

(No Model.)

2 Sheets—Sheet 1.

E. M. LANTZ.
CIDER PRESS.

No. 514,831.

Patented Feb. 13, 1894.

FIG. 1.

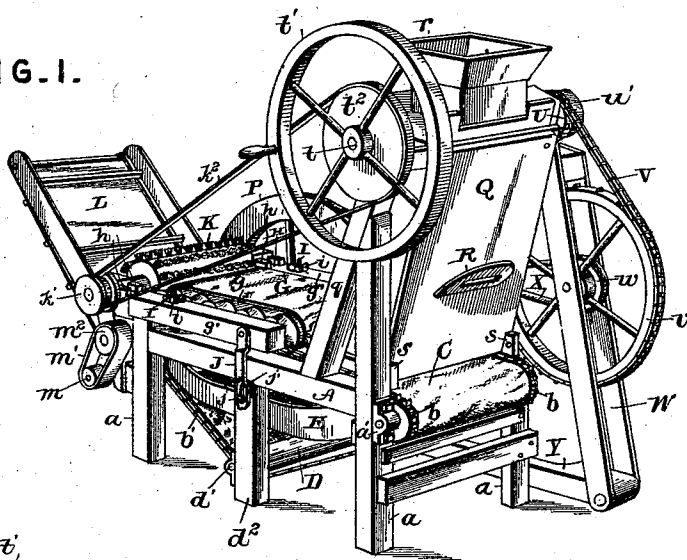
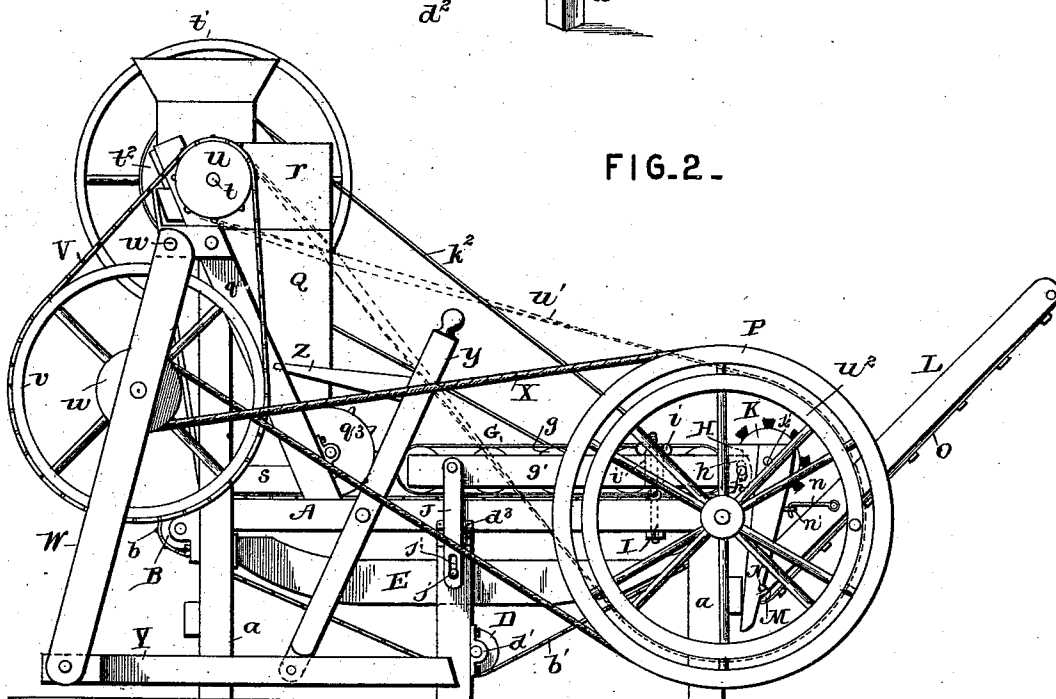


FIG. 2.



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Witnesses

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By his Attorneys,

Cash & Co.

(No Model.)

