No. 865,734. PATENTED SEPT. 10, 1907.

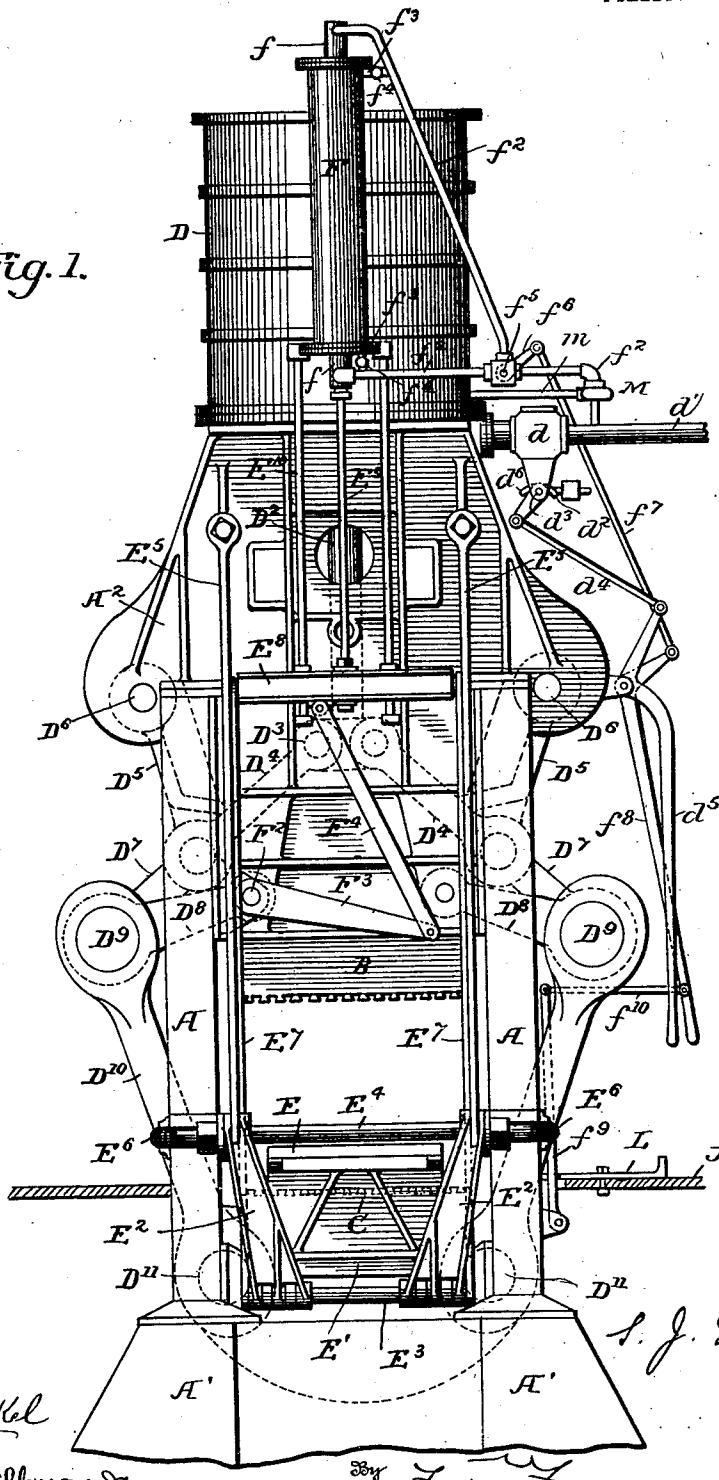
S. J. WEBB.

COMPRESS.

