W. W. KNOWLES.

Cotton-Press.

No. 161,795. Patented April 6, 1875.

Fig 1

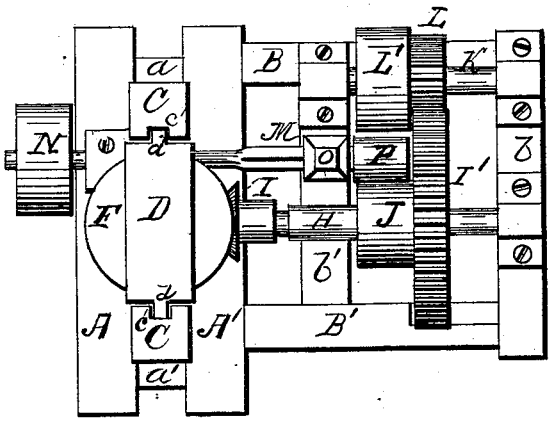


Fig 2

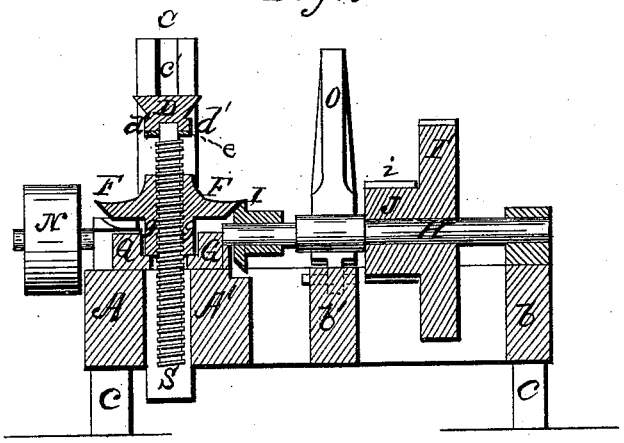
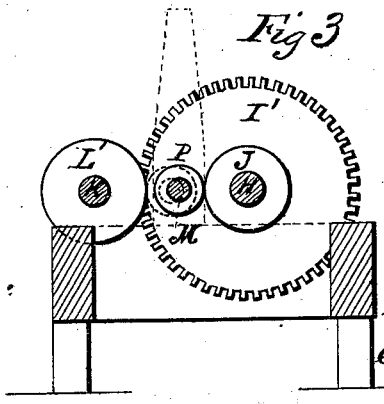


Fig 3



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM W. KNOWLES, OF BASTROP, TEXAS.

IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. **161,795**, dated April 6, 1875; application filed October 31, 1874.

To all whom it may concern:

Be it known that I, WILLIAM WADSWORTH KNOWLES, of Bastrop, in the county of Bastrop and State of Texas, have invented a new and valuable Improvement in Cotton-Presses; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a plan view of my cotton-press. Fig. 2 is a sectional view of the same, and Fig. 3 is a detail view.

This invention has relation to cotton-presses of the upright kind; and the nature thereof consists in combining, with a pulley-wheel keyed upon the shaft of a gear-wheel actuating the follower-screw, and a larger pulley-wheel keyed upon the shaft of a gear-wheel actuating a cog-wheel upon the end of the first shaft, a friction-pulley upon the end of an actuating-shaft, having its bearings at one end in the press-frame, and at the other in a vibrating lever, whereby the said friction-pulley can be brought to bear against the larger pulley, for the purpose of running up the follower, or against the smaller pulley for the purpose of running it down, by drawing the said lever inward or outward, as will be hereinafter more fully explained.

This invention is designed as an improvement on Letters Patent granted me August 30, 1870, and reissued March 31, 1874; and the distinguishing feature of invention between the Letters Patent above alluded to and this invention consists in the above-described construction of parts, by means of which the follower is operated slowly in pressing the cotton into bales, and is moved in the contrary direction, or when not pressing the cotton more rapidly, so as to save time, as I will now proceed to describe.

