

No. 759,182.

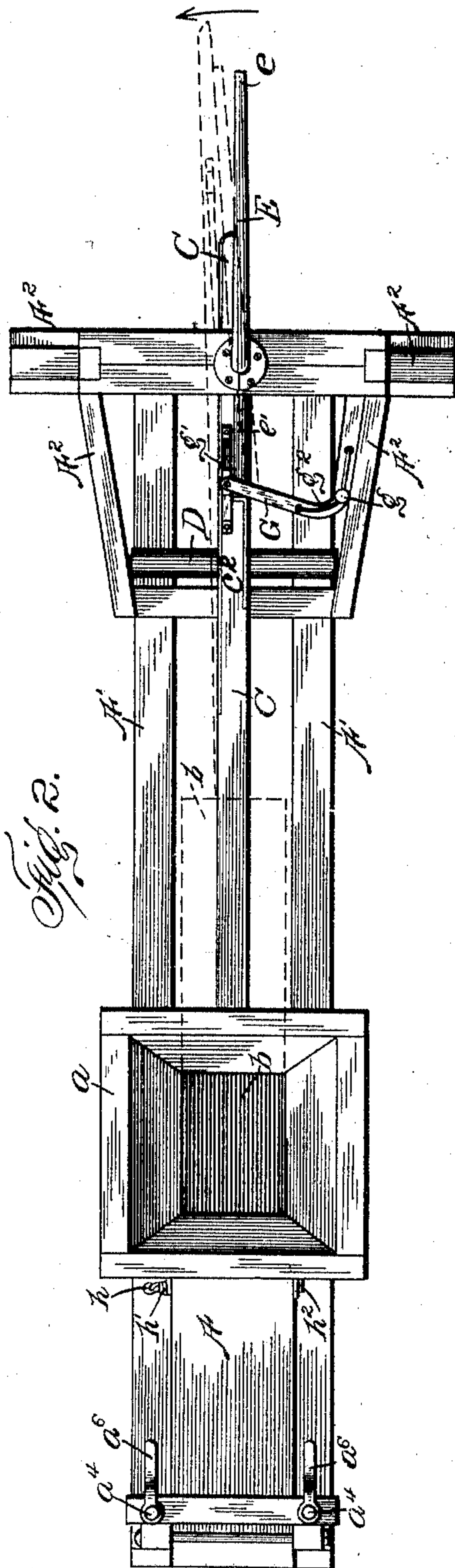
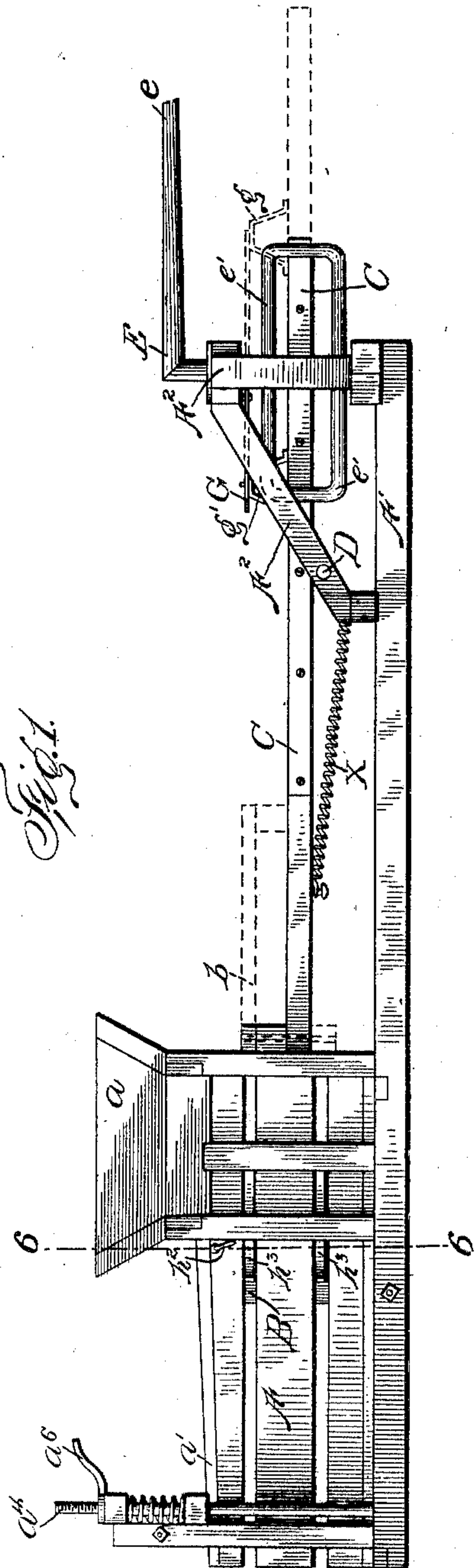
PATENTED MAY 3, 1904.

