(No Model.) 2 Sheets—Sheet 1.

J. F. DORNFELD.

MALTING FLOOR.

No. 518,666. Patented Apr. 24, 1894.

Fig. 1.

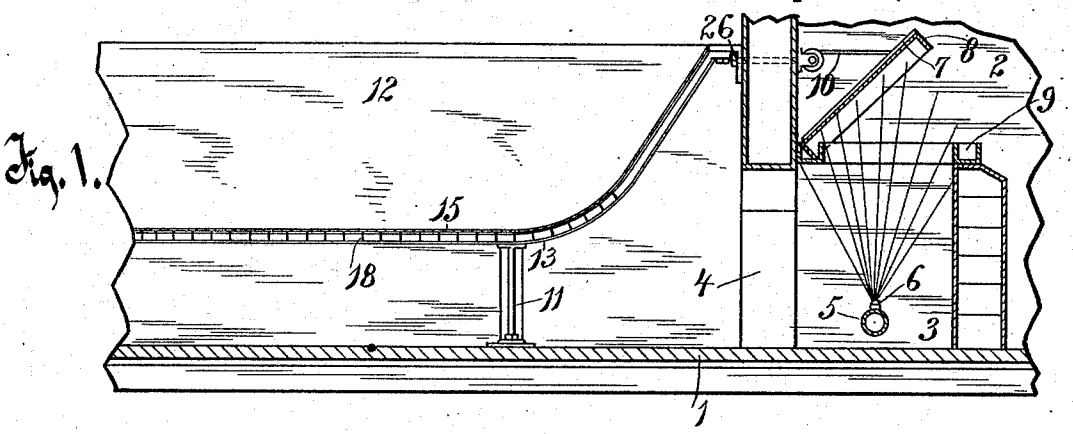


Fig. 2.

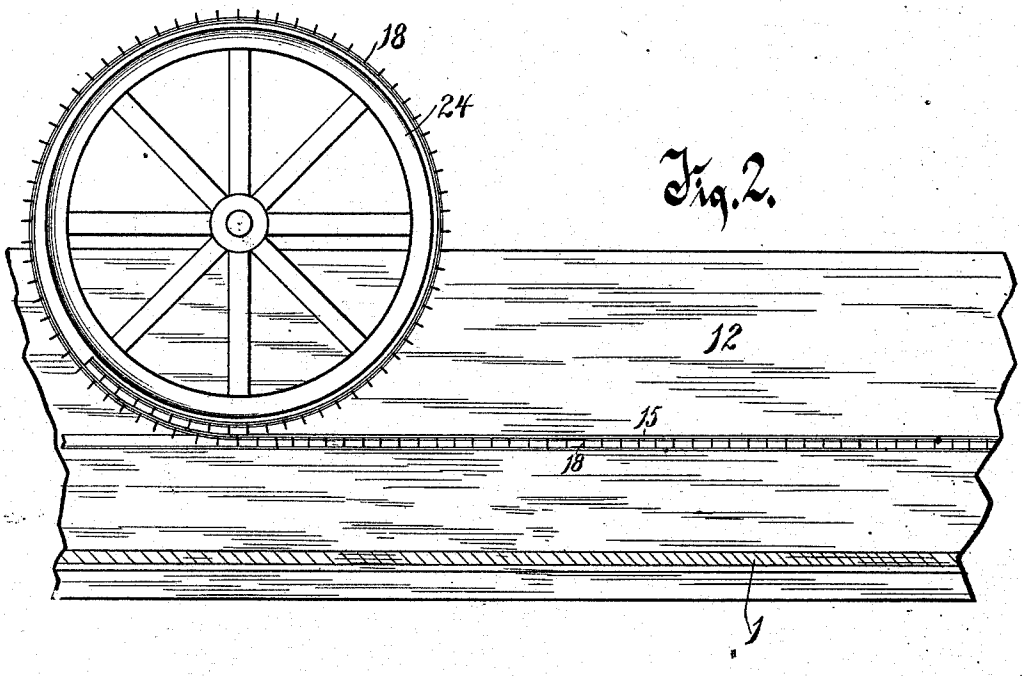
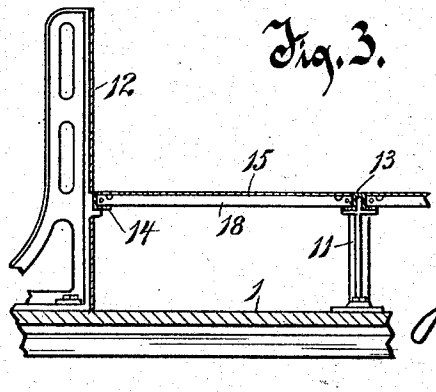


