

(No Model.)

2 Sheets—Sheet 1.

L. T. NICHOLS.
BALING PRESS.

No. 458,478.

Patented Aug. 25, 1891.

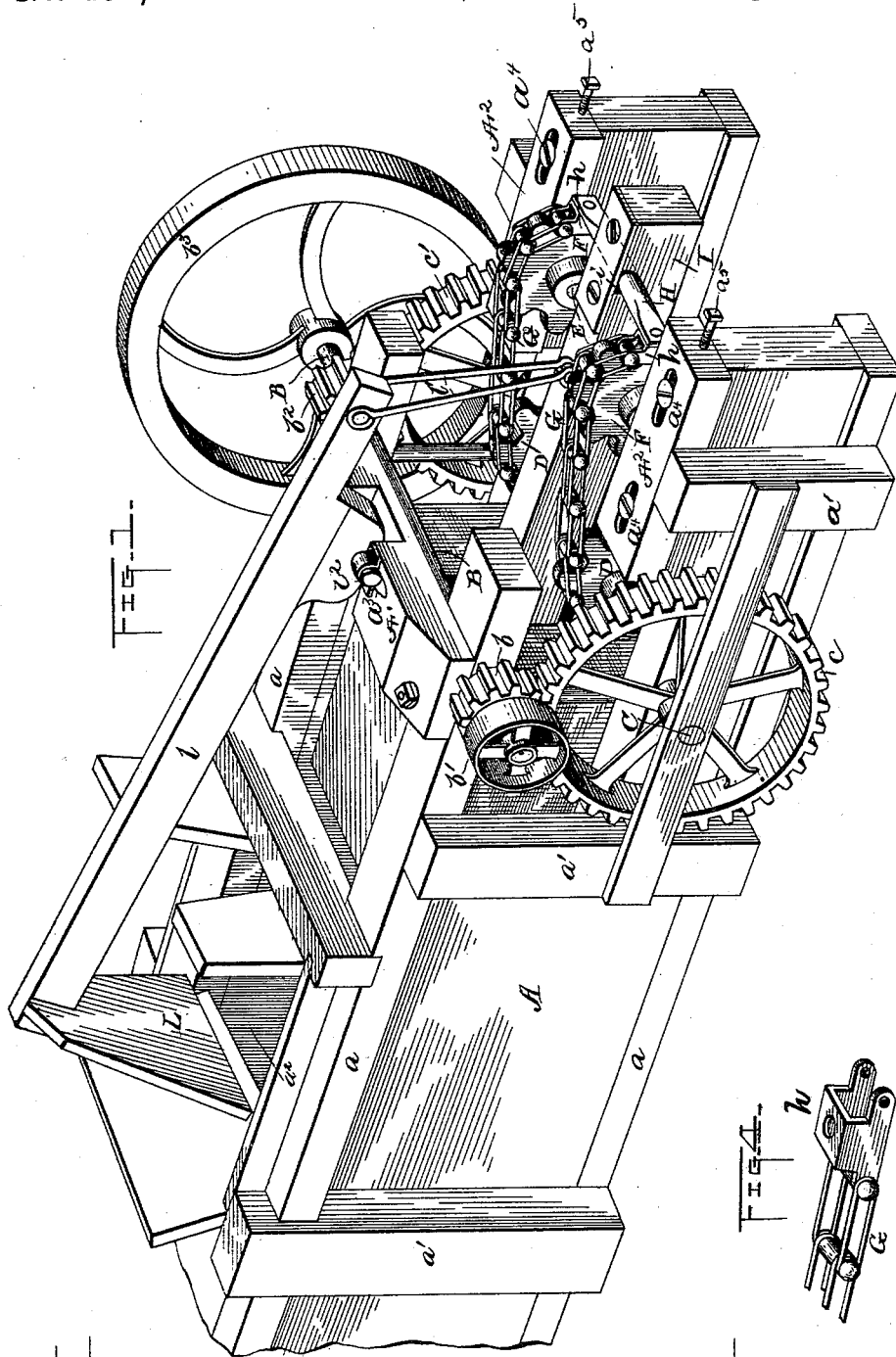


FIG. 1

W. Deane.

L. T. Nichols,

By *L. Deane*
his Attorney.

