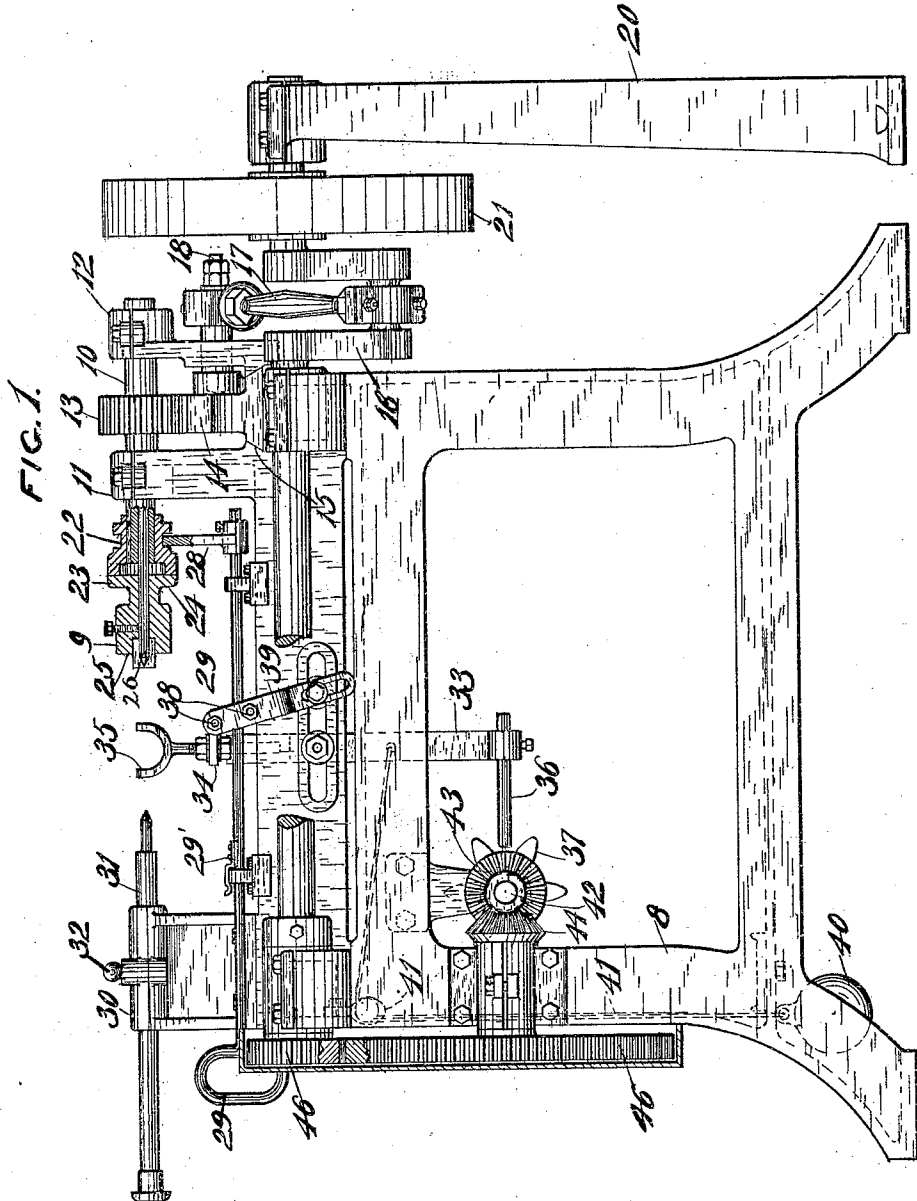


P. GERSTENKORN.
MACHINE FOR GRINDING COOKS.
APPLICATION FILED MAR. 29, 1909.

959,506.

Patented May 31, 1910.

3 SHEETS—SHEET 1.



WITNESSES.

