

No. 615,602.

Patented Dec. 6, 1898.

N. B. WILDER.
BALING PRESS.

(Application filed Feb. 8, 1898.)

2 Sheets—Sheet 1.

(No Model.)

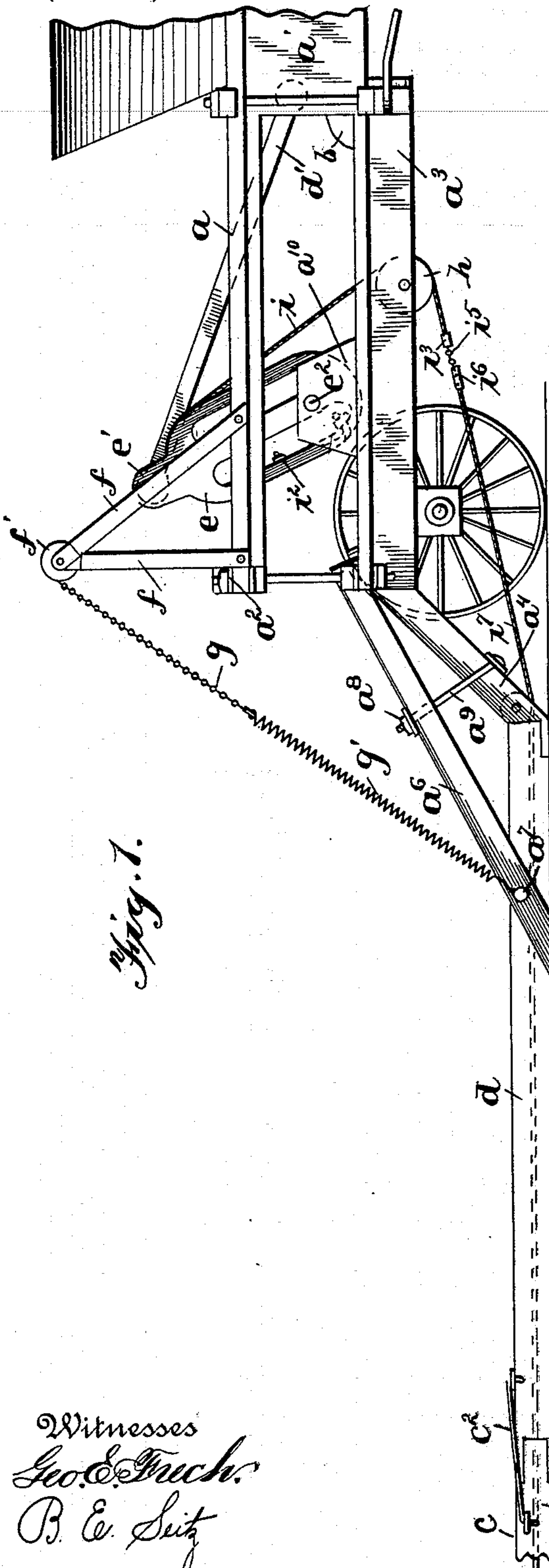


Fig. 1.

