

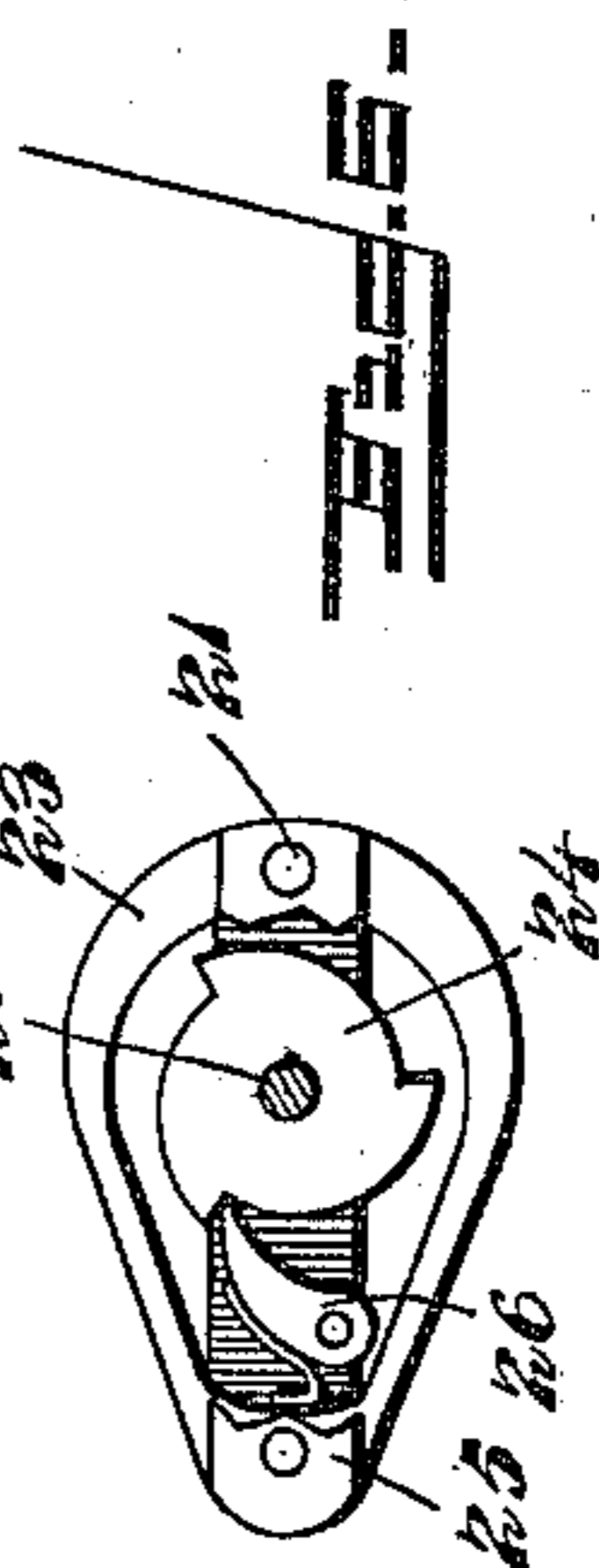
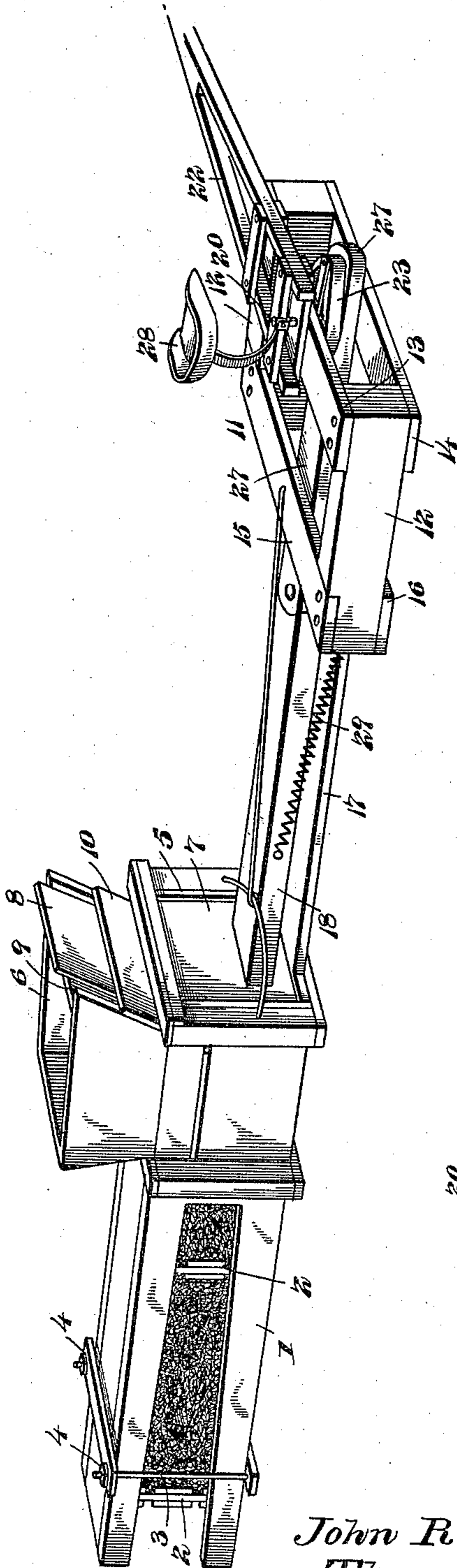