APPLICATION FILED NOV. 27, 1900.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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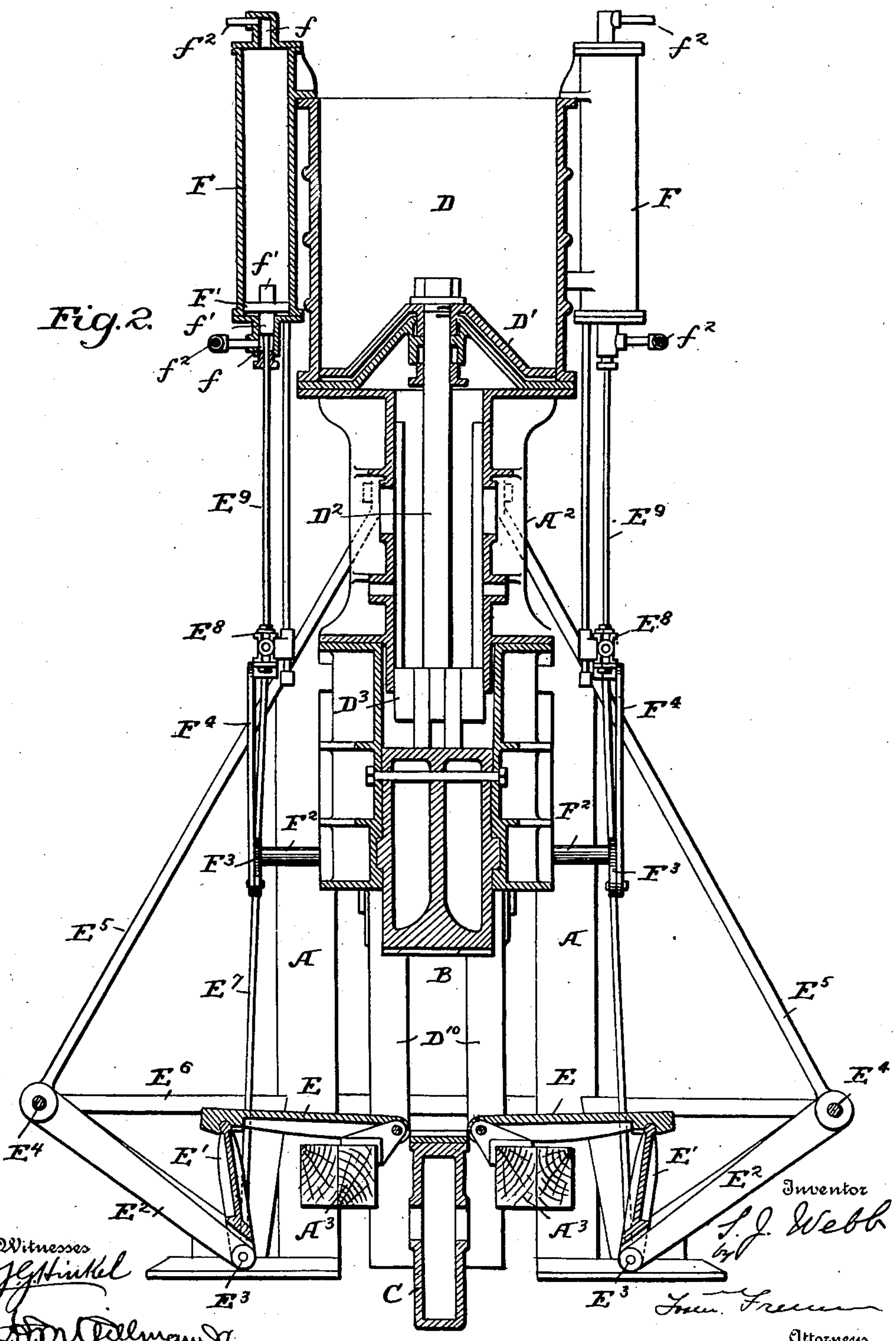
4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