Witnesses
Geo. E. French.
B. E. Seitz

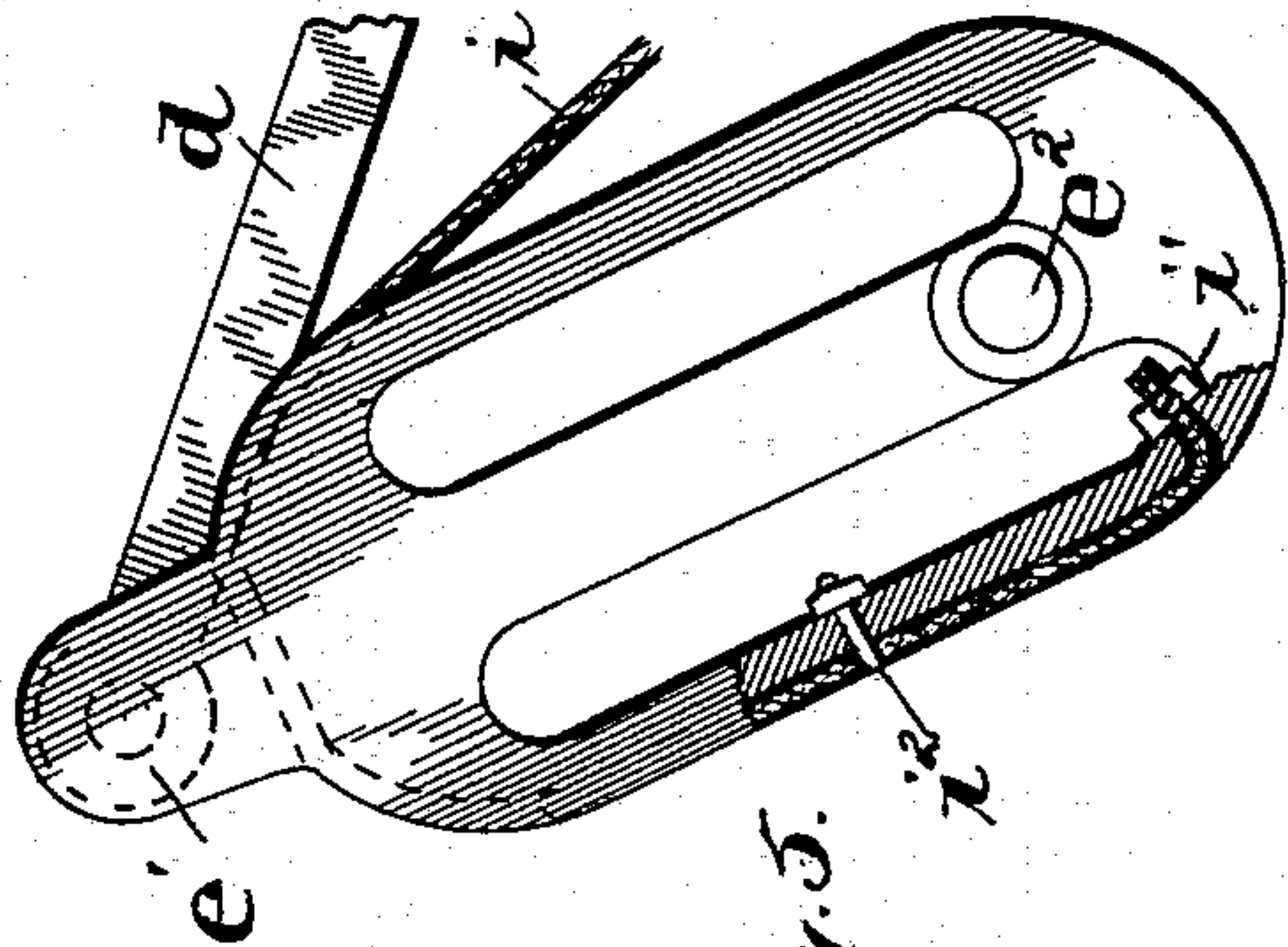