W. C. KEY.
BALING PRESS.

APPLICATION FILED APR. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

Wm. C. McKenzie.
Amos W. Hart

INVENTOR

William C. Key.

BY *Munn & Co.*

ATTORNEYS.

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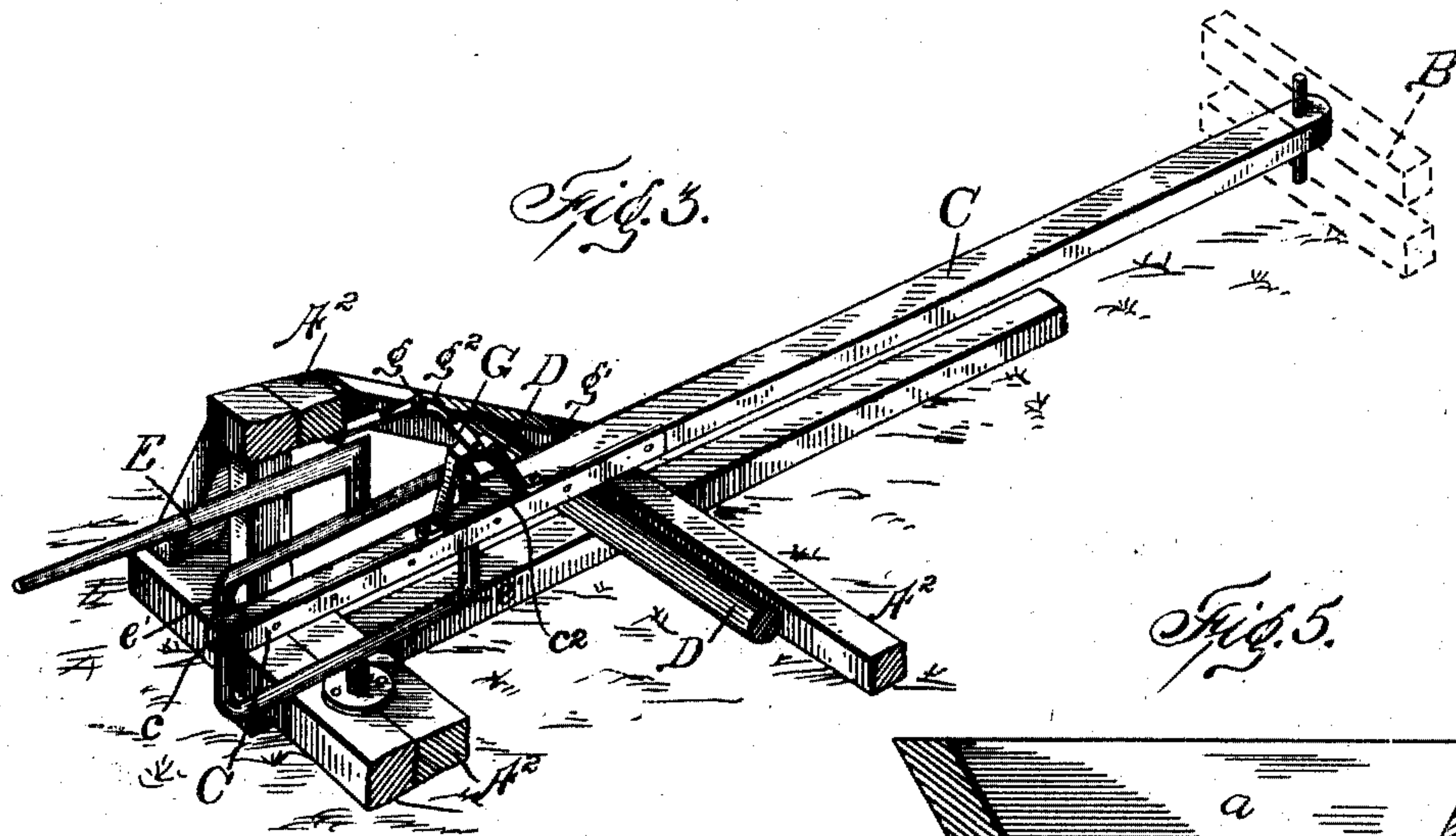


