No. 704,597. Patented July 15, 1902.

P. G. TOEPFER.

MALT KILN.

(Application filed Mar. 10, 1902.)

(No Model.) 2 Sheets—Sheet 1.

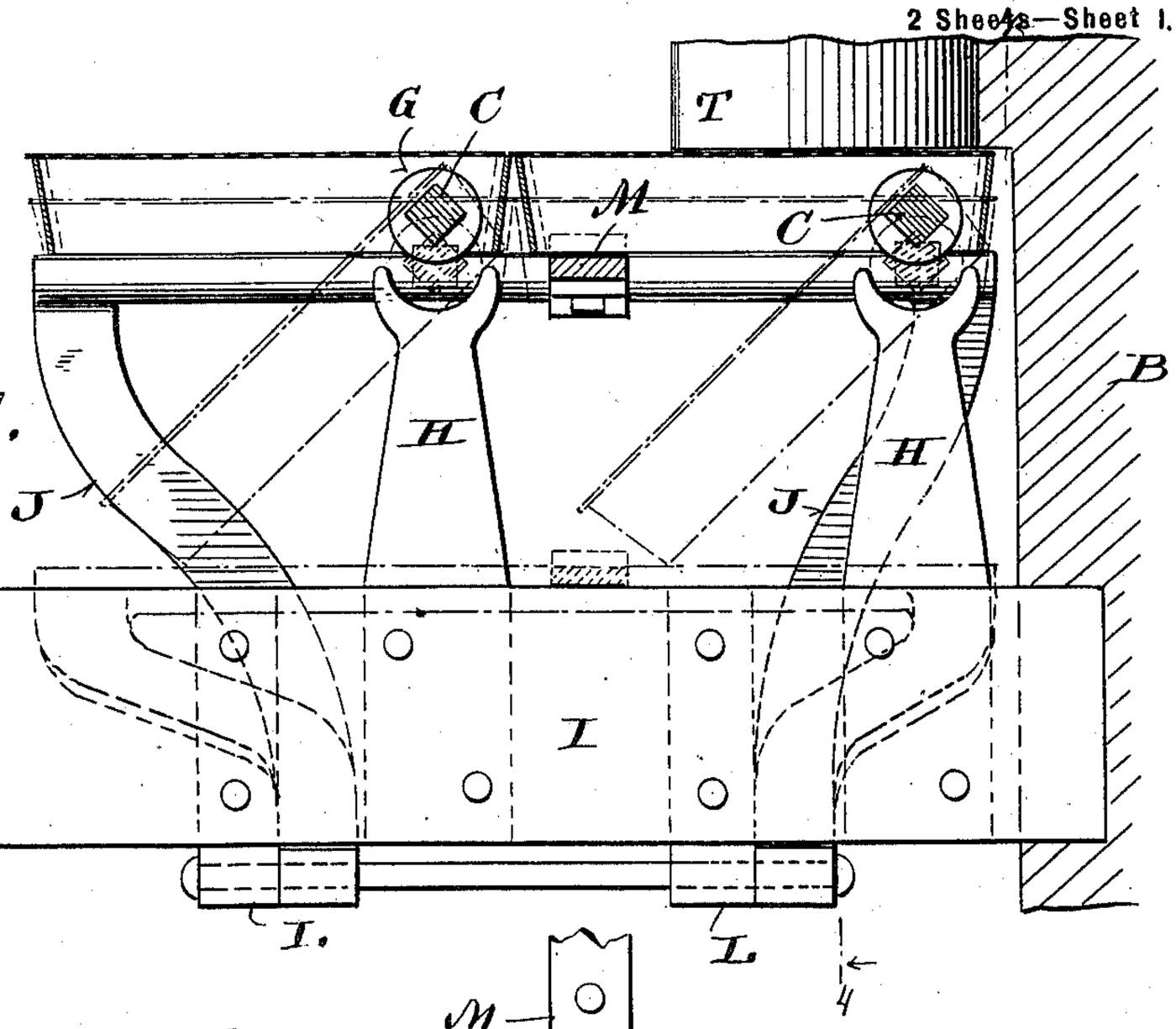

Fig. 1.