2 Sheets—Sheet 2.

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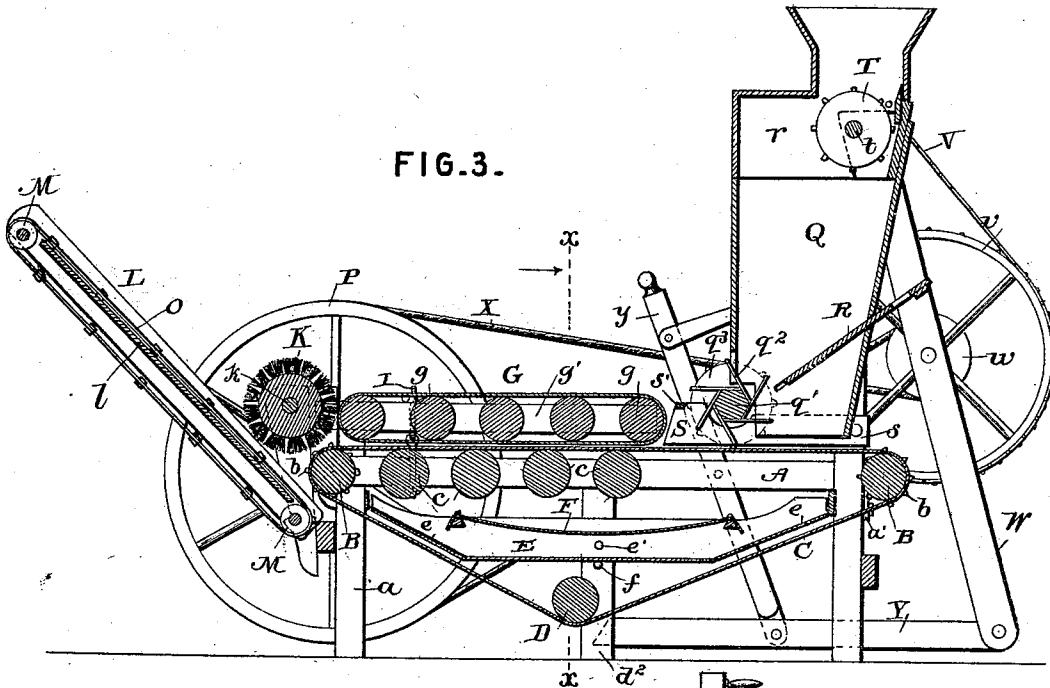


FIG. 4.

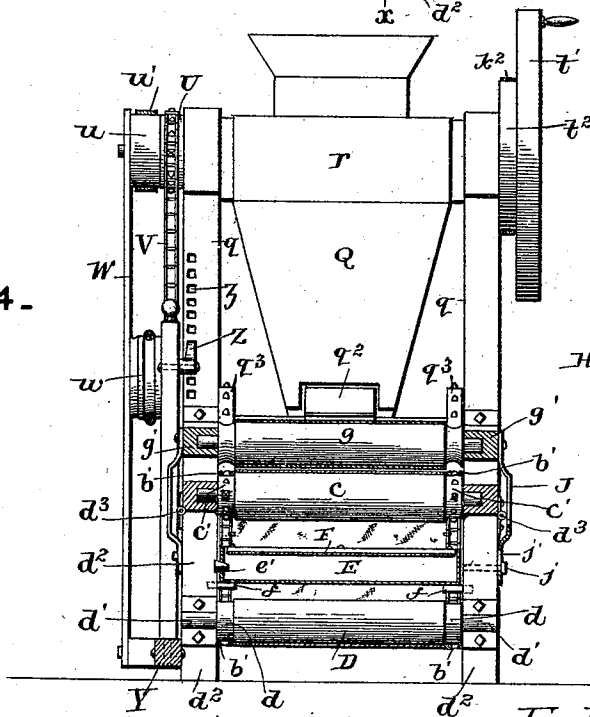
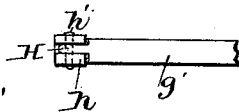


FIG. 5.



Inventor.

Witnesses

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UNITED STATES PATENT OFFICE.

EMANUEL M. LANTZ, OF HELENA, OHIO.

CIDER-PRESS.

SPECIFICATION forming part of Letters Patent No. 514,831, dated February 13, 1894.

Application filed October 2, 1893. Serial No. 487,018. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL M. LANTZ, a citizen of the United States, residing at Helena, in the county of Sandusky and State of Ohio, have invented a new and useful Cider-Press, of which the following is a specification.

