(No Model.) 3 Sheets—Sheet 1.

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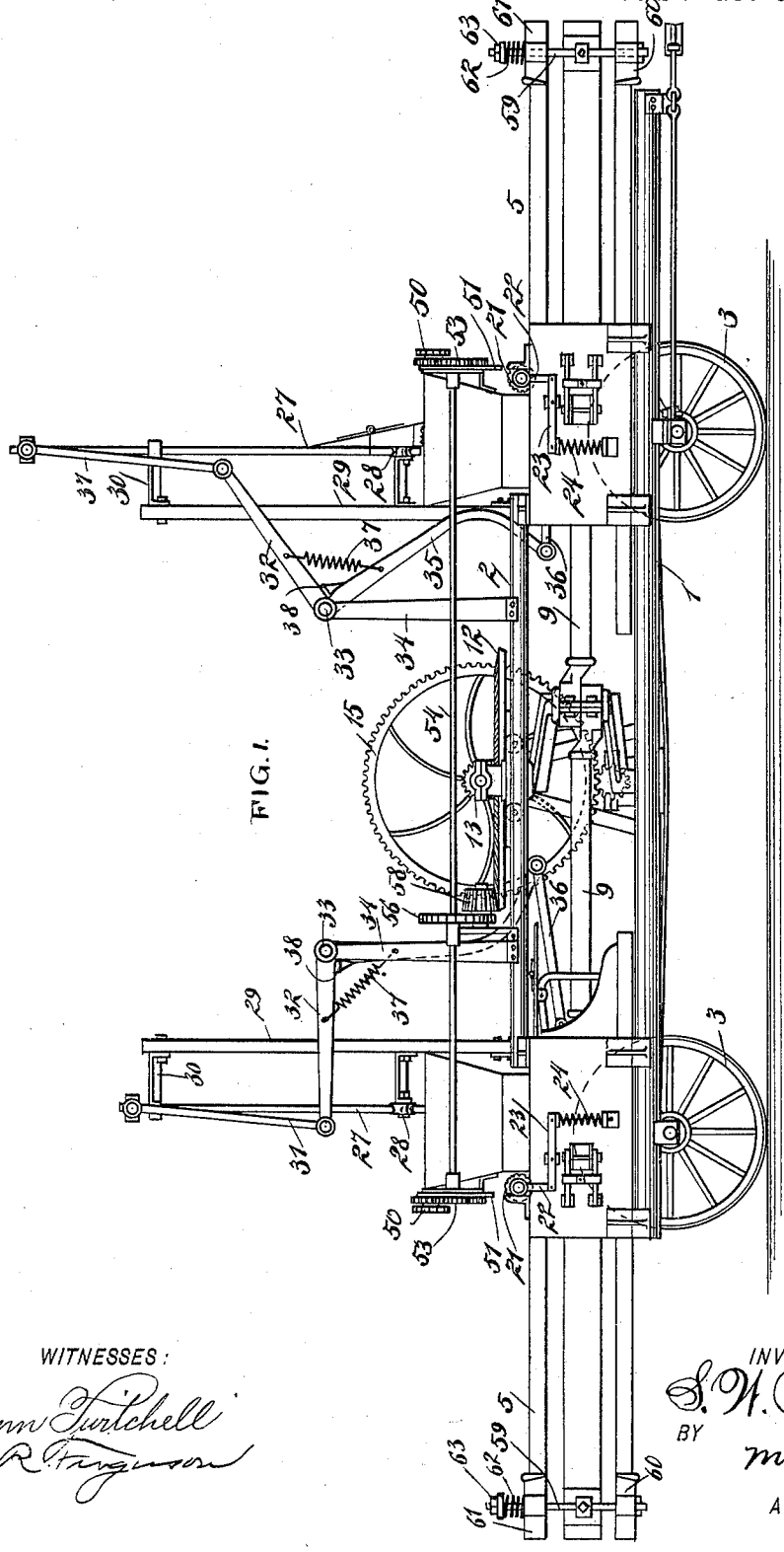


FIG. 1.