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

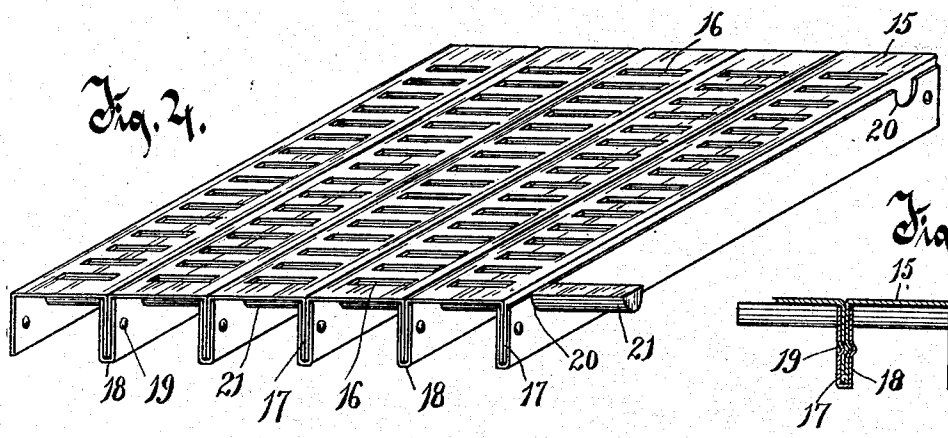


Fig. 5.

Fig. 6.

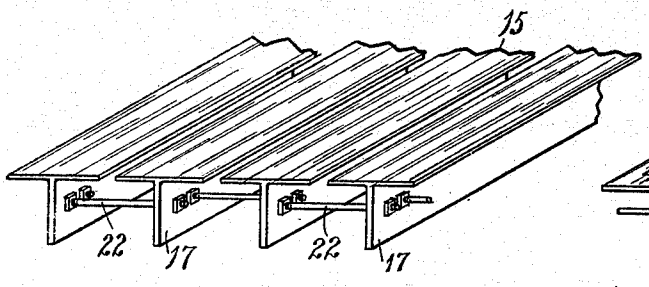


Fig. 7.

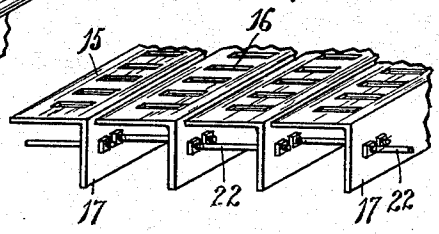
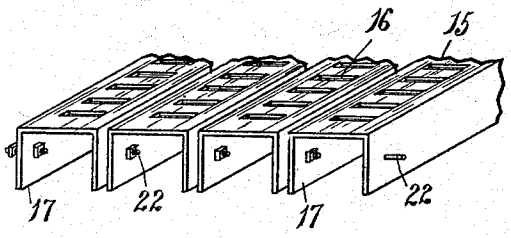


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN F. DORNFELD, OF WATERTOWN, WISCONSIN.

MALTING-FLOOR.

SPECIFICATION forming part of Letters Patent No. 518,666, dated April 24, 1894.

Application filed April 4, 1893. Serial No. 469,000. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. DORNFELD, of Watertown, in the county of Jefferson and State of Wisconsin, have invented a new and useful Improvement in Malting-Floors, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in malting floors, and it consists in the improved construction hereinafter more fully set forth.

The principal objections to the ordinary perforated malting floors now in use are, first, the difficulty experienced in cleaning the same, and as cleanliness is an important desideratum in the manufacture of good malt, it is obvious that this object cannot be obtained where thousands of small holes are required to be looked after, which are practically inaccessible for cleaning purposes; second, the other equally great objection in all floors thus far built is that it requires too much manual labor to remove them from their plan E floor position to a position suitable for cleaning; and third, that all floors thus far built are so heavy as to create an additional weight on the building walls, thus rendering them not adaptable to structures built for use under the old systems wherein inadequate provision was made for supporting floorings possessing the maximum weight.

The primary object, therefore, of my invention is to provide a perforated malting floor of such construction that it can be readily rolled up when it requires cleaning, and during the operation of rolling effectually and rapidly cleansed. The floor furthermore is not only durable in construction, but at the same time inexpensive of production, the cost being reduced to the minimum, and light in weight so as to adapt it to buildings already constructed, having no provision for supporting heavy floorings.

