

(No Model.)

E. F. STODDARD

BALING PRESS.

No. 369,662.

Patented Sept. 6, 1887.

Fig. 1.

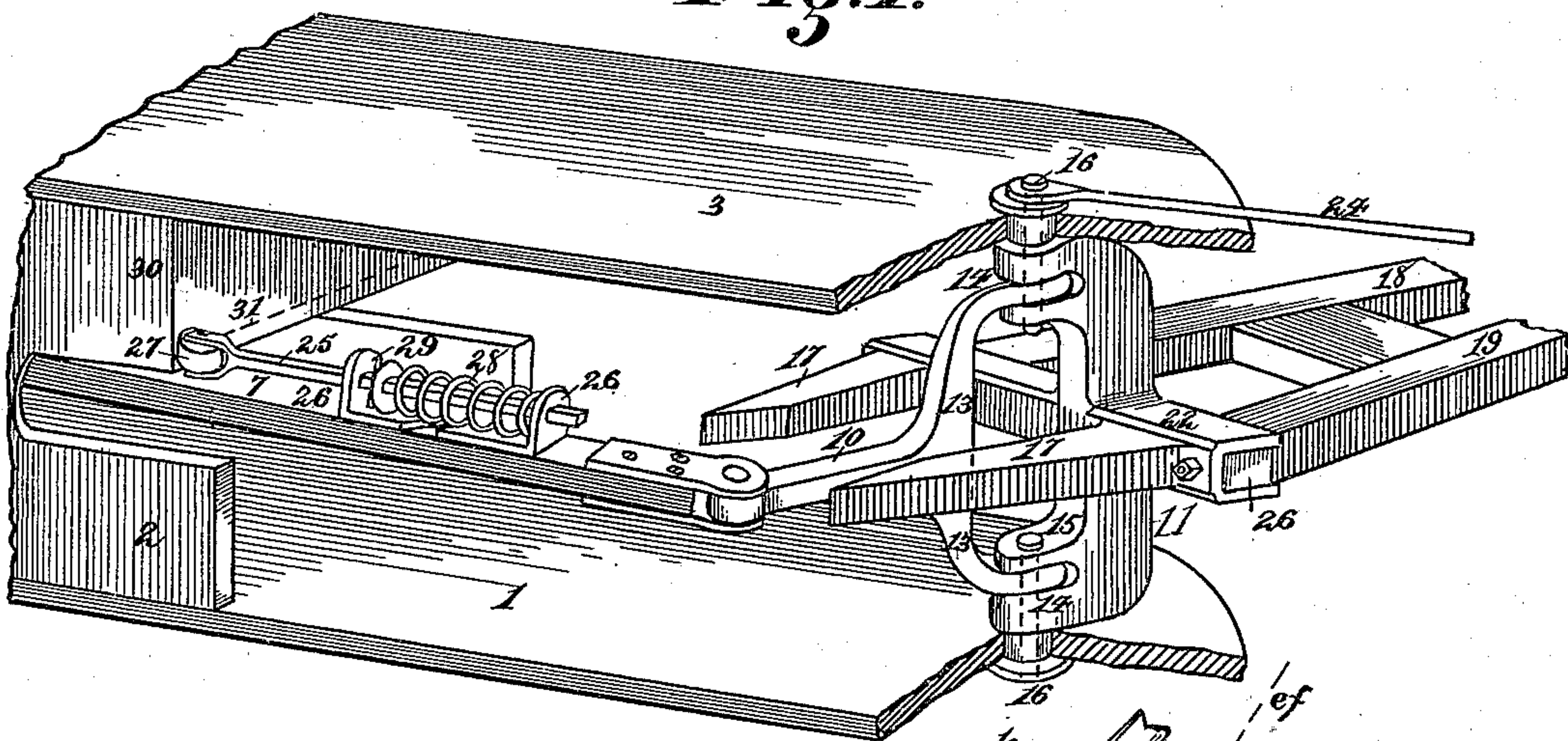


Fig. 2.