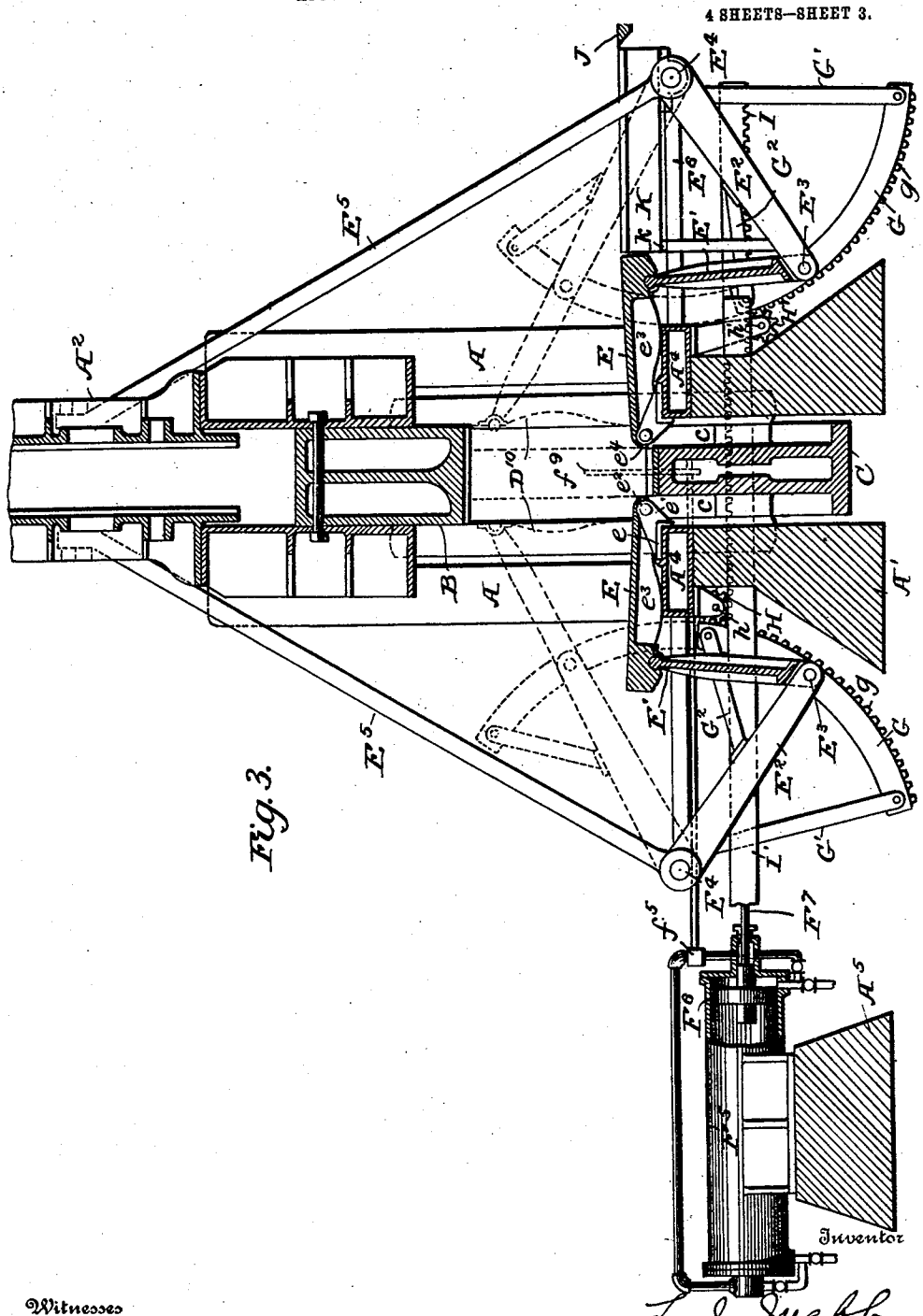

Fig. 3.

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4 SHEETS—SHEET 4.