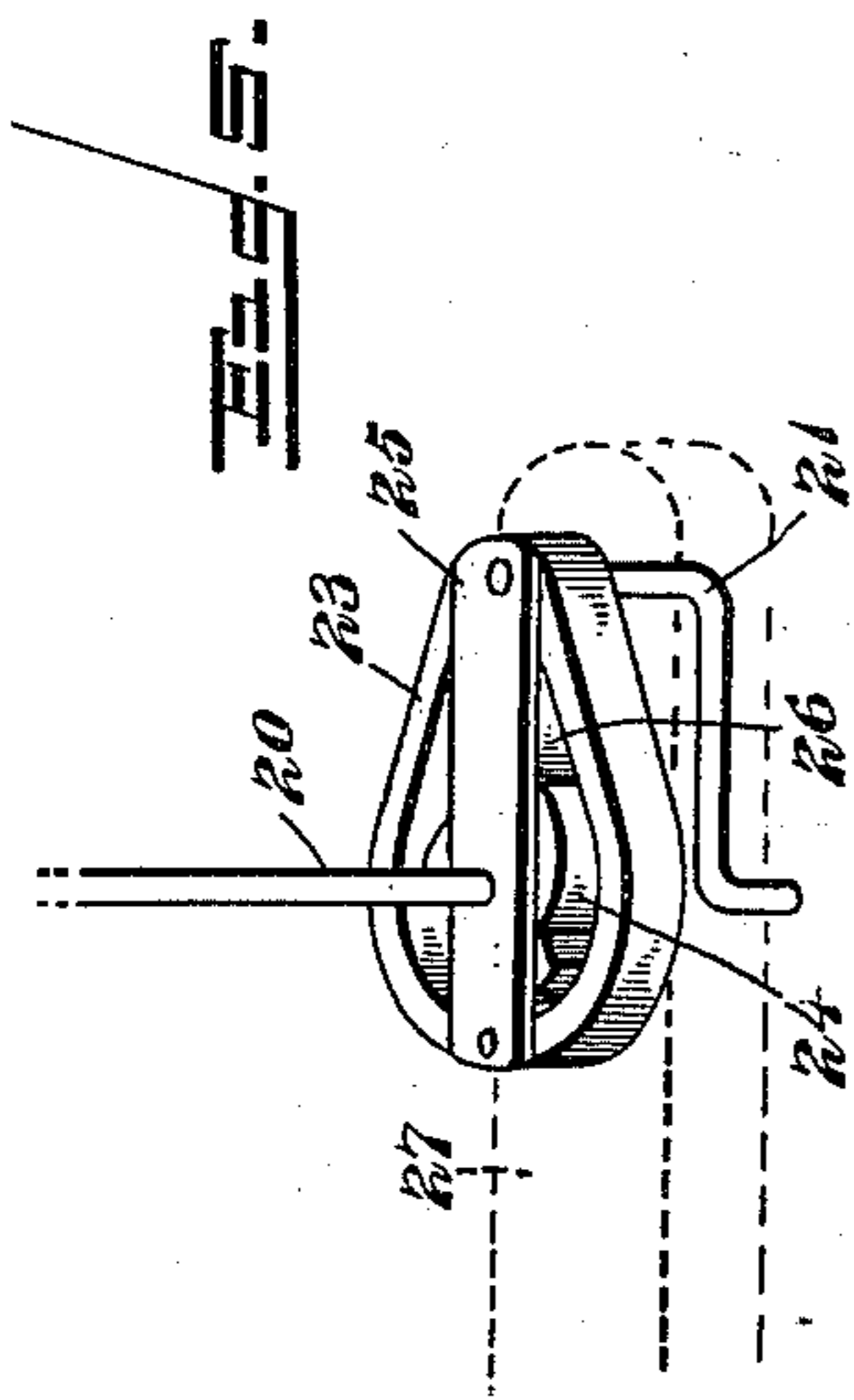
(No Model.)