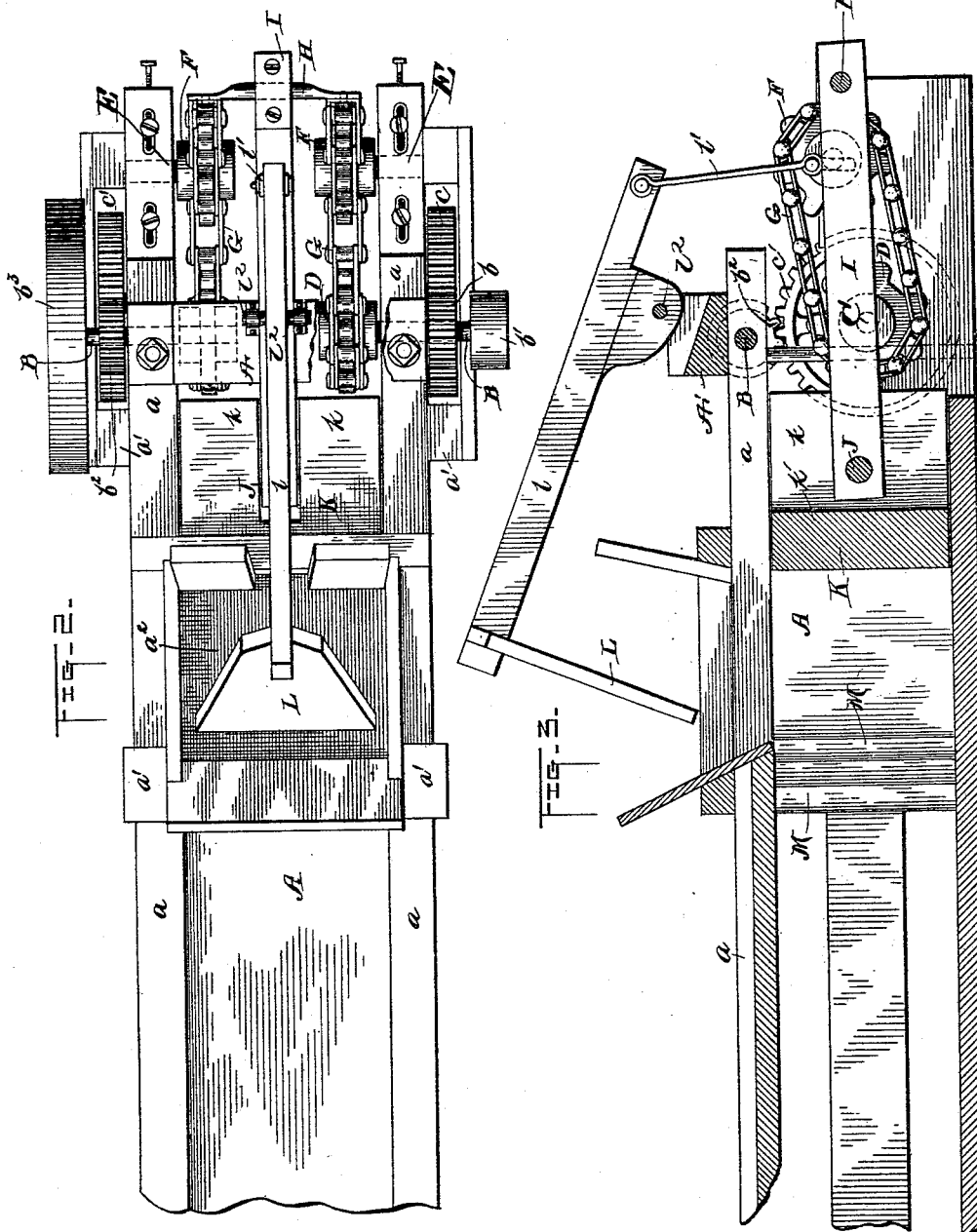
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Witnesses:
G. C. Deane
W. H. Deane

Inventor:
L. T. Nichols
By *L. Deane*
his Attorney.

UNITED STATES PATENT OFFICE.

L. T. NICHOLS, OF CLAREMONT, MINNESOTA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 458,478, dated August 25, 1891.

Application filed November 15, 1889. Serial No. 330,640. (No model.)

To all whom it may concern:

Be it known that I, L. T. NICHOLS, a citizen of the United States, residing at Claremont, in the county of Dodge and State of Minnesota, 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.

The invention relates to improvements in baling-presses, its object being to give the plunger or follower-block a straighter drive or push than is usually obtained in the ordinary forms of construction; and it consists in the construction and novel combinations of parts hereinafter described, illustrated in the drawings, and pointed out in the appended claims.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 represents a perspective view of a baling-press embodying the invention. Fig. 2 is a plan view thereof, parts being broken away to show the internal mechanism, &c. Fig. 3 is a central vertical longitudinal section of the machine. Fig. 4 is a detail perspective view of a portion of the chain.

Referring to the drawings by letter, A designates the main frame of the machine, having longitudinal top and bottom beams *a* and vertical tie-bars *a'*, connecting the same. The bottom and top of said frame are covered in by boarding at all suitable points to form the usual baling-chamber, the feed-opening *a²* in the top having upwardly-diverging boards at its edges to render the feeding easier, the boards at the front and rear edges being preferably higher than those at the side edges.

