

No. 827,833.

PATENTED AUG. 7, 1906.

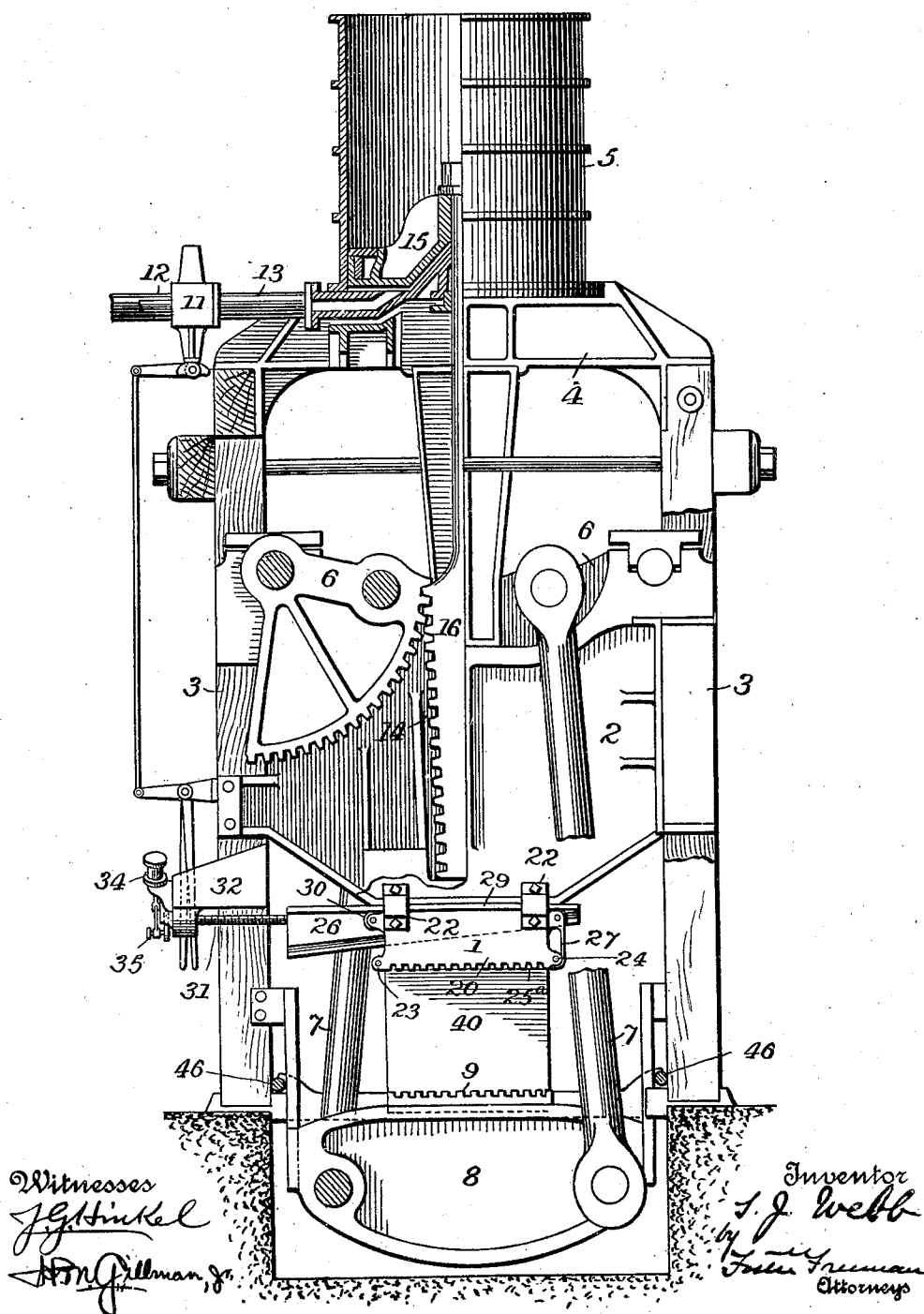
S. J. WEBB.

MEANS FOR COMPRESSING BALES.

APPLICATION FILED NOV. 17, 1900.

3 SHEETS--SHEET 1.

Fig. 1.



No. 827,833.

PATENTED AUG. 7, 1906.