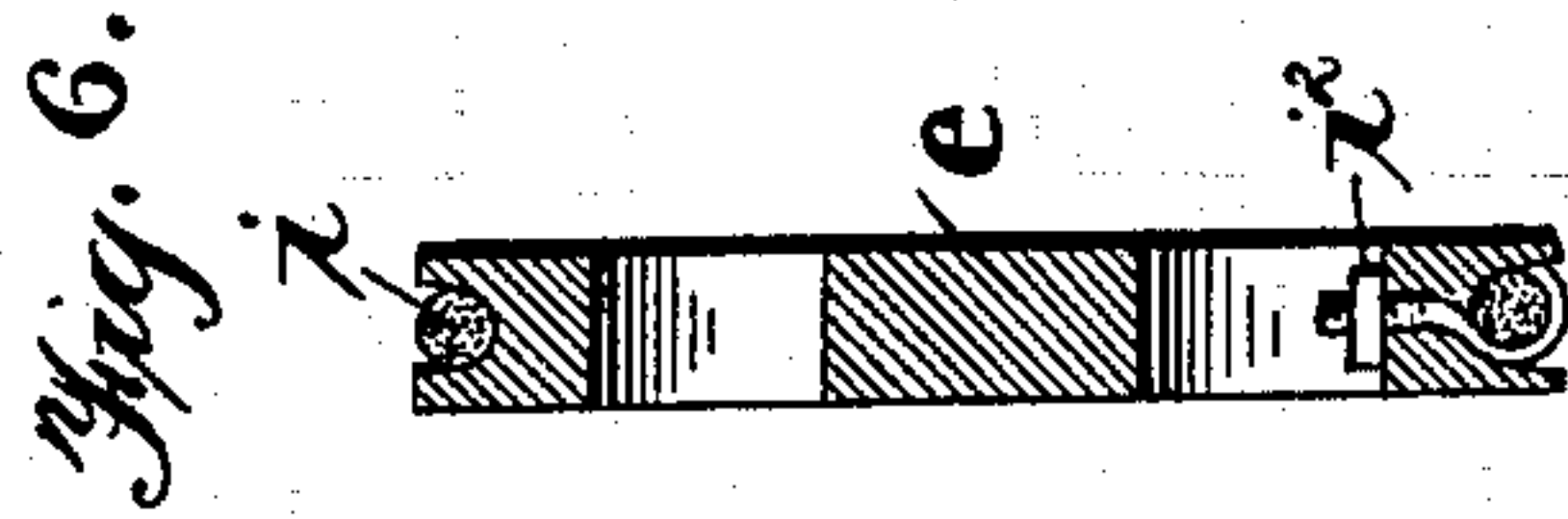