2 Sheets—Sheet 1.

J. R. DAVIS & T. J. WEBB.
BALING PRESS.

No. 561,496.

Patented June 2, 1896.



Inventors

John R. Davis
Thomas J. Webb

By their Attorneys,

Chas. H. Snow & Co.

Witnesses

E. H. Stewart
E. J. Davis

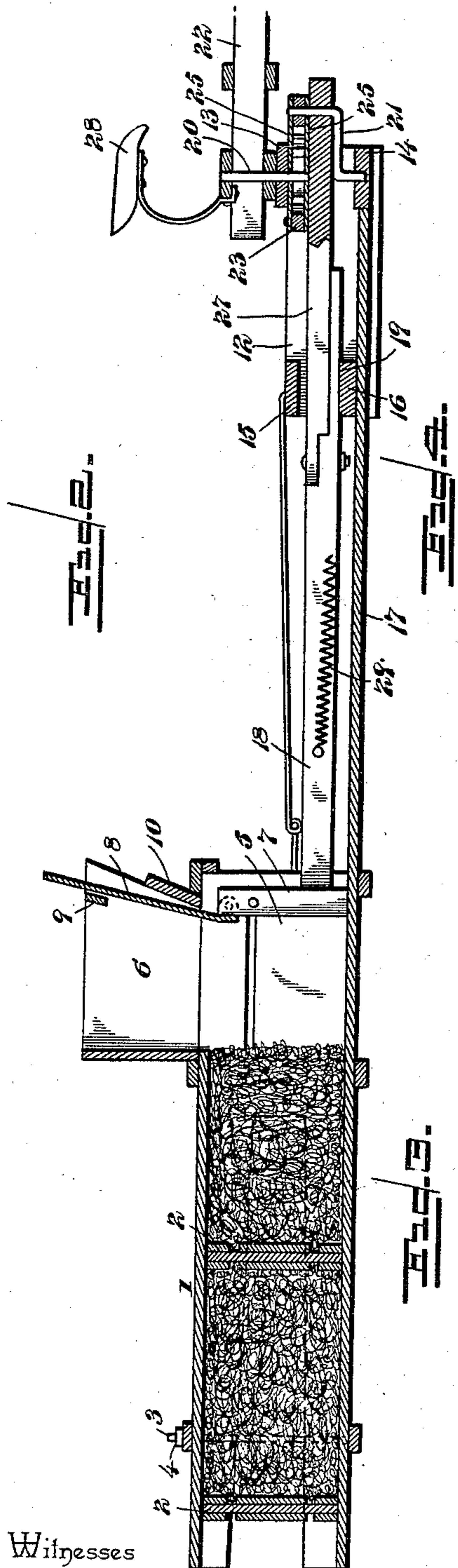
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2 Sheets—Sheet 2.

