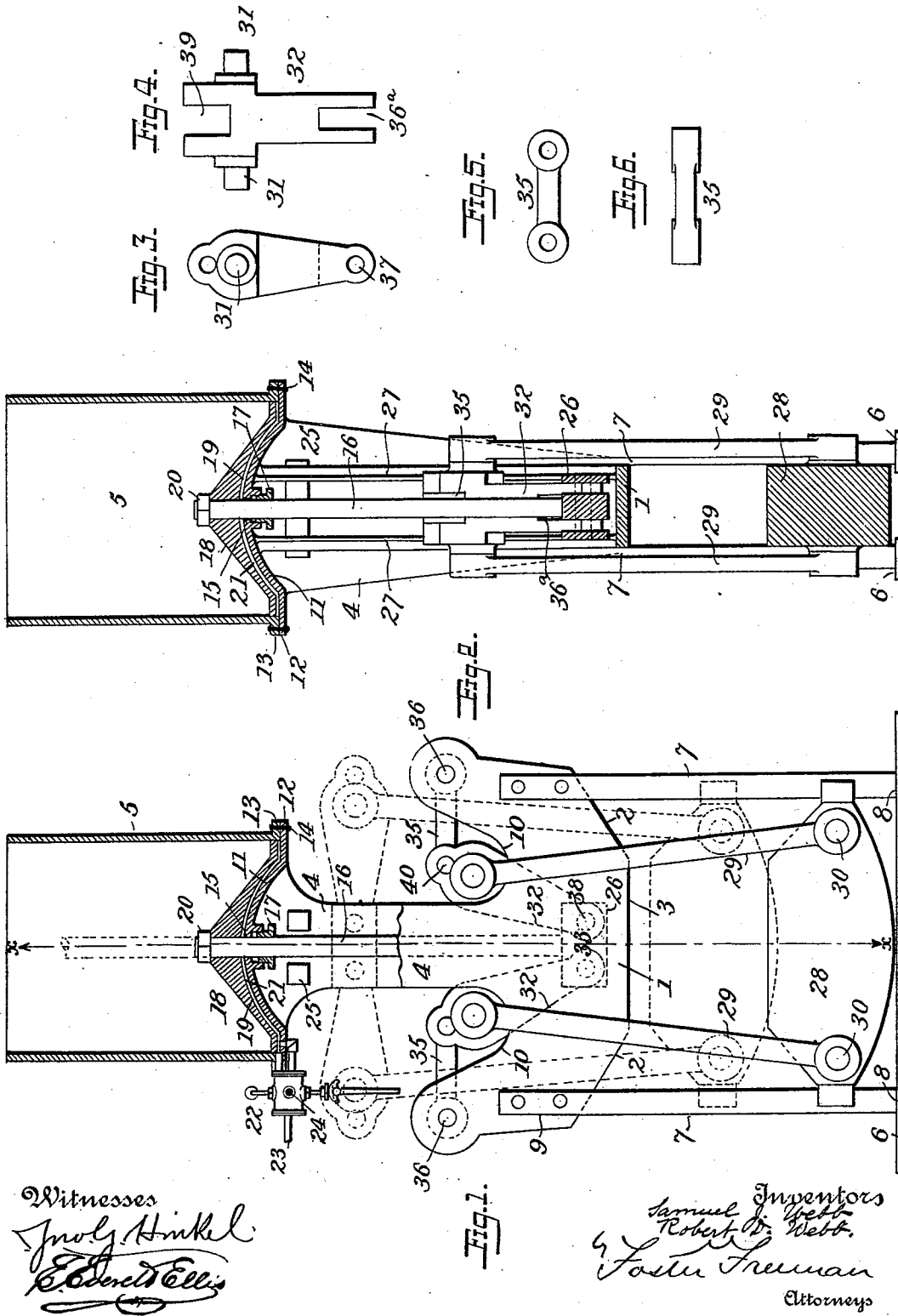


(No Model.)

S. J. & R. D. WEBB.
COTTON COMPRESSOR.

No. 539,496.

Patented May 21, 1895.



UNITED STATES PATENT OFFICE.

SAMUEL J. WEBB, OF SHREVEPORT, AND ROBERT D. WEBB, OF MINDEN,
LOUISIANA.

COTTON-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 539,496, dated May 21, 1895.

Application filed May 29, 1894. Serial No. 512,888. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL J. WEBB, residing at Shreveport, Caddo parish, and ROBERT D. WEBB, residing at Minden, Webster parish, Louisiana, citizens of the United States, have invented certain new and useful Improvements in Cotton-Compressors, of which the following is a specification.