This invention relates to cider mills; and it has for its object to provide certain improvements in cider mills which include therewith pressing devices for squeezing out the juice from the pomace.

To this end the main and primary object of the present invention is to effect certain novel improvements in machines of this character whereby the same will be rendered much more practicable and efficient.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the drawings: Figure 1 is a perspective view of a cider mill and press constructed in accordance with this invention. Fig. 2 is a side elevation from the side opposite to that shown in the perspective. Fig. 3 is a central vertical longitudinal sectional view. Fig. 4 is a transverse sectional view on the line $x-x$ of Fig. 3. Fig. 5 is a detail plan view of the connection at one end of the pressure frame.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

Referring to the accompanying drawings, A represents the main frame of the machine, constructed in any suitable length or width, according to the size of the machine being built, and said frame is provided at each end with the depending supporting legs a adapted to rest on a floor or in other convenient location, and at the upper opposite end of said frame are arranged the opposite pairs of bearing-boxes a' in which are journaled the end-apron rollers B. One of the end-apron rollers B serves in the capacity of a lower pressure roller, and both of the rollers are provided at their opposite ends, inside of the bearings a' with the sprocket-portions b , which are adapted to receive the endless apron-chains b' . The opposite apron chains b' are arranged to travel

parallel with each other and have attached thereto the opposite edges of the lower permeable cider-apron C. The lower permeable 55 cider-apron C is designed to allow the cider, pressed from the milled fruit, to pass there-through during the operation of the machine, and the upper portion of the cider-apron is supported to travel in a horizontal plane by 60 means of the intermediate lower pressure rollers c . The lower pressure rollers c have their opposite ends journaled in the sides of the frame A, intermediate of the ends of the frame and at regularly spaced distances from 65 one of the end apron-rollers B, and the said intermediate lower pressure rollers c are provided near their opposite ends with the sprockets c' , which are engaged by the opposite chains b' , which serve to communicate 70 motion to the lower pressure rollers when the cider-apron is in operation.

The lower portion of the cider-apron C is guided to travel under the centrally-arranged combined guide and tightener roller D, which 75 roller is provided with the opposite reduced chain portions d , over which pass the opposite apron-chains b' , and such roller has the opposite spindle-ends thereof journaled in the bearing-boxes d' , secured to the lower 80 ends of the intermediate bearing legs d^2 . Both of the bearing-legs d^2 depend from the opposite sides of the frame A at an intermediate point, and one of said legs is hinged, as at d^3 , to the frame A, whereby such leg can 85 be readily swung out from engagement with one end of the roller D and swung up out of the way, in order to provide ready access to the cider tank or pan E, which is removably supported in position directly under the upper 90 horizontal portion of the cider apron. By depressing the lower portion of the cider apron with the roller D, such cider apron is not only always kept stretched, but also provides means for conveniently arranging the 95 cider tank or pan inside of the frame between the upper and lower portions of the cider apron, and said cider tank or pan E is provided with inclined ends e which accommodate it to the space inclosed by the cider apron, and is also provided with a plugged drain- 100 opening e' , from which the cider may be drained from the tank or pan after removal. The open top portion of the cider tank or pan

E is covered by a cloth, or other suitable strainer, F, which extends from end to end of the tank or pan and provides means for completely straining the cider before it is admitted into the tank or pan, and the latter is removably supported in position out of contact with the lower portion of the cider apron by means of the supporting pins *f*, secured to and projecting from the opposite bearing-legs *d*², so as to engage beneath the bottom of the cider tank or pan. When the hinged bearing-leg is swung out, the supporting pin carried thereby is disengaged from the bottom of the tank or pan so that it may be readily removed.

The requisite pressure is maintained on top of the lower cider apron, and the lower pressure rollers under the upper portion thereof, by means of the upper endless pressure apron G. The upper endless pressure apron G is made of any suitable material and is tightly stretched over a series of upper pressure rollers *g*, the ends of which are journaled in the opposite adjustable frame-bars *g'*, which, together with the rollers and apron carried thereby, forms an adjustable pressure frame, which may be adjusted to any desired pressure on top of the lower cider apron and lower pressure rollers.

