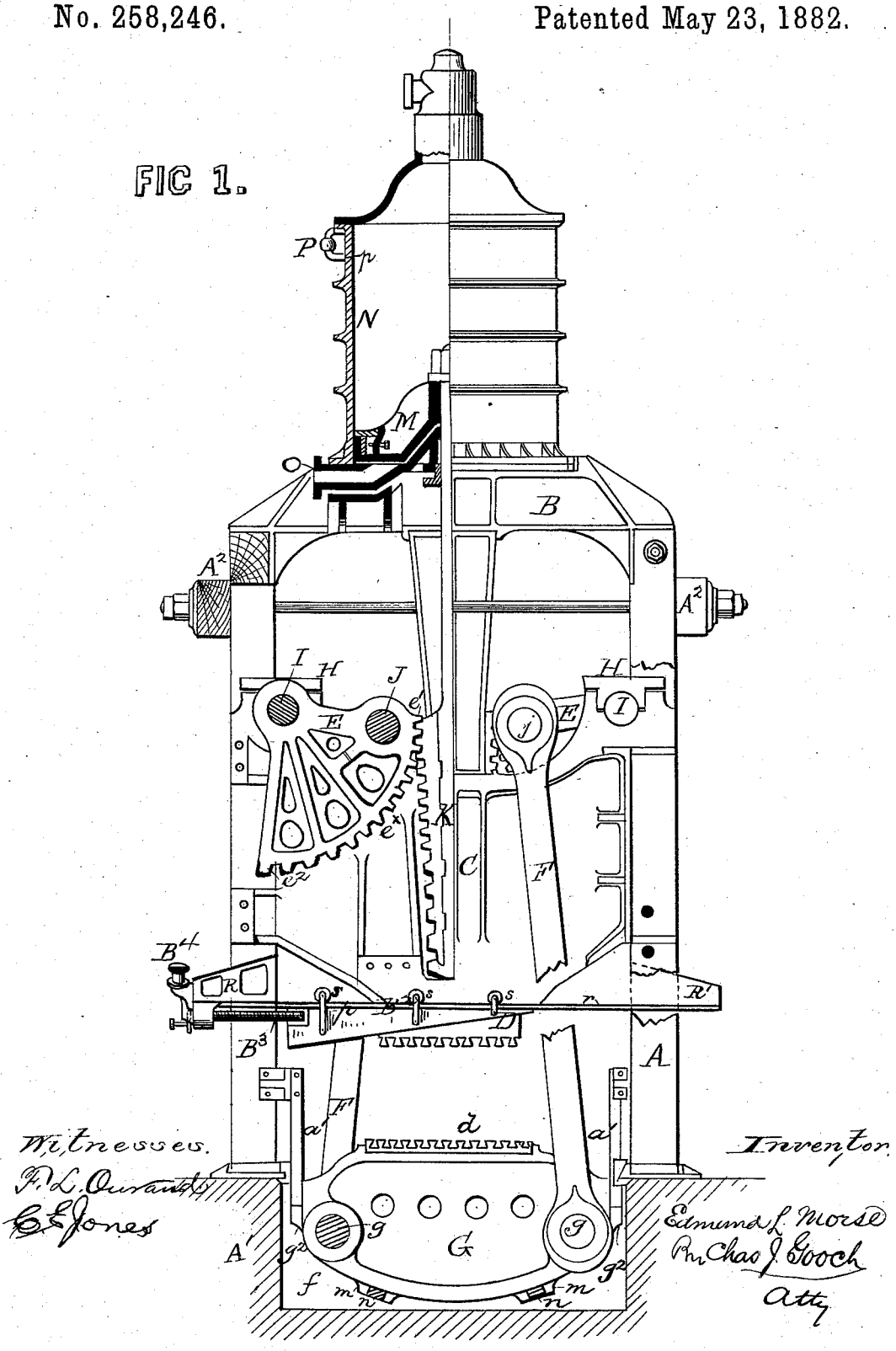
(No Model.) 3 Sheets—Sheet 1.

E. L. MORSE.

COTTON PRESS.

No. 258,246. Patented May 23, 1882.