J. J. Thuermer
Anna C. Schmidt

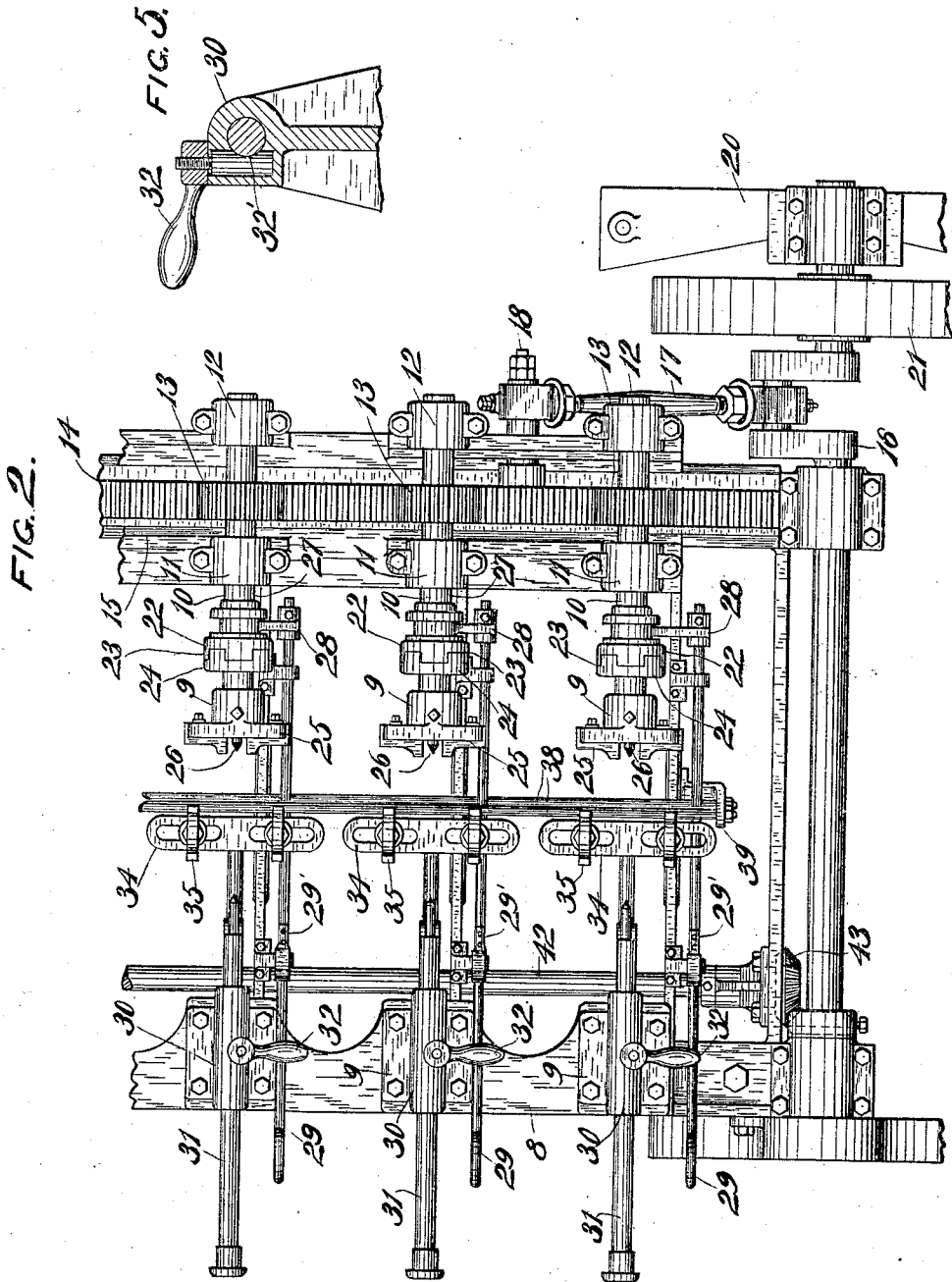
INVENTOR.

Paul Gerstenkorn
By *Benedict, Morse & Caldwell*
ATTORNEYS.

P. GERSTENKORN.
MACHINE FOR GRINDING COCKS.
APPLICATION FILED MAR. 29, 1909.

959,506.

Patented May 31, 1910.
3 SHEETS--SHEET 2.



