

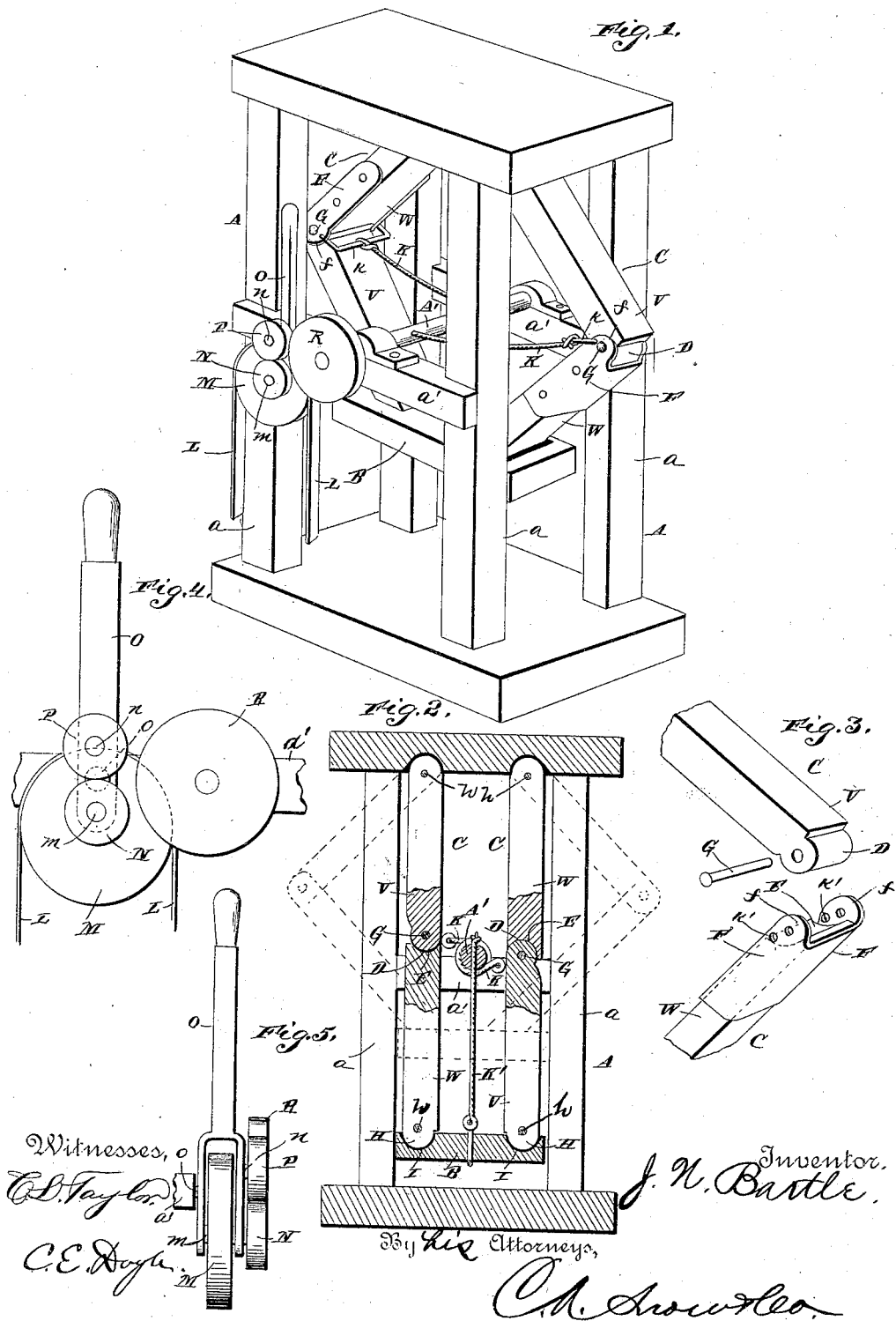
(No Model.)

J. N. BARTLE.

BALING PRESS.

No. 383,033.

Patented May 15, 1888.



UNITED STATES PATENT OFFICE.

JOHN NELSON BARTLE, OF MIDWAY, TEXAS, ASSIGNOR OF ONE-HALF TO
JAMES WRIGHT GILLESPIE, OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 383,033, dated May 15, 1888.

Application filed March 3, 1887. Renewed April 16, 1888. Serial No. 270,851. (No model.)

To all whom it may concern:

Be it known that I, JOHN NELSON BARTLE, a citizen of the United States, residing at Midway, in the county of Madison and State of Texas, have invented a new and useful Improvement in Baling-Presses, of which the following is a specification.

My invention relates to baling-presses; and it consists in a certain novel construction and arrangement of parts for service, fully set forth hereinafter, and specifically pointed out in the claims.