FIG 1.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

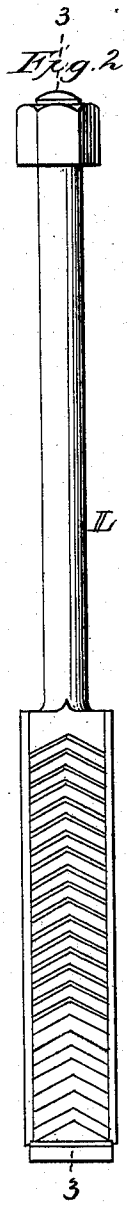


Fig. 4

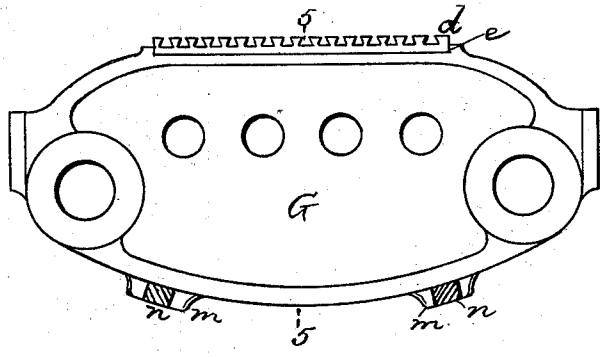


Fig. 3.

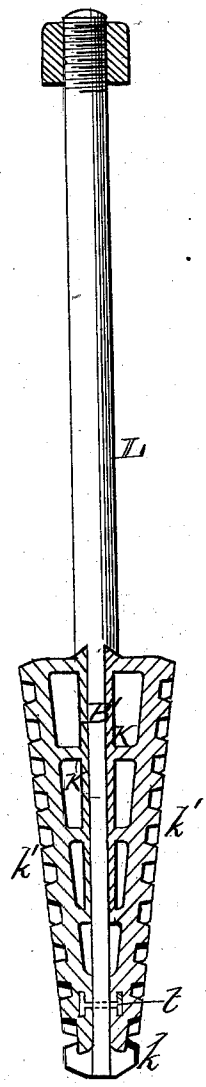


Fig. 5.

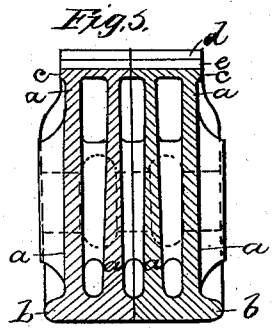
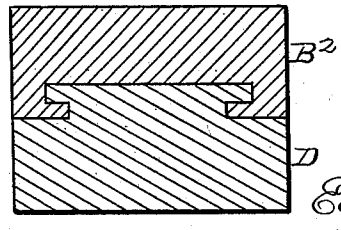


Fig. 6.



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3 Sheets—Sheet 3.

E. L. MORSE.

COTTON PRESS.

No. 258,246.

Patented May 23, 1882.

Fig. 1.

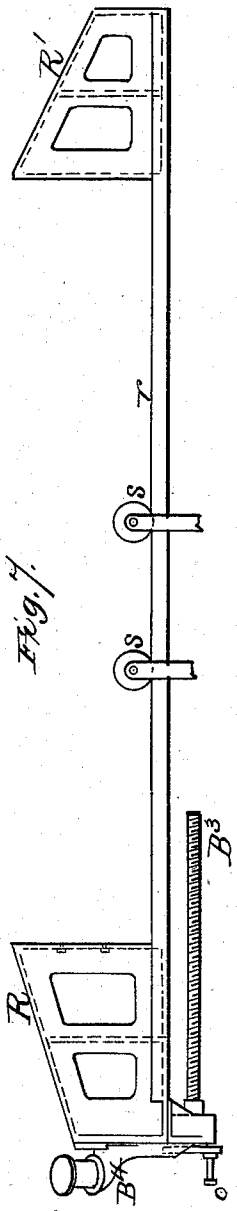


Fig. 2.

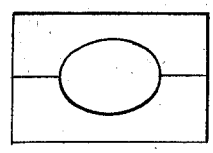
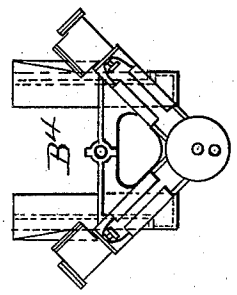


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDMUND L. MORSE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SCHUYLER B. STEERS, OF NEW ORLEANS, LOUISIANA.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 258,246, dated May 23, 1882.

Application filed July 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDMUND L. MORSE, a citizen of the United States of America, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Cotton-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in the cotton-press for which Letters Patent of the United States were granted to me on the 28th May, 1878, No. 204,240; and it consists in a certain construction and arrangement of parts, as hereinafter described and claimed.