As clearly shown in the drawings, the upper pressure rollers *g* are arranged above and slightly in rear of each one of the lower pressure rollers, to facilitate the free running of the juice through the cider apron at one side of the lower pressure rollers. The opposite frame-bars *g'* are provided at one end with the slotted tongues *h*, which are fitted in the retaining sockets *h'* and are adapted to receive the retaining pins *h'*, passing through the sides of said sockets and the slots in said tongues, whereby the said frame-bars are free to move when adjusted by means of the intermediate adjusting-bolts *I*. The adjusting-bolts *I* are connected at one end to the opposite sides of the frame A, and have their threaded portions project through perforations or openings *i'*, so as to be engaged at their upper ends by the adjusting-nuts *i*, which, when manipulated, tighten or loosen the pressure of the upper pressure-apron on the lower cider-apron, but it will of course be understood that other suitable means for regulating this pressure may be employed. The upper pressure frame is of a shorter length than the lower apron, and the inner ends of the frame-bars *g'* have attached thereto the opposite straps *J*, provided with lower slotted ends *j*, engaged by the screws or pins *j'*, which are secured in the opposite bearing-legs, and these straps also provide means for allowing the inner end of the upper pressure frame to move according to the adjustment of the adjusting-bolts *I*.

It is of course understood that, when the machine is in operation, the contact of the lower cider apron with the upper pressure apron will impart motion to the latter and in

a reverse direction, and by reason of the relative arrangement of these two aprons the juice will be completely extracted from the pomace before it reaches the discharging ends of both aprons, at which point is arranged a rapidly-revolving cleaning-brush K. The cleaning-brush K is constructed of any suitable size so as to fit the space or mouth formed between the upper and lower pressure rollers located at one end of the frame, and thereby providing means for cleaning both aprons of the dried pomace as it issues from between them. The cleaning-brush K is mounted on a brush-shaft *k*, the opposite ends of which are journaled in suitable bearings at opposite sides of the frame, and said shaft carries at one end a pulley *k'*, over which passes the belt *k*², for imparting motion to the brush.

The revolving cleaning-brush K serves to throw the pomace onto the carrier-frame L, removably arranged at an inclination at one end of the machine frame. The carrier-frame L is provided with an imperforate platform *l*, and carries at both ends the belt-rollers M, the lower one of which projects beyond both sides of the carrier-frame and removably fits in the open bearing-notches N, formed in one end of the frame A, below the pressure apron-roller B, and said carrier-frame is removably held in position by means of a suitable hook *n*, attached to the frame and engaging an eye *n'*, on the machine frame. A slatted pomace carrier or belt O is mounted within the frame L and passes over both rollers therein, and the lower one of the rollers N carries at one end a pulley *m*, over which passes a short belt *m'*, which also passes over an adjacent pulley *m*², arranged on one end of the pressure-apron roller B, to the other end of which apron roller is secured the belt-wheel P, which serves to communicate motion to the several endless aprons, as will be presently described.

As already described, the cider apron is longer than the upper pressure apron G, and removably supported in position above the exposed end of the cider apron adjacent to the inner end of the pressure apron, is the hopper Q. The hopper Q is suitably secured between the opposite frame-uprights *q*, which are secured to and arise from one end of the frame A, and said hopper is provided with a lower open end through which the milled apples pass to the cider apron before passing under the upper pressure apron, and arranged to move within the lower open end of the hopper box Q is a feed-roller *q'*, provided with a tangential series of feed-blades *q*², working within the hopper and forcing the material onto the cider apron at one end, and said feed-roller *q'* is suitably journaled on the opposite frame-uprights *q* and carries at opposite ends the sprocket-wheels *q*³, which are arranged above and engage the opposite apron-chains *b'*, which serve to communicate motion to the feed-roller in a direction opposite to the movement of the cider apron.