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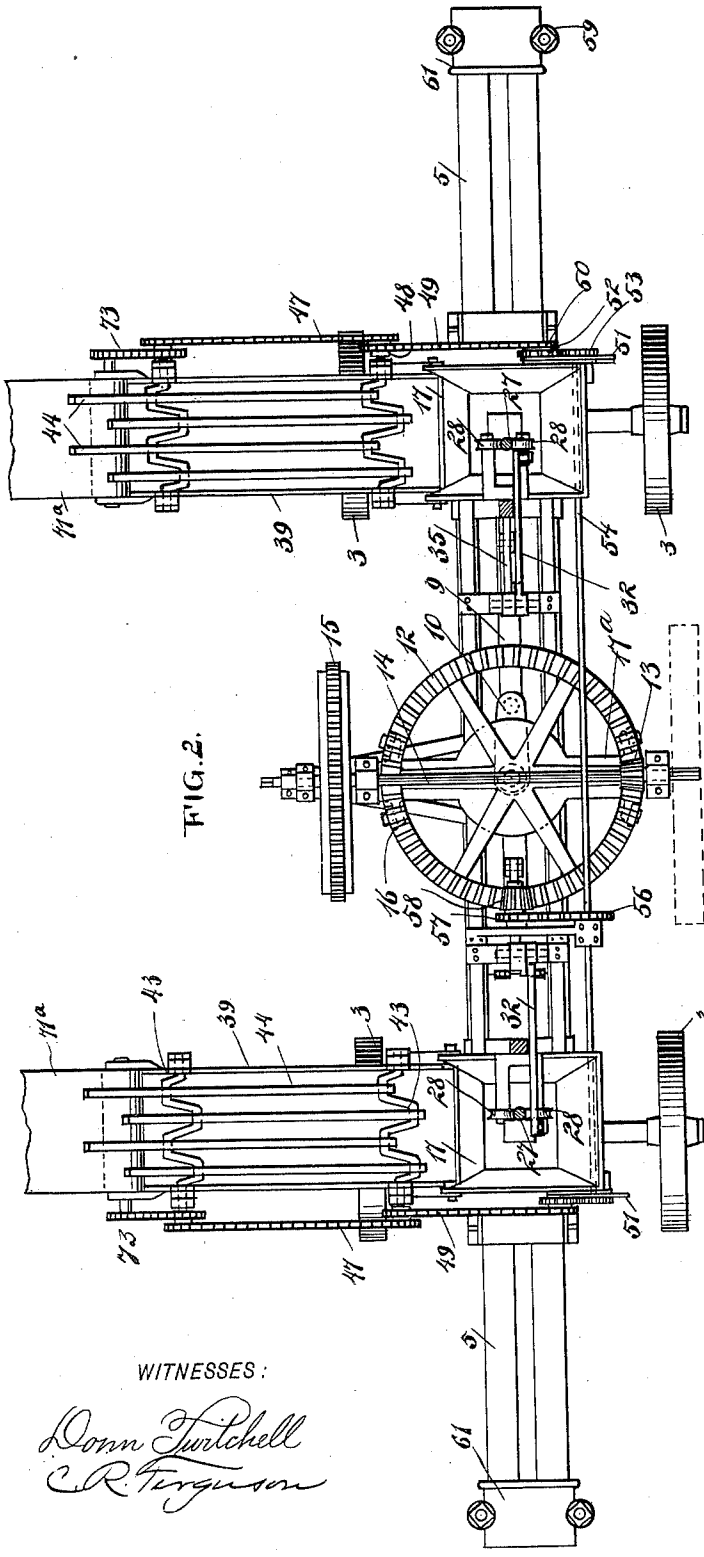


FIG. 2.

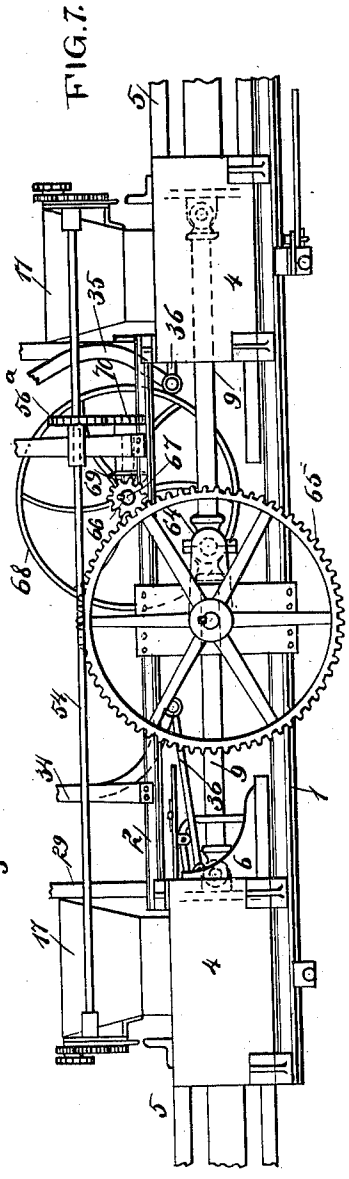


FIG. 7.

