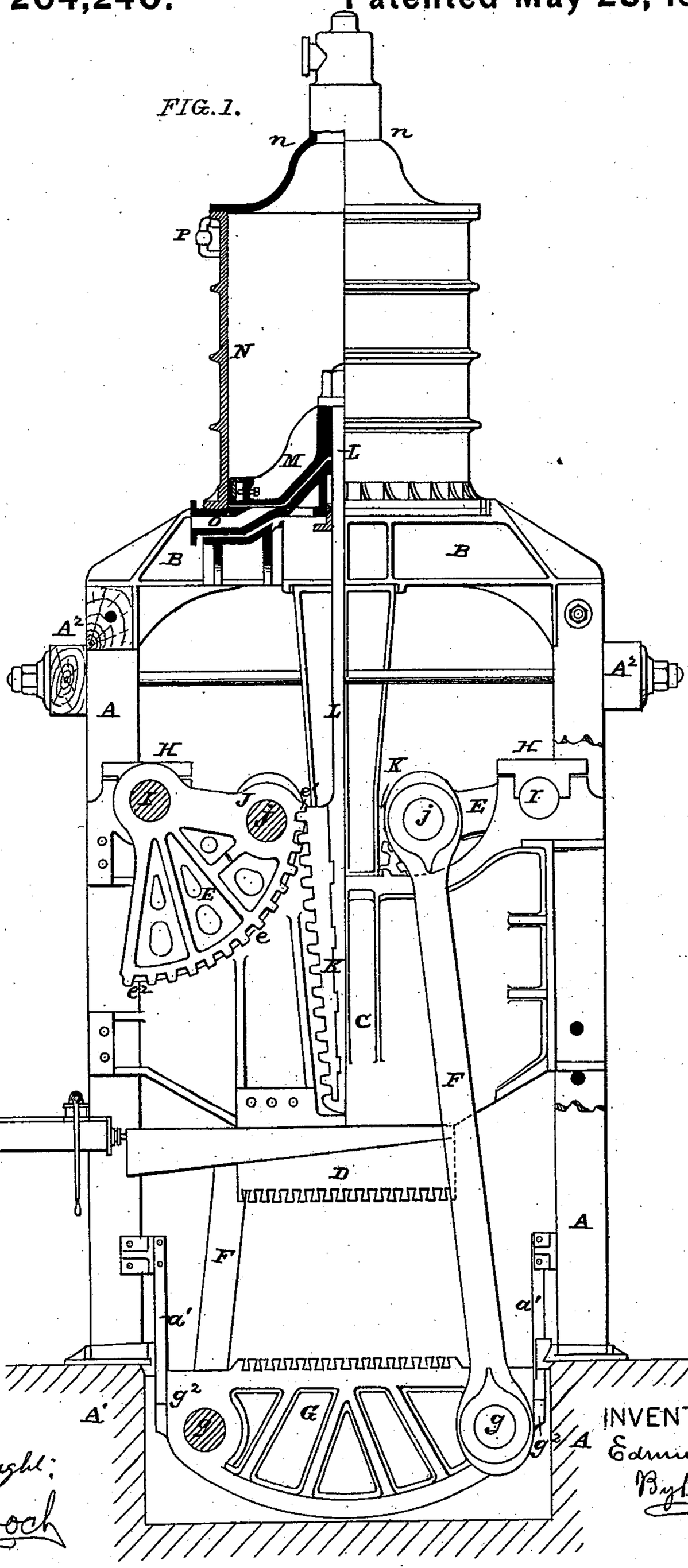
2 Sheets—Sheet 1.

E. L. MORSE.

Cotton-Press.

No. 204,240. Patented May 28, 1878.

FIG. 1.



ATTEST:

Greg H. Knight:

Chas J. Gooch

INVENTOR:

Edmund L. Morse

By Knight Bros.

Attys.

2 Sheets—Sheet 2.

E. L. MORSE.

Cotton-Press,

No. 204,240. **Patented May 28, 1878.**

FIG. 2.