Fig. 5.

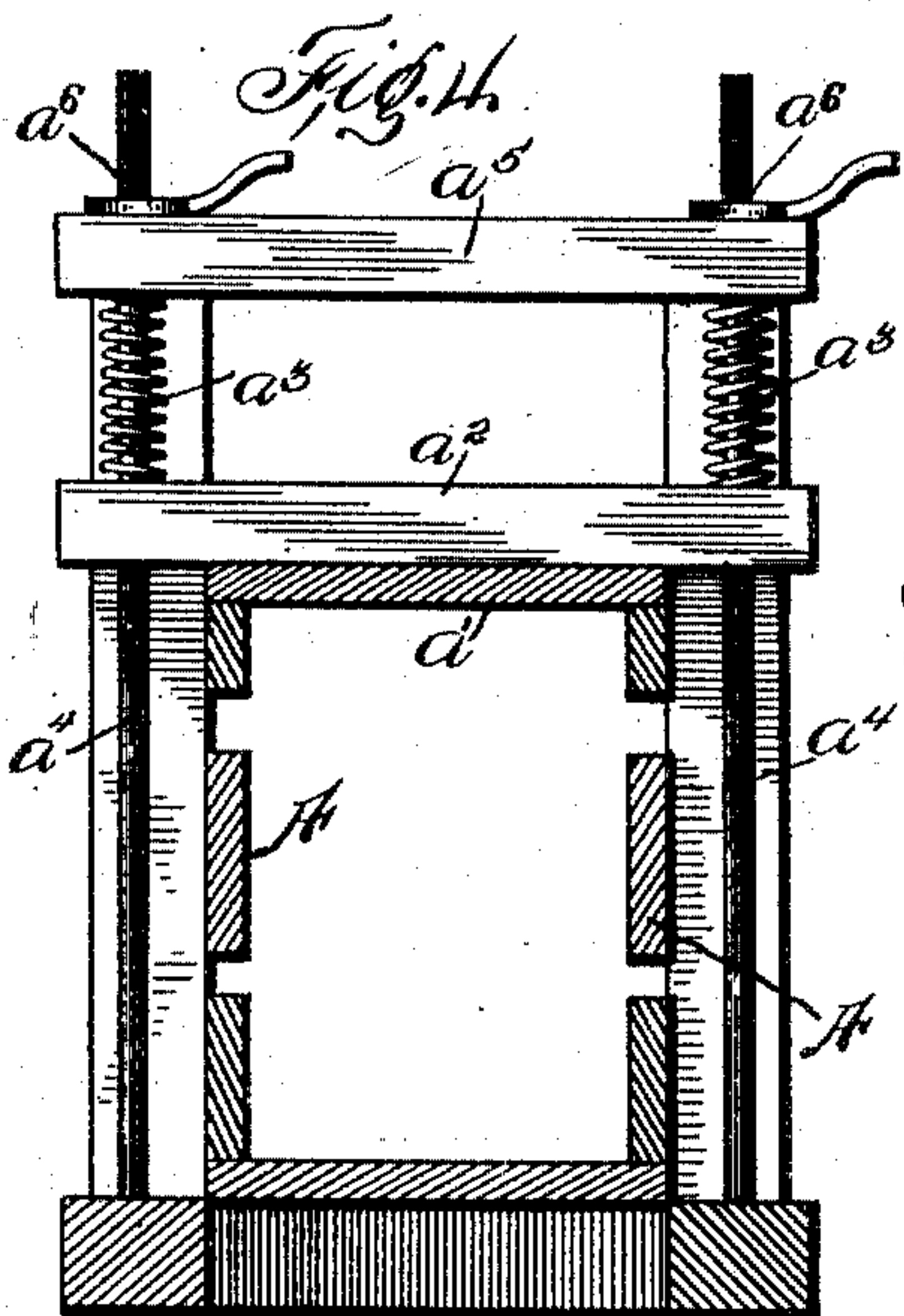