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FIG. 3.

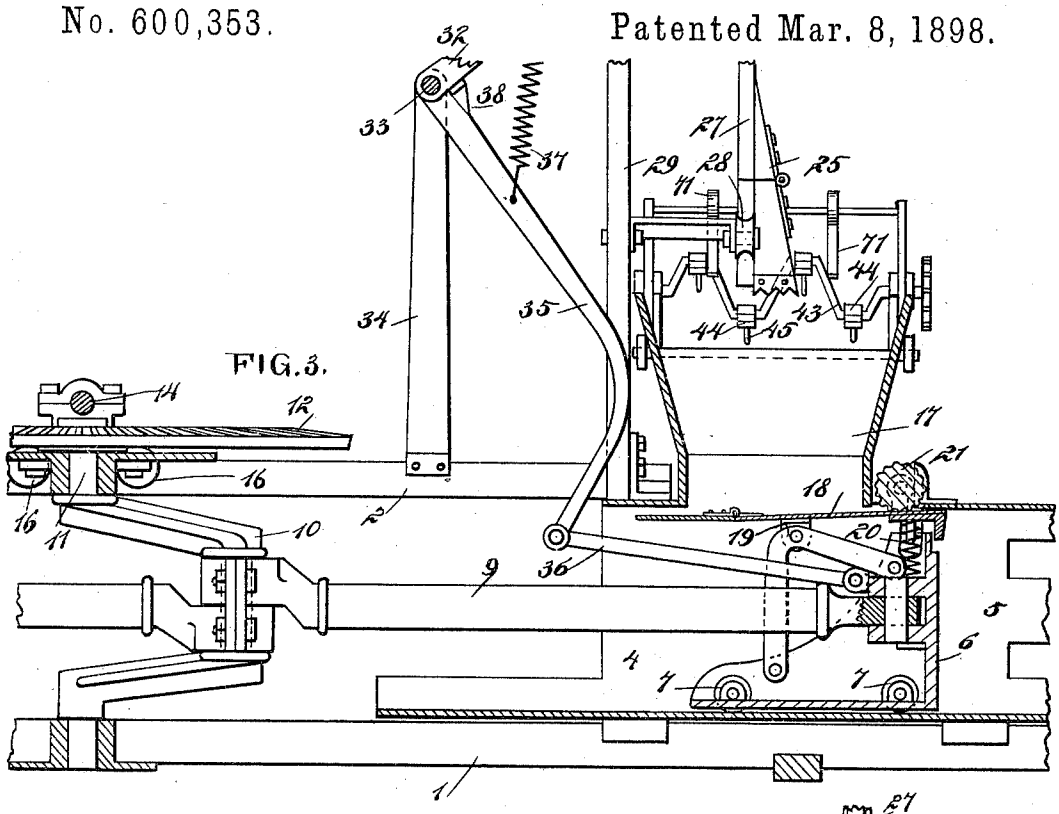


FIG. 4

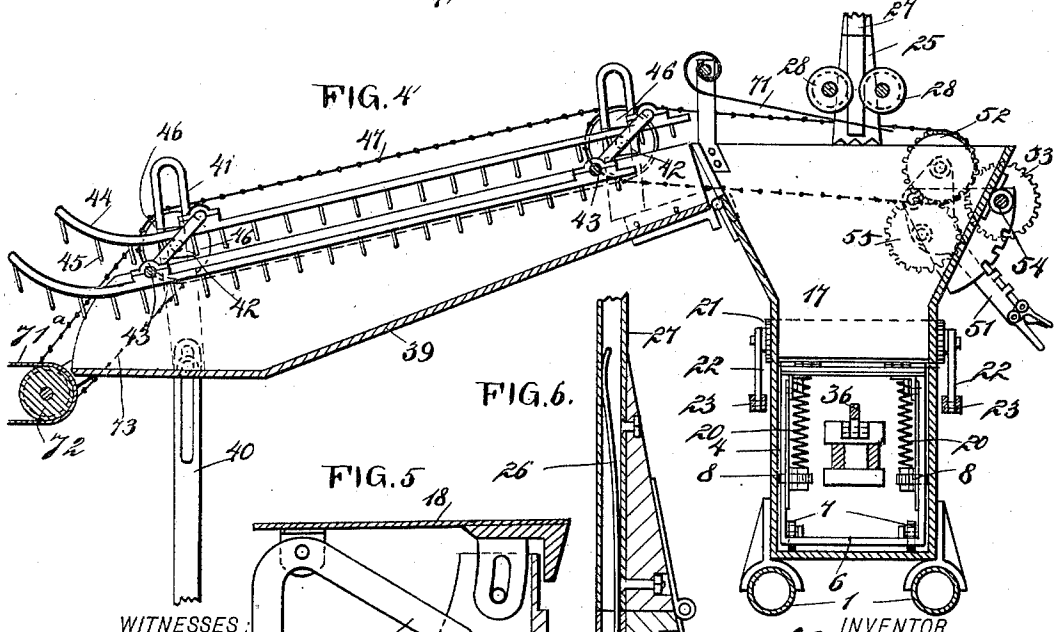
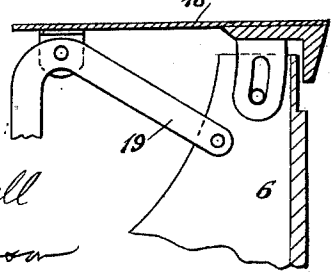


FIG. 6.

FIG. 5



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UNITED STATES PATENT OFFICE.

SKILES W. BRICKER, OF ORE, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 600,353, dated March 8, 1898.

Application filed August 26, 1897. Serial No. 649,592. (No model.)

To all whom it may concern:

Be it known that I, SKILES W. BRICKER, of Ore, in the county of Cass and State of Missouri, have invented a new and Improved Baling-Press, of which the following is a full, clear, and exact description.

This invention relates to presses for baling hay, straw, and the like; and the object is to provide a press in which the bales may be quickly and smoothly made and in which comparatively little power is required to properly press the bale.

I will describe a baling-press embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a press embodying my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a sectional elevation of a portion of the press drawn on an enlarged scale. Fig. 4 is a sectional elevation showing a feeding device employed. Fig. 5 is a sectional elevation of a portion of a press-plunger and a table mounted thereon. Fig. 6 is a sectional view of a feed-plunger employed, and Fig. 7 is a side elevation of a modified construction of the baling-press.

The machine as here shown is double acting—that is, the baling operation takes place at both ends of the machine to form two bales at once.