WITNESSES.
L. H. Thuermer
Anna F. Schmidtbauer

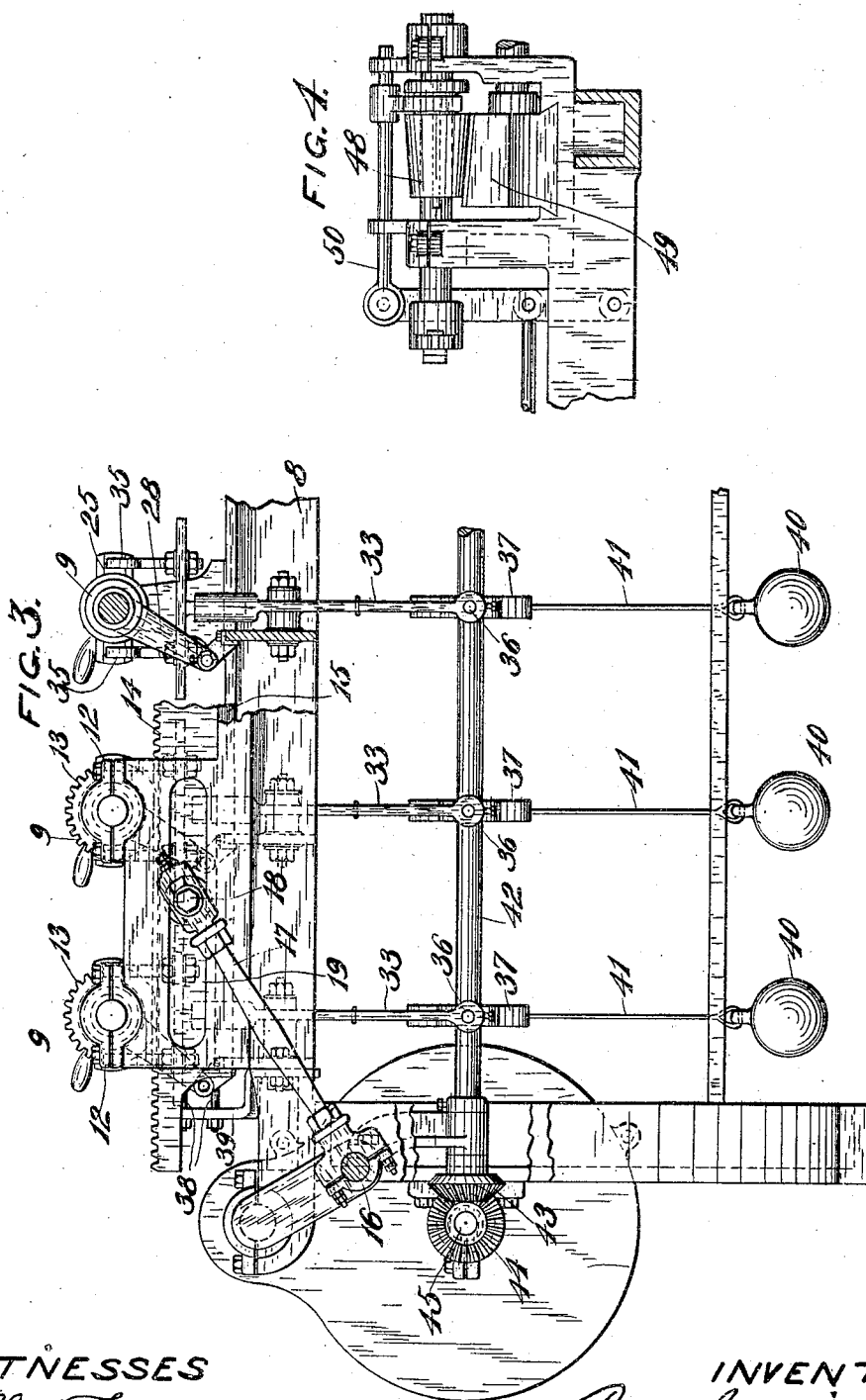
INVENTOR.
Paul Gerstenkorn
By *Benedict, Morrell & Caldwell*
ATTORNEYS.

P. GERSTENKORN.
MACHINE FOR GRINDING COCKS.
APPLICATION FILED MAR. 29, 1909.

959,506.

Patented May 31, 1910.

3 SHEETS—SHEET 3.



WITNESSES

L. H. Thuermer

Anna F. Schmidtbauer

INVENTOR.

Paul Gerstenkorn

By Benedict, Morse & Caldwell
ATTORNEYS.

UNITED STATES PATENT OFFICE.

PAUL GERSTENKORN, OF MILWAUKEE, WISCONSIN.

MACHINE FOR GRINDING COCKS.

959,506.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed March 29, 1909. Serial No. 486,346.

To all whom it may concern:

Be it known that I, PAUL GERSTENKORN, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Machines for Grinding Cocks, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in machines for grinding cocks and more particularly to that class of machines in which a number of cocks may be ground simultaneously.

One of the objects of this invention is to provide a new and improved machine by which a number of cock keys may be ground in their seats and require only the attention of a single operator.

Another object of this invention is to provide a machine of the character described in which the individual grinding devices may be independently controlled without in any manner interfering with the other grinding devices, and when in adjusted position the parts are prevented from accidentally moving to other positions.