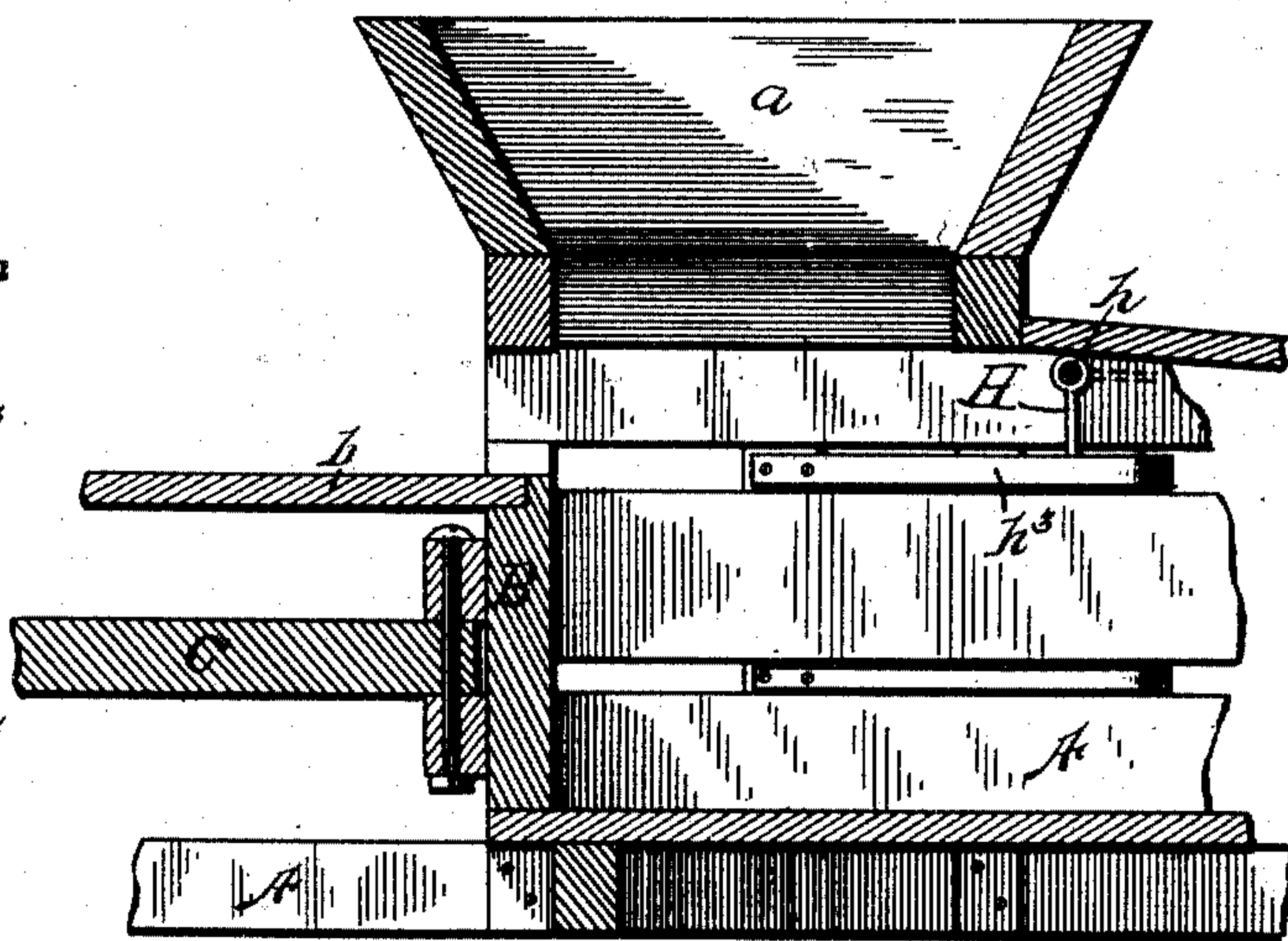