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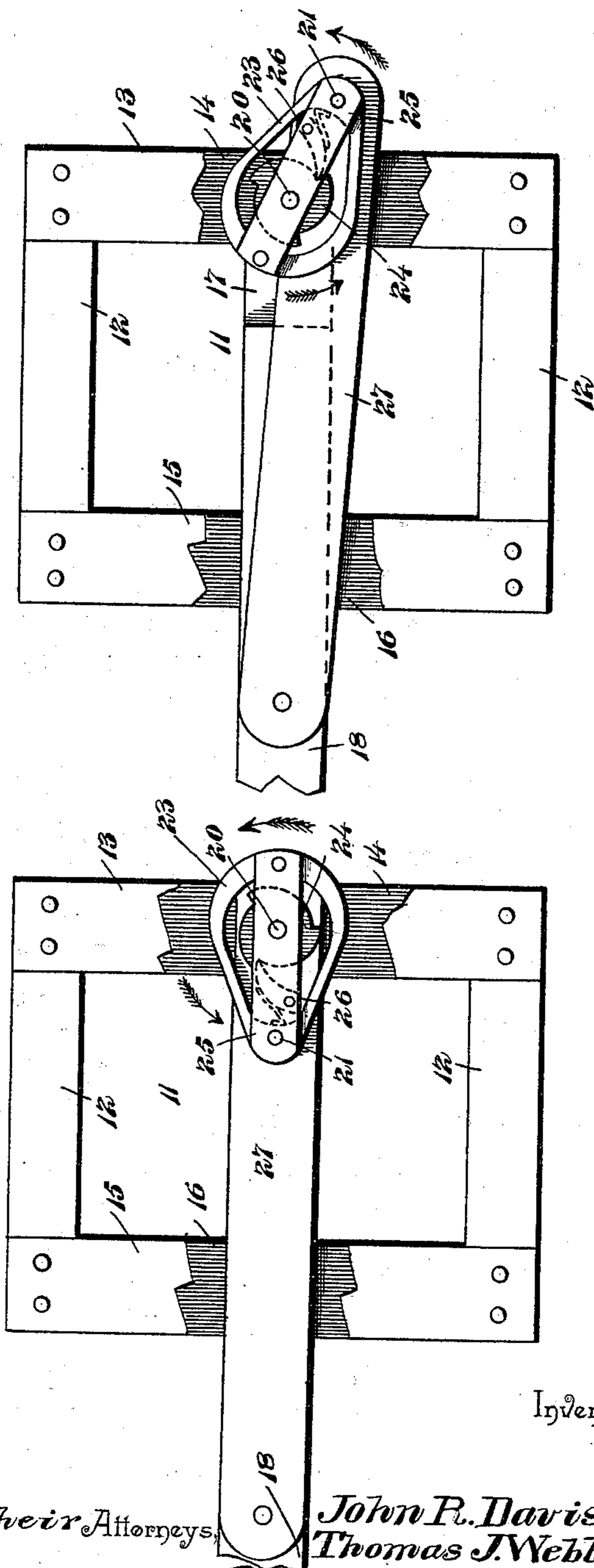
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Witnesses

E. S. Stewart
C. E. [unclear]



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UNITED STATES PATENT OFFICE.

JOHN R. DAVIS AND THOMAS J. WEBB, OF LEANDER, TEXAS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 561,496, dated June 2, 1896.

Application filed August 10, 1895. Serial No. 558,891. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. DAVIS and THOMAS J. WEBB, citizens of the United States, residing at Leander, in the county of Williamson and State of Texas, have invented a new and useful Baling-Press, of which the following is a specification.