B is a transverse shaft journaled in bearings in the upper beams *a* of the main frame, near the front end thereof, and having mounted upon it at one end outside of the adjacent beam *a* a pinion *b* and outward from the pinion a driving-pulley *b'*. If desired, a fly-wheel may be placed between the pinion *b* and driving-pulley *b'*, by means of which and a suitable belt connecting with any conven-

ient power the machine may be driven by any proper motor.

b² is a pinion on the shaft B, near the end thereof, on the side opposite that on which the pinion *b'* is situated, and *b³* is a fly-wheel of suitable construction mounted on said shaft near the pinion *b²*.

C C are short transverse shafts journaled in bearings in the sides of the main frame, nearly vertically below the shaft B, and having mounted on their outer ends the gear-wheels *c c'*, that respectively mesh with the pinions *b b²*. Upon the shafts C, inward from and adjacent to the sides of the main frame, are mounted the sprocket-wheels D D. The shafts C have outer bearings in strips connecting adjacent tie-bars *a'* of the main frame.

E E are short shafts journaled in bearing-blocks *A²* in or secured to the main frame a suitable distance in front of and somewhat above the corresponding shafts C. Upon the inner ends of the shafts E are mounted the sprocket-wheels F, similar to but higher and respectively parallel with the sprocket-wheels D D.

G G are chains connecting the sprocket-wheels D and F on each side, which chains have oblong links coupled together with two-inch coupling-pins, which form a large bearing to engage upon the sprocket-wheels. The said coupling-pins are connected by links, the ends of which lie in grooves in the pins. (See Fig. 4.)

H is a transverse rod with its ends secured to brackets *h*, inserted in the chains G at opposite points, thus coupling the two chains together, so that the rod H will travel with said chains around both sets of sprocket-wheels. The central portion of the rod H passes through a box *i* in the front part of the pitman I, which is much shorter than the pitman used in baling-presses of ordinary construction. The rear end of the pitman is pivoted upon a transverse bar J, that has its ends secured in the sides *k* of the plunger or follower-block K. The said block is of general rectangular shape, having a rectangular solid base *k'*, that stands inward, the sides *k* standing from the base and the shaft J standing between said sides near to the base. It is evident that the pitman can move only over the

angular distance measured by the diameter of either of the sprocket-wheels F and will drive the plunger a distance equal to that from the outer edges of the sprocket-wheels F to the inner edges of the sprocket-wheels D.

L is a packer to force the hay or other material into the feed-opening a^2 . The said packer is secured to the end of a swinging lever l , having a shaft l^2 , journaled on each side of the lever in bearings a^3 in a cross-bar A', secured at its ends to the top longitudinal beams of the main frame. The end of the front arm of said lever is connected by link-rods l' to the pitman and is actuated thereby.

M M are vertical grooves on the inner surfaces of the sides of the main frame. The said grooves, Fig. 3, have their floors so inclined that when the plunger has driven the hay past them or between those on opposite sides they prevent it moving outward on the withdrawal of the plunger. Of course to effect this the said floors must incline inward in relation to the frame in a direction opposite to that in which the plunger moves when compressing the hay. As the pitman is connected to the chains and not to a rotating wheel, its stroke, and consequently that of the plunger, is much longer than if it were connected to the sprocket-wheels, the diameters of which regulate the amount of angular departure from the line of motion of the plunger. Hence the pitman moves more nearly in a straight line than in baling-presses of ordinary construction, and consequently imparts more power to the plunger.

The mechanism which operates the plunger being located in the body of the press and directly in its end, allows the same to be grouped into a very narrow space, as well as reduces this mechanism to the smallest number of parts. Therefore by this structure and arrangement of parts there is secured increased strength, power in operation, simplicity in structure, cheapness, and durability.

To take up the slack in the sprocket-chains, I use the screw a^5 in the end of each block. By turning these the blocks can be moved in or out at will. The set-screws a^4 in each block will hold them in any fixed position.

Having described my invention, I claim—

1. In a baling-press, substantially as described, the packer L, journaled in the main frame and connected by swinging link l' to the pitman I, the pitman and plunger attached to its end, and rod H, passing through the pitman, the sprocket-chains G, secured, respectively, to the ends of the said rod, and sprocket-wheels D and F, said parts combined together and operating as described.

2. In a baling-press, as described, the sprocket-wheels D and F, parallel with each other, the former below the latter and provided with sprocket-chains, the gear-wheels c c' , the pinions b b^2 for operating the sprocket-wheels, the fly-wheel b^3 , the rod H, connecting the sprocket-chains and pitman, the pitman, the plunger, and a packer, all combined as set forth.

3. In a baling-press, as set forth, the frame A, having a cross-piece A', provided with bearings a^3 , the packer-lever journaled in said bearings, the link l' , connecting the packer-lever with the pitman, the pitman, the rod H, passing through the pitman and connected at its ends with the sprocket-chains G by means of brackets h , the said sprocket-chains, the sprocket-wheels F, journaled in movable bearings, and sprocket-wheels D, parallel with but at an incline from the former, and the gears, pinions, and fly-wheel, all combined as set forth.

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

L. T. NICHOLS.

Witnesses:

M. E. WHITE,
C. C. WHITE.