S. J. WEBB.
MEANS FOR COMPRESSING BALES.
APPLICATION FILED NOV. 17, 1900.

3 SHEETS—SHEET 2.

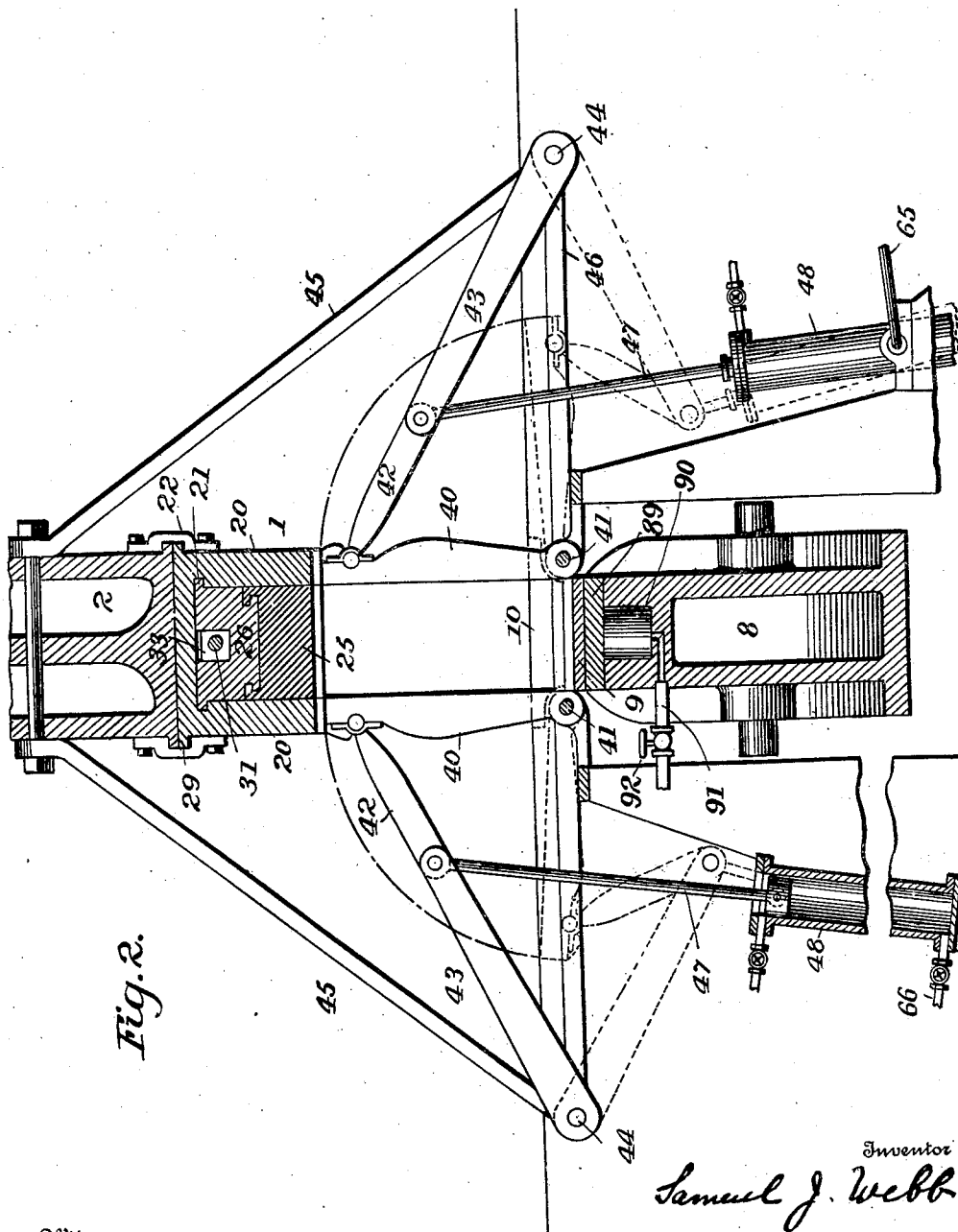


Fig. 2.

Witnesses
J. H. Hinkel
A. M. Gillman, Jr.