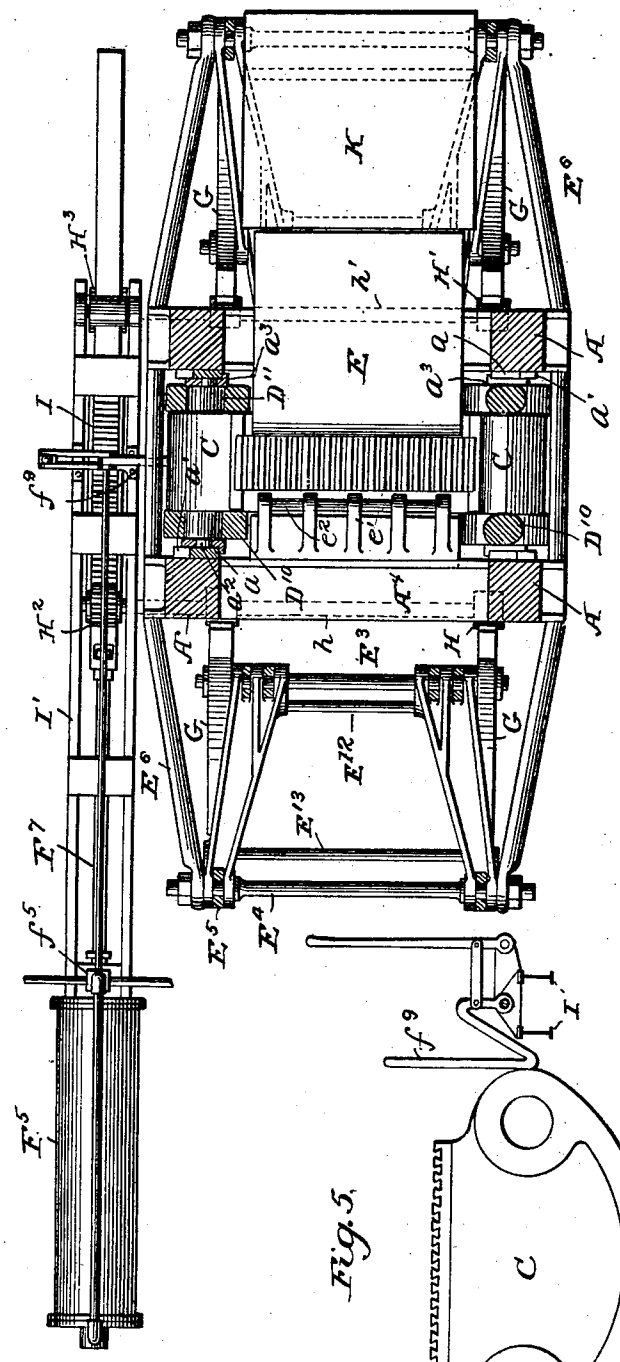

Fig. 4.

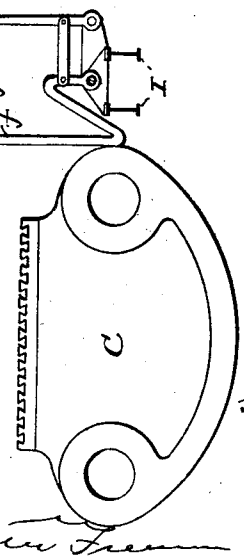

Fig. 5.

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UNITED STATES PATENT OFFICE.

SAMUEL J. WEBB, OF MINDEN, LOUISIANA.

COMPRESS.

No. 865,734. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed November 27, 1900. Serial No. 37,905.

To all whom it may concern:

Be it known that I, SAMUEL J. WEBB, a citizen of the United States, residing at Minden, in the parish of Webster and State of Louisiana, have invented certain new and useful Improvements in Compresses, of which the following is a specification.

My invention relates to cotton compresses and has for its object to improve such compresses and more especially to provide such compresses with side plates coöperating with the platens between which the bale is compressed, and to these ends it consists in the various features of construction and combinations of parts substantially as hereinafter more particularly set forth.