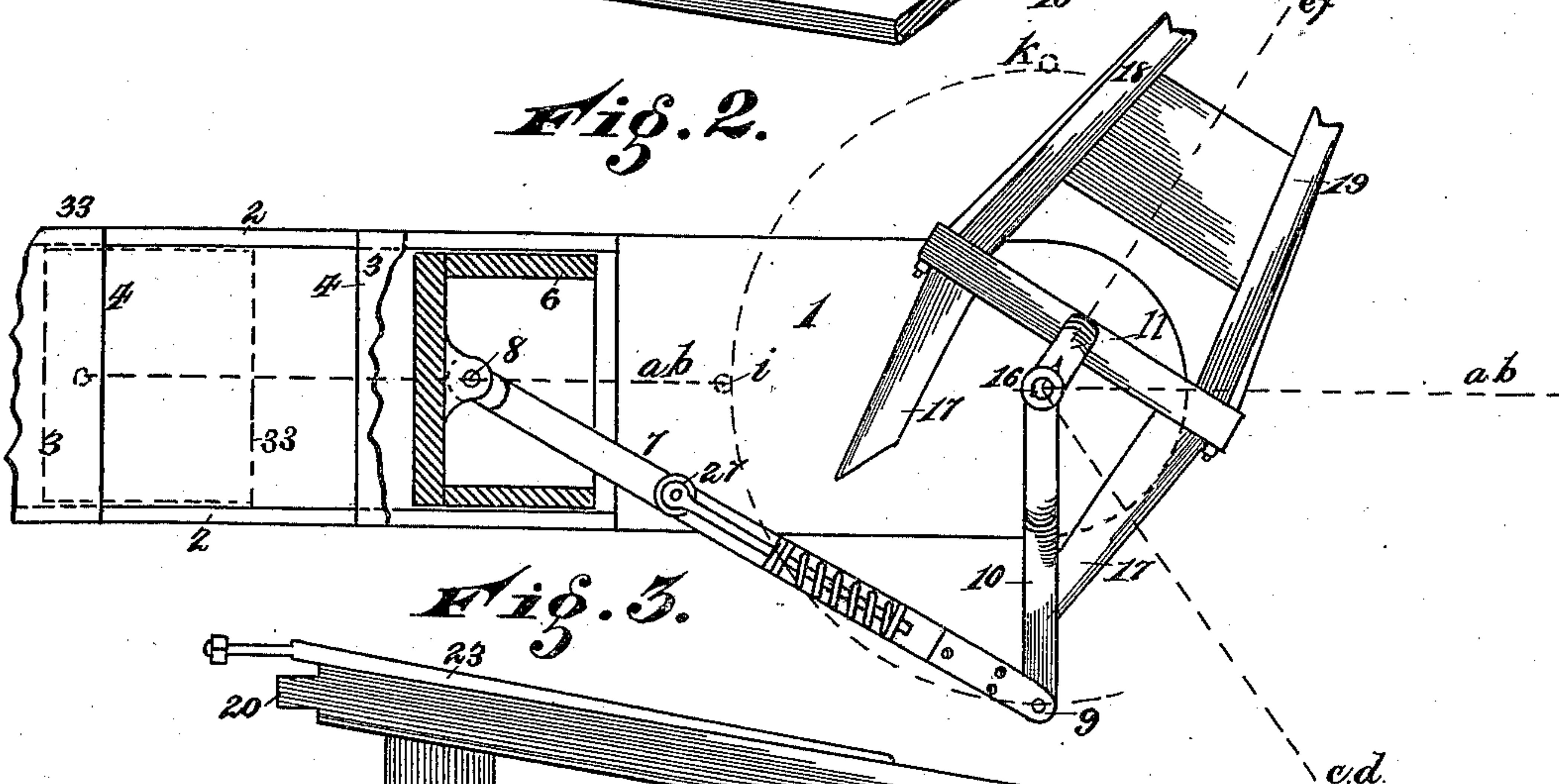


Fig. 3.