Fig. 4.

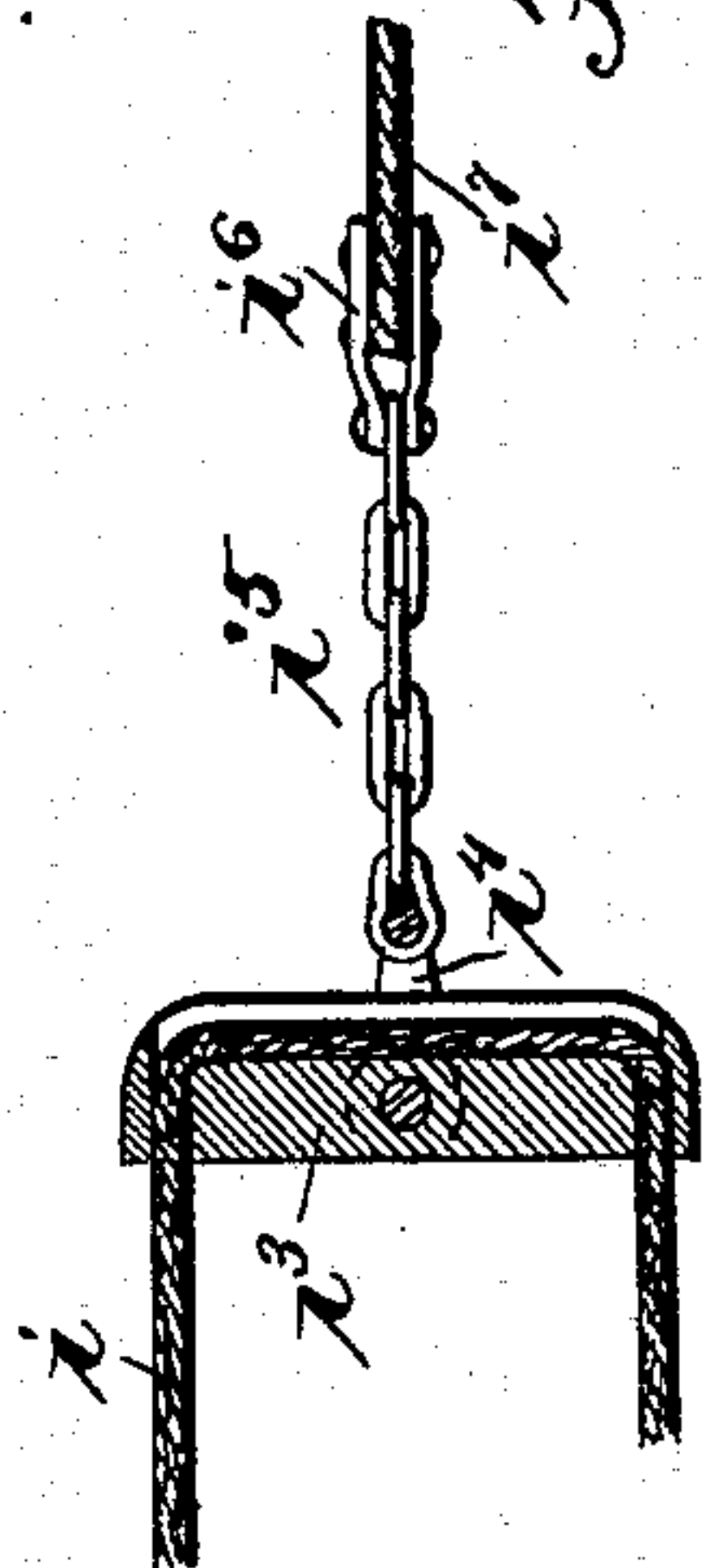


Fig. 5.

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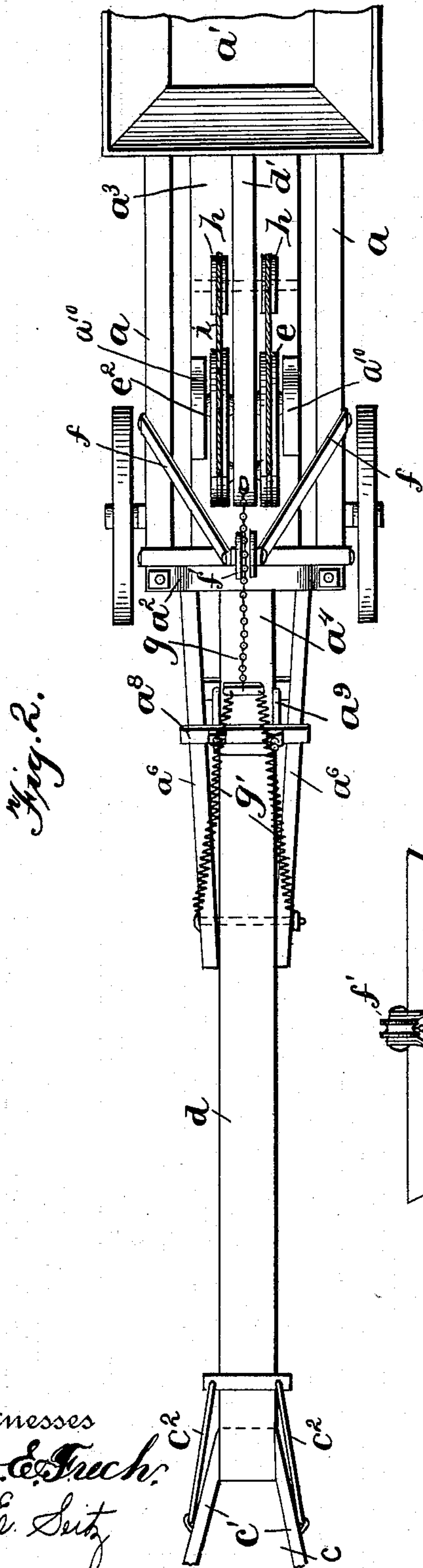
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2 Sheets—Sheet 2.