Referring to the accompanying drawings: Figure 1 is a side elevation of a compress embodying my invention; Fig. 2 is a vertical transverse section of the construction shown in Fig. 1; Fig. 3 is an enlarged section showing the platens and a portion of the mechanism for operating them and another arrangement of devices for operating the side plates: Fig. 4 is a horizontal cross-section of Fig. 3 on the line of the floor, showing one of the plates removed and the other in position; and Fig. 5 is a detail view showing automatic means for controlling the operation of the supply valve for operating the side plates.

My improvement embodies platens for compressing the bale, one of which is movable and which is shown as being operated by a lever mechanism, which mechanism is operated from a steam cylinder, and there are side plates connected to coöperate with the platens, which side plates are operated by other mechanisms, as will hereinafter be more fully set forth.

Referring more particularly to Figs. 1 and 2, A, A, represent posts composing the main frame of the compress, mounted on a suitable base, A', and secured to these posts is a main frame portion, A^2. This base and frame portion may be differently constructed but are preferably so arranged as to support or carry the fixed platen, B, and to support a cylinder, D. This cylinder, D, is provided with a piston, D', the piston-rod, D^2, of which is provided with a cross-head, D^3, to which are connected links, D^4, which in turn are connected to the swinging levers, D^5, pivotally mounted on the frame, A^2, at the point, D^6. Also connected to the links, D^4, are links, D^7, attached to the frame, A^2, or the platen, B, attached thereto. The links, D^7, and levers, D^8, are also connected to a pin or bearing, D^9, on which are also pivoted the lifting rods, D^{10}, pivotally connected to the lower platen, C. The upward movement of the piston, D', in the cylinder, D, is controlled by a valve, d, in the inlet pipe, d', and this valve is controlled by a cam, d^2, on a rod, d^3, operated by a link, d^4, connected to the rocking handle, d^5. The exhaust is controlled by a similar valve operated by the cam, d^6, on the rod, d^3.

When steam is admitted to the cylinder, D, the piston is raised and through the lever and link connections before described the lower platen, C, is moved upward under great power to compress the cotton in a manner which is well understood, and it is lowered at the proper time by exhausting the steam from under the piston.

Arranged in proper position to coöperate with the compressing platens and mounted on some separate part of the press, and as best shown in Fig. 2, the cross-pieces, A^3, of the frame, are side plates, E, E, and these plates are arranged so as to normally lie in substantially the positions indicated in Fig. 2 and to be moved upward to assume the positions substantially as indicated in dotted lines in Fig. 3, and while various means may be used for operating these plates I have shown a toggle mechanism and engines, F, F.

The toggle levers, E', E^2, are connected together at the point, E^3, and one of the toggle levers, as E', is connected to one of the plates at or near its free end, while the other toggle lever, E^2, is connected to a fixed rod, E^4, which is supported in any suitable way, and in the present instance by means of tie-rods, E^5, E^6, and this rod, E^4, is located in a position at or near the floor line of the building in which the compress is erected.

Connected to the middle point or point of connection, E^3, are lifting rods, E^7, which in turn are connected to the cross-heads, E^8, of the piston-rods, E^9, connected to the pistons, F', of the engines, F. I also preferably provide guide rods, E^{10}, for the cross-heads, E^8, which guide rods are secured to the frame of the compress and to the engines, F, F.

Each piston, F', is provided with a projection, f', on each side adapted to enter a recess, f, in the cylinder heads of the engine to form a cushion for the piston at the end of its movement in each direction.

The engines, F, are supplied with steam in any suitable way, but I have shown a pipe, f^2, connected to the steam pipe d', and also connected to the recessed portions, f, of the cylinder heads so that steam is admitted to the cylinder through the recesses, f. A by-pass pipe, f^3, connects the pipe, f^2, directly with the cylinder between the face of the piston and the cylinder head and this is provided with a suitable check valve, f^4, which permits the steam to enter the cylinder through the by-pass pipe, but prevents its return.