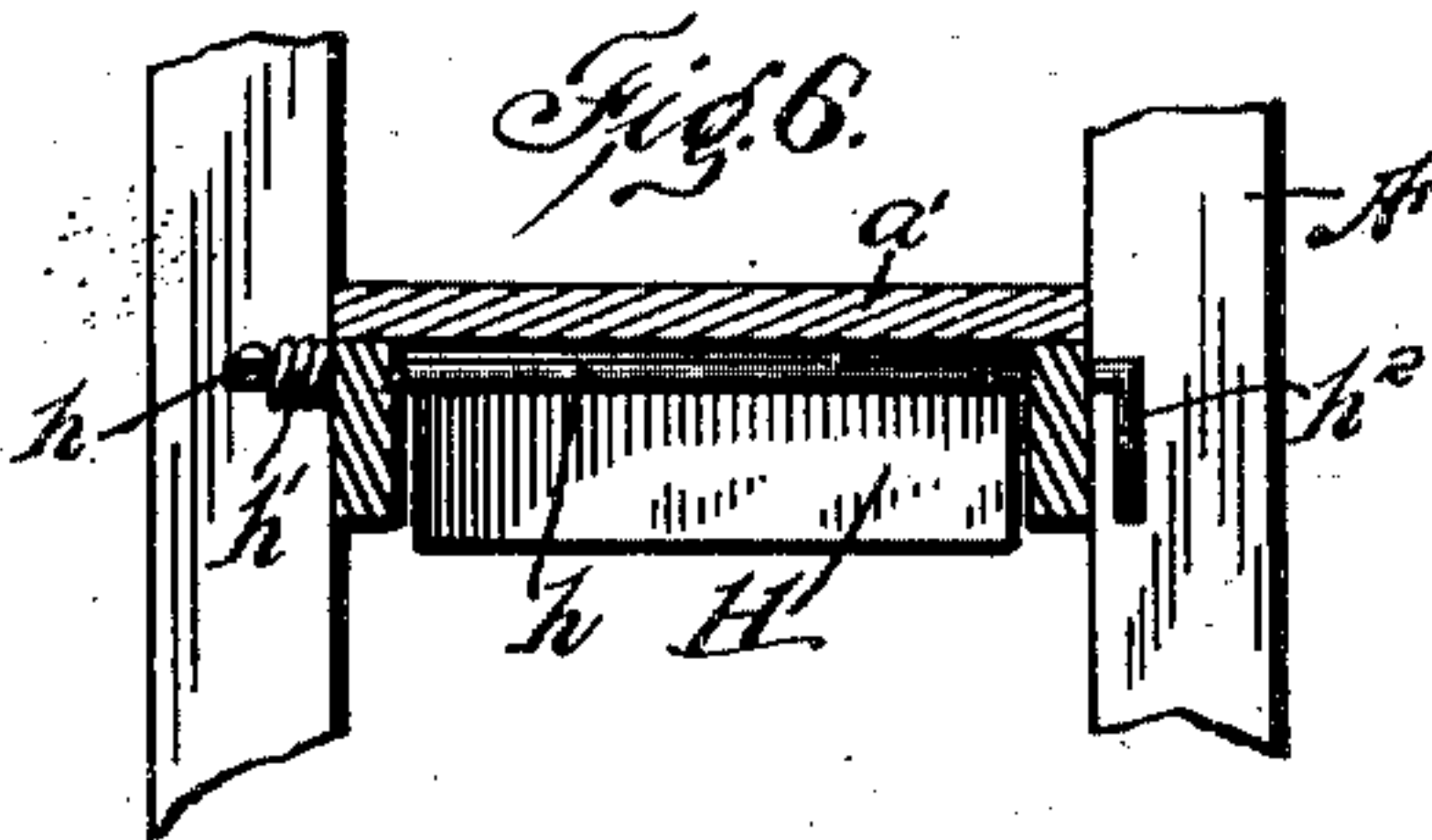