Witnesses
Geo. E. Truch.
B. E. Seitz

Per May 3.

UNITED STATES PATENT OFFICE.

NORMAN B. WILDER, OF PROPHETSTOWN, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 615,602, dated December 6, 1898.

Application filed February 8, 1898. Serial No. 669,586. (No model.)

To all whom it may concern:

Be it known that I, NORMAN B. WILDER, a citizen of the United States, residing at Prophetstown, 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 hay-presses; and the objects and nature of the invention will more fully and specifically appear hereinafter.

The invention consists in certain novel features in construction and in combinations and in arrangements of parts and of details, as more particularly set forth and pointed out in detail hereinafter.

Referring to the accompanying drawings, which illustrate an example within the scope of my invention, Figure 1 is a side elevation showing part of a baling-press and a horse-power for actuating the presser-head thereof, dotted lines showing the parts in position when the presser-head is at its limit of compressing strokes. Fig. 2 is a top plan view showing parts of the press and power frame. Fig. 3 is a front end view of the press, the cable-box shown in cross-section. Fig. 4 is an enlarged detail view showing the manner of jointing and coupling the actuating-cable. Figs. 5 and 6 are enlarged detail views. Fig. 7 is a detailed sectional view through the leg and brace beams, showing the clamp detachably uniting said parts.

In the drawings, a are the longitudinal beams of the frame of a baling-press of any ordinary or suitable construction, having a suitable baling-chamber a' , with its top feed hopper or opening. The press can be mounted in any suitable manner, as by axles and wheels, to permit easy transportation. The frame-beams are here shown as four in number, arranged two at the top and two at the bottom of the frame and extending forwardly in advance of the baling-chamber and at their front ends rigidly secured together in any suitable manner. These frame-beams are preferably rigidly secured together and connected at various points; but other forms and arrangements and constructions of frames

can be employed without departing from the spirit and scope of my invention.

b is a reciprocating presser-head of any desirable form and construction, and in the example of my invention illustrated reciprocates between and within the longitudinal frame-beams or on suitable tracks or ways.

a^2 is a front end casting, iron, or head secured at the front end of the frame and usually connecting the two lower longitudinal frame-beams.

a^3 is a bed beam or beams secured longitudinally at the bottom of the front part of the frame and secured at the front end of the frame and at an intermediate portion thereof at or near the baling-chamber. However, the invention is in no way limited to the employment of a bed beam or beams, nor to such element or constructions.

c is a horse-power comprising a horizontally-arranged frame having a rotary frame provided with sweeps to which the draft-animals are attached to rotate the frame and actuate a cable winding and releasing mechanism. However, the invention is in no way limited to such power, which is shown merely as an example of a horse-power device which can be employed, although other powers, whether driven by draft-animals or steam-power, can be used.

The power-frame is usually provided with removable wheels or trucks for transportation and rests horizontally on the ground and can be suitably anchored when the device is being operated.

c' are the forwardly-extending hounds of the horse-power.

d is the cable box or housing or any other suitable frame extending along the ground from the power to the press. The front ends of the hounds c' abut removably against the end of the cable-box and preferably fit into the same, and when the parts are coupled together for operation the hounds are secured to the cable-box by hooks c^2 , secured to one member and entering eyes secured to the other member. The opposite end of the cable-box removably abuts against or interlocks with the rigid leg a^4 , extending down and forwardly to the ground from the front end of the press-frame. The upper end of the brace-leg is bolted or otherwise se-

cured to the front end of the press-frame, preferably to the front end of the bed beam or beams at the under side of the press-frame. The lower end of the brace-leg is slotted or bifurcated and contains the pulley a^5 , mounted therein, so that the actuating-cable hereinafter mentioned can pass through the lower end of the brace-leg and beneath the pulley and loosely through the cable-box to the power.

