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N. B. WILDER.

BALING PRESS.

(Application filed July 28, 1897.)

(No Model.)

Witnesses
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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 608,563, dated August 2, 1898.

Original application filed March 26, 1897, Serial No. 629,409. Divided and this application filed July 28, 1897. Serial No. 646,266. (No model.)

To all whom it may concern:

Be it known that I, NORMAN B. WILDER, a citizen of the United States, residing at Lyndon, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Baling-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.

This invention relates to certain improvements in baling-presses and horse-powers therefor, and is a division of my application filed March 26, 1897, Serial No. 629,409.

The invention consists in certain novel features of construction and in combinations and in arrangements of parts, as more fully and particularly pointed out and described hereinafter.

Referring to the accompanying drawings, Figure 1 shows in elevation the front portion of my rebounding presser-head press with the horse-power coupled thereto and shown partially in vertical section. Fig. 2 is a detail top plan view of the horse-power, parts being shown in dotted lines. Fig. 3 is a perspective view of the continuously-rotating actuating frame or wheel, showing the under side thereof. Fig. 4 is a detail perspective of the cable winding and releasing shaft and its sheave and trip-arm. Fig. 5 is a detail elevation of the front brace or leg of the baling-press.

In the drawings, *a* is the frame of a baling-press, having a baling-chamber *b* and a rebounding reciprocating presser-head *c*, with its operating-toggle *d*. The outer end of this toggle is pivoted within the frame extending forwardly of the baling-press, and the rear end of the toggle is pivoted to the presser-head, while the joint of the toggle is usually provided with a roller or pulley mounted in an opening therein. The front or power link of the toggle is much shorter than the rear link, thereby permitting quick and ready rebound, which can be assisted, if desired, by a spring, such as *e*.

f is a leg or brace, at its upper end secured to the front end of the framework of the press and from thence extending forwardly and downwardly to the ground, with the rearwardly-extending bracing-link *f'* secured to the frame and leg to hold the same steady. This leg holds the press against forward movement when applied in position during the operation of the press, and its lower end is slotted from front to back and contains a pulley f^3.

g is the actuating-cable, secured to the front lower portion of the press-frame, and from thence passing upwardly over the pulley in the toggle-joint, and from thence rearwardly and downwardly through an opening in the framework and around a pulley *g'*, mounted therein, and from thence forwardly beneath the press-frame through said slot in said leg and beneath and against the pulley f^3 therein, and from thence forwardly to the horse-power, which is suitably planted or otherwise held at the proper distance in advance of the press.

The form of press shown has thus been specifically described for the sake of clearness; but my invention is not limited thereto, nor to employment in connection with such specific construction.

Referring specifically to the invention herein claimed, a horizontally-disposed usually rectangular frame *h* is provided for the power mechanism. For the purposes of transportation this frame is usually mounted on wheels. (Not herein shown.)

When the parts are set up for operation, the frame is securely anchored to the ground a sufficient distance in advance of the press to permit free swing of the sweeps and passage of the draft-animals between the frame and the press. This frame consists of top and bottom beams held a distance apart by vertical posts and end and intermediate cross-beams with an open end between the upper and lower beams for the passage of the press-actuating cable to the winding-shaft within the frame. This winding-shaft consists of a short vertical shaft *l*, extending from the lower part of the frame up through and to a point above the top thereof. The shaft is mounted in a strong bearing in an intermediate top cross-beam of the frame, usually in rear of the center of the length of said frame

and preferably to one side of the center line of the width of the frame, as clearly shown in Fig. 2.

l' is the horizontally-arranged sheave, rigid on the lower end or portion of the said shaft, and hence between the upper and lower portions of the frame and resting on or adjacent the bottom of the frame and near the surface of the ground. The press-actuating cable *g* is secured to and wound on said sleeve, and as the winding-shaft is arranged to one side of a line passing centrally through the length of the frame said cable can extend from the periphery of the sheave within the vertical plane of such line, and hence strain on the frame will be approximately in the plane of the longitudinal axis or center of the frame, which is a material advantage.

The upper end of the winding-shaft is provided with a strong and durable trip-arm *l''* at one end rigid with the upper end of said shaft and extending horizontally and laterally therefrom over the frame and arranged to swing in the arc of a circle over the rear portion of the frame. A segmental track *g* is secured on the top of the frame beneath the free end of the trip-arm to support and brace the same. One edge of the trip is preferably curved, with an intermediate depression and rounded or convexed end portions.

i is a vertical shaft usually arranged at about the center of the frame and preferably within the plane of the longitudinal center thereof. This shaft preferably extends from the bottom of the frame through and above the top thereof and is usually rigidly secured against rotation with a top journal on which the large most strongly-constructed rotary driving frame or wheel *j* is mounted to turn horizontally. This rotary frame preferably has several series of radially-alined sockets or loops *k'* on its upper surface removably receiving the radial sweeps *k*, resting at the top of the rotary frame and extending beyond the same to receive the draft for rotating the frame and actuating the power. One or more such sweeps can be employed, as desired, and they can be easily removed for transportation. The rotary frame is held by its shaft a slight distance above the framework of the power to leave space between the framework and rotary frame for the trip-arm, and the rotary frame is provided with several equally-spaced depending trip-engaging projections *k''*, each usually carrying an antifriction-roller. These projections depend from the outer edge or periphery of the rotary frame, and three such projections are shown arranged an equal distance apart and an equal distance from the axis of said rotary frame.