In the accompanying drawings, Figure 1 is a vertical sectional view of one end of a fragment of a malting room, showing my improved flooring properly in place therein. Fig. 2, is a similar view of the opposite end of the room, showing clearly the winding drum for the floor. Fig. 3, is a transverse section of Fig. 1. Fig. 4, is a perspective view of the malting floor. Fig. 5, is a transverse section of Fig. 4 taken on a line through the indentations of the caps, and Figs. 6, 7 and 8 are perspective views of fragments of modified forms.

Like numerals of reference denote like parts throughout the several views.

Referring to the drawings, the numeral 1 indicates the floor of a malting room, and 2 a fragment of the wall of a vertical attemperator flue, located medially at one end of the malting room. A box or chamber 3 is formed into the attemperator flue, and made the duct for the passage of air from the same, to and through an aperture 4 into the air chamber beneath the malting floor, hereinafter more fully described. This chamber 3 is provided with a cold water pipe 5 extending through it horizontally, which pipe is provided with a series of apertures or spraying nozzles 6, so that water in the pipe under pressure will be discharged in a spray into the chamber 3 where it mingles with the air and cools it to such an extent as is desired. It is sometimes desirable to hermetically close this passage for air through the chamber 3, and for that purpose I provide a cover 7 having a downwardly extending flange 8 adapted to fit in a channel or groove 9 above the top of the aperture in the box. This groove is adapted to contain water, and the cover 7 is let down by means of a pulley and cord arrangement 10, and the flange 8 being inserted in the water, a hermetically sealed joint is formed.

The malting floor is shown clearly in detail Fig. 4, and when in proper position within the malting room is supported on posts 11, at a distance above the floor 1, whereby an air chamber is formed between the two floors.

Vertical walls 12 extend up from the malting room floor 1, and form side walls for the malting floor, thereby preventing the escape of grain or malt from the same.

In practice it is impossible to construct the malting floor of sufficient width to cover the width of the average malting room, and I therefore provide a floor composed of a series of longitudinal lengths, each length in turn made up of sections, as clearly shown in Fig. 3. In this figure one of the lengths of the floor is shown as supported at one edge upon the flange of a cap 13 fitting over the top of the supporting post 11, and the other edge

supported upon an L-shaped bracket 14 let into one of the vertical side walls 12. The next length of the floor, of which a fragment only is shown in Fig. 3, is supported at one edge upon the other flange of the cap 13, and its opposite edge may be supported either upon the flange of a cap fitting over another post as 11, if the width of the room permits it, or may be supported on an L-shaped bracket 14, let into the opposite wall, not shown, of the room.

In the principal form of the floor illustrated in Fig. 4, the same is shown as consisting of a series of inverted U-shaped sections 15, having a series of elongated openings 16 upon their upper sides. The several sections of the floor are arranged adjacent, so that the depending flanges or legs 17 thereof will contact. In order to secure these flanges together, I provide clamps 18 which secure the flanges in the manner clearly shown. After adjusting these clamps to place, indentations 19 are made in one side of each clamp, which form the registering bulges clearly shown in the sectional view Fig. 5, and prevent the clamps from working out of place. The depending flanges or legs strengthening each longitudinal length throughout, and at the same time preventing sagging of each longitudinal length. The opposite sides of each clamp are provided, near opposite ends, with recesses 20, 20. Longitudinal reinforcing ribs 21, 21 are arranged beneath the upper sides of the sections, at opposite ends, and the extremities of these ribs rest in the recesses 20. These ribs are preferably composed of a solid piece of half round iron.

In the modified form shown in Fig. 6 I show the several sections composed of T-iron and fastened together by means of longitudinally arranged bolts 22, said bolts connecting the flanges of contiguous sections at opposite ends. It will be noticed that in this form no perforations are provided but sufficient space is afforded between the edges of the heads of the T-iron to permit the free passage of the air.

In Fig. 7 each section of the floor is of L-form, the upper sides of the heads being perforated as in Fig. 4. The bolts 22 connect the several sections in the same manner as in Fig. 6, at the same time leaving a space between the edges of the upper sides of the contiguous sections, whereby the air is permitted not only to flow through the openings, but also through the spaces.

Fig. 8 is the same form as illustrated in Fig. 4, excepting that the several sections are arranged with a slight intervening space and the depending flanges are connected by the bolts 22 instead of clamps. In this form also the air passes through the openings and the intervening space.

It will be seen from inspection of Figs. 4, 5, 6, 7 and 8 that each length of the malting floor is composed of a series of adjacent sections, arranged lengthwise transversely of the longitudinal length which they unitedly constitute, whereby the narrow portions of the sections are disposed longitudinally.