Referring to the drawings, 1 designates the side rails of the supporting-frame, and 2 indicates shorter rails supported above the rails 1. These frame-rails are mounted on wheels 3, so that the machine may be transported from place to place. Mounted on the frame near each end are casings 4, which form the walls of the pressing-chambers. The openings of these casings 4 communicate with extensions 5, into which the hay or other material is forced after being pressed, and in these extensions the fastening-cords are placed around the bale.

Movable in each casing 4 is a pressing-plunger 6. Each pressing-plunger has rollers 7 to engage against the bottom wall of the casing 4, and side rollers 8, which engage against the side walls of said casing. Pivotally connected to the plungers 6 are connecting-rods 9, which extend to a crank 10 on a crank-shaft 11, which in the example of my improvement shown in Fig. 1 rotates on a vertical axis. Attached to the crank-shaft 11 is a bevel gear-wheel 12, which meshes with a bevel-pinion 13 on a driving-shaft 14, which may be operated by any desired power. I have here shown the driving-shaft as provided with a gear-wheel 15 near one end. To prevent the gear-wheel 12 from tilting and to reduce its frictional bearing to a minimum, I employ antifriction-rollers 16, which engage against the under side of the gear-wheel 12. These antifriction-rollers have bearings in lugs extended from a frame 17^a, supported on the frame 2.

Communicating with each compressing-chamber is a hopper 17, through which material is fed, as will be hereinafter described. Carried by each compressing-plunger 6 is an adjustable folding apron 18, designed to be moved across the bottom of the hopper 17 as the plunger is moved to its pressing position. This apron is shown as made in two hinged sections, and the forward section has pivotal connection with brackets 19, connected to the plunger. The forward end of the apron 18 is curved downward over the upper forward end of the plunger, and it is held yieldingly in position by means of springs 20.

