth.

3. In a malt-floor, the combination of pivotally-supported floor-sections, movable props for maintaining the floor-sections in a substantially horizontal plane and traveling dumping and righting mechanism for the sections operating to engage the sections consecutively, substantially as and for the purpose set forth.

4. In a malt-floor, the combination of upsetting floor-sections, supports upon which the said sections are pivotally mounted toward one side, movable props for the opposite sides of said sections, and means for upsetting the movable props, comprising traveling support-engaging shoulders, substantially as and for the purpose set forth.

5. In a malt-floor, the combination of floor-sections, supports upon which said sections are pivotally mounted toward one side, guides upon the under sides of the sections, pivotal props for the swinging edges of said sections movable in the guides, and means for engaging and upsetting said pivotal props, substantially as and for the purpose set forth.

6. In a malt-floor, the combination of upsetting floor-sections, stationary supports upon which the floor-sections are pivotally mounted, pivotal props for the floor-sections, cams upon the props, a traveling carrier, and a cam-engaging shoulder on the carrier, whereby in the movement of the carrier the

shoulder acts to engage and move a prop, substantially as and for the purpose set forth.

7. In a malt-floor, the combination of upsetting floor-sections, supports upon which the sections are pivotally mounted, pivotal props for the said sections having downward-extending cams, a carrier-chain extending below said floor-sections, a cam-engaging shoulder upon the chain, and means for moving the chain, substantially as and for the purpose set forth.

8. In a malt-house having side walls, the combination of beams extending between the walls, stationary supports upon the beams, upsetting floor-sections pivotally mounted toward one edge upon said supports, guides on

the under sides of the floor-sections, props pivotally mounted toward their lower ends upon said beams and movable at their upper ends in said guides, traveling carriers movable along the beams, shoulders upon the carriers, cams on the props in paths of the shoulders, and propelling means for the carrier beyond one of said side walls, the whole being constructed to operate substantially as and for the purpose set forth.

CHRISTIAN MACHER.
HERMAN W. KUEHL.
OTTO MEINSHAUSEN.

In presence of—

H. C. C. STIER,
W. GRIMES.