$a^6 a^6$ are two brace-beams, at their lower ends fitting removably on opposite sides of the cable-box, at an intermediate point in the length thereof, and removably secured or clamped thereto by a bolt a^7 , passed through the brace-beams and the cable-box. The upper ends of the brace-beams rest on the lower part of the front end of the press-frame. These brace-beams preferably rest removably on the press-frame, usually by being notched so as to rest down on and abut against the bottom cross-piece connecting the front ends of the frame-beams. At intermediate points the two brace-beams are clamped or secured to an intermediate point of the brace-leg, preferably removably. These beams are preferably clamped to the leg by the cross-pieces $a^8 a^8$, crossing the leg, and two brace-beams, respectively, and drawn together by the two bolts $a^9 a^9$. It will thus be observed that for the purposes of transportation the various bolts, &c., can be removed and the cable-box and brace-beams released and removed, and the brace-leg can be also removed or swung up, so that the press can be moved.

The presser-head is actuated by a toggle mechanism made up of a comparatively long link, member, or lever d , pivotally joined to the presser-head, and at its front end pivotally joined to the short power member of the toggle, comprising a sheave e . This sheave is preferably formed double or of two elongated sheaves having grooved edges. The presser-head link or member is pivoted to and between the upper ends of the two sheaves. This link preferably fits snugly between upward extensions e' from the sheaves, and a pivot or bolt passes through the parts. The sheaves swing on a shaft or pivot e^2 , passing horizontally through the lower ends or portions of the sheaves. The shaft e^2 is preferably mounted in blocks a^{10} , secured rigidly at opposite sides of the bottom of the press-frame and projecting upwardly the proper distance to permit swing of the sheaves. The sheaves are both preferably of the same dimensions, with rounded ends and practically straight edges between said rounded ends.

f is a metal frame, at its lower end rigidly secured at the top of the front end of the press-frame and projecting upwardly therefrom and at its top or apex having a flanged pulley f' mounted therein.

g is a strong flexible connection, such as a chain, secured to the toggle at the joint thereof, preferably at the upper end of the power member thereof, and from thence passing up

over said pulley f' and then downwardly and forwardly and at its lower end secured to the upper end of the retractive spring (or springs) g' , at its lower end secured (preferably detachably) to the bolt passing through the cable-box and brace-beams or other suitable part of the machine.

$h h$ are grooved pulleys mounted beside the bed beam or beams beneath the press-frame and a suitable distance in behind the vertical plane of the axis on which the power member or sheave of the toggle swings. These pulleys $h h$ are arranged to turn on the same shaft or otherwise turn on axes in continuation of each other and in the same horizontal and vertical planes.

i is the sheave or toggle cable, preferably doubled or formed in one length, with its opposite ends passing around said sheaves, respectively, composing the power member of the toggle and fitted in the grooves thereof. The cable preferably passes through holes in the upper ends of the sheaves, beneath the projections between which the link is pivoted, and almost entirely encircles the sheaves, with its extremities passed inwardly through radial openings in the toggle into a transverse opening and there rigidly and firmly anchored by suitable means, such as clamping blocks or plate i' and bolts or fastening means. The cable is also preferably secured again to each sheave, at the front edge thereof, by suitable means, such as hook-bolts $i^2 i^2$, which rigidly lock or clamp the cables in the grooves of the respective sheaves. From the free end or rear edges of the sheaves the cable passes down around the said pulleys $h h$ and thence forwardly beneath the press, and the doubled portion of the cable passes through the ends of and around the back edge of a spreader or block i^3 . This spreader is provided with a centrally-arranged forwardly-extending clevis i^4 , to which a loose connection, such as chain i^5 , is secured. The front end of said chain i^5 is provided with a coupling i^6 , most firmly uniting and coupling the actuating-cable i^7 and said chain. The actuating-cable extends forwardly beneath the brace-leg and through the cable-box to the cable winding and releasing mechanism of the power, as before described.