Our invention relates to baling-presses, and has for its object to provide a simple and efficient power for operating the plunger so constructed as to allow independent return movement of the plunger to avoid loss of time in the operation of the device.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a baling-press constructed in accordance with our invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detail plan view of the operating mechanism, showing the parts in the positions which they assume preparatory to the rebound of the plunger. Fig. 4 is a similar view showing the parts in the positions which they assume after the rebound of the plunger. Fig. 5 is a detail view in perspective of the crank-shaft and connections. Fig. 6 is a detail plan view, partly broken away, of the means for communicating motion from the spindle to the crank-shaft.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a baling-chamber, of which the side walls are cut away to form upper and lower guides for the head-blocks 2, the adjustment of said guides toward and from each other to exert the necessary pressure upon the head-blocks to control the compression of the bales being accomplished by means of tension-rods 3, fitted with adjusting-nuts 4. Arranged at the rear end of the baling-chamber is a packing-chamber 5, with which communicates a hopper 6, and operating in the packing and baling chambers is the plunger 7, carrying a pivotal guard 8. This guard is free at its rear edge and operates in a guide formed by upper and lower separated bars 9 and 10.

The power-frame 11 is provided with side beams 12, connected at their front ends by upper and lower cross-bars 13 and 14 and at their rear ends by similar upper and lower cross-bars 15 and 16, and the power-frame is connected to the baling-chamber by means of a stretcher 17, which is mortised into the lower sides of the front and rear cross-bars 14 and 16. Operating between the upper and lower cross-bars of the power-frame is the plunger-stem 18, the same being let into a seat 19 in the cross-bar 16.

Mounted in suitable vertically-alined bearings in the rear cross-bars 13 and 14 are the spindle 20 and the lower end of a crank-shaft 21, the sweep 22 being secured to said spindle and operating above the upper surface of the power-frame. The crank-shaft is provided with a looped arm 23 of approximately oval shape in plan, and within the space inclosed by this loop is arranged a ratchet-wheel 24, secured to the lower end of the spindle 20, said loop being provided at its upper and lower sides with closing plates or straps 25, whereby said ratchet-wheel is held from vertical movement. A spring-actuated pawl 26 is also arranged within the space inclosed by the loop to engage the teeth of the ratchet-wheel and communicate motion from the same to the crank-shaft. The crank is connected with the plunger-beam by means of a pitman 27, whereby the rotary motion of the crank-shaft is converted into a longitudinally-reciprocatory movement of the plunger-beam, the latter being guided by the seat 19. The sweep preferably carries a seat 28 for the driver. The plunger is preferably provided with a rebounding spring 29, which is connected at one end to the plunger-beam and at the other end to the power-frame, preferably the lower front cross-bar 16.

This being the construction of the improved press, the operation thereof, briefly stated, is as follows: The material to be baled is introduced into the hopper and from thence depressed into the packing-chamber in the path of the plunger, and as the plunger advances the guard 8, carried down by the upper guide-bar 9, is caused to close the hopper to prevent hay from descending in rear of the plunger, the rear end of the guard resting upon and supported by the lower guide-bar 10. The

sweep is turned in the direction indicated by the arrows in Figs. 3 and 4, and the motion communicated thereby to the spindle is conveyed through the ratchet-wheel and pawl to the looped arm of the crank-shaft and from thence through the pitman to the plunger-beam. When the parts reach the positions indicated in Fig. 3, with the pitman in vertical alinement with the plunger-beam, any further forward movement of the sweep in the direction indicated by said arrows will throw said pitman out of alinement with the path of the plunger, whereupon the rebounding spring will carry the plunger rapidly to its retracted position, as indicated in Fig. 4, and thus open the hopper for the reception of further material, the guard being raised by sliding over the guide-bar 10. When the plunger is in its retracted position, the guard 8 occupies an approximately vertical position, and thus closes the interval between the transverse guide-bars 9 and 10 to complete the rear side of the hopper, of which said guide-bars form parts. The ratchet-wheel having a plurality of teeth immediately engages, by means of a succeeding tooth, with the pawl carried by the looped arm of the crank-shaft, and hence the forward movement of the plunger follows without loss of time and commences before the sweep has turned sufficiently to assume its former position with relation to the arm of the crank-shaft.