A suitable valve, f^5, controls the inlet of steam through the pipe, f^2, and its branches to one or the other end of the cylinder, and also controls the exhaust through these branches and through an exhaust outlet, f^6, and this valve may be operated in any suitable way, as by the rod, f^7, connected to the lever, f^8.

It is desirable that both side plates, E, E, should be operated in unison and simultaneously, and in order that this may be done I have shown a shaft, F^2, mounted on the fixed platen to which are attached arms, F^3,

connected by links, F^4, to the cross-heads, E^8, of the pistons, and in this way the shaft, F^2, is rocked when the plates are operated and their simultaneous and uniform operation is insured.

While the apparatus so far described is one which has proved efficient in actual practice, I will now describe another means for operating the side plates which has also proved satisfactory and which has been used in connection with lever mechanism for operating the main platen shown in Figs. 1 and 2, and consequently in Figs. 3 and 4 I have not shown the whole of the lever mechanism but only the attachments connected with the compress for operating the side plates. In this construction the side plates, E, E, instead of being mounted on cross-pieces, A^3, are mounted on cross-pieces A^4, of the frame, which cross-pieces, A^4, rest directly on the posts, A', A^4 being metallic foundation plates properly so called for the press, and A' being preferably masonry or some similar base material. To the foundation plates, A^4, are attached hinge sections, e, which are shown in the form of plates secured to the foundation plates and having projections, e', supporting the rod or pintle, e^2, of the hinge. The under sides of the plates, E, are provided with ribs, e^3, having openings to receive the pintle, e^2, and the inner edges of the faces of the plates are curved downward at e^4, to cover the faces of the projections, e'. The sides c, c, of the movable platen, C, are provided with finished portions which bear against the faces of the plates, E, which thus serve to guide the platen and support the side plates. Additional guides for the platen, C, are also preferably provided. Thus to the posts, A, are secured the foundation plates, A^4, and to these plates is secured a guide, a, and lugs, a', are preferably provided on the foundation plates to hold the guide in position. The pins, D^{11}, by means of which the lifting rods, D^{10}, are secured to the platen, C, are provided with projections, a^2, which aid in securing the guide shoes, a^3, to the pins, and these guide shoes tend to prevent the movement of the lower platen sidewise or lengthwise. Any other suitable arrangement of guides can be used. In this construction the means for operating the toggle levers, E', E^2, differs from that shown in Figs. 1 and 2. In this case the segments, G, G, are attached to the point of connection, E^3, of the toggle levers, and are also detachably connected to the lever, E^2, by braces G', G^2. These segments are provided with teeth, g, which are engaged by the teeth of pinions, H, H'. These pinions are, respectively, mounted on shafts, h, h', attached by brackets to the foundation plates, A^4, or are otherwise suitably supported. On these shafts, h, h', at one side of the compress are mounted pinions, H^2, H^3, and these pinions are operated by a rack bar, I. This rack bar reciprocates in a frame, I', which has bearings for the shafts, h, h', and is arranged at one side of the compress. This frame, I', is connected to a cylinder, F^5, which is mounted on a proper foundation, A^5. In this cylinder, F^5, reciprocates a piston, F^6, and to this piston is attached the piston-rod, F^7, which in turn is attached to the rack bar I. This cylinder, F^5, is constructed substantially like the engines, F, F, of Figs. 1 and 2, and need not be specifically described, the corresponding parts being correspondingly lettered, and it is provided with cushions and operating valves as before set forth. The pinions, H^2, H^3, are arranged on opposite sides of the rack bar, I, so that when the rack bar moves in either direction the segments, G, will move in unison therewith and operate the side plates simultaneously. The tie rods, E^6, connecting the rods, E^4, are, as shown, bent to embrace the posts, A, and foundation plates, A^4, and are secured in any suitable way so as to prevent longitudinal movement and maintain the rods, E^4, in proper relations to the platens. It will be seen, more especially with reference to Fig. 4, that the toggle levers, E^2, are inclined toward the center of the compress, and I preferably arrange a distance piece, E^{12}, between their inner ends to relieve strain on the side of the hinge, and the other ends of the toggle levers, E^2, are preferably held together, as by a bolt, E^{13}.