Heretofore presses have been made for the purpose named with a plunger or platen operated by toggle-levers acting in conjunction with a capstan or drum and ropes to be wound thereon; but they have been objectionable for certain reasons. In one case, referring especially to United States Patent No. 315,062, the press is constructed on the same general principle as the device herein shown; but the joints between the members of the toggle-levers are constructed in such a manner that all of the strain thereon is sustained by the pivot-pins passed therethrough, and these are obviously not sufficient to withstand the tremendous pressure necessary to be applied to cotton to compress it properly into bales; also the manner of attaching the power-ropes to the pivot-pins of the joints is extremely unsafe and subjects the said pivot-pins to still further strain. A number of similar patents might be cited in which the same character of joint is used to sustain a strain which is too great for the strength thereof. It is therefore my intention to provide a joint for the situation named which will be perfectly capable of withstanding a sufficient amount of power to properly bale cotton. Another fault possessed by presses heretofore made is that either they must be operated by hand, and the drum alternately reversed and turned in opposite directions, or if operated by steam or other power the plunger is operated by the said power to compress the hay or cotton, and when that is completed the connection with the said power is thrown off and the plunger returned to its first position by hand, or if the pressing is done by an upward motion of the platen or plunger it is allowed to descend by its own weight. In the latter of these cases the loss of time while

the platen is descending is considerable, and in the former, although the return motion can be very quickly accomplished, the power possible to be applied by hand is obviously limited; and, still further, it is necessary to have one or two persons to be employed entirely with the turning of the power wheel or crank which operates the drum, thus occupying the time of said additional person or persons.

In the following description of my device for baling purposes I will show an improved method of operating the plunger of the press by steam or other power, in such a manner as to obviate all of said inconveniences, and introduce certain improvements in the details of construction of presses which will be found efficient and valuable items, and enable the baling of cotton and hay to be very rapidly and satisfactorily accomplished.

The drawings hereto annexed illustrate a vertical cotton and hay press (in which the baling is done by a downward motion of the plunger or platen) embodying my improvements, and in which—

Figure 1 is a perspective view of the press, showing the mechanism employed to convey the power from the source thereof to the drum of the press, so as to give an alternating rotary motion thereto. Fig. 2 is a vertical central section of the same with the platen shown raised in dotted lines. Fig. 3 is a detail view of one of the toggle-joints with the parts thereof detached. Fig. 4 is a detached front view of the reversing mechanism for the drum. Fig. 5 is a side view thereof.

Referring to the drawings, in which similar letters denote corresponding parts in all the figures, A designates the frame of the press, comprising, mainly, the uprights or standards *a* and the means of connecting them at the ends and strengthening the same, and the intermediate cross-pieces, *a'*, in which the extremities of the drum *A'* are journaled.

B designates the platen, and C the toggle-levers, jointed at or near the middle points, and pivotally secured at their upper and lower ends, respectively, to the upper part of the frame and the platen B. The said joints consist of a rounded projection, D, on the end of one arm or member, V, of the lever fitting into a corresponding rounded cavity or recess, E,

in the other member, W, the arm or member containing the said socket or cavity being provided with the side plates, F F, which project beyond the end of the arm W to form ears *f f*, which are adapted to pass on either side of the rounded portion or projection D on the arm V, and have a pivot pin or bolt, G, passed through aligned openings in said ears and the projection D. Thus it will be seen that any strain which is brought upon the joint in drawing the arms in toward the drum to depress the plunger would be borne almost, if not entirely, by the bearing-surfaces of the projection D and the socket or cavity E, the main function of the pivot-pin being to hold the said members of the joint in their proper relative positions.

The attachment of the lower ends of the levers to the platen is very similar to the joint already described, consisting of a rounded projection, H, on the end of the lever fitting into a rounded cavity or socket, I, in the said platen and held therein by a pivot-pin, *h*, bent down at the ends to form a staple, the ends of which are driven into the said platen on each side of the socket therein. The connection of the upper ends of the levers to the upper part of the frame of the press is similar to that just described in every respect. Thus the pivot-pins in these joints are also subjected to no particular strain, the surfaces of the joint receiving the same.

K K designate the power ropes or cables attached to and adapted to be wound at one end upon the drum A' and secured at the other end in the link *k*, which is secured at the ends in perforations *k* in the inner edges of the plates F F on the sides of the levers. This manner of attaching the power-ropes enables them to have a straight pull upon the jointed part of the levers without subjecting the members of the joint to unnecessary or avoidable strain.

K' is a power-rope to wind at the upper end upon the drum A' and attached at the lower end to the upper side of the platen, the said rope being designed to raise the platen after having accomplished the compression of a bale of cotton or hay.

