

No. 733,055.

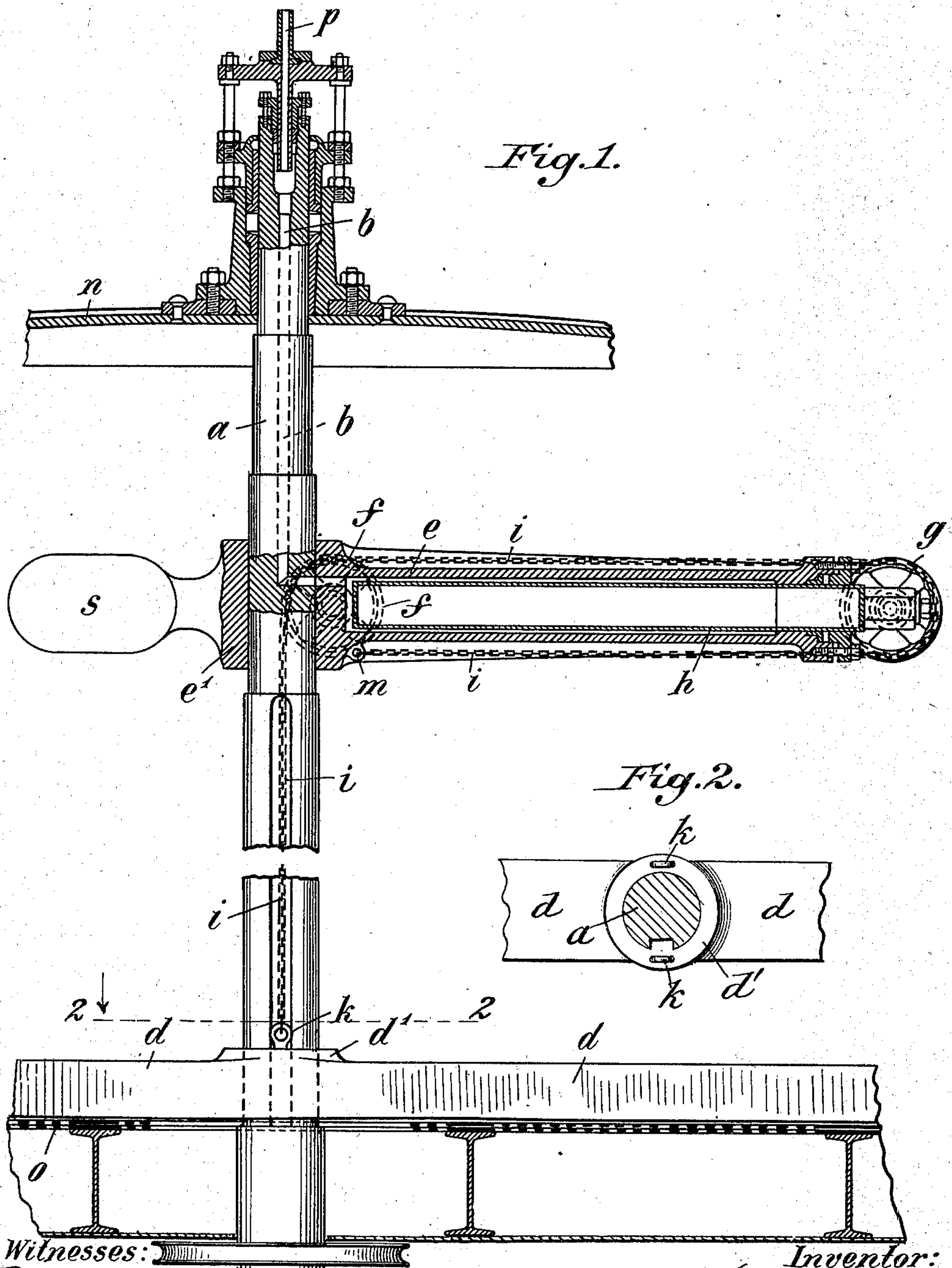
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V. LAPP.

COMBINED CLEARER AND LIFTER FOR GRAIN STEEPERS.

APPLICATION FILED DEC. 6, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

VALENTIN LAPP, OF LEIPZIG, GERMANY.

COMBINED CLEARER AND LIFTER FOR GRAIN-STEEPERS.

SPECIFICATION forming part of Letters Patent No. 733,055, dated July 7, 1903.

Application filed December 6, 1902. Serial No. 134,200. (No model.)

To all whom it may concern:

Be it known that I, VALENTIN LAPP, brewer, a subject of the King of Saxony, residing at No. 2 Georgiring, Leipzig, in the Kingdom of Saxony, in the German Empire, have invented a certain new and useful Improved Combined Clearer and Lifter for Grain-Steepers, of which the following is a specification.

This invention relates to a combined clearer and lifter for closed—i. e., hermetically closed—steeping vats or tubs such as used for the steeping of grain and the like. The clearer serves for removing the grain after the steeping, and the lifter serves for lifting the clearer after all the grain has been removed out of the vat or tub or other hermetically-closed vessel in which the steeping has been effected. However, removing the steeped grain is not the sole object of the clearer; but another object of the same resides in stirring the grain within the water during the steeping operation, and also during this operation the clearer is raised and lowered, so as to act upon all the portions of the grain.

Contrary to known constructions, the lifting device, which consists of a hydraulic cylinder and piston, is not arranged outside the steeping vessel, but inside the same, and said device is attached not to the stationary wall of the steeping vessel, but to the shaft by which the clearer is rotated.

In order to make my invention more clear, I refer to the accompanying drawings, in which—

Figure 1 is a vertical section through the middle portion of a grain-steepers furnished with my invention, the hydraulic lifting device being also shown in section. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1.