In operation the cable winding and releasing mechanism of the power gradually winds up the actuating-cable, and hence draws down the power-sheave of the toggle with great force and power, straightening out or expanding the toggle and forcing the presser-head rearward in its compressing stroke, at the same time expanding the presser-head retracting or rebounding springs g' through the medium of the mechanism before described. When the presser-head reaches its limit of compressing stroke, the actuating-cable is suddenly released, and because of the elasticity of the compressed hay and through the medium of said retracting-springs the

presser-head rebounds to its limit of stroke in the opposite direction, and the power member or sheave of the toggle resumes its normal practically upright and forwardly-inclined position.

It will be observed that the actuating-cable exerts its greatest leverage and force on the toggle at the ending or latter part of the compressing stroke, when the compressed hay or other material offers the greatest resistance, and also that the strain of the cable is distributed almost entirely around the sheave or power member of the toggle at the start of the compressing stroke and that great strength and durability are attained by the peculiar arrangement of toggle and actuating-cable with a distribution of strain. Material advantages are also attained by employing a double actuating-cable where applied to the toggle and at points of greatest strain and wear on the press-frame, toggle, and cable; also, in providing means for spreading such doubled-toggle end of the cable, and in detachably coupling the same with the actuating-cable proper, and in arranging the cables so that they can be readily replaced and repaired. Material advantages are also attained by the peculiar arrangement of toggle retracting or rebounding means, and in the arrangement of detachably-coupled parts, and in peculiarly uniting the press-frame and power-frame, and in bracing the parts.

The peculiar toggle and doubled-toggle cable can be readily adapted for a press wherein the cable winding and releasing mechanism is mounted on the front end of the press-frame, and also various features of my present invention are not limited in scope to use in the particular press or constructions shown herein.

I have described with great exactness the specific constructions shown for the sake of clearness and as it constitutes at present the preferred form of my invention; but it is obvious that various changes might be made in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to what is shown and set forth.

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 a baling-press, the combination of a power, a press-frame, a presser-head, an operating-toggle for the presser-head comprising a link confined to the head and a power member at one end fulcrumed to the frame and at its opposite or free end jointed to said link, and an actuating-cable secured to the rear portion of said power member and passing around the free or jointed end thereof and downwardly at the front thereof, whereby said cable embraces the free end of said power member and extends down at the front and rear edges thereof and pulls downwardly

and forwardly on the free end of power member, substantially as described.

2. In a baling-press, the combination of a press-frame, a presser-head, an operating-toggle for the presser-head comprising a sheave-like power-link at its lower end suitably fulcrumed to the frame to swing vertically, a link joined to the upper or free end of the power-link and secured to the presser-head, and an actuating-cable adapted for connection with a suitable power and extending upwardly at the front edge of said power-link and secured to the power-link and passing around the free end thereof, whereby the cable pulls downwardly and forwardly on the power-link with a varying leverage thereon, substantially as described.

3. In a baling-press, the combination of the press-frame, a presser-head, the operating-toggle comprising a power member composed of two elongated sheave-like links or levers at their lower ends mounted on the frame, a link joined between the upper ends of said power member and coupled to the presser-head, and the actuating-cable adapted for connection with a suitable power and having two parallel plies or lengths passing around and loosely encircling the free or jointed ends of said power-member links, respectively, and secured at the rear edges thereof, whereby the cable pulls on the free or jointed ends of said power-member links.

4. In a baling-press, the combination of the press-frame, the presser-head, the bearing-blocks secured at the front portion of the press-frame, a horizontal shaft extending between the bearing-blocks, an operating-toggle having one member secured to the presser-head and its power member composed of two parallel links with said presser-head member coupled between their free ends, the said links at their ends mounted on said shaft and rounded at their free or jointed ends and grooved at their edges, the actuating-cable adapted for connection with a suitable power and having two plies or lengths fitting in said grooved edges and passing around the free or jointed ends of said links and secured at the rear edges thereof, said cable passing downwardly from the front edges of said power-member links, and pulleys, in the press-frame, for said cable arranged in advance of said shaft, substantially as described.