Movable in an opening through the top wall of the chamber 4, forward of the hopper 17, is a trimming-roller 21. The trimming-roller 21 is longitudinally corrugated, and it has bearings in arms 22, the lower ends of said arms having pivotal connection with pivoted levers 23, held yieldingly by means of springs 24. It is obvious that the springs 24 will hold the roller 21 yieldingly against the material, so that the said roller may turn or tuck the hay downward.

Movable into each hopper 17 is a feeding-plunger 25, the lower end of which is provided with teeth, and this lower portion is hinged to swing forward relatively to the upper portion. It is held yieldingly in its normal position by means of a spring 26, secured at its lower end to the swinging portion of the plunger and extended through the tubular rod 27, which carries the plunger, and the upper end of this spring engages against the

inner wall of said rod. The rod 27 moves between guide-rollers 28, supported on a bracket extended from a vertical standard 29, and the upper portion of the rod moves through an opening in an arm 30, extended from the upper end of said standard 29. From the upper end of the rod 27 a link 31 extends to a pivotal connection with a lever 32, mounted on a stud 33, extended from a standard 34. Also mounted on the stud 33 is a downwardly-disposed lever 35, from the lower end of which a link 36 extends to a pivotal connection with the plunger 6.

It is designed that the feeding-plunger 25 shall have a vertically-yielding motion while pressing or feeding the hay downward, so as to prevent possible breakage should the plunger come in contact with a hard substance or too closely-packed hay. With this end in view either the lever 32 or 35 will be loosely mounted on the stud 33, while the other is affixed to said stud, and a spring 37 connects the two levers 32 and 35 forward of their fulcrum-point. Obviously as the plunger 6 is moved outward the lever 35 will be rocked, and through the medium of the spring 37 the lever 32 will also be rocked in a direction to move the feeding-plunger down into the hopper 17, and on an inward movement of the plunger 6 the movement of the lever 35 will of course be reversed, and the bracket 38 on said lever will engage against the under side of the lever 32 and rock said lever 32 in a direction to draw the feeding-plunger outward. During the inward movement of the plunger the forward end of the table 18 will engage with the lower portion of the feeding-plunger, and therefore I provide the swinging section, as previously described, so that said section may yield against pressure on the table.

I will now describe the automatic means for feeding the hay or other material into the hopper 17. Extended from the hopper 17 is a feed-trough 39. This feed-trough 39 has a swinging connection with the hopper and at its outer end is supported by legs 40, with relation to which the feed-trough is adjusted vertically. Mounted on the side bars of the feed-trough 39 are guideways 41, in which blocks 42 are vertically movable. These blocks 42 form bearings for the crank-shafts 43, each one of which is provided with a number of cranks alternately extended in opposite directions. Mounted on these crank portions are feeder-bars 44, having downwardly-extending fingers 45, and the outer ends of these feeder-bars are shown as curved upward, so that they clear the bottom of the feed-trough when in operation. The crank-shafts 43 are operated in unison from the bevel gear-wheel 12. As here shown, the two crank-shafts are each provided with a sprocket-wheel 46, over which a sprocket-chain 47 engages. The upper one of the crank-shafts 43 has another sprocket-wheel 48, from which a chain 49 extends to a sprocket-wheel 50, mounted on a stud extended from a shifting lever 51. Mounted to rotate with the sprocket-wheel 50 is a gear-wheel 52, designed to mesh with a gear-wheel 53 on the shaft 54, extended longitudinally of the machine.

The shifting lever 51 is mounted to swing on the hopper 17, and mounted to rotate on this shifting lever 51 is a gear-wheel 55, meshing with the gear-wheel 52 and designed to be connected with the gear-wheel 53 when it is desired to reverse the direction of motion of the wheel in order to impart the proper raking movement to the feeding-bars. This change may be made necessary by the direction of movement imparted to the driving-wheel 12—that is, the motive power may at some times be arranged to rotate the wheel 12 in a certain direction, and at other times or under other conditions the motive power may drive said wheel 12 in the opposite direction. Therefore the shifting mechanism is designed to compensate or to accommodate the movement of the feeders to the movement of the motor.