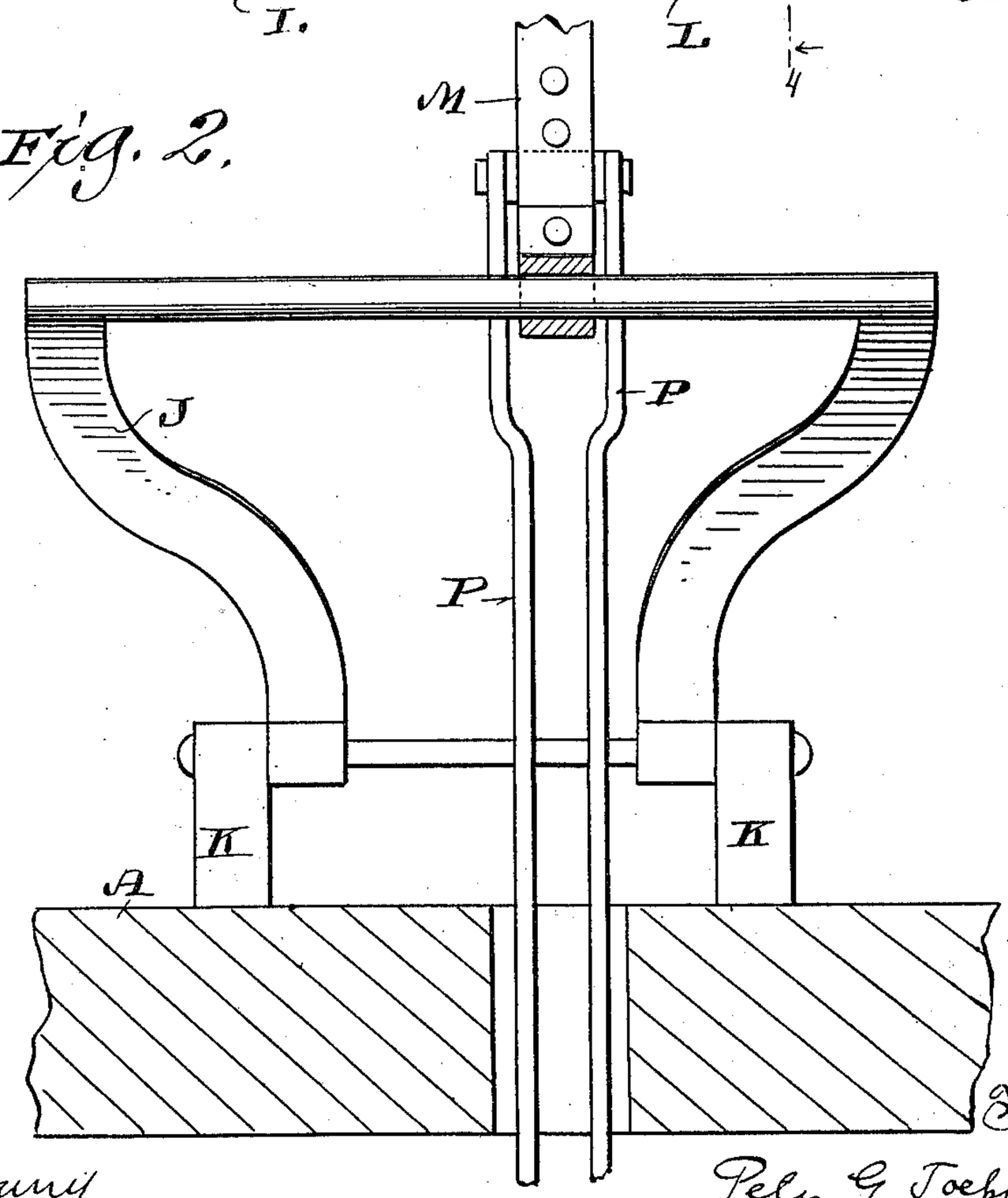

Fig. 2.

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

Inventor
Peter G. Toepfer
By H. G. Underwood
Attorney

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Fig. 3.