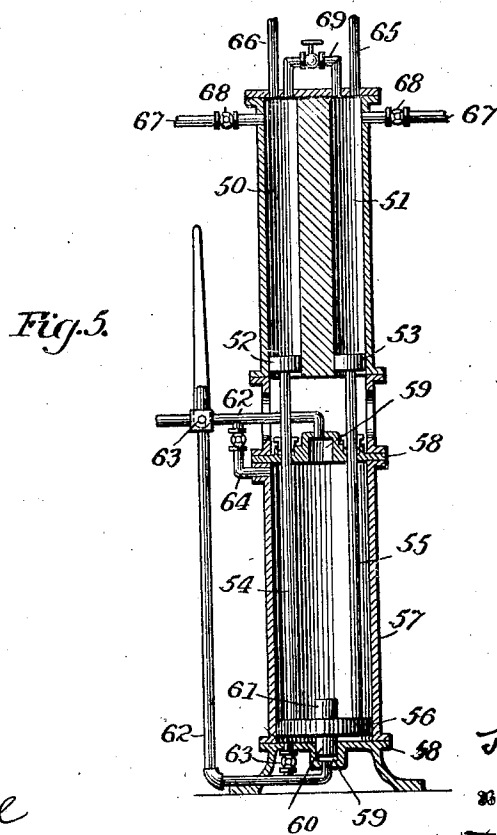
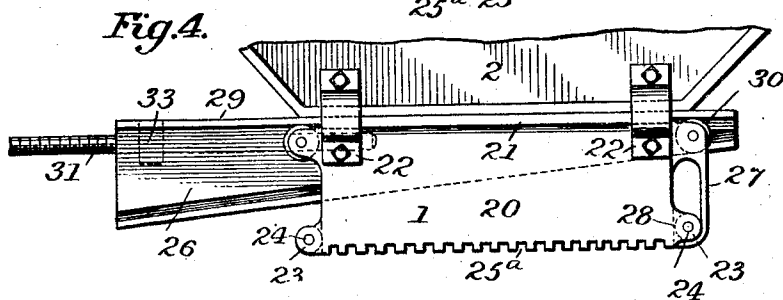
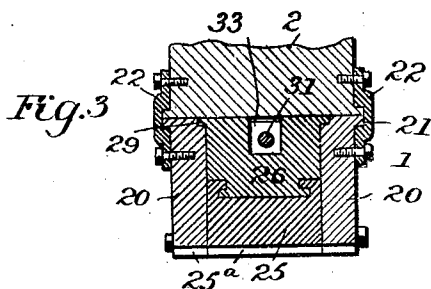
Inventor
Samuel J. Webb
By *Foster Freeman*
Attorney

No. 827,833.

PATENTED AUG. 7, 1906.

S. J. WEBB.
MEANS FOR COMPRESSING BALES.
APPLICATION FILED NOV. 17, 1900.

3 SHEETS—SHEET 3.



Witnesses

J. H. Hinkel

Wm. J. Gillman, Jr.

Inventor

Samuel J. Webb.

Foster Freeman Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL J. WEBB, OF MINDEN, LOUISIANA.

MEANS FOR COMPRESSING BALES.

No. 827,833.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed November 17, 1900. Serial No. 36,885.

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
5 Improvements in Means for Compressing Bales, of which the following is a specification.

My invention relates to means for compressing cotton, and has for its object to improve said means; and it consists in the various features and combinations of parts having the mode of operation substantially as hereinafter more particularly set forth.

In the accompanying drawings, Figure 1 is
15 a part elevation and part sectional view of a press embodying my invention. Fig. 2 is a transverse sectional view showing a means for operating the shaping doors or plates. Fig. 3 is a vertical section showing means for
20 adjusting the upper platen. Fig. 4 is a side view of Fig. 3, and Fig. 5 is a sectional view of a hydraulic ram such as may be used to furnish power for the operating-cylinders of the side plates.

