(12) **United States Patent**
Kelsey

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(54) **GRIST MILL, HORIZONTAL**

(76) Inventor: **Israel Kelsey**

Israel Kelsey — Waterford Essex Co.

Letters Patent.

The Schedule referred to in these Letters Patent, and making part of the same containing a description in the words of the said Israel Kelsey himself of his horizontal mill.

It is so constructed that it will go under water at any depth, without any sensible variation under any given head, provided it always proposed to be under water, when the water is at the lowest, as for a tide mill where it is subject to inundation — it is so constructed with a bed of sufficient bigness for the wheel to stand round the wheel, and a passage or passages sufficient to contain water enough to drive a mill at occasion requires — sometimes one passage is sufficient, and sometimes two are necessary — and it may be found necessary to have four — which passages are dug in the bed to receive water under the cylinder sufficient to drive the mill, and when the water has passed the cylinder the passage or passages must also nearly diminish — until it gets round within the cylinder, running out at the passages where the water enters under the cylinder & forces the water up under the wheel with its hydrostatical power — the gate must be as near the cylinder as possible — the wheels proper for this apparatus are various according to the particular use designed and as occasion or circumstances require — the wheels consist of a core through which the shaft is put — the bigness of the core of the bed (or the bottom of the shaft may answer the same purpose) within the passages for the water — and the buckets are placed nearly in a spiral form round the core — in direct opposition to the use of the passages; or in some cases it is best to have the wheel solid, except passages cut thro' the wheel sufficient to receive the water from the passage with a hook at the bottom to receive the water and throw back in the same manner as the other wheels. the water is then delivered backward thro' the top of the wheel — the sig

and proportion of the buckets and passages may vary according to circumstances - they are commonly about one fifth of the diameter of the wheel and the depth of the passages where they pass under the cylinder may be nearly double the width. the width may be varied to a fourth or sixth of the diameter of the wheel or what proportion best suits the situation. the greater the passages are in proportion to the wheel. the less hydrostatic power is acting under the core of the wheel - and the less the passages are in proportion the more of such power is acting under the wheel - also the power of this apparatus is principally hydrostatical especially the part which is worthy upon hydrostatical principles, without any loss of motion, except the bucket giving way to the water in the same proportion as a wedge gives way to the pressure to turn it self out,

Connecticut City of Hartford, July 21st 1809

Isaac Kelsey.

Witnesses
Tho.s Seymour
Joseph Kelsey
Benjamin Wedham