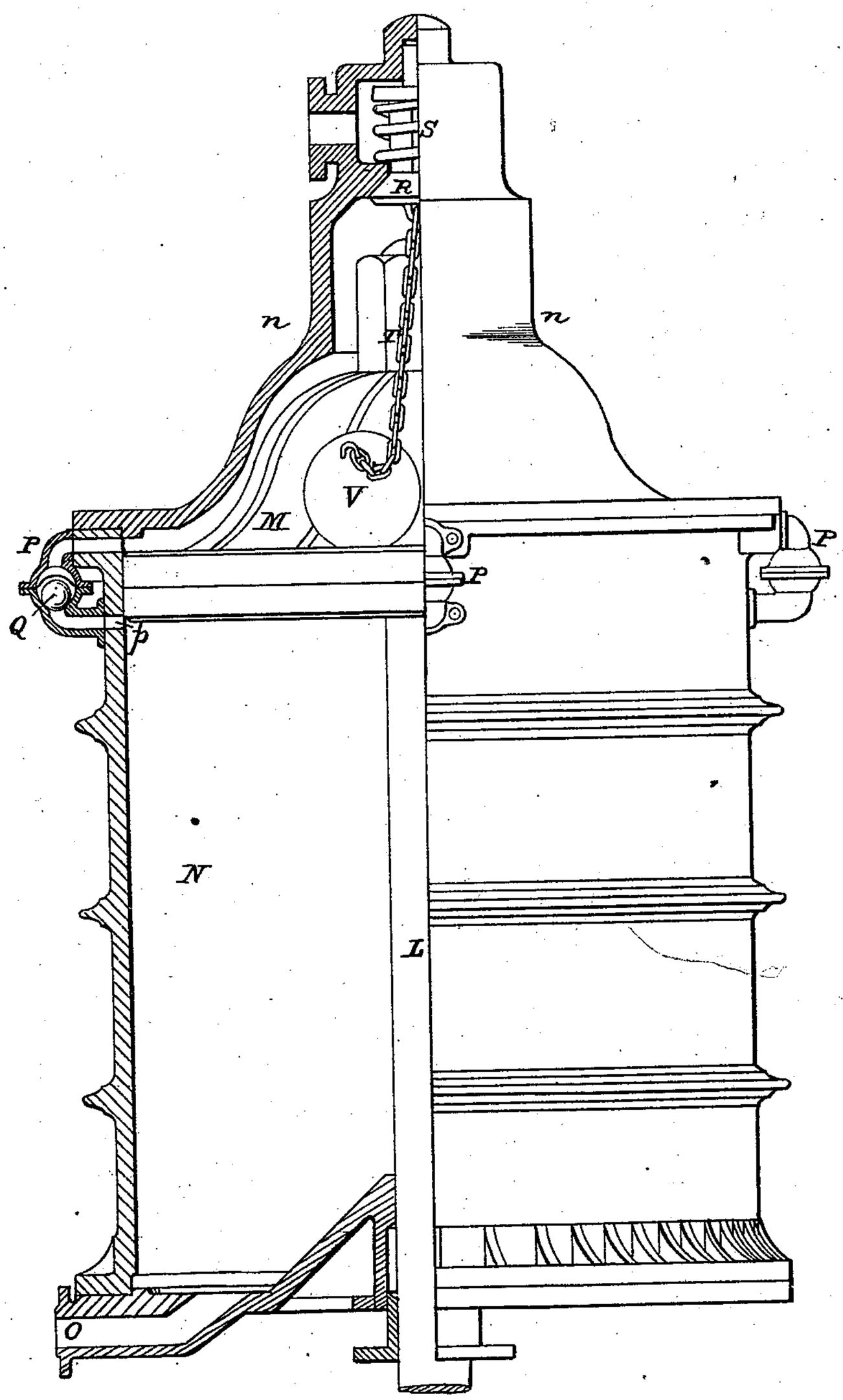
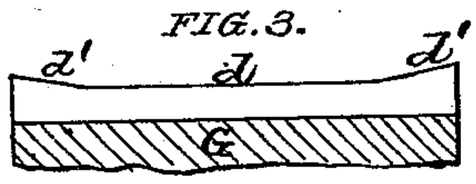


FIG. 3.