The operation of the parts thus far described is well understood, being the same as in the patent hereinbefore cited, and therefore needs no detailed description; but the general principles of the action are: the drum is designed to be operated alternately in opposite directions, and as the rope K' is wound on the drum when the ropes K are extended or unwound, it is evident that while the drum is revolving in one direction the ropes K will be drawn in and extend or force the platen down, and as the drum is revolved in the opposite direction the rope K' will be wound up and draw the platen up to its former position.

The reversible power attachment is constructed as follows: In the drawings I show the power strap or band L coming from below and passing around the band-pulley M, rigidly secured on the shaft *m*, which is also provided

with a small friction wheel or pulley, N. The said shaft *m* is journaled at one end in the lower end of a lever-arm, O, pivoted on the bolt or pin *o*, secured in the cross-piece *a'* of the frame, or in any other suitable or preferred standard or support, and the said lever is extended vertically to form the handle O.

P represents a friction-pulley similar to the pulley N, journaled on a shaft, *n*, which passes through the lever-arm O the same distance above the pivot *o* thereof as the shaft *m* is below, and the pulleys N and P are designed to be in contact and revolve together and in opposite directions.

The drum A' is extended a short distance beyond the cross-piece *a'* of the frame and provided with a rigid friction pulley, R, larger than the pulleys N and P.

The operation of the reversing mechanism is as follows: The band-pulley being rotated by the band L, which is operated by an engine or any other suitable power, the friction pulley N on the same shaft therewith is also rotated in the same direction, and as the pulley P is in contact with the pulley N it will revolve also, (in the opposite direction.) Therefore, to lower the platen, press the handle O in one direction far enough to cause one of the pulleys to come in contact with the pulley R, and said pulley will revolve, turn the drum, and produce the desired motion. To raise the platen, press the handle in the opposite direction to that necessary to lower the platen, causing the other pulley to come in contact with the pulley R, and the drum will be rotated in the proper direction to wind up the rope K' and raise the platen.

The reason for making the pulley R larger than the pulleys N P is obviously to gain power in the drum, that being desirable in preference to speed in the work for which the mechanism is designed.

To stop the motion of the platen, turn the lever O so that both friction-pulleys N and P are out of contact with the pulley R, and the drum will obviously come to rest. The movement of the pulleys N and P, and consequently of the band-wheel M, necessary to produce the reversal of the motion of the drum is obviously very slight, and therefore as the band L comes vertically from below and the said motion of the band-wheel (caused by the motion of the lever-arm O) is horizontal the action of the band on the wheel will be the same in either position thereof, (that is, the tightness of the said band will be the same.) I therefore provide means whereby the operation of the drum of a baling-press may be accomplished easily and effectively, requiring only one person to operate the same, his only duty being to move the handle of the lever at the proper times, the reversal of the motion of the platen being consequent upon said motion; also, the joints which I provide are capable of withstanding a very great amount of power to depress the platen, the strain, as before stated, being entirely sustained by the bearing-sur-

faces of the joint, the pivot-pins being wholly relieved therefrom. Consequently the press as herein described is a simple, strong, and effective device adapted to quickly and tightly bale cotton or hay, and requiring only a single operator to manipulate the same—namely, a person to move the lever herein described at the proper intervals.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a baling-press, the frame A, drum A', the power-ropes K K K', to be wound thereon, and the platen B, combined with the levers C, having rounded upper and lower ends to operate in rounded sockets in the said platen and the upper part of the frame, and the toggle-joints near the centers of the said levers, comprising the rounded projection on one of the members adapted to fit a corresponding cavity or recess in the adjacent end of the other member, the lateral ears f, and the pin to pass through said ears and the rounded projection, substantially as and for the purpose set forth.
2. In a baling-press, the combination of the frame A, horizontal drum A', power-ropes K K', platen B, levers C, having toggle-joints near the center, comprising a rounded projection on the end of one member and a corresponding socket on the other, ears f, pivot-pin passing through the said projection and the ears, and the loop or link k, secured in the in-

ner edges of the said ears, and having the ends of the power-ropes K secured thereto, substantially as and for the purpose set forth.

3. In combination with a baling-press having a platen to be operated by a revolving drum adapted to be rotated alternately in opposite directions, the band-wheel M, operated by steam or other power through the band or belt L, the friction-wheel N, shaft m, on which the wheels M and N are rigidly secured, the lever O, pivoted on the pin o, secured to the frame of the press or a similar support, the friction-wheel P, journaled on a shaft, n, said shafts m and n being journaled in bearings in the lever O, respectively below and above and at equal distances from the said pivot o, so that the peripheral edges of the said pulleys are in contact, and the friction-pulley R on the end of the drum A', and adapted to be rotated in opposite directions as the pulleys N and P are alternately brought in contact therewith by moving the lever O, substantially as described, for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN NELSON BARTLE.

Witnesses:

A. J. McCARTY,
L. B. McGARY.