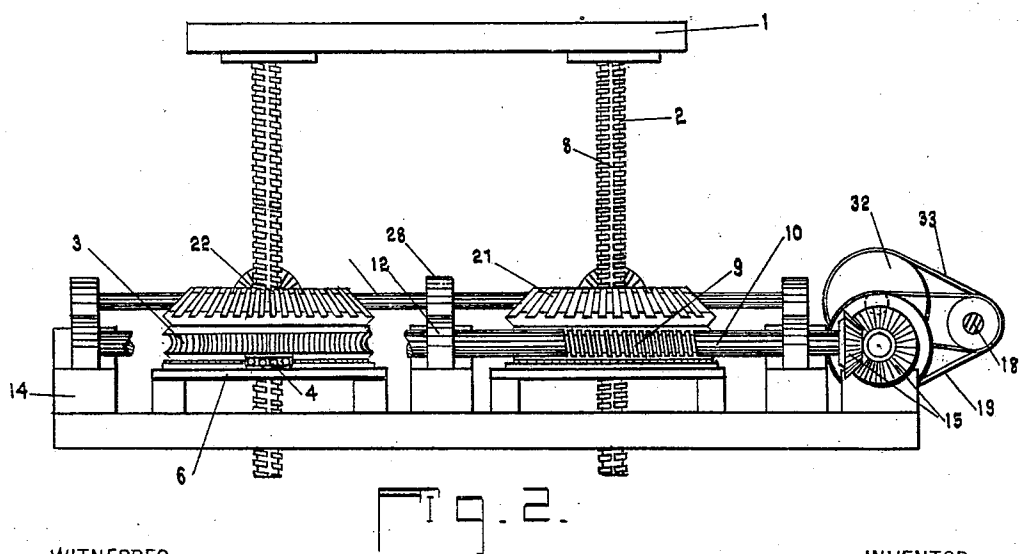
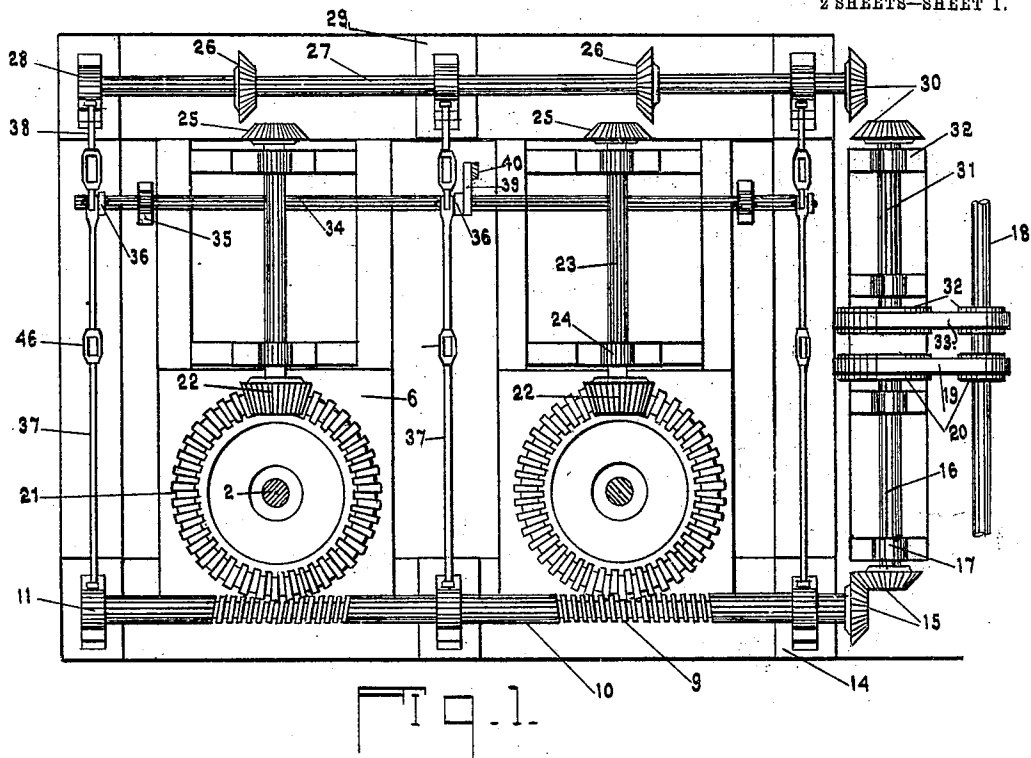


