(No Model.)

2 Sheets—Sheet 1.

J. ENGELHARDT.

MALT TURNING APPARATUS.

No. 412,701. Patented Oct. 8, 1889.

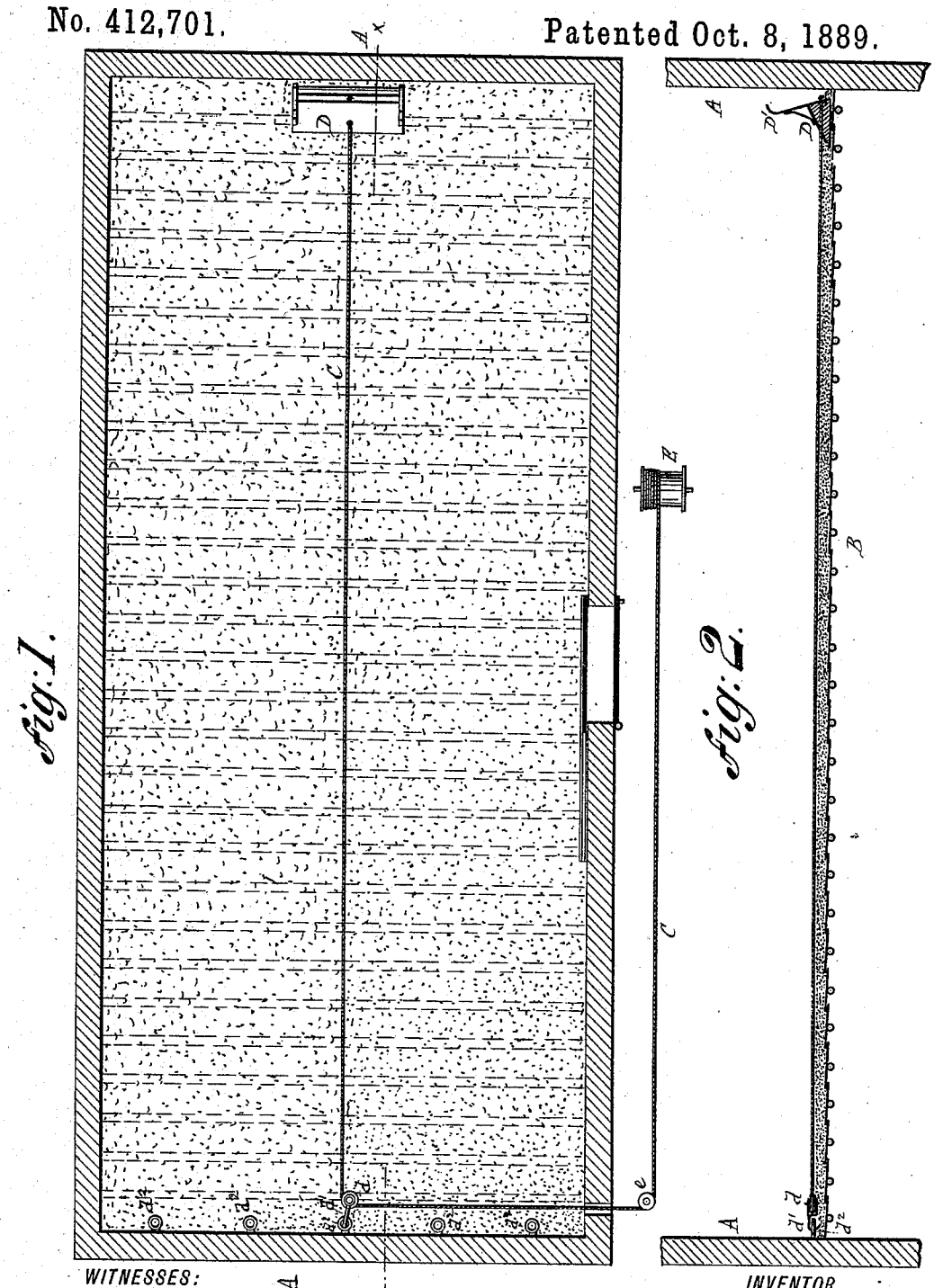


Fig. 1.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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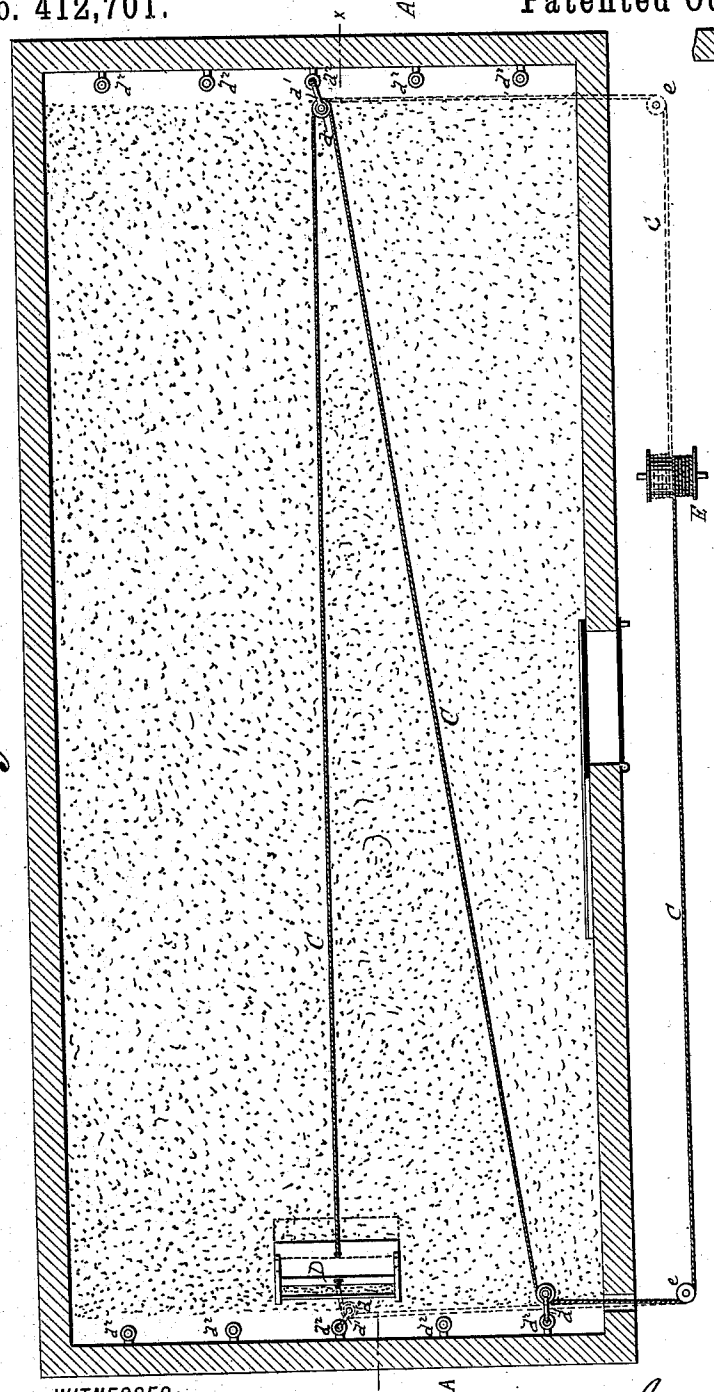


Fig. 3.

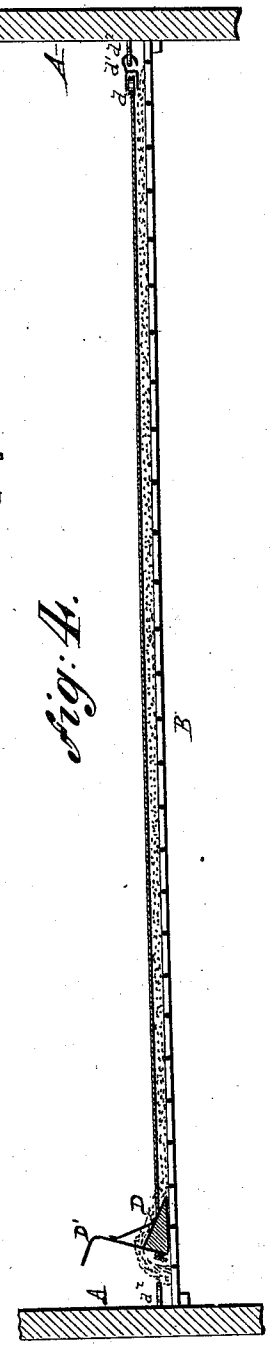


Fig. 4.

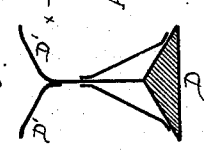


Fig. 5

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UNITED STATES PATENT OFFICE.

JOSEPH ENGELHARDT, OF NEW YORK, N. Y.

MALT-TURNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 412,701, dated October 8, 1889.

Application filed March 17, 1888. Serial No. 267,471. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ENGELHARDT, of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Turning Malt in Malt-Kilns, of which the following is a specification.