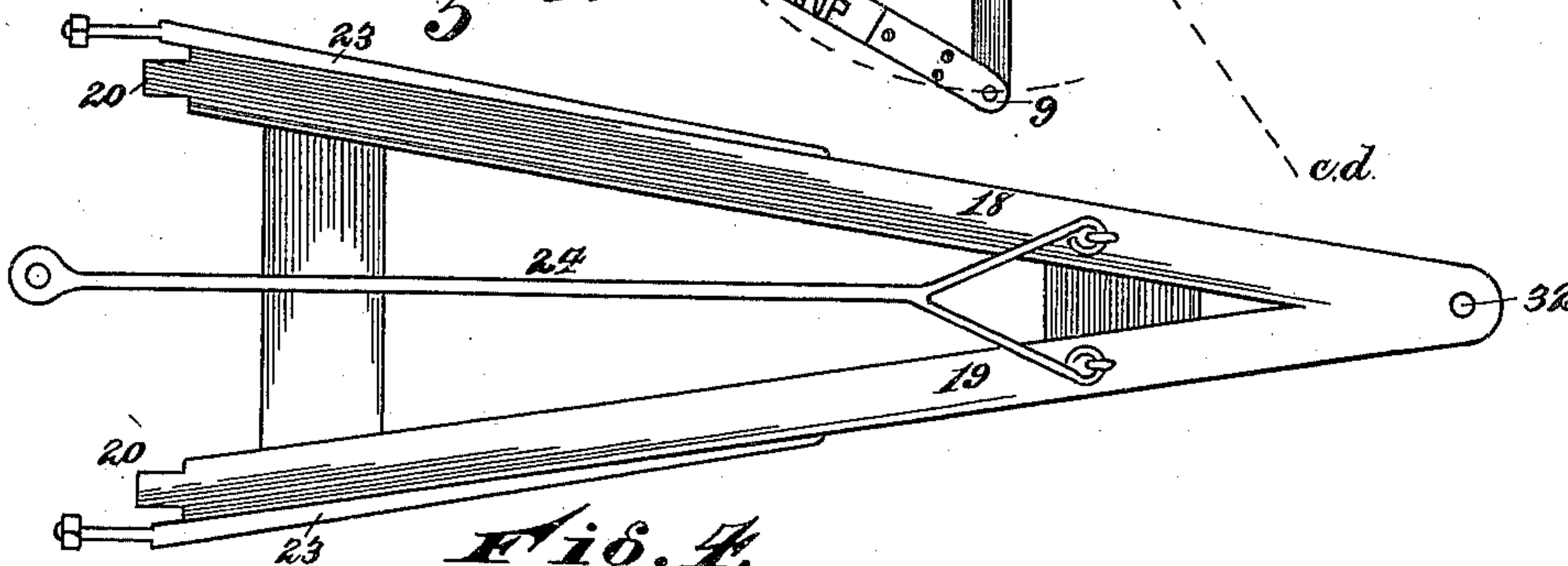
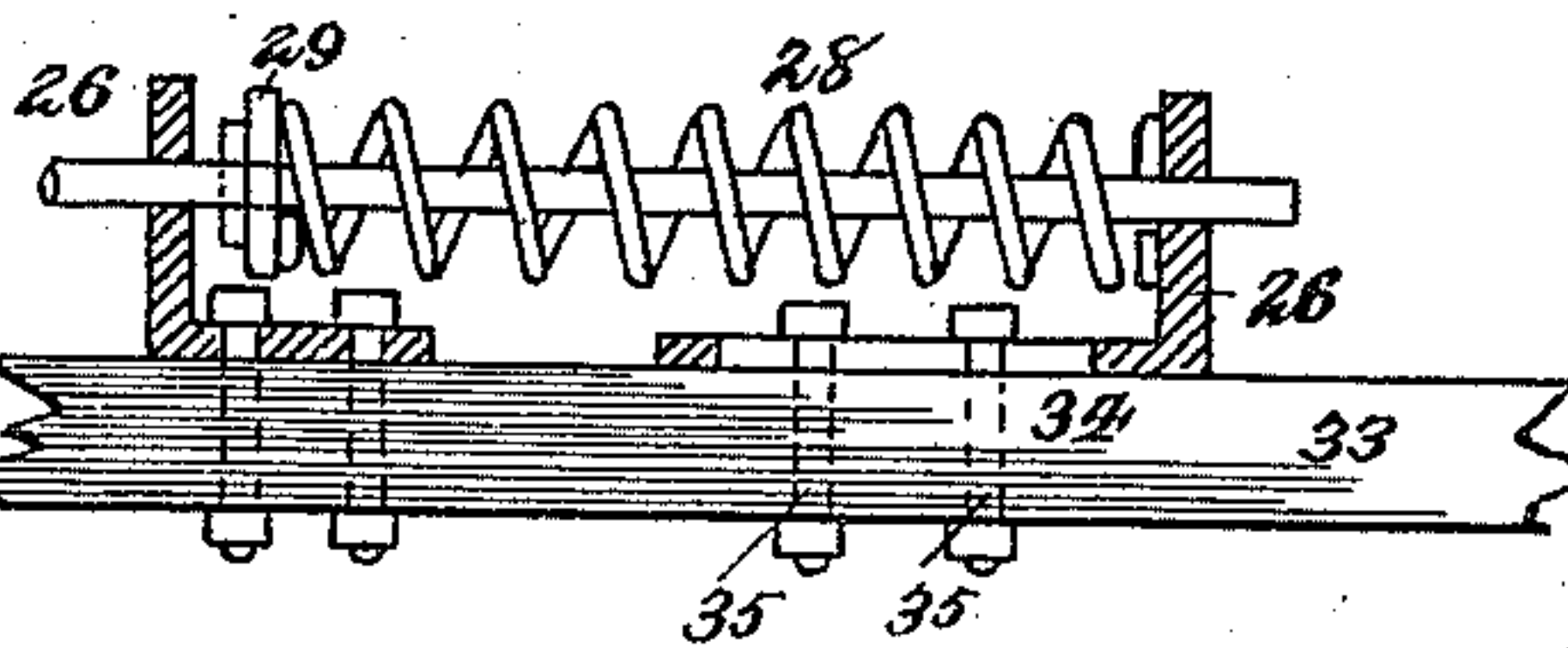


Fig. 4.