This invention relates to certain new and useful improvements in steam presses; and it consists substantially in such features thereof as will hereinafter be more particularly described.

With many forms of steam cotton presses heretofore devised, the use of complicated machinery is indispensable in effecting adjustments of the platens in order to secure the same or equal pressure on cotton and other bales of different dimensions or thicknesses. In other machines of former construction the adjusting devices are dispensed with and toggle-levers are employed for operating the movable platen to compress the cotton or other bales. By such an arrangement the movable platen is given a progressive movement with a gradual increase of power to which there is no limit as long as the upward stroke of the platen is continued. This construction and arrangement in a cotton or similar press is very disastrous to the machinery, and in many instances owing to the fact that the cotton or other bales are compressed too tightly and are thereby rendered of too great a density, it is desirable with the presses of this kind that the cotton or other bales be given the same or equal densities, irrespective of their dimensions or weight and which it is almost impossible to effect with any of the presses at present in use.

The object of this invention is to obtain an invariable or uniform power at the end of the stroke of the movable platen, and to dispense with all adjusting devices or mechanism for the platen.

The invention also has for its object to increase the efficiency of the machine as compared with many former presses in use, substantially as will hereinafter more fully appear when taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation, in part section,

of a steam-press embodying our invention, the dotted lines representing the positions the parts assume when the movable platen is elevated; and Fig. 2 is a vertical transverse sectional view thereof, taken on the line *x x*. Fig. 3 is an enlarged detail view of one of the movable levers; and Fig. 4 is a side view thereof, more clearly indicating the general form or construction. Fig. 5 is a side view in detail of one of the arms movably connecting the levers with the upper or stationary platen or frame. Fig. 6 is a top view of Fig. 5.

In the drawings, 1 represents the upper or stationary platen which, as shown, converges at the sides 2, 2, toward the bottom 3, the under side of the latter constituting the operating surface upon the cotton or other bale. The said upper or stationary platen in addition to its function as such also constitutes a supporting frame for the several operative parts hereinafter more specifically referred to, and is formed or provided at the sides with vertical columns or uprights 4, 4, which support the steam cylinder 5, and its piston, together with the inlet and discharge valves for the steam. The said upper platen or frame is supported upon a suitable foundation or base 6, by means of two pairs of vertical posts or uprights 7, which are secured at their lower ends to the base at 8, 8, and at their upper ends to the sides of the upper platen or frame 1, as shown at 9, 9. The sides of the said platen or frame are also recessed in their upper edges at 10, 10, which is to accommodate or facilitate the connection and the movability of the several operative parts to be described.

The upper ends of the uprights 4, 4, of the upper platen or frame are provided with a curved or rounded head 11, which also constitutes the bottom of the steam cylinder 5, the said head being flanged at 12 to which a similar flange 13 on the lower end of the cylinder is secured in any suitable steam tight manner, as by rivets 14. Centrally of the head 11, an opening 15 is provided for the passage of a piston rod 16, and a suitable packing or stuffing box 17 is secured to the under side of the head surrounding the opening, and through which box the said piston rod works. Secured to the upper end of the piston rod

is the piston 18, which is concaved or curved on its under side at 19, to conform to the shape of the bottom or head 11, and which works steam tight in the cylinder. The said piston is secured on the screw-threaded upper end of the rod by means of a nut 20, and it will be observed that normally or when there is no steam entering the cylinder a small space 21 is left between the piston and bottom so as to admit the steam beneath the piston whenever the inlet valve is operated. A combined inlet and exhaust valve of any suitable construction is located to one side of the steam-casing at the bottom as indicated at 22, an inlet passage 23 leading therefrom to the space 21, and an exhaust passage 24 being connected with said passage and also with the exhaust valve.