The compress is generally arranged so that the upper faces of the side plates, E, are practically in line with the floor, J, of the building in which the compress is situated, and from and to which the bales are received and delivered in their passage through the compress. In practice I provide a moving platform, K, which bridges the space between the floor, J, and the outer ends of the side plates when they are down, and this platform is preferably connected to the rods, E^4, so as to turn or rock thereon, and the other end is supported on the toggle levers, E^2, connected as by posts, k. It will be seen that with this construction when the side plates are raised to the positions shown in Fig. 3, the toggle levers, E', E^2, are in the positions shown in dotted lines and are practically straight and form locks for the side plates, and at the same time the platform, K, is raised, and it serves as a means of heading the bale, that is, of tilting on end ready to be received by the truckers and conveyed to its destination.

In order to prevent the operation of the side plates while the bale is being placed in position between the main platens or being banded or otherwise and thus prevent accidents to the operators, I provide automatic means which will prevent the side plates from being lifted into their upper positions. Various means may be provided for this purpose. Thus referring to Fig. 1 I connect the operating lever, f^3, with a pivoted bar, f^9, which may be suitably mounted in relation to the lower platen, C, and this bar is connected to the operating lever, f^8, by a link, f^{10}, or otherwise. When the lower platen, C, is in its elevated position, the end of the platen adjacent to the bar, f^9, will prevent it from being moved inward, which movement of the operating lever, f^8, is necessary to open the supply valve, f^5, to the engines, F, and it will thus be seen that the upward or downward movement of the main platen, C, forms an automatic lock to prevent or allow the movement of the operating lever, f^8, in such a direction as to cause the side plates, E, to be raised, and it will be seen that it is impossible to so operate the lever when the platen is in its raised or compressing position. Additional safety devices or independent means for locking the operating lever, f^8, may be provided, as for instance in the pivoted hook L, which may be supported in any suitable position, as on the floor, J, and may be operated by the foot or otherwise of the operator to engage or disengage the bar, f^9, and lock it in position, and hence control the operating lever, f^8. This independent mechanism may operate at any time to prevent the operation of the side plates, but it is intended more especially to lock the operating lever, f^8,

when the bale is being placed in position or removed from the compress. Another automatic means for preventing accidents is shown in the pressure regulating valve, M, Fig. 1, connected to the pipe, f^2, supplying steam to the engines, F. This valve is an ordinary pressure regulating valve arranged in the pipe, f^2, and connected by a pipe, m, near the lower end of the cylinder, D, just above the piston, D′, when it is in its lowest position. As soon as the piston passes the opening of this pipe, m, in the cylinder in its upward movement steam passes into the pipe and operates the pressure regulator to close its valve and prevent steam from passing through the pipe, f^2, and when the piston descends to its lowest position the steam in the pipe, m, exhausts into the cylinder, D, above the piston and the pressure regulator is relieved, allowing the steam to flow through the pipe, f^2, and the engines, F, to be operated by the operator.

In Fig. 5 I have shown the automatic means, including the bar, f^9, as arranged above the rack bar frame I′, and in this arrangement the bar, f^9, is connected directly to the stem of the valve f^5, which is extended along the side of the compress for this purpose.

From this description the operation of the compress in compressing cotton or other material will be readily understood, and it will be seen that the bale is placed upon the movable platen, C, in any suitable way, and the side plates are then operated in the manner hereinbefore described so that they assume the positions shown in dotted lines, displacing the cotton so as to narrow the bale to the proper width. In case the bale is narrower than the width of the movable platen the side plates act only as confining plates, confining the bale against expansion while it is being compressed between the stationary bed and movable platen. It will thus be observed that the operating face of the platen, C, is narrower than the operating face of the ordinary platens of a compress, and in compressing bales if they are wider than the width of the operating face of the movable platen the material of the bale is displaced to narrow the bale, so as to reduce the area of the surfaces exposed to the compressing platens.