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UNITED STATES PATENT OFFICE.

E. FOWLER STODDARD, OF DAYTON, OHIO, ASSIGNOR TO THE FARMERS
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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 369,662, dated September 6, 1887.

Application filed December 23, 1886. Serial No. 222,393. (No model.)

To all whom it may concern:

Be it known that I, E. FOWLER STODDARD, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and
5 useful Improvements in Baling - Presses, of which the following is a specification.

The object of my invention is to provide an automatically-retracting pitman and plunger in a baling-press. My improvement is
10 adapted to be driven by the vibratory travel of a lever, usually moved to and fro by horse-power. The turning of the team occupies considerable time, and when the power of the team is employed to retract the plunger a
15 large portion of the time is occupied by the travel to and fro of the plunger across the opening into which the hay is fed to the action of the plunger. My invention secures the quick and automatical return of the plunger
20 as soon as the vibratory pitman passes the central line of its travel, thereby shortening the necessary distance of the travel of the team and driving-lever, as well as lessening the period of plunger retraction, all of which
25 is set forth in the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improvement, with parts of the baling-box broken off to show the construction. Fig. 2
30 is a top plan view of the same, with parts of the top of the box broken off. Fig. 3 is a top plan view of the oscillatory lever or driving-tongue. Fig. 4 is a modification of an adjustable retractile spring.

35 1 represents the bottom of a hay-baling box; 2, the sides; 3, the top.

4 represents the opening in the top of the compressor-box, in which straw, hay, or other materials to be compressed are inserted.

40 6 represents the plunger.

7 represents a vibratory pitman, pivoted at one end, 8, to the plunger, and at the opposite end, 9, to a link, 10, which link is in turn pivoted to an oscillating bracket or
45 driving-support, 11, the forks 13 being pivoted between ears 14 15 of the bracket 11, 16 representing the pivot-bolts. This bifurcation, so as to have the forks 13 near the top and bottom of the bracket 11, is for the purpose
50 of strengthening the parts and lessening the strain-thrusts on the journals of pivot 16, being nearer the base of the supporting-pivot.

17 represents propelling - arms rigidly se-

cured to the oscillating support 11, the ends of which are beveled, so as to engage respect- 55
ively and alternately against the sides of link 10, to drive forward the pitman and plunger. The oscillatory lever or tongue is preferably made of two pieces, 18 and 19, provided with
60 tenons 20, which engage in sockets in arm 22, which arm is rigidly attached to bracket 11.

I preferably make the parts 11, 14, 15, 17, and 22 of metal cast in one piece.

23 represents the tie-rods; 24, a brace-rod for more rigidly attaching the tongue to the 65
driving device.

It will be seen that my plunger-driving mechanism operates as a link-lever, which operation is especially advantageous for driving
a plunger to compress elastic materials, such as straw, hay, shavings, &c. In the first part of the operation of compressing a charge of
70 material—such as hay—but little power is required for the maximum part of the compression, the power applied being gradually
75 increasingly greater as the charge is compressed, so in the operation of a link-lever the power obtained is the least in the commencement or at the point of the greatest de-
80 flection of the central pivot from the dead-center line, and increasing proportionally as it is moved or driven up to the center, where it terminates; hence the employment of the
link-lever with the power applied by straight-
85 ening the link as the plunger is driven forward is very advantageous in a hay-baler. When elastic material—such as dry hay—is compressed, the plunger will be automatically
thrown back by the expansion of the charge as soon as the axis of the central pivot or the
90 pitman-link has passed the dead-center; but when the material is not elastic a retractile spring is employed upon the pitman 7 in the following manner:

25 represents a spring compression-rod. 26 95
represents brackets in which the same is supported and held in the proper planes for reciprocation.

27 represents a roller journaled in the fork of the compressing-rod 25. 100

28 represents a coiled spring, one end of which seats against the front bracket, 26, and the other end against the pin 29.