In Fig. 2 of the drawings, which represents the end of the malting room opposite to that shown in Fig. 1, is illustrated a winding drum 24, upon which may be wound a length of the flooring of the malting room. By arranging and uniting the sections in the manner above explained, the length of floor may be wound longitudinally on the drum 24, inasmuch as the jointed narrow portions of the sections will readily permit of bending in conformity with the circular contour of the drum.

When it is desired to clean the malting floor, the end of a length thereof as shown in Fig. 2, is connected to the drum in any desired manner, and the latter rolled toward the end of the malting room shown in Fig. 1, which of course, has the effect of winding the flooring thereon. As it is thus wound, it can be most conveniently, expeditiously and thoroughly cleaned, as is obvious. In rolling up a length of the floor upon the loose roller, the depending flanges 17, and the clamping caps 18 will come to rest on the top surface of the floor, and when the drum has reached the back end of the malting compartment shown in Fig. 1 the entire weight of the malting floor will have to be supported by said flanges and caps resting on the top of the floor. The effect of the pressure of these flanges and clamping caps would ordinarily be to bend the flooring down. It is for this reason that I provide the reinforcing ribs 21 which serve to take the pressure of the flanges and caps, as will be readily understood by reference to Figs. 2 and 4. As the floor is rolled up, the distance between the flanges is increased but slightly, not enough to affect the bearings for the reinforcing ribs, or to permit of their dropping from these bearings or notches.

In providing a loose drum adapted to wind up the floor from the front toward the back end of the malting room, said floor is thus wound up without being dragged upon its supports. It is advisable to provide as many drums as there are sections in one compartment or floor.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, of a malting room, supports, and a malting floor resting upon the supports, comprising a series of longitudinal lengths, each length in turn comprising a series of flexibly united sections forming a flooring of separate windable lengths, said sections having suitable spaces or openings for the passage of air, and one end of each length of the floor resting loosely upon or detachably connected to the supports to permit of its attachment to a winding drum, whereby the separate lengths of the floor may be cleaned, as the drum is rolled from one end

of the room to the other, and the lengths separately convolved or wound thereon, substantially as set forth.

2. A malting floor, consisting of one or more longitudinal lengths, each length, in turn, composed of a series of adjacent sections arranged lengthwise transversely of the longitudinal length which they unitedly constitute, whereby the narrow portions of the sections are disposed longitudinally, said several sections flexibly united to form a flexible longitudinal length, adapted to be wound longitudinally upon a drum or cylinder, substantially as set forth.

3. The combination, of a malting room, supports, a malting floor resting upon the supports, one end resting loosely upon or detachably connected thereto to permit of its attachment to a winding drum, whereby the floor may be cleaned during the process of winding upon the drum, as the latter is rolled from one end of the room to the other, said floor comprising a series of sections provided with air passages and with depending side flanges, the side flanges of the contiguous sections being adjacent, clamps embracing the contacting side flanges, said clamps having their opposite sides, near opposite extremities, provided with notches or recesses, and reinforcing strips having their opposite ends seated in the notches or recesses beneath the upper sides of the sections, substantially as set forth.

4. The combination, with a malting room, of a malting floor consisting of one or more longitudinal lengths, a length composed of a series of sections flexibly united to form a flexible longitudinal length, one end thereof being loose to permit of its attachment to a winding drum, whereby the length may be cleaned, as the drum is rolled from one end of the room to the other, and the length convolved or wound thereon, substantially as set forth.

5. In combination with a perforated malting floor, a device for cooling and attemperating the air consisting of a chamber in the passage of the air to said floor the chamber provided with a groove about its top aperture, said groove receiving water, a water pipe through the chamber, which pipe is provided with a series of spraying nozzles or apertures, and a cover for the chamber having a flanged rim, said flanged rim adapted to enter the water containing groove of the top aperture of the chamber, whereby the chamber is hermetically sealed, substantially as set forth.

6. A malting floor, consisting of one or more longitudinal lengths, each length, in turn, composed of a series of adjacent sections arranged lengthwise transversely of the longitudinal length which they unitedly constitute, whereby the narrow portions of the sections are disposed longitudinally, said several sections united to form a flexible longitudinal length, adapted to be wound longitudinally upon a drum or cylinder, and each section having a flat top, with a leg, or legs, depending from the same, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. DORNFELD.

Witnesses:
RUDOLPH W. LOTZ,
E. J. BOILEAU.