Having thus fully described my invention, what I claim is:

1. In a cotton compress, the combination with the compressing platens, of side plates, lever mechanism for operating said plates, segments for operating the levers, and a rack and pinions for operating said segments, substantially as described.

2. In a cotton compress, the combination with the compressing platens, of side plates, lever mechanism for operating said plates, segments for operating said levers, a rack and pinions for operating the segments, and an engine for operating the rack, substantially as described.

3. In a cotton compress, the combination with the compressing platens, of side plates, lever mechanism for operating said plates, segments for operating said levers, a rack and pinions for operating the segments, and an engine for operating the rack, the engine being provided with cushioning devices to prevent shock at each end of the stroke of the piston, substantially as described.

4. In a cotton compress, the combination with the compressing platens, of movable side plates to close opposite spaces between said platens, toggle levers connected at or near the swinging ends of the side plates for operating said plates, and engines for operating the toggle levers, whereby when the side plates are raised the toggle levers are in line so as to hold the plates in position and form abutments to resist the pressure between the plates, substantially as described.

5. In a cotton compress, the combination with the compressing platens, of side plates hinged to the foundation plates of the compress to close opposite spaces between said platens, and means for operating said side plates, substantially as described.

6. In a cotton compress, the combination with the compressing platens, of side plates hinged to a stationary part of the compress, and toggles connected at or near the swinging ends of the side plates and to a stationary support arranged at or near the door line and supported by tie-rods connected to the compress, substantially as described.

7. In a cotton compress, the combination with the compressing platens, of side plates, toggle levers for operating the side plates, and a moving platform attached to the toggles so that it will be tilted when the toggles are straightened and close the opening in the floor when the toggles are down, substantially as described.

8. In a cotton compress, the combination with the compressing platens, of side plates, toggles for operating the side plates, and a moving platform connected to one of the toggles and arranged to be tilted to head the bale when the plates are operated, substantially as described.

9. In a cotton compress, the combination with the compressing platens, of hinged side plates, a hinged platform, and toggle mechanism for operating the side plates and platform arranged so that the plates and platform will close the opening in the floor, substantially as described.

10. In a cotton compress, the combination with the compressing platens, of side plates, lever mechanism for operating the side plates, segments for operating the levers, pinions for operating the segments, and a rack for operating the pinions, one of the pinions being arranged at one side and the other at the other side of the rack, substantially as described.

11. In a cotton compress, the combination with the compressing platens, of side plates, means for operating the side plates, and automatic means for preventing movement of the side plates while the bale is being banded, substantially as described.

12. In a cotton compress, the combination with the compressing platens, of side plates, means including an operating lever for operating the side plates, and independent means connected with the operating lever for preventing movement of the side plates while the movable platen is in its retracted position, substantially as described.

13. In a cotton compress, the combination with the compressing platens, of side plates and connections between the said side plates to cause them to swing to and from the space between the platens simultaneously, substantially as described.

14. In a cotton compress, the combination with the compressing platens, of side plates, means for operating the side plates, and connections between said operating means whereby said plates are simultaneously operated, substantially as described.

15. In a cotton compress, the combination with the compressing platens, side plates and means for operating them, of a moving platform arranged so that it will be tilted when the side plates are elevated and close the opening in the floor when the side plates are down.

16. In a cotton compress, the combination with the compressing platens, of movable side plates, and guides on the sides of the movable platen coöperating with guides on the frame for guiding said platen and supporting the side plates, substantially as described.

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

SAMUEL J. WEBB.

Witnesses:
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W. CLARENCE DUVALL.