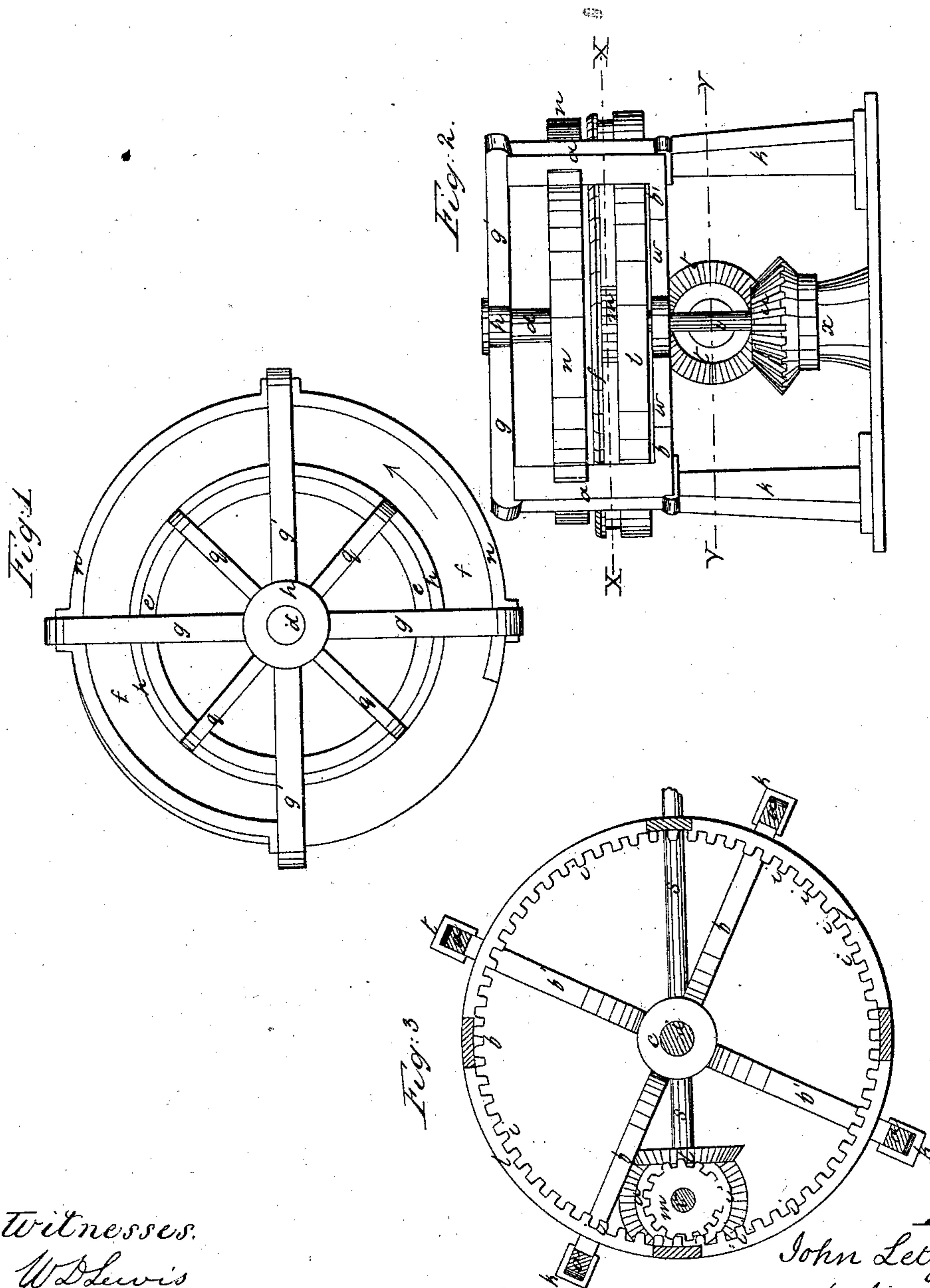


J. Letzkus,

Squeezer for Puddlers Balls,

Patented June 12, 1866.

N^o 55,513.



Witnesses.

W. Lewis

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Inventor
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UNITED STATES PATENT OFFICE.

JOHN LETZKUS, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN SQUEEZERS.

Specification forming part of Letters Patent No. 55,513, dated June 12, 1866.

To all whom it may concern:

Be it known that I, JOHN LETZKUS, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Squeezers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of a squeezer constructed with my improvement. Fig. 2 is a side elevation thereof. Fig. 3 is a horizontal section at the line *x x* of Fig. 2.

In the several drawings like letters refer to similar parts.

The ordinary form of eccentric rotary squeezers employed for squeezing the cinder out of puddle-balls of iron and upsetting and compressing the bloom into a slab consists of a central cylinder or drum, which revolves within an outer stationary drum placed with its center eccentric to the axis of the inner revolving drum. The central or inner drum is attached to the lower upset, so as to form a bottom to the space between the inner and outer drums, and revolves with it. The puddle-ball is placed on the lower upset, at the widest part of the space between the drums, and is carried into the space between the drums, which is continually contracting in width, and is rolled round and round in its narrowing path until it is delivered at the point at which it entered.