A further object of the invention is to provide a machine of the character described in which a plurality of grinding spindles are rotated by means of a single reciprocating rack. And a still further object of the invention is to provide a machine of the character described in which the different portions of the machine are positively driven with relation to each other, or in other words in the transmission of motion within the machine itself the use of belting is eliminated.

With the above and other objects in view, the invention consists of the machine and its parts and combinations, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views; Figure 1 is an end elevation of a machine embodying the improvements with parts in section; Fig. 2 is a plan view of one end of the machine showing spindles for grinding three cock keys simultaneously; Fig. 3 is a rear view of a portion of the machine, parts broken away and other parts in section to show interior construction; Fig. 4 is a detail of a modified form of motion transmission means; and

Fig. 5 is a detail in transverse section of the tail stock fastening means.

Referring to the drawings the numeral 8 indicates the main frame of the machine, and 9 the individual devices mounted thereon for simultaneously grinding the cock keys and seats. The portion of the machine shown in the drawings is adapted to grind three cocks at a time, and it consists of three similar devices mounted on the frame and operated by the same driving mechanism and in describing one of the devices it will be understood that the same description will apply to all of the devices. It is obvious that as many grinding devices or sections may be mounted on the machine as desired and the operation will be the same in each instance. Each individual device consists of a sleeve 10 journaled in bearings 11 and 12 forming part of the main frame. The sleeve between the bearings is provided with a pinion 13 in mesh with a reciprocable rack 14 slidably mounted on the main frame in suitable ways 15 with which the frame is provided. The rack is of sufficient length to engage the pinions of all of the devices or sections mounted on the machine and is adapted to be reciprocated by means of a cranked shaft 16 and a connecting rod 17 connected thereto and to a stud 18 connected to said rack and projecting through a slotted portion 19 of the frame. The cranked shaft 16 is mounted on and extends transversely across the end of the main frame and is the main drive of the machine and its outer end is journaled in a standard 20. A belt wheel 21 mounted on the shaft between the standard and the main frame is adapted to have belted connection with a driving means (not shown) for transmitting motion to the different portions of the machine.

The inner end of the sleeve 10 is provided with a clutch member 22 forming the sliding portion of the clutch 23, the non-slidable portion 24 of said clutch being rigidly connected to and forming part of the holding block 25 provided with jaws for holding the top of the cock-key. The clutch portion 24 and the block 25 are adjustably secured to the end of a shaft 26 mounted in the sleeve 10. The end of the shaft 26 is pointed to adapt it to serve as a lathe center for holding the cock-key. The slidable clutch member 22 is adapted to slide on the sleeve and oscillate therewith by means of a feather 27.

longitudinally fixed in said sleeve and engaged by said clutch member. The rear portion of the slidable clutch member is provided with an annular recess which is engaged by a clutch arm 28 connected to the end of a slidable rod 29 mounted in suitable guides extending upwardly from the main frame. The outer end of this rod is bent to form a handle for convenience in sliding said rod to clutch or unclutch the block from the oscillating sleeve, thus providing means for starting or stopping the oscillation of the individual devices.

When the slidable rod is pulled outwardly to bring the clutch members into engagement with each other, it is desirable to hold said rod from accidentally sliding rearwardly and disconnect the clutch members. To accomplish this result the slidable rod is provided with a shouldered spring clip 29' which is adapted to snap over one of the rod guides and the shoulder of said clip will engage the front edge of the guide and hold the rod against accidental displacement.

A tail stock 30 provided with an adjustable sleeve 31 and center pin is mounted on the opposite side of the main frame and the sleeve and center pin are in axial alinement with the shaft 26 and serve as the other center for holding the cock-key. The adjustable sleeve is slidably mounted in a bearing provided with a clamping screw 32 having a cut-away portion 32' the shoulder of which is adapted to engage the tail stock sleeve whereby said sleeve may be clamped to the bearing to regulate the distance between the two centers.

A swinging lever 33 pivotally mounted on the frame is provided with a slotted T-shaped head 34 which is adapted to have adjustably connected thereto bifurcated members 35 for holding the cock seat which is being ground. The lower end of this swinging lever is provided with a short rod 36 adjustably connected thereto which is adapted to be engaged by a wheel 37 provided with cam shaped teeth. As the short rod is positioned in the path of movement of said teeth the rod and swinging lever will be caused to oscillate back and forth by the rotation of the cam toothed wheel. The swing of the lever rearwardly is limited by stop rods 38 which are supported by brackets 39 (only one being shown) adjustably connected to the main frame. The swinging levers are held normally against the stop rods by means of a weight 40 connected to the lower portion of the lever by a cable or cord 41, the cord passing over a pulley to properly position the same. The cam toothed wheel 37 is mounted on a shaft 42 journaled in brackets depending from the main frame and one end of this shaft is provided with a beveled gear 43 which meshes with another beveled gear 44 fast on a short shaft

45 journaled in a bearing mounted on the main frame. A large toothed wheel 46 fast on the short shaft 45 meshes with a pinion 47 fast on the cranked shaft 16.