In view of the relative arrangements of the axes of the rotary frame and the winding-shaft, and as the axis of the winding-shaft is between the axis of the rotary frame and the circle in which said projections move, as said frame revolves a projection thereof engages the trip-arm near its free end and swings the same in a direction to wind the press-actuating cable on the sheave, the projection moving along the edge of said arm toward the opposite end thereof and then back toward the free end thereof and slips past said end, releasing the arm and permitting the same to return to its normal position under the impulse of the compressed hay, thereby permitting the cable to unwind and the presser-head of the press to rebound. As the trip-arm rebounds it engages the next succeeding projection of the rotary frame, and the winding operation is repeated. As the rotary frame revolves each projection stops the rebounding trip-arm at the proper point and again winds up the cable, so that the several winding and rebounding operations take place in rapid succession during a single revolution of the rotary frame and with the exertion of a tremendous power by the presser-head on the hay, yet requiring a minimum power applied to the sweeps. By providing the several equally-spaced projections on the rotary frame moving up to the trip-arm in succession rapid operation of the winding-shaft and cable is attained with a relatively slow rotation of the rotary driving-frame, as is invariably the case where draft-animals are employed, and, furthermore, the trip-arm at the limit of its rebound is met and stopped by a projection, thereby preventing said arm swinging inwardly out of the circle in which said projections move. In the present construction each projection moves inwardly of the trip-arm but a comparatively short distance, in view of the short stroke of the arm in relation to the circumference of the circle in which the projections move.

In my Patent No. 593,148, dated November 2, 1897, of which this application is a division, a power is shown which is not claimed herein and wherein a winding-shaft is mounted transversely in the front head of the baling-press frame, with the actuating-cable extending down from the sheave secured at the center of the shaft, and a trip-arm extending from one end and spring or yielding means secured to the opposite end of the winding-shaft to yieldingly stop the trip-arm in its normal position and prevent the same moving in and out of the circular path of the trip-operating projection, and whereby said winding-shaft can be rocked when desired to throw the power out of gear by swinging said trip inwardly out of the path of said projection. A power-shaft is mounted transversely on the top of the baling-press, and the driving-pulley at one end thereof has the trip-operating projection, which actuates the same once at each revolution of the driving-shaft. The projection in swinging the trip moves almost the entire length thereof by reason of the long swing of the trip.

It will be observed from the preceding remarks concerning the invention claimed herein that it differs specifically in several respects

from the power of my said patent mounted directly on the baling-press and that different results in operation are attained.

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

1. In combination, the horizontally-disposed main frame composed of rigidly-secured upper and lower portions and intermediate cross-beams, the vertical rigid shaft mounted approximately at the center of the frame with the journal extending above the same, the large rotary driving-frame turning horizontally on said journal and provided with one or more actuating-sweeps, and the projections depending from its outer portion and spaced equally from each other and from the axis of the rotary frame, the vertical winding-shaft extending from the bottom of the frame up through and journaled in the top thereof beneath said rotary frame and to one side of the longitudinal center line of the main frame, the cable-sheave rigid on the lower portion of the winding-shaft and the lateral trip-arm rigid on the upper end of said shaft and between the main frame and rotary frame, whereby the projections engage said trip in succession and swing the same partially around and release the trip which rebounds and engages the next succeeding projection thereby automatically limiting the rebound of the trip and operating the same rapidly a number of times during a single comparatively slow rotation of the large rotary frame, and the actuating-cable passing centrally into the end of the main frame and secured on the sheave, substantially as described.

2. In combination, the main frame comprising the upper and lower rigidly-secured portions, the central vertical shaft having the rotary frame thereon, said frame having the three projections depending from its outer portion and spaced equally from each other and from the axis of the rotary frame and the several series of radially-alined loops or sockets on its upper face, sweeps removably fitted in said loops and above the upper face of the rotary frame, the winding-shaft mounted in the main frame with the lateral trip-arm between the top of the main frame and the rotary frame and normally in the circular path of said projections, the segmental track on the main frame beneath said trip-arm, the sheave secured to the winding-shaft within said main frame, and the actuating-cable passing through the end of the main frame to said sheave, substantially as described.

3. In combination, a horizontally-disposed main frame, the vertical shaft mounted approximately at the central portion thereof, the rotary driving-frame above said main frame and on the upper end of said shaft and provided with one or more actuating-sweeps and with the projections depending from its outer portion and spaced equally from each other and from the axis of said rotary frame, the vertical winding-shaft within the frame and extending above the same beneath the rotary frame between the axis and outer edge thereof, the cable-sheave rigid on the lower portion of the winding-shaft, the lateral trip-arm rigid on the upper end of said shaft and between the top of the main frame and said rotary frame, whereby the projections engage said trip in succession and swing the same partially around and release the trip which rebounds and engages the next succeeding projection thereby automatically limiting the rebound of the trip and operating the same rapidly a number of strokes during a single comparatively slow rotation of the rotary frame, and the actuating-cable passing approximately centrally into the end of the main frame and secured on the sheave, substantially as described.

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

NORMAN B. WILDER.

Witnesses:
W. F. MILLIKAN,
JOHN WHALLON.