F. F. BREIHAN.
COTTON PRESS.
APPLICATION FILED OCT. 2, 1909.

951,300. Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

C. D. Scott
J. D. Murray

INVENTOR

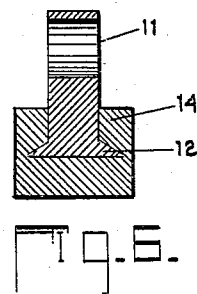
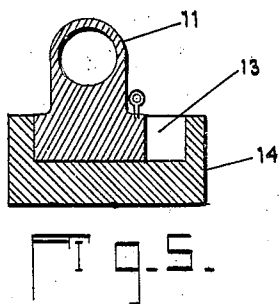
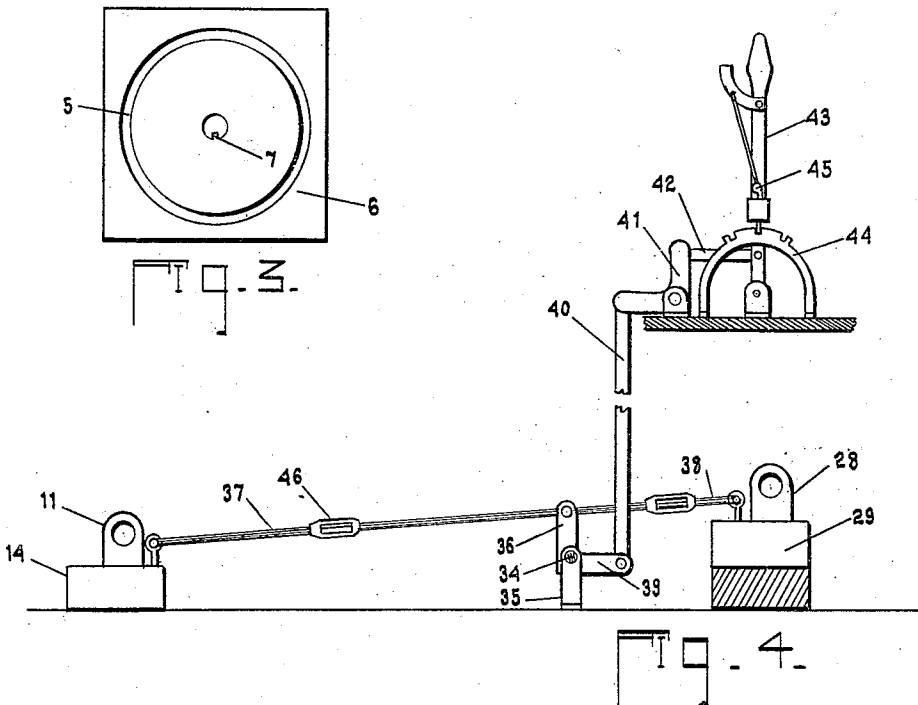
Frederick F. Breihan.

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UNITED STATES PATENT OFFICE.

FREDERICK F. BREIHAN, OF BARTLETT, TEXAS.

COTTON-PRESS.

951,300.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed October 2, 1909. Serial No. 520,722.

To all whom it may concern:

Be it known that I, FREDERICK F. BREIHAN, a citizen of the United States, residing at Bartlett, in the county of Williamson and State of Texas, have invented certain new and useful Improvements in Cotton-Presses, of which the following is a specification.

My invention relates to new and useful improvements in cotton presses, and more particularly in cotton presses employing worm wheel mechanism as driving means.

It has been found that by surmounting the press blocks upon two vertical screws and operating the same by worm-wheel mechanism a maximum pressure may be obtained in a cotton-press with a minimum expenditure of power. But the low operating speed has been found objectionable in bringing cotton under moderate pressure or in relaxing the pressure upon a bale.