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UNITED STATES PATENT OFFICE.

EDMUND L. MORSE, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO S. B. STEERS & CO., OF SAME PLACE.

IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. **204,240**, dated May 28, 1878; application filed November 12, 1877.

To all whom it may concern:

Be it known that I, EDMUND L. MORSE, of the city of New Orleans, in the State of Louisiana, have invented a certain new and useful Improvement in Cotton-Compressors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

The first part of my improvement consists in cog-sectors of cycloidal form working in a two-sided rack, as shown, so that the purchase of the rack upon the sectors will increase during the pressing of the bale.

The second part of my improvement relates to an automatic device to limit the upward movement of the piston. This consists of a valve in the cylinder-head, which is closed by a spring and opened by a weight, the weight having the preponderance, the arrangement being such that when the piston in its ascent reaches the weight it lifts the weight with it, and then the valve closes, and an air-cushion is formed in the upper part of the cylinder.

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 an enlarged view of the piston, half in side view and half in axial section, (piston up.) Fig. 3 is a transverse section of the platens.

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 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.

A^1 is the foundation, having a cavity to receive the lower platen G when in its lower position. At A are shown four vertical posts or uprights, connected together at top by cross-beams A^2 and the iron frame B. Upon the central frame C are pillow-blocks H, in which are supported the fulcrum-wrists I of the cog-sectors E. J is a bar passing transversely through each cog-sector, and whose ends form wrist-pins *j*, passing through the upper ends of the lifting-rods F. Of these rods F there are four—two to each sector—and their lower ends are connected to the four corners of the lower platen G by wrist-pins *g*. The lower platen G has guide-lugs g^2 working on slides a^1. The working-cogs of the sectors are in cycloidal arcs *e*, the end e^2 being more distant from the fulcrum I than the upper end e^1 of said arc, so that as the sector rises it acts with increased power upon the lower platen from this cause. Of course, there is another feature in the cog-sectors which causes them to act with increased force as the platen ascends, for as they rise the wrists *j* assume a movement more and more approaching a horizontal direction, so that the platen rises with decreasing speed and increasing power. This last feature I do not claim as novel, as it has been before used in this connection.

K K are cog-racks attached to the lower end of the piston-rod L, said racks engaging with the cog-sectors upon the opposite sides.

It will be seen that cog-racks must be inclined so as to approach each other as they extend downwardly, so as 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 to it.

O is the steam-port, through which steam is admitted to and exhausted from the cylinder, the movements of the steam being governed by any suitable valve or valves operated by hand; or the valves may be operated in part by connection with the moving parts, so as to stop the movement of the platen G on its reaching its upper and lower positions, respectively.

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, Q, which prevents retrograde or downward movement of steam or air through pipe P. In the head *n* of the cylinder is an inwardly-opening valve, R; and S is a spring, tending to close the valve and prevent the escape of air or steam when the piston is near its upper position. Attached to the valve R is a chain, T, to whose lower end is secured a weight, V, of such gravity as to preponderate over the spring S.

When the piston is in its upper position (see Fig. 2) the weight rests on the piston and the spring S closes the valve; but when the piston descends to a certain point the weight V 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 it any time it may be found necessary, and it will be seen that at such time the ball-valve Q would come into action, preventing the escape of steam into the space beneath the piston when the piston is in its upper position.

The faces of the platens at the sides *d'* and *d'* incline outwardly from the plane of the flat central part *d* of the faces, as shown in Fig. 3, to give a flattened corner to the sides of the bale, thus imparting to it about the form in which it is retained by the hoops after removal from the press, and enabling the use of somewhat shorter hoops, and consequently diminished size of bale with the same pressure, because the expansion of the bale is less after removal from the press.

I claim as my invention—

1. The combination of cycloidal cog-sectors E and inclined cog-racks K, substantially as and for the purpose set forth.

2. The combination of cylinder N, piston M, and valve R with closing-spring S and suspended weight V, substantially as set forth.

EDMUND L. MORSE.

In presence of—

SAML. KNIGHT,
JAY SHRADER.