In the operation of the feeders it is obvious that while one feeder-bar is moving through the feed-trough to force material into the hopper 17 the other feed-bar will be raised above the feed-trough and moved in the opposite direction. As the bearing-blocks 42 may move vertically in their guideways it is obvious that the feed-bars will have a yielding engagement with the material, so as to accommodate themselves to the thickness or depth of material passing through the feed-trough. Affixed to the shaft 54 is a gear-wheel 56, having engagement with a gear-wheel 57, affixed to which is a bevel-pinion 58, meshing with the bevel-gear 12.

The extensions 5 each consist of a number of separated yielding slats, and at the outer ends compression devices are provided for holding the top and bottom slats yieldingly against the bale. These compression devices consist of bolts 59, engaging at their lower ends with a plate 60, attached to the lower strip of the extensions, and the upper portions of said bolts extend through lugs on plates 61, secured to the upper slats of the extensions, and springs 62 are arranged between the plates 61 and nuts 63 on the bolts, by means of which the tension of the springs may be adjusted.

In the example shown in Fig. 7 the rods 9 have connection with a crank 64, moving on a horizontal axis, and attached to the shaft of this crank 64 is a gear-wheel 65, meshing with a pinion 66 on the driving-shaft 67, to which a band-wheel 68 is attached. Connected to the driving-shaft 67 is a bevel-pinion (not shown, but similar to the bevel-pinion 58 shown in Fig. 2) meshing with a bevel-pinion 69, on the shaft of which is a gear-wheel 70, engaging with a gear-wheel 56^a on the shaft 54.

In operation there will be an attendant or feeder at each feeding-trough. The material will be placed in the feeding-trough, and then

the feeding-bars will force the same up the trough and discharge it into the hopper 17. To prevent the hay or other material from being thrown over the top of the hopper, I may employ spring-fingers 71, extended from the bars supported on the hopper. During the backward or outward movement of the plunger 6 the feeding-plunger will be moved downward to force material into the pressing-chamber. Then upon the return movement the hay thus forced down will be pressed against the hay previously pressed, and the pressed hay will be gradually forced into the extension 5. Of course the two plungers 6 will move alternately in opposite directions.

In connection with each feeding-trough I may employ an endless apron 71^a. This apron extends around a roller 72, having bearings in arms at the end of the trough, and it will also extend around another roller. (Not here shown.) Motion will be imparted to the apron by means of a chain 73, extended around a wheel on the roller and around a wheel on one of the crank-shafts 43. The hay may be thrown onto the apron and carried thereby to the trough.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A baling-press, comprising a pressing-chamber, a pressing-plunger operating therein, a hopper communicating with the chamber, a feeding-plunger consisting of two sections, one section having a spring yielding connection with the other section, and connections whereby the feeding-plunger is operated by the pressing-plunger, substantially as specified.

2. A baling-press, comprising a pressing-chamber, a pressing-plunger movable in the chamber, an apron carried by the plunger and consisting of two hinged sections, the forward section having pivotal connection between its ends with brackets on the plunger, the forward end of said pivoted section being curved downward over the forward upper end of the plunger, and springs between the forward portion of the pivoted section and the plunger, substantially as specified.

3. A baling-press, comprising a pressing-chamber, a plunger operating therein, a hopper communicating with the chamber, spring-fingers extended over the hopper, a feeding-plunger movable vertically in the hopper, a vertically-reciprocating rod to which said plunger is attached, a link extending from said rod, a lever to which said link is connected, another lever having spring yielding connections with the first-named lever, and a link connection between said other lever and the pressing-plunger, substantially as specified.

4. In a baling-press, a pressing-chamber, a pressure-plunger operating therein, a hopper communicating with the chamber, a feeding-plunger consisting of two hinged sections, and a spring attached to one section and bearing against the other section, substantially as specified.

5. A baling-press, comprising a baling-chamber, a plunger operating therein, a hopper communicating with the chamber, a rod movable vertically over the hopper, means for moving said rod by the movements of the plunger, roller-bearings between which said rod is movable, a feeding-plunger on said rod and having a toothed lower end, and a spring-pressed hinged connection between the lower portion of said feeding-plunger and its upper portion, substantially as specified.

SKILES W. his × mark BRICKER.

Witnesses:
WM. H. CLEMMENTS,
M. C. COLLINS,
J. F. LYNN.