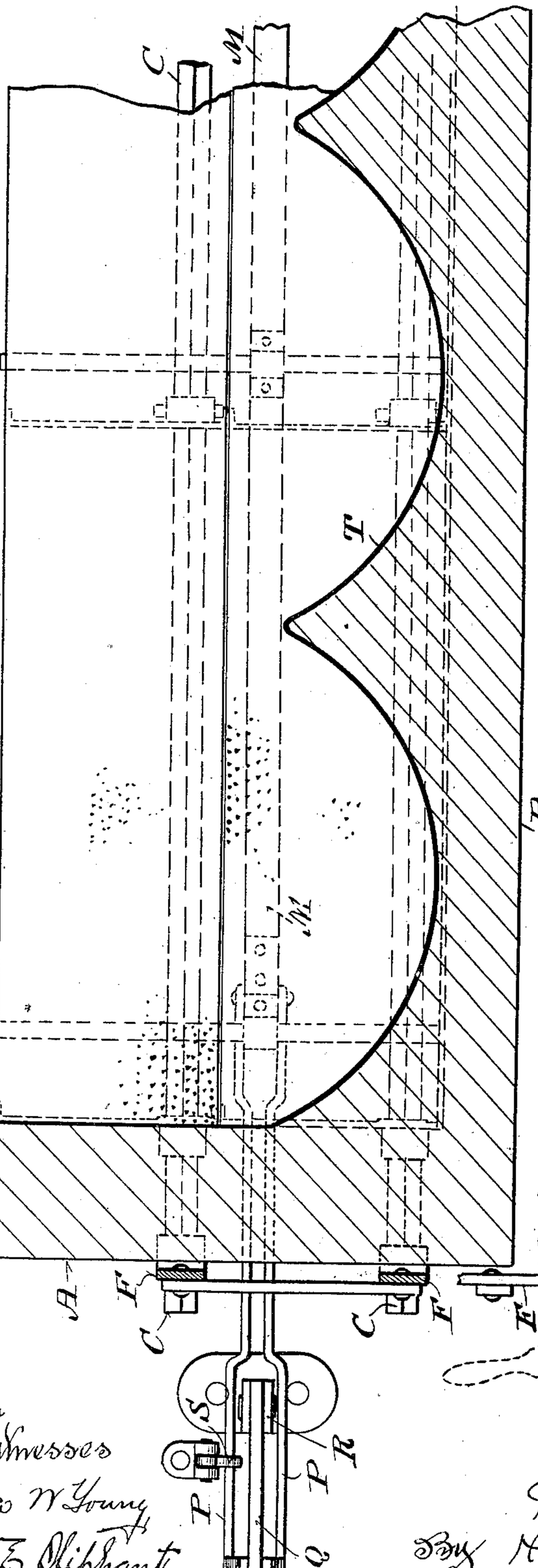
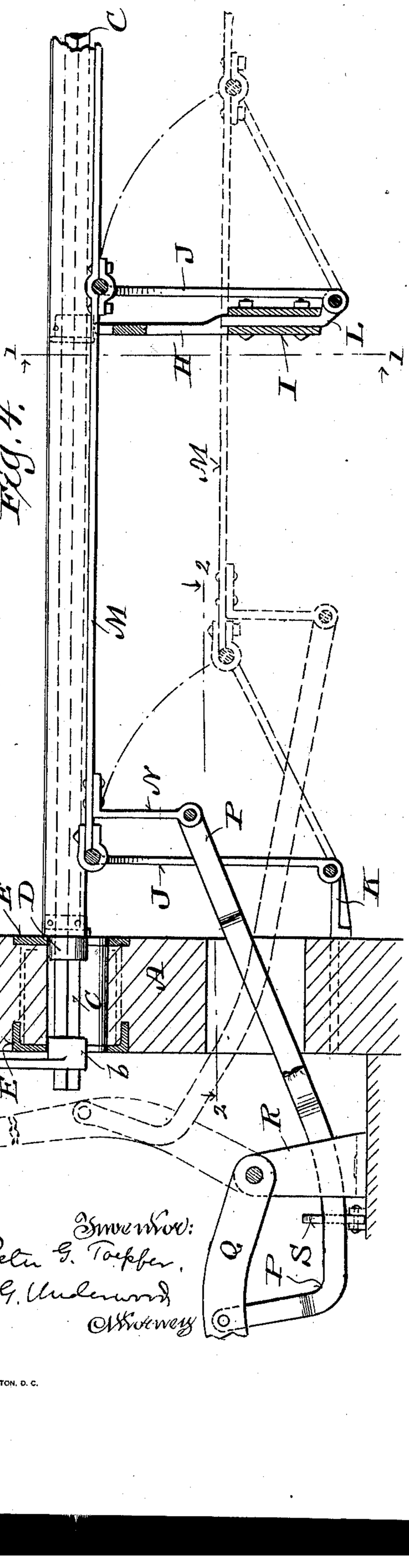


Fig. 4.



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Geo W Young
N. E. Oliphant

Inventor:
Peter G. Toepfer.
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

PETER G. TOEPFER, OF MILWAUKEE, WISCONSIN.

MALT-KILN.

SPECIFICATION forming part of Letters Patent No. 704,597, dated July 15, 1902.

Application filed March 10, 1902. Serial No. 97,561. (No model.)

To all whom it may concern:

Be it known that I, PETER G. TOEPFER, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and 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.

The improvements consist in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, the object of the invention being to furnish simple, economical dump-tray malt-kiln floors and provide for dropping sections of the same to lower than normal level preliminary to a dumping operation, this dropping of the floor-sections being done to obtain necessary clearance for the trays under machinery or niche-plates in a kiln.

Figure 1 of the drawings herewith represents a transverse section through a portion of a dump-tray malt-kiln floor to which my improvements are applied, this view being indicated by line 1 1 in the fourth figure of the series and having the dropped and dump positions of trays illustrated therein by dotted lines; Fig. 2, a horizontal section longitudinally of the kiln, as indicated by lines 2 2 in said fourth figure, the movable parts in the view being in the position to which they are adjusted when the trays are dumped; Fig. 3, a plan view, partly in horizontal section, through walls of the kiln; and Fig. 4, a longitudinal section view indicated by lines 4 4 in the first figure.