In the drawings, Figure 1 shows the press, one half in front elevation, and the other half in axial section, the piston being down. Fig. 2 is a front elevation, and Fig. 3 a side section on the line 3 3 of Fig. 2, of the piston-rod and rack-bar. Fig. 4 is a front view of the lower platen, and Fig. 5 is a transverse section thereof on the line 5 5 of Fig. 4. Fig. 6 is an end section of the wedge and upper platen, showing the method of connecting the same together. Fig. 7 represents the housing, having track-frames and wedge-engine attached thereto, with their supporting-brackets and the wedge-screw. Fig. 8 is an end elevation, showing the wedge-engine. Fig. 9 is an end view of the housing between the posts before the bracket is attached.

The frame may be of iron or timber. In the illustration it is shown with wooden posts A, surmounted by an iron frame, B, connecting the posts together at the top and supporting the cylinder.

C is a central iron frame attached to the posts or uprights A, and supporting the upper and fixed platen, D, and the cog-sectors E. The cog-sectors are connected by four rods, F, to the lower or moving platen, G. It is customary to form the lower platen in cotton-presses in one piece, according to my present improvements. I construct this platen in two separate pieces, each piece being composed of two ribs, *a a*, having a very wide flange, *b*, at the bottom and a small flange, *c*, at the top, said ribs gradually increasing in width from top to bottom, and thus insuring the maximum strength with the minimum amount of metal.

The channeled plate *d* of the lower platen, G, is formed separately therefrom, in order that it may be readily removed and plates of different degrees of thickness substituted therefor, so as to increase or diminish the distance between the two platens, as desired, without necessitating the construction of a new platen or changing the length of the eye-bars. The plate *d* rests within a recess, *e*, formed in the upper face of the platen G, and extends clear across the two sections.

A′ is the foundation, which has a cavity, *f*, to receive the lower platen, G, when in its lower position. The four vertical posts A are connected together at top by cross-beams A^2 and the iron frame B. The fulcrum-wrists I of the cog-sectors E are supported in pillow-blocks H on the central frame, C. Passing transversely through each cog-sector is a bar, J, whose ends form wrist-pins *j*, which pass through the upper ends of the eye-bars or rods F for lifting the lower platen, G, which has guide-lugs g^2, working on slides *a′*. Of the eye-bars or lifting-rods F there are four—two to each sector. Wrist-pins *g* connect said bars at their lower ends to the four corners of platen G. The working-cogs of the sectors are in cycloidal arcs $e^\times$, the end e^2 being more distant from the fulcrum I than the upper end, *e′*, of said arc, so that as the sector rises it acts, as explained in the specification of my before-recited patent, with increased power upon the lower platen. These sectors have at their longer ends e^2 greater spaces between the cogs than have the other ends, to adapt them to correspond with the construction of the rack K *k′*, to be presently described.

B′ represents the rack-blade, which is formed in one piece with the piston-rod L, and has the last tooth *k* on each side of said rack-blade formed solid therewith. The rack-blade B′,

the piston-rod L, and the teeth *k* are formed in one piece by forging, while the cogs *k'* and the cog-racks K K are formed each in a single casting. The last four cogs are formed with a gradual increase of pitch of tooth, while the tooth *k* on each side of the blade B' is fifty per cent. larger than the remaining teeth. This enlargement of the lower teeth is found to greatly increase the strength of the rack and render it much safer in use.

B^2 represents the wedge, and D the upper platen, which are dovetailed together, so that on the movement outward of the wedge the platen will slide upward on the wedge and be raised to that extent. Both are formed with a steep incline, as shown, to insure the upper platen being forced down or raised up the extent necessary to adjust the size of the opening of the press to the size of the bale to be pressed with the least possible amount of movement of the wedge. The wedge is forced inward into operative action, or retracted, as desired, by means of a screw, B^3, operated by the wedge-engine B^4.

The cog-racks K K are secured to the rack-bar on either side by T-pieces *t*, as shown, said pieces being of wrought-iron, which are heated red-hot and dropped into the castings. The T-pieces *t* are of wrought-iron. They are heated red-hot and shrunk into the rack-bar casting on each side to hold them together.

The two sections of the lower platen, G, are secured together in the following manner: A lug, *m*, is cast upon the under side of each section near each outer end. A wrought-iron link or bar, *n*, is heated red hot and dropped within the adjacent lugs *m* on each end, so as to extend across the center of the two sections, and thereby hold said sections securely together.