25 The frame of the press may be of iron or timber. In the illustration it is shown with wooden posts 3, surmounted by an iron frame 4, connecting the posts together at the top and supporting the cylinder 5. The central
30 iron frame 2 is attached to the posts 3 and supports the upper platen 1 and sector-levers 6. These sector-levers are connected by rod 7 with the movable platen 8. To operate the sector-levers, there is a rack 16 connected to
35 a piston 15 in the cylinder 5, and the iron frame 2 is formed with an opening 14 to permit the rack to move in engagement with the sector-levers. A suitable inlet and outlet pipe 13 is connected with the cylinder 5, and
40 there are valves 11 and 12 operated in any suitable way for controlling the flow of fluid to the cylinder. The operation of this part of the press will be readily understood by those skilled in the art, and on admission of
45 steam through the valve 11 to the cylinder 5 the piston 15 is raised, and with it the rack 16, and the sector-levers are rocked on their bearings, and the rods 7 raise the lower platen 8 to compress the material between it and the
50 upper platen 1.

It is desirable that all bales should be compressed to practically the same density, and as in practice it is found that the ordinary farm or plantation bales vary in weight and

to some extent in dimensions in order to be
55 able to compress them to the same density it is necessary to adjust the space between the upper and lower platens. To do this, I construct one of the platens (preferably the upper one) as indicated more particularly in
60 Figs. 3 and 4. Thus the upper platen 1 comprises two side pieces 20-20, which are secured to the frame 2 in any suitable way, and in the present instance I have shown them as
65 being provided with flanges 21, corresponding to similar flanges on the bottom of the frame 2, and there are clamps 22 engaging the frame and side pieces and secured thereto, as shown, so that the parts are held to the
70 frame. The pieces 20 are also preferably secured together by some suitable means, and in the present instance I have shown projections 23 23 at the ends thereof, through which pass suitable rods or bolts 24.

The stationary platen 1 comprises the side
75 pieces 20 20, before referred to, and an adjustable face portion 25, which is connected to be operated or adjusted by a wedge 26. These two parts are connected together in
80 any suitable way and are shown as connected by dovetails, so that one will slide on the other, and some means are provided for preventing the part 25 from moving longitudinally and displacing the relations of the band-
85 slots 25* in the side pieces 20 and adjustable face portion 25, and in the present instance I have shown the face portion 25 as provided with a slotted projection 27, embracing a tie-rod 24, which is preferably provided with a
90 friction-roller 28, and this permits the face portion 25 to move upward and downward without moving longitudinally. Any other suitable means to secure this result of course can be substituted for that shown. The
95 wedge 26 is arranged to slide longitudinally, and, as shown, it is provided with flanges 29, and it is preferable to have these flanges bear upon friction-rollers, as 30, arranged on the side pieces 20 in such a position as to secure the wedge. Of course the rollers could be
100 otherwise attached and any other supporting means for the wedge be used, the result to be attained being that the wedge is held so that it can move horizontally. Some suitable means should be used for moving the
105 wedge, and I have shown a screw 31, mounted to rotate, but not move longitudinally, in a bracket 32, secured to the frame and en-

gaging a nut 33, connected to the moving wedge, and this screw is operated by power means, shown in the present instance as two engines 34, connected to a crank 35 on the end of the screw, and as the screw is rotated in one direction or the other the wedge 26 will be moved inward or outward with relation to the portion 25, causing it to assume a position to increase or decrease the space between its face and the face of the movable platen, according to the thickness of the bale to be compressed. It will thus be seen that the fixed platen 1 really comprises four parts—that is, the fixed side pieces 20, the moving face portion 25, and the wedge 26—and the pressure exerted upon the bale in operating the press will depend upon the relative positions of these parts.

The movable platen 8 is provided with a removable face-plate 10, which is of the proper dimensions to correspond with the full face of the fixed platen or with the adjustable face portion 25 thereof, according to the character of the work to be done on the press. It must also be of a thickness to correspond with the difference between the thickness of a narrow bale of cotton and that of a wide bale of cotton when the bales are respectively compressed. Thus, for instance, if the bale to be pressed is of a width greater than the width of the face portion 25 this portion must be adjusted by moving the wedge so that its face corresponds with the faces of the side pieces 20.