In the annexed drawings, A A′ designate two beams of a press-platform, which are rigidly secured together by means of braces *a a′*, and into which are mortised, or otherwise suitably secured at right angles to the beam A, two parallel beams, B B′, having an end brace, *b*, and an intermediate brace, *b′*, as shown in the drawings, Fig. 1. The press-platform thus described is supported on legs *c* of sufficent length to raise it some distance from the ground. Between the beams A A′ two uprights, C, are properly secured, into the opposite inner surfaces of which deep rectangular vertical grooves *c′* are cut, for the purpose of guiding the follower D, having upon its ends arms *d*, which are received into the said grooves, thereby preventing all lateral displacement, while permitting it free vertical movement. The press-box is not shown in the drawings, but is intended to be of the usual construction, and to receive within it, from below, the follower D. The follower has a deep angular groove cut into it, thereby forming a flange, *d′* along its lower edge, for a purpose which will hereinafter appear. It is also provided with a strong metallic plate, *e*, which is rigidly secured to its under side, and to which is rigidly attached in any suitable manner the upper end of a follower-screw, S, which passes through a centrally-perforated and screw-threaded bevel-wheel, F, rotating in a block, G, rigidly secured to the beams A A′. The under side of this wheel is constructed with a cylindrical extension, *g*, which is received into a correspondingly-shaped depression in the bearing-block G, which is also centrally perforated to allow of the passage through it of the follower-screw. H designates a shaft rotating in bearings upon the brace *b* and the beam A′, having upon its inner end a cog-wheel, I, and upon the other end a large cog-wheel, I′, between which, and preferably close up against the latter, of which it may form a part, is applied a cylindrical pulley, J, the periphery *i* of which may be roughened, for a purpose which I will hereafter explain. K designates a second shaft, having its bearings upon the braces *b b′*, upon which are keyed a small cog-wheel, L, and a pulley-wheel, L′, in the same vertical plane, respectively, with the cog-wheel I′ and pulley J, hereinbefore mentioned. The pulley-wheel L′ is, however, of considerably greater diameter than the pulley-wheel J, the discrepancy being intentional, with a view to producing a certain useful result, which will be fully shown hereinafter. M designates a third shaft, having its bearings upon the beam A at

one end, and in a vertically-vibrating lever, O, at the other, which shaft has keyed upon its inner end a pulley-wheel, P. The lever O has its fulcrum upon the intermediate brace *b'* of the press-platform, and the pulley P is in the same vertical plane with and between the pulleys L' and J, having a slight endwise play therein. Upon the outer end of the shaft M is an actuating-pulley, N, by means of which horse-power or steam may be applied for actuating the follower. It is also provided with a crank-arm when neither steam nor other motive power is attainable. When the crank-arm P is actuated, the lever O being vertical to the press-platform, no result will be obtained, as the pulley P in this position will be in contact with neither the pulleys J nor L'; but if the lever is drawn outward the pulley P will be brought in contact with the pulley L', thereby communicating motion to the cog-wheel L, thence to the bevel-wheel F through the medium of cog-wheels I 1' and their shaft H, and running up the follower. If the said lever be thrust inward, the pulley P will be forced against the small pulley J, imparting a rapid reverse motion to the shaft H, and running down the follower D. It is a principle in mechanics that what is gained in speed is lost in power, and the reverse, and I have applied this principle in the construction of the pulleys L' J, using the larger, L', whereby great power is attained at the expense of speed in running up the follower when power is required, and sacrificing power where it is not needed, to obtain speed in running down the follower, by using a smaller pulley, J. The flange *d* is designed to allow of the application of a bagging to the upper surface of the follower while it is in the upper part of the press-box, the bagging being tied into the groove by means of strings. The follower may be then run down and cotton thrown into the press-box without the delay of waiting until the follower has descended, and without danger of tearing the bagging loose from the follower.

I am aware that it is not new in gearing to increase or decrease the speed of a gear-wheel by the employment of intermediate pinions of different diameters, either of which may be made to engage with the gear-wheel by a clutch mechanism, or its equivalent, and I therefore lay no claim, broadly, to such invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the pulley P on the horizontally-vibrating shaft M, the pulley L' on the shaft K, and the pulley J on the shaft H, all arranged in the same horizontal plane, the pulley L' being of greater diameter than the pulley J, substantially as and for the purpose set forth.

2. The combination, with the horizontally-vibrating actuating-shaft M, of the vertically-vibrating lever O, pivoted to the intermediate brace *b'*, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM WADSWORTH KNOWLES.

Witnesses:
J. C. BUCHANAN,
W. C. POWELL.