The lower upset and its attached central drum are caused to revolve by means of a horizontal driving-shaft carrying a mitered cog-wheel, which gears into mitered teeth on the outer circumference of the lower upset. This horizontal driving-shaft is necessarily placed only a little below the level of the lower upset, and is very much in the way, as the iron can only be inserted and delivered conveniently at a point on the circumference of the outer drum which is at right angles to and as far as possible from the shaft.

Another serious objection is that the cinder from the puddle-ball is able to drop down on the outer edge of the lower upset and get into the gearing on its circumference and into the bearings of the driving-shaft, and as the cinder is very hard it clogs and cuts the gearing and the bearings of the shaft. So much is this the

case that the shaft will often cut so badly as to become useless with six weeks' use, and the gearing will not last a year.

The object of my invention is to remedy these defects by so constructing and arranging the gearing as to protect it from the cinder, and to remove the driving-shaft out of the way of the workmen, so as to permit the mouth of the outer drum to be placed at any desired point in the machine.

To enable others skilled in the art to construct and use my improvement, I will proceed to describe my invention more fully.

In the drawings *a a a a* are four iron posts, made in one piece with the lower cross-bars, *b b'*, at the intersection of which, in the center of the machine, is the step *c* of the vertical shaft *d*, on which the center drum, *e*, and lower upset, *f*, revolve. The upper cross-bars, *g g' g'*, are placed on top of and secured to the posts *a*, &c., and at their intersection is the top bearing, *h*, of the vertical shaft *d*. The props *k k k k* support the machine in a pit in which it is placed, and which may be walled around to the height of the rim *l* of the lower upset, *f*, which is on a level with the ground.

The lower upset, *f*, is another plate of metal, to which is attached the inner or central drum, *e*, which rises from it at right angles. The rim *l* of the lower upset is a circular ring placed below and attached to the circumference of the lower upset, and around its inner face are cog-teeth *i*, as shown in Fig. 3, into which gears the cog-wheel *m*, which is placed inside of it, under the lower upset, *f*. The outer drum, *n*, is placed on the lower upset, *f*, between the posts *a a*, &c., by which it is sustained, and its inner drum, *e*, so as to make the space between the inner surface of the outer drum, *n*, and the outer surface of the inner drum, *e*, gradually narrowing in the direction of the arrow in Fig. 1.

The top upset, *p*, is a ring or loose circular flange which projects downward around the inner drum, *e*, so as to keep the puddle-ball in place. It has arms *q*, which converge to a hub, which has its bearing on the central shaft, *d*. Thus constructed, the lower upset, *f*, and inner drum, *e*, revolve on their axis or shaft *d*, while the outer drum, *n*, is stationary, and the top upset, *p*, is carried round by the puddle-ball as it is forced through between the drums *n* and *e*.

The revolution of the lower upset, *f*, and inner drum, *e*, is effected by means of a horizontal driving-shaft, *s*, which carries a miter-gear wheel, *t*, which gears into another miter-gear wheel, *u*, on a short vertical shaft, *v*. The shaft *v* is placed to one side of the central shaft, *d*, but inside of the circumference of the machine, and has its upper bearing in a bar, *w*, supported by the lower cross-bars, *b b'*, (see Fig. 2,) and its lower bearing in a step at *x*.

The horizontal driving-shaft is situated below the lower cross-bars, *b b'*, at the level of the line V V, Fig. 2, and is thus placed below the surface of the ground and entirely out of the way of the workmen.

The machine is operated by power applied to the driving-shaft *s*, which, by means of the mitered cog-wheels *u t*, causes the revolution of the vertical shaft *v* and its pinion *m*, which, gearing into the teeth on the inside of the rim *l*, attached to the lower upset, *f*, causes it and its inner drum, *e*, to revolve.

The outer edge of the lower upset, *f*, projecting over the outside of the rim *l*, entirely prevents any cinder from getting access to the

gearing of the rim *l* and pinion *m*, and also protects the bearings of the driving-shaft.

One of the advantages of my improvement is that when the gearing for operating the machine is constructed and arranged as I have described the squeezer may be placed and operated with its axis horizontal instead of vertical, which cannot be done with the old mode of gearing.

Having thus described my improvement in squeezers, what I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the top upset, *p*, lower upset, *f*, and drums *e* and *n* with the main shaft *s*, geared directly or indirectly to the inner circumference of the lower upset, the whole being arranged and operating for the purpose of squeezing puddlers' balls, substantially as hereinbefore described.

In testimony whereof the said JOHN LETZKUS has hereunto set his hand.

JOHN LETZKUS.

Witnesses:

ALLAN C. BAKEWELL,
A. S. NICHOLSON.