(No Model.)

H. SMITH.

APPARATUS FOR WASHING GRAIN.

No. 439,905. Patented Nov. 4, 1890.

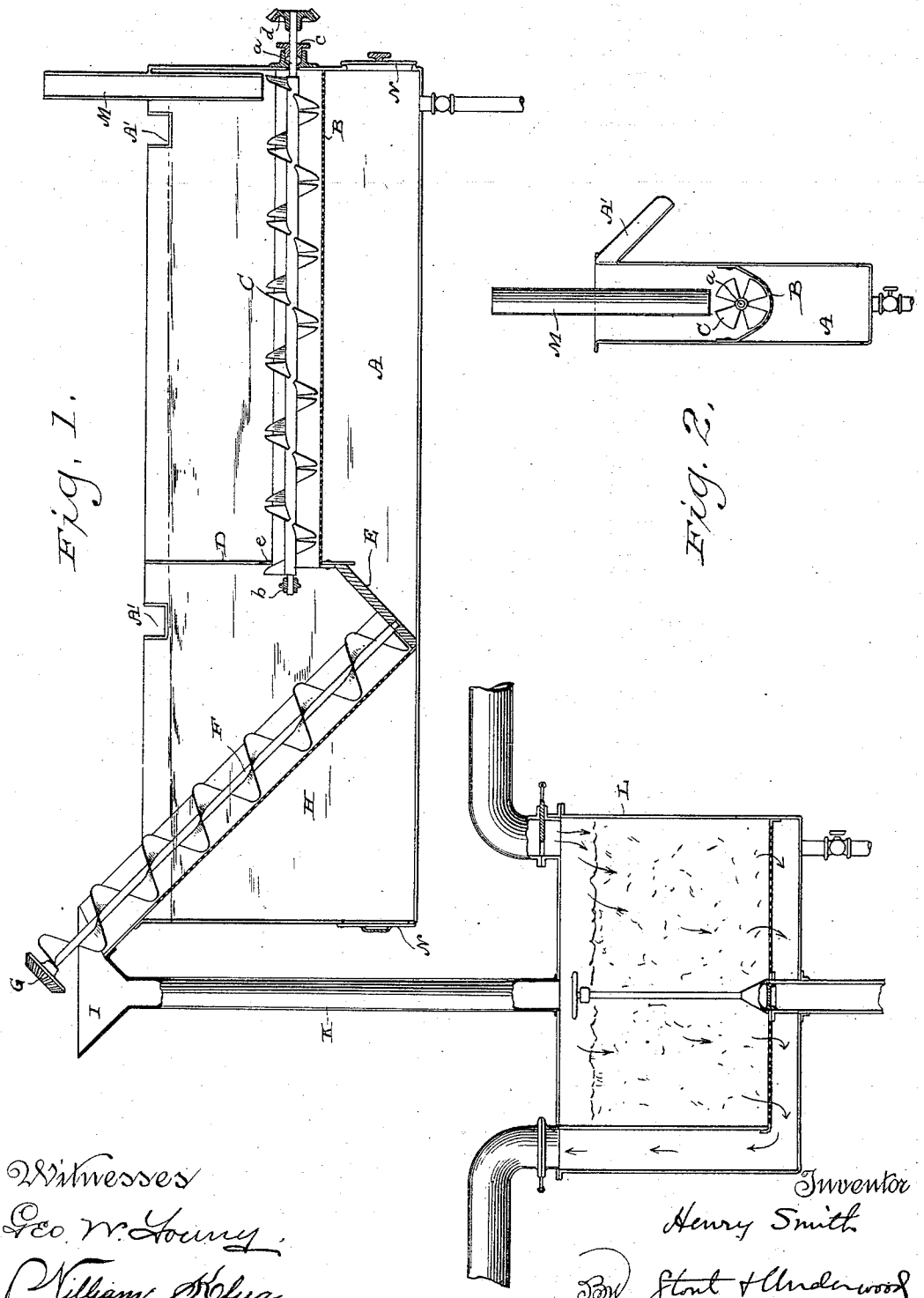


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR WASHING GRAIN.

SPECIFICATION forming part of Letters Patent No. 439,905, dated November 4, 1890.

Application filed May 7, 1889. Serial No. 309,935. (No model.)

To all whom it may concern:

Be it known that I, HENRY SMITH, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Washing Grain; and I do hereby declare that the following is full, clear, and exact description thereof.

My invention relates to apparatus for treating grain in the process of malting, &c.; and it mainly consists in means of washing the grain, which will be fully described hereinafter.

In the drawings, Figure 1 is a vertical longitudinal section through a washing and steeping tank, and Fig. 2 is a transverse vertical section through the receiving end of the washing-tank.

The object of my invention is to produce an apparatus which shall give malt and other grain a double continuous washing and which shall keep the impurities first removed from the grain entirely separate from those subsequently removed as the grain is fed out of the machine. These purposes I attain by virtue of the construction which I will now proceed to describe.

A is an oblong tank, which is provided with a curved and perforated horizontal false bottom B for a portion of its length for the reception of a horizontal conveyer C, the shaft *a* of which has suitable end bearings *b c*, and is driven by a power that is geared to it at *d*. A vertical partition D separates the upper portion of the tank into two compartments, and the inner end of the conveyer C passes through an opening *e* in this partition. Extending obliquely downward from the lower edge of partition D to the floor of the tank is another partition E, which is inclined, as shown, and in which is the lower bearing of an upwardly-inclined conveyer F, which has a suitable upper bearing, and is connected by a bevel-wheel or pulley G with a driving-power, An upwardly-inclined floor H, which is preferably perforated, extends from partition E up into the mouth of a hopper I, and a pipe K leads from this hopper to a steeping-tank L or to any other source of delivery of the washed grain.

The tank A is supplied with water that overflows through spout A′, and the grain is delivered to the conveyer C through a pipe M, from whence it is carried toward the partition D, and through the opening *e*, from whence it falls to the inclined partition E, which guides it to the conveyer which in turn conveys it to the hopper.

It will be observed that the blades of the conveyer C are not continuous, and hence they act as stirrers as well as conveyers, separating the grain and causing heavy foreign matter to drop through the perforated floor B, and also liberating the light fluffy matter, which floats out with the overflow.

In practice the grain will be thoroughly washed before it leaves conveyer C, as all the grain entering the tank A through pipe M must travel the entire length of the last-named conveyer to reach the conveyer F, which takes it to the hopper; but for fear that any sand may still remain the floor is preferably perforated that this remaining sand may drop through into the bottom of the tank.

The office of vertical partition D is to prevent floating matter from getting to the conveyer F, which would in that case carry it into the hopper.

When necessary to clear the bottom of the tank A, access thereto can be readily had from either end by means of the man-holes shown, which are usually closed by doors N N.

It will be seen that as the conveyer C revolves it creates a current of water toward the opening *e*, thus assisting in carrying the grain out through said opening, and it will also be seen that the lighter impurities, which rise to the surface of the water, and the heavier impurites, which fall to the bottom of the tank during the first washing, are prevented by the partitions D E from mingling with the water which surrounds the inclined conveyer F. Thus the grain is given a double washing, and the operation is continuous.

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

An improved grain-washing apparatus comprising a tank divided into two separate compartments by an upper vertical and a lower inclined partition, a horizontal conveyer located

in the receiving-compartment and having a perforated casing and an upwardly-inclined conveyer in the discharge-compartment having a perforated casing, and a feed-opening in the vertical partition, substantially as described.

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.

HENRY SMITH.

Witnesses:
H. G. UNDERWOOD,
WILLIAM KLUG.