The quantity of material fed onto the cider

apron by the feeding device is regulated by an adjustable feed-board R, suitably mounted within the lower portion of the hopper, and said feed-board may be adjusted so as to close in the bottom of the hopper and allow it to be filled with ground apples before the pressing devices are set in motion, as will be presently described, and the top of the hopper Q is inclosed by the hinged top *r*, through which the material is fed into the hopper, and the material fed from the hopper onto the cider apron is guided directly under the upper pressure apron and prevented from moving off sidewise by the combined guard and guide frame S. The guard-frame S comprises the opposite converging side-bars *s*, secured at their outer ends to opposite sides of the frame and having their inner ends connected by the top cross-piece *s'*, which permits of the free rotation of the feeding device, while at the same time serving to guide the fruit to a contracted feed-opening lying directly in front of one end of the upper pressure apron.

A toothed grinding-roller T is mounted within the top of the hopper Q and serves to grind the apples as they are fed into the hopper top *r*, and said grinding-roller T is mounted on the shaft *t*, journaled in the upper ends of the frame-uprights *q*, and carrying at one end a crank-wheel *t'*, from which motion may be communicated to the machine if desired, and at one side of the crank-wheel *t'* is arranged a pulley *t''*, which receives one end of the belt *k''*, and serves to communicate motion to the revolving cleaning-brush K. The other end of the shaft *t* carries a sprocket-wheel U, and an adjacent pulley *u*, over which latter may pass a crossed drive-belt *u'*, one end of which belt may be arranged to pass over a crank belt-wheel *u''*, loosely mounted at one side of the belt-wheel P, and which may be employed, if desired, for communicating motion to the machine instead of from the wheel *t'*, but the shaft *t* may be driven by suitable belting from an engine, or in any other desired manner.

The sprocket-wheel U on one end of the shaft *t* imparts motion to the sprocket-chain V, which is arranged to pass over a larger sprocket-wheel *v*, journaled in the swinging gear-yoke W, and carrying at one side a belt-pulley *w*, over which belt-pulley is adapted to pass one end of a crossed belt X, the other end of which passes over the belt-wheel P, and communicates motion thereto. The gear-yoke W is hinged or pivoted at its upper end, as at *w'*, to a suitable point of attachment near the upper end of one of the frame-uprights *q*; and the lower end of said yoke is pivoted to one end of the horizontally-movable adjusting-bar Y. The horizontally-movable adjusting-bar Y has loosely connected thereto the lower end of the gear or tightening lever *y*, pivoted to one side of the frame A and carrying near the upper end thereof the pivoted dog Z, which is adapted to en-

gage any one of the locking-notches *z*, formed at one side of one of the frame-uprights *q*.

When the machine is in operation, it will be obvious that the pressing devices necessarily move somewhat slower than the grinding and discharging devices, and when so desired, the feed-board R may be shoved across the lower portion of the hopper and, by means of the gear-lever *y*, the gear-yoke W may be adjusted so as to loosen the belt X and throw the pressing devices out of gear, while the grinder continues to revolve and fills up the hopper full of ground fruit. When the hopper is full the gear-lever *y* is moved in one direction so as to tighten up the belt X, and thereby throw the pressing devices into gear, so that the operation of squeezing out the juice from the apples may commence.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a cider mill, the combination of the frame, an endless permeable cider apron having an upper horizontal portion, a series of lower pressure rollers mounted within the frame under the upper portion of the cider apron, an upper adjustable frame carrying a series of upper pressure rollers disposed above and slightly in rear of each lower pressure roller, an inclined pomace carrier located at one end of the frame, fastening devices detachably connecting the pomace carrier with the frame, and a cleaning brush disposed over the pomace carrier at one end of the main frame, substantially as set forth.

2. In a cider mill, the frame, apron rollers journaled at each end of said frame and having sprockets at their ends, opposite endless apron chains passing over the sprockets of said apron rollers, an endless cider apron attached to said apron chains, a series of lower pressure rollers mounted in the frame under the upper portion of the cider apron intermediate of the end apron rollers and each of which is provided with end sprockets engaged by said apron chains, a combined guide and tightener roller suitably journaled below the center of said frame and receiving the lower portion of the cider apron which passes thereunder, a cider tank arranged inside of the space between both portions of the cider apron, and the revolving feeder having end sprocket wheels engaging the opposite apron chains substantially as set forth.