The screw B^3 is secured at its outer end to a crank-arm, *o*, which is operated by the wedge-engine B^4, and at its inner end said screw works in a stationary nut, *p*, secured within the outer end of the wedge B^2. Thus it will be seen that on the wedge-engine being set in motion the crank-arm *o* will cause the screw B^3 to operate within the stationary nut *p* and either propel the wedge B^2 forward or retract it, as it is desired to either press the bale or release it from pressure.

The cog-racks are inclined or of wedge shape, so as to approach each other as they extend downwardly to suit them to the cog-sectors, whose cogged faces approach each other as they turn upward. The lower end of the piston-rod L works between suitable guides.

M is the piston working in the cylinder N. In ordinary working the steam is only admitted beneath the piston to lift it, and the descent of the piston is accomplished by its own weight and that of the parts attached thereto.

O is the steam-port.

P is a U-formed pipe, whose ends communicate with the inside of the cylinder at two different elevations near the upper end of the cylinder. The distance of the pipe-openings apart is at least as great as the thickness of the piston, so that when the piston has reached such an altitude as to pass the mouth *p* and expose it for the entrance of steam from the part of the cylinder beneath the piston the steam passes through the pipe P into the part of the cylinder above the piston, and thus the further ascent of the piston is prevented.

In the pipe P is a ball or other valve, which prevents retrograde or downward movement of steam or air through pipe P. In the head of the cylinder is an inwardly-opening valve and a spring. This spring tends to close the valve and prevent the escape of air or steam when the piston is near its upper position. Attached to this inwardly-opening valve is a chain, to whose lower end is secured a weight of such gravity as to preponderate over the spring. When the piston is in its upper position the weight rests on the piston and the spring closes the valve; but when the piston descends to a certain point the weight is left suspended on the valve and draws it down, giving the outer air entrance into the top of the cylinder and allowing the piston free descent.

I prefer to connect with the upper part of the cylinder a steam-pipe with a valve, by which steam may be admitted above the piston to force it down, if at any time it may be found necessary, and it will be seen that at such time the ball-valve would come into action, preventing the escape of steam into the space beneath the piston when the piston is in its upper position.

I have not illustrated the above-mentioned adjuncts to the pipe P in the drawings filed herewith, as they are fully illustrated in my before-mentioned patent and form no part of my present invention.

The housing is in two separate pieces, which are bolted together, as shown. Each piece has at its ends wedge-brackets R R'. The brackets R' are provided with a track, *r*, upon which the wedge-rollers *s* run. The brackets R, at the other end of the housing, serve to support the wedge-engine B^4, as shown in Fig. 8 of the drawings.

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

1. The rack-blade B', teeth *k*, and piston-rod L, formed in one piece, substantially as described.

2. The rack-blade B', having the tooth *k* on each side thereof formed solid therewith, and the cog-racks K, having the last four teeth of gradually-increasing size as compared with the other teeth, said last tooth *k* being considerably larger than the largest tooth in said racks, substantially as and for the purpose set forth.

3. The combination of the rack-blade B', formed in one piece with the piston-rod L, and having enlarged lower teeth, the cog-racks K K, and the T-pieces for securing said cog-racks together and to the rack-blade, substantially as described.

4. The combination of the cog-sectors E, having greater spaces between the cogs at the longer than at the shorter ends, rack-blade B, having enlarged lower tooth and piston-rod formed therewith, and the cog-racks K K, having enlarged lower teeth, substantially as and for the purpose set forth.

5. The wrought rack-blade formed in one piece with the piston-rod, and the cast cog-racks K, said cog-racks being secured to said rack-blade by wrought T-pieces *t*, that are heated and then shrunk into the rack, substantially as described.

6. The wedge-brackets R′ R′, provided with a track, *r*, for the wedge-rollers *s*, and the wedge-brackets R R for supporting the wedge-engine B^4, substantially as set forth.

7. The lower platen, constructed in two separate pieces, as described, each separate portion being composed of two ribs, having wide flanges at the bottom and small flanges at the top, and also having a greater width at the bottom than at the top, as and for the purpose described.

8. The combination, in a cotton-press, with the two-part lower platen G, having recess *e* in its upper face, of a channeled plate, *d*, adapted to rest within said recess and extend across the two sections of said platen, and be removable therefrom to admit of plates of different degrees of thickness being substituted therefor without changing the platen or changing the length of the eye-bars, substantially as described.

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

EDMUND L. MORSE.

Witnesses:

ROBERT BURNS,

THEODORE PAPIN.