It is well known that with a press of a given capacity the pressure per square inch of surface of the bale varies in accordance with the area of the surface to be compressed and that a much greater density can be attained with a bale of a given bulk if the surfaces to which the pressure is applied are relatively reduced or narrower. In order to utilize this feature, I provide means for forming or shaping the bale, so that when it is subjected to the final compression the areas of the sides to which the compression is applied shall be practically of uniform size and reduced from the ordinary areas. To accomplish this, I provide forming or shaping plates or doors and means to operate them arranged to reduce the bales to a uniform thickness before the final compression. Thus in the drawings 40 40 are the shaping plates or doors, which in this case are hinged at 41 to some part of the apparatus, and some suitable means are provided for operating these plates. In the present instance toggle-levers 42 43, one connected to the plates near their upper ends and the other to some fixed bearing 44, are shown. This bearing in the present instance is supported by tie-rods 45 46. The advantage of connecting the toggle-levers near the upper end of the plates is that they may be operated with less power, and, further, they may be more firmly held

in position when the toggles are straightened, as the greatest outward strain on the plates takes place near their upper portions as the bale nearly reaches its final compression, and when the toggles are brought into line and held they form a rigid abutment against this strain and the plates are held thereby. These toggle-levers are operated by some suitable power mechanism, and in the present instance I have shown rods 47 connected at the pivotal points of the toggles and operating in the cylinders 48 of a hydraulic engine. In one instance the hydraulic cylinder is pivotally mounted and oscillates on the pivot in a well-known manner. In the other case the cylinder is fixed and the rod is pivotally connected to the piston. These hydraulic cylinders 48 may be supplied with power from any suitable source; but preferably I use a double hydraulic ram, such as is indicated in Fig. 5. This ram comprises two cylinders 50 51, in which move the pistons 52 53, connected by piston-rods 54 55 to the piston-head 56 of the steam-cylinder 57. This cylinder 57 is provided with cylinder-heads 58, both of which are provided with a recess 59 to receive a projection 60 or 61 on the piston-head 56. These projections fit closely in the recesses and cut off the exhaust-steam before the piston-head reaches the end of the cylinder, so as to form a cushion at each end of the cylinder.

The live steam and exhaust pass through the cylinder through one or the other of the pipes 62, controlled by a valve 63, which in this instance is a four-way valve.

Connected to each pipe 62 is a by-pass pipe 64, provided with a check-valve so arranged as to permit steam to enter the cylinder between the head of the cylinder and the piston-head when the projection 60 or 61 is in one or the other of the recesses 59. These by-pass valves operate to allow the steam to enter the cylinder and move the piston-head before and while the projection 61 is moved out of the recess 59, and the checks, as before stated, are arranged so that the exhaust-steam from the cylinder cannot pass through the by-pass pipes.

Each cylinder of the ram is connected to one of the hydraulic cylinders of the press. Thus, for instance, the pipes 65 and 66 are respectively connected to similar pipes in the cylinders 48, so that both of these hydraulic cylinders 48 are operated in unison by the ram.

In ordinary practice the motor fluid is forced from the cylinders 50 51 into the cylinders 48, respectively, and drawn back again; but of course there is liable to be more or less loss from leakage or other cause, and so I provide pipes 67, provided with check-valves 68, which pipes are connected to a source of supply, the check-valves being so arranged that the motor fluid can flow from

the source of supply into the cylinders 50 51 to keep them filled. I also provide means for equalizing the pressure in the two cylinders—as, for instance, a pipe 69, which may be provided with a suitable valve.

It will be observed that in Fig. 2 the face 9 of the movable platen is relatively narrow and narrower than the working face of the stationary platen, and if it is desired to press a wide bale without using the shaping-plates a wide platen-plate 10 is placed over the platen 8, as indicated in dotted lines. It will also be observed that in this figure the side pieces 20 are united in a single casting instead of being in two separate pieces, as shown in Fig. 3.

The operation of this apparatus will be understood, and, as above indicated, without using the shaping-plates or without adjusting the face of the fixed platen by placing a wide platen-plate 10 in position the press can be used as an ordinary compress. It is preferable, however, to form or shape the bales so as to bring them to a practically uniform size before they are compressed, and to do this the shaping-plates 40 are lowered to the position indicated in dotted lines, Fig. 2, and the bale is placed upon the movable platen 8. The shaping plates or doors are then operated by their proper mechanism, so that they are brought into the position shown in full lines in said figure, and in doing this the bales are formed or shaped so that they have a uniform width. These doors are then held or locked in this position, so that they form practically confining-plates for the sides of the bale when it is being compressed. After the bale has been subjected to this operation if it is found necessary the wedge 26 is moved to force in or out the face portion 25, so that the space between the two platens may be of the proper size to produce a substantially uniform density in the bales compressed. When this is done, the movable platen 8 is forced between the shaping and confining plates, compressing the cotton between them and the adjustable operating face portion 25 of the fixed platen, and when the cotton is thus properly compressed the shaping-plates are released or lowered and the bale can be banded while under pressure in the usual way.