The object of the invention therefore is to provide a cotton press employing vertical screws which may be operated either by worm wheel mechanism or by beveled gearing, so that the latter may be used when it is desired to raise or lower the press-blocks rapidly, without applying powerful pressure.

A further object is to provide such a cotton press with means by which the worm wheel driving mechanism may be made operative and the beveled gearing inoperative simultaneously or vice versa.

Finally the object of the invention is to provide a device of the character described that will be strong, durable, simple and efficient, and comparatively easy to produce, and also one in which the various parts will not be likely to get out of working order.

With these and various other objects in view, my invention has relation to certain novel features of construction and operation, an example of which is described in the following specification, and illustrated in the accompanying drawings, wherein:

Figure 1 is a plan-view of the improved cotton press, the press block and box being omitted. Fig. 2 is a side elevation of the same, including the press blocks, a portion of the worm shaft being broken away to show the worm wheel therebehind, and a portion of the ball-bearings being shown upon which the worm wheel rotates. Fig.

3 is a detail view of one of the base plates, upon which the worm wheels rest, a key being shown projecting into the central aperture through which the vertical screw passes said key being adapted to enter a suitable keyway in the screw to prevent rotation of the same. Fig. 4 is a side elevation of the mechanism employed to change the driving means from worm gearing to beveled gearing, or vice versa. This mechanism is shown as controlled from the upper floor or platform of the press, this being the preferable construction. Fig. 5 is a detail cross section of one of the sliding pillow blocks which adapt the two driving shafts employed, to be displaced so as to cause the gears they carry to be thrown into or out of mesh. Fig. 6 is a vertical sectional view of the same through the axis of the bearing.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in all the figures, the numeral 1 denotes the press block, which is surmounted upon a pair of vertical screws 2. Horizontally disposed worm-wheels 3 are provided with threaded central apertures to receive the screws 2, and are rotatably mounted upon ball bearings 4 carried in suitable ball races 5 by base plates 6. The worm wheels 3 are adapted when rotated to actuate the screws 2 vertically, said screws being restricted from rotation by keys 7 in the base plates engaging in keyways 8 extending longitudinally of the screws. The two worm-wheels are adapted to be driven by worms 9 carried by a shaft 10. In order to equalize the strain in this shaft one of these worms has right-hand threads and the other left-hand; the worm-wheels 3 and vertical screws 2 consequently differ in the same manner.

The shaft 10 is mounted in pillow blocks 11 which are adapted to slide simultaneously transversely of the shaft sufficiently to disengage the worms from the worm wheels. This is made possible by providing each of the pillow blocks 11 with flanges 12 at its base and mounting it in a groove 13 in a stationary block 14. Means are described hereinafter for producing a simultaneous displacement of the pillow blocks 11 in the grooves 13. A pair of miter gears 15 are adapted to communicate rotation to the shaft 10 from a transverse shaft 16 mounted

in bearings 17. The shaft 16 is driven from a parallel shaft 18 by means of a belt 19 encircling pulleys 20.

Each of the worm-wheels 3 is surmounted by a bevel-gear 21 rigidly secured thereto, and concentric with the screw 2 upon which the worm wheel is threaded. Beveled pinions 22, rigid upon parallel transverse shafts 23, mesh with the gears 21. The shafts 23 which are rotatably mounted in bearings 24, carry also beveled pinions 25 at their other extremities. A pair of beveled pinions 26 fast upon a shaft 27, are adapted to mesh with the pinions 25 and impart rotation to the same. The shaft 27 is mounted in pillow blocks 28, slidable in blocks 29, which are duplicates of the parts 11 and 14 already described and designated by the same numbers. A pair of miter gears 30 are adapted to communicate rotation to the shaft 27 from a transverse shaft 31 mounted in bearings 32. The shaft 31 is driven from the shaft 18 by means of pulleys 32 and a belt 33 encircling the same.