Referring by letter to the drawings, A indicates an end wall, and B a side wall, of a malt-kiln having a dump-tray floor. Like in my Patent No. 588,507, issued August 17, 1897, the arrangement of the perforated floor-plates of the dumping-trays is such that each of said plates laps the tray-frame next adjacent to its own in successive order transversely of the kiln, whereby a flush floor is obtained when the trays are horizontal.

The preferably angular tray-shafts C are provided with rigid journal-collars D, herein shown engaging elongated bearing-apertures vertically of kiln-wall plates E, and link-connected cranks F are shown as having rounded end bosses *b*, fast on said shafts, in engagement with elongated bearing-apertures in other kiln-wall plates E′, said plates E E′ being at opposite ends of an opening in the adjacent wall. Annular collars G are rigid on the tray-shafts at intervals of the same, and a bearing-bracket H for each of these collars is supported in connection with cross-braces I of the kiln to be normally a predetermined distance under said collar. Yoke-like levers J are shown as having their branches in pivotal connection with kiln-wall brackets K and hangers L, these hangers being rigid with the braces I aforesaid. The transverse portions of the levers J oppose under edges of tray-frames in a section of the kiln-floor, and a link-bar M is coupled to said transverse portions of the levers. A depending bracket N of the link-bar is coupled to links P, that extend through a kiln-wall aperture and connect with a hand-lever Q, for which a fulcrum-standard R is provided. A latch S is shown conveniently arranged to be swung over one of the links P and lock the trays in horizontal position at their greatest elevation, the side trays being then snug under niche-plates in kilns provided with traveling rotary malt-stirrers, such a plate T being shown in Fig. 3. The latch S being swung away from engagement with the adjacent link P, the hand-lever Q is operated to move the link-bar M and levers J from position shown by full lines in Fig. 4 toward that shown by dotted lines in the same figure, all the trays in a floor-section above the bar-connected levers being thus bodily lowered in horizontal position until the journal-collars D and crank-bosses *b* on the tray-shafts come into bearing contact with the lower extremities of the apertures in kiln-wall plates E E′, the other collars G on said shafts being then at rest in the upper bearing-seats of the brackets H, whereby there is sufficient clearance of any adjacent stirrer or niche-plates to permit dumping tilt of said trays. Continued lowering of the bar-connected levers J will ordinarily result in an immediate tilt dump of the adjacent trays by gravity; but should said trays stick from any cause the cranks F may be actuated to overcome the resistance. The levers J being lifted, the dump-trays of a kiln-floor section

are restored to normal position and held therein by means of the latch S, swung into working position, as aforesaid.

While I have provided for a lowering of malt-kiln-floor sections to obtain tray clearance of machinery, niche-plates, or both, such provision is not necessary in all kilns. Hence the bearing-apertures in plates E E′ may be full round instead of elongated and the brackets H sufficiently elevated to have the bearing-seats of same in permanent contact with the collars G on the tray-shafts, dumping tilt of the trays taking place when the bar-connected levers J are swung down.

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

1. A malt-kiln floor comprising tilt-dump trays, levers having transverse portions opposing under edges of frames constituting parts of the trays, a link-bar connecting the levers, and means for actuating the link-bar.

2. A malt-kiln floor comprising tilt-dump trays having shafts provided with journal-collars engaging vertically-elongated bearings, other collars rigid on the tray-shafts at intervals of the same, bearing-brackets stationary under the latter collars normally clear of the same, levers having transverse portions opposing under edges of frames constituting parts of the trays, a link-bar connecting the levers, and means for actuating the link-bar.

3. A malt-kiln floor comprising tilt-dump trays, levers having transverse portions opposing under edges of frames constituting parts of the trays, a link-bar connecting the levers, a bracket depending from the link-bar, a hand-lever in link connection with the bracket, and means for locking the trays in horizontal position.

4. A malt-kiln floor comprising tilt-dump trays having shafts provided with journal-collars and rounded end bosses of link-connected cranks engaging vertically-elongated bearings, other collars rigid on the tray-shafts at intervals of the same, bearing-brackets stationary under the latter collars normally clear of the same, levers having transverse portions opposing under edges of the frames constituting parts of the trays, a link-bar connecting the levers, and means for actuating the link-bar.

5. A malt-kiln floor comprising tilt-dump trays vertically adjustable in horizontal position to be dropped from their normal level preliminary to dumping operation so as to avoid obstructions.

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

PETER G. TOEPFER.

Witnesses:
N. E. OLIPHANT,
B. C. ROLOFF.