3. In a cider mill, the main frame, an endless cider apron mounted in said frame, opposite depending bearing-legs having bearing-boxes at their lower ends and one of which is hinged at its upper end to the main frame and capable of being swung outward, a roller journaled at its ends in the bearing-boxes on said legs and receiving the lower portion of

the cider apron which is depressed thereby, a removable cider tank or pan arranged within the frame under the upper portion of the cider apron, supporting pins secured to each of the bearing-legs and adapted to engage beneath the cider tank or pan, and the feeding and pressing devices, substantially as set forth.

4. In a cider mill, the combination with the main frame, the cider apron having a lower centrally depressed portion, and the feeding and pressing devices; of opposite intermediate frame legs one of which is hinged at its upper end to the main frame, a removable cider tank arranged in the space between the upper and lower portions of the cider apron and having inclined ends and a strainer in the open top portion thereof, and supporting pins secured to the inside of said frame legs and adapted to engage beneath the cider tank to removably hold the same in position, substantially as set forth.

5. In a cider mill, the main frame, the lower cider apron mounted in said frame, a vertically-adjustable pressure frame arranged above the top of the cider apron and having opposite frame-bars provided with slotted tongues at one end, a series of upper pressure rollers, and a pressure apron supported by said frame-bars, suitably-supported retaining pins arranged on the frame and engaging the slotted tongues of the frame-bars, opposite supporting-straps connected to the inner ends of said frame-bars, feeding devices arranged over the cider apron near one end of the pressure frame, and a pomace carrier removably attached to one end of the main frame beyond both aprons, substantially as set forth.

6. In a cider mill, the combination with the main frame having open bearing notches at one end, and the feeding and pressing devices; of an inclined pomace carrier having the extremities of the inner one of its belt rollers loosely turning in said open bearing notches at one end of the frame, and a hook and eye connection between the pomace carrier and main frame to provide for the convenient attachment and detachment of the pomace carrier, substantially as set forth.

7. In a cider mill, the main frame having bearing-notches at one end thereof, the milling and pressing devices mounted on said frame, an inclined carrier frame carrying belt-rollers one of which projects beyond the sides of the frame and removably fits in said bearing-notches, the slatted carrier or belt moving through said frame, and a detachable connection between the carrier frame and the main frame, substantially as set forth.

8. In a cider mill, the combination with an approximately horizontal cider apron the lower pressure rollers arranged under the top

portion of said aprons, and the pressing devices arranged over said cider apron; of a feed-hopper arranged over one end of said apron beyond the pressing devices, a revolving winged feeder mounted to rotate in the lower end of said hopper directly over the cider apron and an inclosing guard frame for said feeder, substantially as set forth.

9. In a cider mill, the combination of the pressing devices the long cider apron having apron-chains at its opposite edges the lower pressure rollers arranged under the top portion of said apron, a feed-hopper suitably supported over one end of the cider apron and having a removable bottom feed-board, a grinder arranged in the top of said hopper, a feed-roller journaled in front of the hopper and having at its opposite ends sprocket-wheels engaging the opposite apron-chains, and a tangential series of feed-blades working inside of the lower open end of the hopper, substantially as set forth.

10. In a cider mill, the combination with the pressing devices; of the feed-hopper, a toothed grinding roller arranged in the top of said hopper, a revolving feeder arranged within the lower end of the hopper, and a convergent guard-frame arranged below the hopper and embracing said revolving feeder, substantially as set forth.

11. In a cider mill, the combination with the milling, feeding and pressing devices; of means for throwing the pressing devices in and out of gear with the milling and feeding devices; substantially as set forth.

12. In a machine of the class described, the combination with the frame having a frame-upright provided with locking-notches, the feeding device, one shaft of which is provided with a sprocket-wheel at one end, the apron devices, one shaft of which is provided with a belt-wheel at one end, a gear-yoke pivoted at its upper end to a suitable point of attachment, a larger sprocket-wheel journaled in said gear-yoke and carrying at one side a belt-pulley, a belt passing over said belt-pulley and said belt-wheel, a sprocket-chain passing over the two sprocket-wheels, a horizontally-movable adjusting bar pivoted at one end to the lower end of said gear-yoke, and a gear-lever pivoted at an intermediate point to one side of the main frame and carrying, near its upper end, a pivoted dog adapted to engage said locking-notches, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EMANUEL M. LANTZ.

Witnesses:

PHILANDER MCCRARY,
JAMES S. DULL.