30 represents an offset or abutment formed in the baling-box, against which the roller 27 105
strikes. As the pitman 7 is driven forward

the roller 27 travels laterally across the abutment 30 in the path indicated by dotted lines 31. As the pitman 7 moves in the arch of a circle, driving the roller 27 across the box, the compressing-rod 25 moves laterally up in its support 26, the pin 29 compressing the spring. As soon as the central pivot, 9, has passed the line or center *a b*, the spring commences to retract, and it throws or draws the plunger rapidly back as the roller travels across the remainder of its track 31, arriving at the opposite side of the baling-box, ready to repeat its operation as the pitman is again driven forward from the opposite side, as will presently be explained.

Mode of operation: I preferably employ horse-power to operate my baling-plunger. The team is hitched to point 32 of the oscillatory lever or tongue. The parts are placed in position as shown in Fig. 2, the face of the plunger being back of the line 4 of the feed-opening in the baling-box. The line *ef* represents the central line of draft at the starting-point. As this line of the tongue or oscillatory lever is moved forward in the direction of the dotted line *a b* one arm, 17, comes in contact with link 10, and commences to straighten said link until the pivot 9 is brought in line with the pivots 8 and 16, as shown in dotted line *i*, Fig. 2, during which movement the plunger 6 has passed from the position shown in full lines, Fig. 2, to the position shown in dotted lines 33. As soon as pivot 9 passes the central line, *i*, the force of the spring 28, or the elasticity of the charge driven forward by the plunger, will quickly retract the plunger 6, pitman 7, and link 10, carrying it over to the opposite side of the box, bringing the pivot 9 to a position indicated by the dotted lines *k*, at which time the team has moved to line *c d*, and is turned around to move the oscillatory lever in the opposite direction, the reverse movement of which operates the link and pitman by the contact of the opposite driving-arm 17 against the opposite side of link 10, driving the plunger forward in the same manner as before described, except that the movement of the driving-arm, link, and pitman is from the opposite side of the box.

It will be observed that the link 10 and pitman 7 are pivoted at each end upon their respective journals. They are free to move in either direction, according as the power is applied, and that when either arm 17 is in contact with link 10 there is a free space between the opposite side of link 10 and the opposing arm 17, and that as soon as pivot 9 has passed the dead-center, traveling in either direction, power applied to the plunger or to the pitman 7 by the spring operates to throw the link quickly to the initial starting position, but on the opposite side of the baler; hence the plunger is automatically retracted in the operation of my baling device and exposes the feed-opening 4 for the reception of the charge a much longer time than is possible with this class of machines in which the plunger is re-

tracted by power of the team, for not only is the time of retraction of the plunger lessened, but the feed-opening is exposed also during the time occupied in the turning about of the team as well. Thus my improvement applies the power in a better manner and is also operated in baling hay more rapidly than other devices hitherto applied for similar purposes.

Fig. 4 shows a modification of the spring-support, so that its tension may be adjusted or released entirely when its use is not required. The pitman 7 supports the ears 26, one of which is provided with a slot. 35 represents through-bolts for securing arm 33 in any desired longitudinal adjustment to increase or decrease the tension of the spring.

The ordinary retainers to prevent undue expansion of a compressed charge in the baling-box are not shown; but of course it is desirable to use them.

I claim—

1. The combination, in a baling-press, of the reciprocating plunger, the pitman hinged thereto, an oscillating support, link-arms pivoted to the pitman and to the oscillating support, and arms 17 on said support arranged at opposite sides of the link-arm and alternately operating thereupon, substantially as described.

2. The combination, in a baling-press, of the plunger, the pitman hinged thereto, the oscillating support, the link-arm hinged to the pitman and to the support, and an oscillating lever rigidly secured to the oscillating support, and having driving-arms extending at opposite sides of the link, substantially as described.

3. The combination, in a baling-press, of the plunger, the pitman, and the link-arm hinged to each other, and the compression-arm and retracting-spring mounted on the pitman, with the oscillating support having arms 17 extending at opposite sides of the link-arm and alternately operating thereupon, substantially as described.

4. In combination with the pitman, the baling-box provided with abutment 30, the ears 26, compression-rod 25, carrying roller 27, the spring 28, and the pin 29, substantially as described.

5. In combination with the plunger, pitman, and link-arm 10, hinged to each other, and the link-arm journaled to the driving-support, the compression rod and spring attached to the pitman, and box, substantially as specified.

6. In combination with the pitman and plunger, the baling-box provided with abutment 30, and the spring 28 and compressing-rod 25, carrying roller 27 against and across said abutment, substantially as specified.

In testimony whereof I have hereunto set my hand.

E. FOWLER STODDARD.

Witnesses:

CHAS. J. HALL,

WM. W. WAGNER.