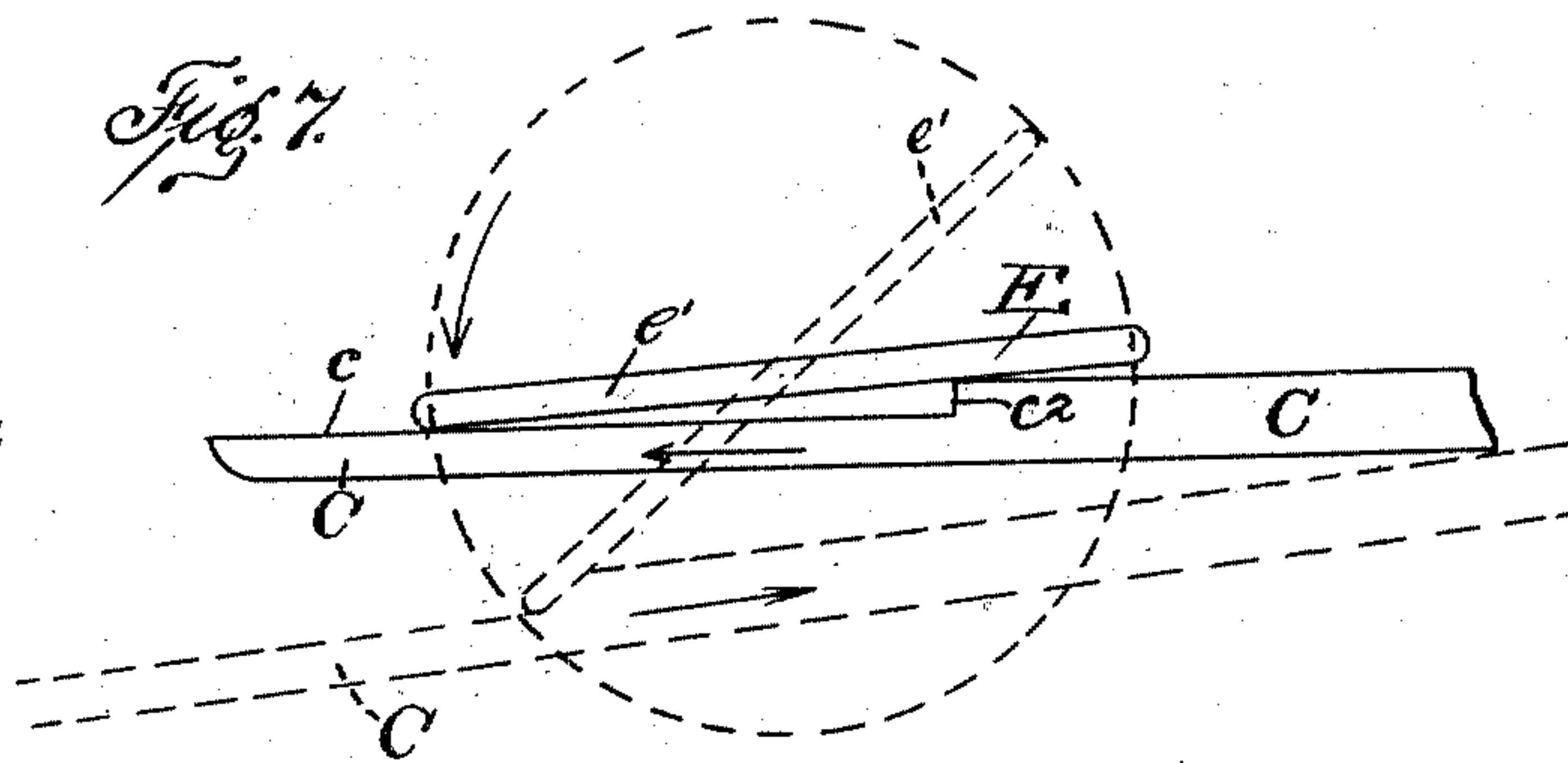