It is obvious that instead of making the fixed platen adjustable the movable platen may be provided with an adjustable portion. Thus the movable platen 8 is provided with an adjustable working face 89, in this instance having a plunger 90, working in a cylinder formed in the platen 8 and provided also with a suitable pipe and controlling device 91 92, so that the portion 89 may be adjusted with relation to the movable platen 8.

What I claim is—

1. In a compress, a platen made in separable portions, one portion of the operative

face of which platen is adjustable with relation to the other portions of said operative face, and means for varying the adjustment of said first portion, substantially as described.

2. In a compress, a platen having side pieces, an adjustable face portion supported between said side pieces, and means for varying the adjustment of said adjustable portion with relation to the operative face of the side pieces, substantially as described.

3. In a compress, a platen having side pieces, an adjustable face portion supported between said side pieces, a wedge engaging said adjustable portion, and means for operating the wedge whereby the adjustable portion of the platen may be varied with relation to the side pieces thereof, substantially as described.

4. In a compress, a platen having side pieces, an adjustable face portion supported to move between the side pieces in one direction but restrained in its transverse movement relatively thereto, and means for adjusting the face portion with respect to the side pieces, substantially as described.

5. In a compress, the combination with the platens, and means for operating one of the platens, of side plates and means for operating them, one of the platens being narrow to operate between the side plates, and a removable face-plate having an operative face wider than the operative face of the narrow platen on which it is supported, the plate being of a thickness to correspond with the difference between the thickness of a narrow and a wide bale of cotton when compressed, substantially as described.

6. In a compress, a platen having side pieces, rods connecting the side pieces, an adjustable face portion having a slot embracing one of said rods, and a wedge for adjusting the face portion, substantially as described.

7. In a compress, the combination with a frame, of a platen having side pieces attached to the frame, rollers connected to the frame, an adjustable face portion supported between the side pieces, a wedge for adjusting the face portion and bearing on the rollers, and means for operating the wedge, substantially as described.

8. In a compress, the combination with the platens, and means for operating one of them, of a side plate, toggle-levers connected near one edge of the side plate, and an operating cylinder and piston connected to the central pivot of the toggles and arranged to cause the toggles to come in line and form a rigid abutment to hold the side plate, substantially as described.

9. In a compress, the combination with the platens, and means for operating one of them, of side plates, hydraulic cylinders connected to operate the side plates, and a dou-

ble hydraulic ram connected to operate the cylinders simultaneously, substantially as described.

10. In a compress, the combination with
5 the platens, and means for operating one of them, of side plates, hydraulic cylinders connected to operate the side plates, a ram having two cylinders and pistons therein, a
10 steam-cylinder, and a single operating-piston for the steam-cylinder connected to the pistons of the ram, substantially as described.

11. In a compress, the combination with
the platens, and means for operating one of them, of side plates, hydraulic cylinders con-
15 nected to operate the side plates, a double hydraulic ram connected to operate the cylinders, and a single steam-cylinder connected to operate the ram, the steam-cylinder being provided with a cushioning device at each
20 end of the same, substantially as described.

12. In a compress, the combination with the platens, and means for operating one of them, of side plates, hydraulic cylinders con-

nected to operate the side plates, a double hydraulic ram connected to operate the cylinders, a steam-cylinder the ends of which
25 are provided with recesses, a piston provided with projections on each side, and a by-pass pipe at each end of the cylinder, substantially as described.

13. In a compress, the combination with
the platens, side plates, and means for operating them, of a ram having two cylinders and pistons therein, an equalizing-pipe connecting the two cylinders, a steam-cylinder,
35 a single piston therein, and connections between the steam-piston and the ram-pistons, substantially as described.

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

SAMUEL J. WEBB.

Witnesses:

F. L. FREEMAN,
W. CLARENCE DUVALL.