In the modified form shown in Fig. 4 the oscillating rack and the pinions in mesh therewith are omitted and in lieu thereof the sleeve is oscillated by means of a cone friction wheel 48 which is adapted to be moved into engagement with the angular top of an oscillating bar 49 by means of a slidable rod 50 having a depending arm which engages a grooved portion of the conical friction wheel.

The operation of the machine is as follows: The seat of the cock is loosely placed between the upstanding arms of the bifurcated members connected to the T-shaped head of the swinging lever, a cock-key is then placed in position through the seat and is supported between the centers in axial alinement with relation to each other, the top of the key being positioned between the jaws of the holding block. The machine is then set in operation and the slidable rod drawn outwardly to lock the holding member to the oscillating sleeve by means of the clutch thereby causing the key to be alternately rotated in opposite directions. This movement will also cause the key to turn and grind in its seat alternately in opposite directions and insure a perfectly tight joint. The cam toothed wheel is so arranged that the teeth thereof will strike the short rod connected to the swinging lever at suitable intervals during its rotation and move said lever to withdraw the seat from the key a short distance to bring fresh surfaces in contact with the key and prevent scratching. When the cam tooth passes the short rod the weight will return the seat to the key and hold it in contact therewith. This weight may be changed to increase or diminish the pressure of the two parts together as desired. While grinding a number of cocks if it is desired to stop any one device or section to replace a finished key and seat with an unfinished set the individual device may be stopped by manipulating the slidable rod to disconnect the clutch member and the operator may then make the desired change.

From the foregoing description, it will be seen that the machine is very simple and compact and the grinding devices may be independently started and stopped and a large number may be controlled by one operator.

What I claim as my invention is:

1. A cock grinding machine, comprising a frame, a plurality of rotatable grinding devices mounted on said frame, gear forming part of each device and constructed to be operatively connected thereto, an oscillating work holding member for each device, a single reciprocating rack in constant mesh

with each gear, and a clutch for operatively connecting each device to the rack.

2. A cock grinding machine, comprising a frame, a plurality of rotatable grinding devices mounted on said frame, a gear and a clutch forming parts of each device and constructed to be operatively connected thereto, a pivoted work holding lever for each device and adapted to be oscillated at intervals of time, a single rack in constant mesh with all of the gears, and a crank for reciprocating the rack.

3. A cock grinding machine, comprising a frame, a plurality of rotatable grinding devices mounted on said frame, a single reciprocating means for rotating all of the devices, means for independently connecting each device to the reciprocating means, and a latch for holding the connecting device means in adjusted position.

4. A cock grinding machine, comprising a frame, a plurality of rotatable grinding devices journaled in bearings on said frame, a gear forming part of each device and constructed to be operatively connected thereto and positioned between two bearings, a rack in constant mesh with all of the gears and adapted to rotate each gear alternately in opposite directions, a pivoted work holding member for each device, a cam toothed

wheel for oscillating each lever, a shaft on which said wheels are mounted, a pinion on said shaft, a short shaft provided with a pinion in mesh with said pinion, a large gear on the short shaft, and a pinion on the cranked shaft in mesh with the large gear.

5. A cock grinding machine, comprising a frame, a plurality of rotatable grinding devices journaled in bearings on said frame, a gear forming part of each device and constructed to be operatively connected thereto and positioned between two bearings, a rack in constant mesh with all of the gears and adapted to rotate each gear alternately in opposite directions slidably mounted on said frame, a stud pin connected to said rack, a cranked shaft for reciprocating the rack, a connecting rod pivotally connected to the cranked portion of the shaft and to the stud pin, a pivoted work holding lever for each device, a cam toothed wheel for oscillating each lever, and a connection between the crank shaft and the wheel for causing their rotation.

In testimony whereof, I affix my signature, in presence of two witnesses.

PAUL GERSTENKORN.

Witnesses:

R. S. C. CALDWELL,
ALMA A. KLUG.