In the form of construction shown the hydraulic lifting device consists of a horizontal cylinder *e*, fixed to the vertical shaft *a*, which may be rotated from below by any suitable means.

n designates the middle portion of the top of the steeping vessel, and *o* designates a part of a perforated plate or sieve-bottom by which the grain is supported. This sieve-bottom is provided with comparatively large apertures, which may be closed by slides or the like. The bottom proper of the steeping vessel is not shown.

The clearing device consists of two arms *d d*, extending from the shaft *a* to opposite directions. The connecting-piece or hub *d'* of the arms *d d* embraces the shaft *a* and may be longitudinally displaced along this shaft. The connection of the shaft *a* with the hub *d'* is effected by feather and groove, so that the arms *d d* may be rotated by the shaft *a* without the longitudinal displacement of the latter along the shaft *a* being thereby impaired.

The hub *d'* is provided with two ears *k*, to which are attached chains or ropes *i*, extending upward over pulleys *f*, carried by the base portion *e'* of the cylinder *e*. The cylinder *e* contains a piston *h*, the head of which carries two pulleys *g*, arranged in proper relation with respect to the pulleys *f*. The chains or ropes *i* extend from the pulleys *f* over the pulleys *g*, and the ends of said ropes or chains are also fixed to base portion *e'* of the cylinder *e*. *m* indicates the point where the ends in question are fixed to *e'*.

The upper part of the shaft *a* is provided with a longitudinal bore *b*, the lower end of which is connected with the cylinder *e*. The upper end of the bore *b* is connected with a pipe *p*, through which the water under pressure may be introduced into the bore *b* and the cylinder *e*. When the water under pressure is made to pass into the cylinder *e*, the piston *h* is forced out of said cylinder, and the motion thus imparted to the pulleys *g* is transmitted through the chains or ropes *i* to the clearing-arms *d* irrespective of whether the shaft *a* is in rotation or not.

Having now described my invention, what I desire to secure by Letters Patent of the United States is—

1. In a grain-steepers, the combination, with a steeping vessel, a rotary shaft arranged centrally within said vessel, a hydraulic cylinder arranged upon said shaft within said vessel, a piston within said cylinder, a clearer extending over the grain-supporting bottom of said vessel and adapted to be rotated by the shaft and to be raised and lowered by the piston, means for conducting water under pressure into the hydraulic cylinder, and means for rotating said shaft.

2. In a grain-steepers, the combination, with a steeping vessel, a rotary vertical shaft arranged centrally within said vessel, a hy-

draulic cylinder having fixed relation to said shaft and disposed within said vessel, a piston within the cylinder, a clearer extending over the grain-supporting bottom of said vessel and adapted to be rotated by the shaft and capable of displacement longitudinally thereof, a connection between said clearer and the piston whereby the movement of the piston will cause a corresponding movement of the clearer, means for conducting water under pressure into the cylinder, and means for rotating the shaft.

3. In a grain-steeper, the combination, with a steeping vessel, a rotary vertical shaft disposed centrally within said vessel, a hydraulic cylinder mounted upon said shaft within said vessel, a piston within the cylinder, a clearer extending horizontally over the grain-supporting bottom of the vessel and adapted to be rotated by the shaft and capable of displacement longitudinally of said shaft, a pulley carried by the piston, a pliable connection secured at one end to a fixed portion of the cylinder and passing over the pulley, and the other end connected with the clearer, means for conducting water under pressure into the cylinder, and means for rotating the shaft.

4. In a grain-steeper, the combination with a steeping vessel, a rotary vertical shaft extending through said vessel, a hydraulic cylinder and piston extending horizontally from said shaft inside the vessel, a clearer extending horizontally over the grain-supporting bottom of the said vessel and adapted to be rotated by the shaft and to be raised and lowered by the movable part of said hydraulic cylinder and piston, means for conducting water under pressure into the stationary part of the hydraulic cylinder and piston, and means for rotating the said shaft.

5. In a grain-steeper, the combination with a steeping vessel, a rotary vertical shaft extending through said vessel, a hydraulic cyl-

inder extending horizontally from said shaft inside the vessel, a piston within said cylinder, a clearer extending horizontally over the grain-supporting bottom of the said vessel and adapted to be rotated by the shaft and to be raised and lowered by said piston, means for conducting water under pressure into said hydraulic cylinder, and means for rotating the said shaft.

6. In a grain-steeper, the combination with a steeping vessel, a rotary vertical shaft extending through said vessel, a hydraulic cylinder and piston extending horizontally from said shaft inside the vessel, a clearer extending horizontally over the grain-supporting bottom of the said vessel and adapted to be rotated by the shaft, a pliable pulling element connecting said clearer with the movable part of said hydraulic cylinder and piston, pulleys guiding said element, means for conducting water under pressure into the stationary part of the hydraulic cylinder and piston, and means for rotating the said shaft.

7. In a grain-steeper, the combination with a steeping vessel, a rotary vertical shaft extending through said vessel, a hydraulic cylinder extending horizontally from said shaft inside the vessel, a piston within said cylinder, a clearer extending horizontally over the grain-supporting bottom of the said vessel, pulleys arranged at the free end of said piston, pulleys arranged at the base portion of said hydraulic cylinder, ropes running over the said pulleys and being attached at one end to said clearer and at the other end to a fixed point, means for conducting water under pressure into the hydraulic cylinder, and means for rotating the said shaft.

In witness whereof I have hereunto set my hand in presence of two witnesses.

VALENTIN LAPP.

Witnesses:

RUDOLPH FRICKE,
P. V. V. DUNN.