5. In a baling-press, the combination of a frame, the presser-head, the operating-toggle comprising the power member composed of two sheave-like links at their lower ends mounted to the frame and at their opposite or free ends having upward extensions and the link pivoted to the presser-head and joined to said power-member links between said end extensions, said links of the power member having rounded upper ends and grooved edges, the double cable extended along the front edges of said links of the power member and around the front ends

thereof and down at the rear edges, the cable being secured to said links at the rear edges thereof, said cable adapted to be connected with a suitable power, substantially as described.

6. A baling-press having its presser-head-operating toggle comprising a power member connected with the presser-head by a link, said power member fulcrumed to the frame at one end and at its opposite end joined to said link and having a grooved edge and an actuating-cable passing from the front around the end of said power member and longitudinally in the rear grooved edge thereof and into an opening therein, a clamp securing the end of the cable in said opening, and means binding or clamping the cable in the groove at an intermediate point in the rear edge of the power member, substantially as described.

7. In a baling-press, the combination of a press-frame, the presser-head, the operating-toggle comprising a power member composed of two sheave-like links fulcrumed to the frame and having the link secured to the presser-head coupled between their free ends, a double cable passing around the jointed ends of said power-links, respectively, pulleys carried by the frame and around which said cable passes respectively, a spreader at the rear end of said double cable, a cable adapted for connection with a power, and a detachable coupling between said last-mentioned cable and said spreader, substantially as described.

8. In a baling-press, the combination of the press-frame, a presser-head, the operating-toggle comprising a link pivoted to the presser-head and a power member composed of two links fulcrumed to the frame and at their free ends joined to said first-mentioned link, a doubled cable having its plies passing around the free ends of said power-links, respectively, with its ends secured at the rear edges thereof, pulleys in the frame around which said plies of the doubled cable pass, a spreader in the doubled or closed end of said cable, and a connection therefrom adapted to be coupled with a suitable power, substantially as described.

9. In a baling-press, the combination of a press-frame, a presser-head, an operating-toggle therefor coupled to the head and having its power member fulcrumed to said frame and formed at its side edges and around its free or jointed end to receive a cable, the actuating-cable extending loosely along one side edge, around the free end of and longitudi-

nally at the opposite side edge of said power member to a point near the fulcrum thereof, and means detachably securing the cable in said last-mentioned edge of said member, substantially as described.

10. In a baling-press, the combination of a press-frame, a presser-head, the operating-toggle therefor comprising the power member comprising parallel links at their lower ends fulcrumed to the forward part of the frame and at their upper free ends connected with the presser-head to reciprocate the same, pulleys mounted in the frame in advance of the power member, and parallel actuating-cable plies passing around said pulleys and upwardly along the front edges of said power-member links and around the upper free ends of said links and downwardly along the rear edges of said links and secured thereto at said rear edges, whereby said cable pulls downwardly and forwardly on the free ends of said links from said rear securing-points, substantially as described.

11. In a baling-press, the presser-head-operating toggle comprising a power-link at one end fulcrumed to the frame and at its free end connected to the presser-head and formed to receive a cable encircling its end and extending longitudinally along its rear edge and secured thereto at its rear edge, and a hook-bolt drawing said cable into said rear edge and extending through to an opening in the link, substantially as described.

12. In a baling-press, the combination of a press-chamber, the presser-head, the press-frame extending forwardly from said chamber, bearing-blocks on the bottom beams of the front portion of said frame, a shaft carried by said bearing-blocks, the two sheave-like links at their lower ends mounted on said shaft, the presser-head link at its outer end journaled between the upper or free ends of said two sheave-like links and at its opposite end connected to the presser-head, pulleys in the frame between said shaft and the press-chamber, and cable lengths secured to the rear edges of said sheave-like links and passing upwardly and around the free ends thereof and downwardly and forwardly at the front thereof to and around said pulleys, and actuating means.

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

NORMAN B. WILDER.

Witnesses:

LOUIS W. GLENN,
SOLOMON M. GROVE.