This invention has reference to an improved device for turning the malt on the floors of malt-kilns in a quicker and more economical manner than by shoveling, so as to reduce the time required for the hands to be in the malt-kiln, and produce the better turning and ventilating of the malt.

In the accompanying drawings, Figure 1 represents a plan view of the malt-kiln floor, with my improved device for turning the malt on the same. Fig. 2 is a vertical longitudinal section of the same on line *x x*, Fig. 1. Fig. 3 is a modified arrangement of my improved turning device; Fig. 4, a vertical longitudinal section of the same on line *x x*, Fig. 3; and Fig. 5 is a vertical transverse section of a double turning device.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A A represent the wall, and B the floor, of a malt-kiln of any approved construction. The turning device rests on the kiln-floor, and consists of a triangular or other block D of sufficient weight, which is re-enforced at the upper side by sheet metal. The block is passed through the malt after the manner of a plow, the malt being lifted and turned, passing over the block, so that it is thoroughly ventilated. The block D is provided with handles D′ for holding and guiding it in its motion over the kiln-floor. The malt-mill is provided at one or both ends with a number of eyes d^2, disposed at certain distances apart, the distance between the eyes being approximately the same as the width of the turning-block. A pulling-rope C is applied centrally to the turning-block D and passed over detachable sheaves *d d*, which are applied by hooks *d′* into eyes d^2, as shown clearly in Fig. 1, or in a set of opposite eyes d^2, as shown in Fig. 3. The pulling-rope C passes from the detachable guide-pulley *d* through an opening in the side wall of the malt-kiln to the outside of the same, and thence over a fixed guide-pulley *e* to a winding-drum E, that is operated by power, so that the rope C can be wound upon the same or unwound therefrom, as required, by the passage of the block D over the malt-kiln floor. By securing the rope centrally to the block a slight oscillating motion when drawing the block is imparted to the same, so that the malt is more thoroughly shaken or stirred during the passage of the block through the same.

The turning device can be arranged so as to work only in one direction, or so as to work in opposite directions. The arrangement for working in one direction only is shown in Figs. 1 and 2. In this case the turning device can only be passed in one direction over the kiln-floor from one end of the kiln to the other, being returned to the opposite end wall by unwinding the rope, and then drawn again through the malt over the adjoining part of the kiln-floor, and so on, the detachable guide pulley being first placed into the first eye, then into the next eye, and so on until the entire body of malt spread on the same has been lifted, ventilated, and turned.

If it be desired to work the turning device in both directions, fixed eyes d^2 are arranged in both end walls of the kiln, as shown in Fig. 3, in which case the turning device is first pulled through the malt-kiln in one direction, and turned around at that end and placed in a position in line with the adjoining section of the floor. The detachable pulley is moved over to the opposite end wall of the kiln and hung to the corresponding eye. The drum is then rotated, and the turning device moved in opposite direction to its former motion over the floor until it arrives at the opposite end wall, when it is turned again, the pulley being moved over and hung to an eye of the first end wall, and so on until the entire body of the malt on the floor is turned. This latter mode of turning malt by passing the turning device alternately in opposite directions over the floor is somewhat objectionable, as considerable time is lost in carrying the detachable guide-pulley from one end wall to the other. This can be dispensed with by using a double turning device, as shown in Fig. 5, and employing two pulling-ropes, which wind up in opposite direction on the power-drum, and

which are guided over fixed guide-pulleys *e* and two detachable pulleys *d*, as shown in dotted lines in Fig. 3. By the latter arrangement the turning of the malt is accomplished quicker, as the turning device is moved alternately in opposite directions over the adjoining sections of the floor by simply reversing the motion of the winding-drum, shifting the turning device, and changing the position of the detachable guide-pulleys in the fixed corresponding eyes at the end walls of the kiln-floor.

By my improved turning device the turning and ventilating of the malt on malt-kiln floors are quickly and effectively accomplished, a less number of hands required for turning the malt on the malt-kiln floor, and the same attended to in a much shorter time.

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

1. The combination of a malt-kiln provided at one end with a series of eyes disposed at certain distances apart, a sliding block for turning the malt, of a width corresponding to the distance between the eyes, a detachable pulley for engaging said eyes in succession, a fixed pulley, a rotary drum, and a rope secured at one end to said sliding block and passing over said pulleys and drum, substantially as described.

2. The combination of a malt-kiln provided at each end with a series of eyes disposed at certain distances apart, a sliding block for turning the malt, of a width corresponding to the distance between the eyes, detachable pulleys supported by a pair of said eyes, fixed pulleys, a drum, and a cord passing over said drum and pulleys and attached at one end to said block.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

JOSEPH ENGELHARDT.

Witnesses:
MARTIN PETRY,
JOHN A. STRALEY.