A common disadvantage of operating devices of the class to which our invention belongs is that vertical vibration of the sweep is communicated to the crank-shaft and causes the jamming of the latter either in its bearings or at its point of connection with the pitman, and thereby preventing the proper rebound of the plunger and otherwise interfering with the operation of the members. It is obvious that unless a full rebound is attained the feed-opening of the baling-chamber is not fully exposed, and hence a full charge cannot be introduced, and a greater number of strokes of the plunger are therefore necessary in order to produce a bale of the desired size. In order to overcome this disadvantage, we have avoided the mounting of the crank-shaft in upper and lower bearings in the framework, inasmuch as such a construction provides for communicating motion directly from the sweep to the crank-arm. Instead of this arrangement we have utilized a spindle 20 as the upper trunnion of the crank-shaft and have mounted the crank-shaft only at its lower end in the framework, this arrangement of parts allowing vibration of the spindle, which may be caused by the sweep, without communicating said motion to the crank-shaft. Furthermore, it will be noted that as the flat horizontal looped arm 23 of the crank-shaft is arranged in contact at its upper side with a frame-bar 13 and at its lower side with the upper surface of the pitman, said pitman resting upon the lower

side of the loop of the crank-shaft, twisting of the crank-shaft with relation to the pitman is prevented.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described our invention, what we claim is—

1. In a baling-press, the combination with a baling-chamber and a rebounding reciprocatory plunger operating therein, of a crank-shaft having a rigid looped horizontal arm mounted at its lower end in a suitable bearing, a pitman between the crank-shaft and the plunger whereby said looped arm operates parallel with the plunger and in contact with one side of the pitman, a spindle mounted in a bearing in alinement with the lower end of the crank-shaft having at its lower end a ratchet-wheel arranged to rotate in the space inclosed by the horizontal looped arm of the crank-shaft, a pawl carried by the crank-shaft for engaging the teeth of the ratchet-wheel to communicate motion to the crank-shaft, and means for communicating a continuous rotary movement in a uniform direction to the spindle, substantially as specified.

2. In a baling-press, the combination with a baling-chamber and a rebounding plunger operating therein, of a power-frame having side beams and connecting upper and lower cross-bars arranged at the front and rear extremities of said side beams, the plunger-beam being extended between the upper and lower cross-bars and being fitted in a guiding-seat in the front lower cross-bar, a crank-shaft mounted at its lower end in the power-frame and having a looped horizontal arm provided with upper and lower closing plates or straps 25 and arranged in contact at its upper side with a horizontal frame-bar, a spindle mounted in alinement with the axis of the crank-shaft for rotation independently of the crank-arm and provided at its lower end with a ratchet-wheel arranged within the space inclosed by said looped arm of the crank-shaft and between the upper and lower plates or straps carried thereby, a pawl arranged within said space inclosed by the looped arm of the crank-shaft to engage the teeth of the ratchet-wheel, a sweep secured to the spindle, and a pitman connecting the crank-shaft with the plunger-beam, substantially as specified.

3. In a baling-press, the combination of a baling-chamber, a hopper communicating with the baling-chamber, spaced transverse upper and lower guide-bars forming the rear side of the hopper, a plunger operating in the baling-chamber, and a guard 8 pivotally connected at its front end to the plunger and operating at its rear end between said guide-bars, whereby the guard is alternately depressed and elevated by contact, respectively,

with the upper and lower guide-bars during
the advance and return movements of the
plunger, said guard occupying an approxi-
mately vertical position to form the rear side
5 of the hopper and close the interval between
the guide-bars when the plunger is retracted,
substantially as specified.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures
in the presence of two witnesses.

JOHN R. DAVIS.
THOMAS J. WEBB.

Witnesses:

C. F. HEINATZ,
JOSHUA STARNES.