The upward movement of the piston is limited by means of blocks or bumpers 25, carried or held by the uprights at a suitable distance below the head or bottom 11, and carried on the lower end of said piston-rod is a guide 26 which moves between flanges or projections 27 formed with or secured to the inner sides of the upper platen or frame. It will thus be seen that the movement of the piston rod will be perfectly even or true and that the rod is not likely to become displaced. The lower or movable platen is indicated at 28, and as will be seen the ends thereof enter the spaces between the pairs of supporting posts, so that the said platen will be evenly guided as it is raised and lowered. Movably connecting with the movable platen at or near its ends and on opposite sides thereof are two pairs of links 29, 29, the connection being made with the lower ends of said links by means of pins 30, 30 as shown. The said links extend upwardly and are loosely connected at their upper ends to pins or trunnions 31, projecting from the sides of levers 32, 32, between the pivotal points thereof, and as shown, near the upper ends of the latter, the said levers being in turn movably connected at 33 either to the lower end of the piston rod 16 itself or to the guide 26 thereon. The upper ends of the said levers 32, 32, are also movably connected with the inner ends of arms 35, 35, the outer ends of the latter being pivoted to the sides of the upper platen or other stationary part of the frame by means of pins indicated at 36. Normally the severally recited movable parts are in the positions represented by full lines in Fig. 1, that is to say the links 29 are slightly convergent or inclining toward each other upwardly, the levers 32 are at an acute angle to both the piston rod and links and the arms 35 are in or near a horizontal position. The dotted lines in Fig. 1 indicate the position assumed by the parts when the lower platen has been elevated to compress a cotton or other bale.

In referring to the several parts as "movably" connected it is to be understood that these "connections" may be formed in any suitable way, but as a preferred construction

We form the levers as shown in Figs. 3 and 4. In said figures it will be seen that the lower ends of the levers are recessed at 36^a to receive either the piston rod or its guide to which said levers are united by means of pins 38, (Figs. 1 and 2) passing through openings 37 in the levers. By such construction the lever embraces the piston rod as it were, while sufficient play between the two is had. The upper ends of the levers are also recessed at 39 to receive the inner ends of arms 35, and pins 40, 40, (Figs. 1 and 2) pass through the levers and arms, as shown. The trunnions 31, formed on the levers between the pivotal points near their upper ends serve as swinging pivotal supports for the upper ends of the links, and it is evident that the several parts all work in the proper unison.

It is to be noted that instead of the inner ends of the horizontal arms being connected to the upper ends of the levers at the same points or upon the same pivots which unite said levers with the links, independent fulcrum or pivotal connections are employed, and it is upon these that the operation of our improved lever movement largely depends. For instance, in the operation of the machine, the inlet valve is opened to admit steam beneath the piston, whereupon the latter begins to rise carrying with it the lower or movable platen upon which a cotton or other bale has previously been placed. At the beginning of the piston's stroke the force exerted upon the platen is about equal to that upon the piston, but the power on the piston gradually increases as the levers move upwardly toward a horizontal position. The movement between the links, the levers, and the arms is such that at just about the time or perhaps a little before the platen has reached its upward limit the levers will have assumed horizontal positions and the arms the vertical positions shown in dotted lines Fig. 1. The guide 26 moves upwardly with the piston rod, and cannot of course pass beyond the bumper blocks 25 on the sides of the upper platen. The raising of the piston causes the movable fulera or independent connections between the levers and arms to describe the paths indicated, and when all of the parts have been shifted it is evident that the power then exerted by the movable platen is uniform within certain limits. The relative arrangement is such that said arms can never go much beyond true vertical positions, for it is at this time that the movable fulera have become almost stationary, and the increase of power has ceased and will be uniform for any further movement of the levers.

It will of course be understood that on compressing each bale, the several parts are allowed to resume their downward positions by gravity, after the exhaust valve of the cylinder has been opened and the inlet valve closed.

From the foregoing description it is thought the construction and operation of our improved press will be thoroughly understood.

We do not limit ourselves to the precise details of construction and arrangement shown and described, since it is evident that immaterial changes could be made therein and still be within the scope of our invention.

We claim—

1. In a press, a stationary platen, a movable platen, arms pivoted to a stationary part of the press, levers pivoted to said arms, means connecting the said levers for operating them, and links connected to said movable platen, and to the said levers at points intermediate the ends thereof, substantially as described.

2. In a press, a stationary platen, a movable platen, arms pivoted to a stationary part of the press, levers pivoted to said arms and provided with trunnions between their ends, means connected with said levers for operating them, and links connected to said movable platen and to the trunnions of said levers, substantially as described.

3. In a press, a stationary platen, provided with side uprights surmounted by a head, a steam cylinder of which said head constitutes

the bottom, a piston working in said cylinder, arms pivoted to a stationary part of the press, levers connected to said arms, a piston rod connecting said levers and piston, a movable platen, and links connected to said movable platen and to said levers intermediate the ends thereof, substantially as described.

4. In a press embodying a stationary and movable platen, and a piston rod, the combination of levers connected at one of their ends with the said rod, pivoted arms having their swinging ends connected to the other ends of said levers, and lifting rods or links connecting the movable platen with said levers between the ends of the latter, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

S. J. WEBB.

ROBT. D. WEBB.

Witnesses:

J. W. REAGAN,

J. M. CHANLER.