In order to produce a simultaneous transverse motion of the driving shafts 10 and 27, so that one of these shafts may be made to transmit rotation while the other is made inoperative, a rocker shaft 34 is mounted parallel to said shafts in bearings 35. Arms 36 project rigidly upward from said rocker shaft opposite the pillow-blocks 11 and 28, and a pair of rods 37 and 38 form a swinging rigid connection between each arm and said pillow blocks. Upon one extremity of the rocker shaft, a horizontal arm 39 is rigidly mounted and a rod 40 connects its extremity to one of the arms of a pivoted bell crank 41 mounted on the upper press floor as shown in Fig. 4. The vertical arm of said bell crank is attached by a swinging link 42 to a pivoted lever 43, the latter being provided with means to hold it in various adjustments, as the rack 44, adapted to be engaged by a spring pressed pin 45.

It is obvious that a manipulation of the lever 43 produces a turning of the bell crank 41, which is transmitted by the rod 40 and the arm 39 to the rocker shaft. The rocking of said shaft communicates a motion to the arms 36 and the rods 37 and 38, which produces a simultaneous sliding of the pillow blocks 11 and 28. The length of the rods 37 and 38 is made adjustable by turn-buckles 46.

The press box and upper part of the press have not been shown, as the drawing has been limited to those parts which embody the novel features of the invention; it is understood however that the mechanism herein-described is equally applicable to single and double box presses.

I am aware that changes may be made in the form and proportions of parts and details of the herein-described cotton-press, without departing from the spirit or sacri-

ficing the advantages thereof, and I therefore reserve the right to make such changes and alterations in said device, as fairly come within the scope of the following claims.

What I claim is:

1. In a cotton press, the combination with the press block, of a pair of vertical screws supporting the same, a worm wheel threaded upon each screw, a beveled gear rigidly attached to each worm-wheel, supporting means upon which said worm wheels are rotatably mounted, a worm meshing with each worm-wheel, a driving shaft carrying said worms, a bevel pinion meshing with each of said bevel gears, rotatable shafts carrying said bevel pinions, a second driving shaft, beveled gearing communicating rotation from the last named driving shaft to each of said shafts carrying bevel pinions, and means whereby the two driving shafts may be simultaneously shifted transversely throwing the worms into mesh with the worm-wheels and the beveled gearing carried by the last named counter shaft out of mesh or vice-versa.

2. In a cotton-press, the combination with the press-block, of a pair of vertical screws supporting the same and restricted from rotation, horizontally disposed worm-wheels through the centers of which the vertical screws pass, said wheels being adapted by their rotation to actuate the screws vertically, bevel gears rigidly attached to said worm-wheels, through the center of which the vertical screws pass, said gears being adapted when rotated to actuate the screws vertically, supporting means upon which the rigidly connected bevel gears and worm-wheels are rotatably mounted, a worm meshing with each worm-wheel, a driving shaft carrying both worms, a second driving shaft, bearings for both driving shafts, adapted to slide transversely of the same, mechanism communicating rotation from the second driving shaft to said bevel gears, and means by which the driving shafts and their bearings may be simultaneously displaced so as to throw the bevel gearing of one into mesh and the worm gearing of the other out of mesh, or vice-versa.

3. In a cotton-press, the combination with a press block, of a pair of vertical screws supporting the same and restricted against rotation, a horizontally disposed worm wheel mounted upon each vertical screw supporting the same and adapted by its rotation to actuate the screw vertically, a bevel gear rigidly attached to each worm-wheel, concentric with the screw on which the latter is mounted, a worm meshing with each worm-wheel, a shaft carrying the two worms, bearings for said shaft adapted to slide transversely thereof, a beveled pinion meshing with each of said bevel gears, a transverse

shaft upon which each of said pinions is
mounted, a driving shaft parallel to said
shaft carrying the worms, beveled gearing
adapted to communicate rotation from said
5 driving shaft to the transverse shafts, bear-
ings for said driving shaft adapted to slide
transversely thereof, a rocker shaft, rigid
arms projecting from the rocker shaft, rods
of adjustable length attaching said sliding
10 bearings to said rigid arms, and means of

rocking the rocker shaft, and holding the
same in adjustment.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

FREDERICK F. BREIHAN.

Witnesses:

J. J. BUCEK,
L. R. L. BARTOSH.