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM C. KEY, OF MINERALWELLS, TEXAS, ASSIGNOR OF ONE-HALF
TO HARVEY N. FROST, OF MINERALWELLS, TEXAS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 759,182, dated May 3, 1904.

Application filed April 16, 1903. Serial No. 152,872. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. KEY, a citizen of the United States, and a resident of Mineralwells, in the county of Palo Pinto and State of Texas, have made certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention is an improvement in that class of presses for baling hay, &c., in which a reciprocating plunger or piston is actuated by the continuous rotation of a rotary lever, the said plunger or piston being retracted by a spring after each forward movement whereby the hay or other material is compressed.

It is the special object of my invention to improve the mechanism by which the piston is reciprocated and particularly to adapt such mechanism for arresting the plunger when retracted by the spring.

The details of construction, arrangement, and operation of parts are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is a side view of my improved baling-press. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view, partly in section, of the portion of the press by which the power is applied to the plunger. Fig. 4 is a transverse vertical section of the press-box. Fig. 5 is a longitudinal vertical section of the front or hopper end of the press-box, together with the plunger or piston adapted to work therein. Fig. 6 is a detail section on the line 6 6 of Fig. 1. Fig. 7 is a diagrammatic plan view illustrating the operation of the power-lever in connection with the rod or pitman of the plunger.

Referring in the first instance to Figs. 1 and 2, A indicates the press-box, *a* the hopper of the same, and A' the extended horizontal frame, forming the sills or base of the press-box. A plunger or piston B (see also Fig. 5) is adapted to slide in the press-box, and a rod or pitman C is pivoted thereto so as to be movable in a horizontal plane. The plunger proper is provided with an extension *b*, which serves as a cut-off or obstructor for the hay or other material introduced through the hopper while the plunger is advancing.

A low vertical frame A² is erected and secured on the outer end of the base frame or sills A', and in the inclined braces forming part of such supplemental frame is journaled a horizontal roller D, (see Figs. 2 and 3,) upon which roller the plunger-rod or pitman C rests. By this means the plunger-rod is supported in due position parallel to the base A and may be reciprocated and also moved laterally with little friction. The outer end of the rod C is cut away or rabbeted, as shown at *c*, Figs. 3 and 7. The inner end of the rabbet is formed as an abrupt shoulder *c*². The lever E, by which the plunger is reciprocated, is pivoted vertically in the supplemental frame A² and is formed of two portions—to wit, the long arm or "sweep" *e* (to which horses or other draft-animals are attached) and the body portion *e'*, which is in form a rectangular oblong frame or loop, the same being extended horizontally and equidistantly on opposite sides of the pivots of the lever. In operating the plunger B for compressing hay or other materials a charge is inserted in the hopper *a* and falls by its own gravity or is forced down into the press-box in front of the plunger when the same is retracted to the position shown in Fig. 5. Then the team being started and traveling around the low frame A² in the direction indicated by the arrow in Fig. 2, the ends of the body portion *e'* of the lever are successively engaged with the shoulder *c*² of the plunger-rod C, whereby the latter is caused to move the plunger B forward in the press-box A, by which operation the charge of hay is compressed against the outer end of the press-box. Such movement of the plunger and plunger-rod is effected against the tension of the retracting-spring X, (see Fig. 1,) which is helical in form and arranged directly beneath the plunger-rod, it being connected with the same and the supplemental frame A² at its respective ends. By the arrangement of the spring X practically in line with the press-box and axis of the lever the traction on the plunger is direct, so that friction is relieved as much as practicable.

By inspection of Fig. 3 it will be seen that the body portion *e'* of the lever E is in the

position by which the plunger-rod C has been forced forward to the limit of its stroke and that the further rotation of the lever E, as indicated in Fig. 7, will free its engaging end from the shoulder c^2 of the plunger-rod, so that the latter, together with the plunger, may be retracted or drawn rearward to the position indicated in Fig. 5 and by dotted lines in Figs. 1 and 2. Means are required for holding the outer end of the plunger-rod C pressed laterally against the body portion e' of the lever E in order to insure due contact and engagement of the parts as the lever is rotated. For this purpose a spring or spring-actuated device is preferred, and in practice I employ what is practically a spring-lever G. (See especially Figs. 2 and 3.) The same is formed of two bars which are pivoted together at g and pivotally connected at their respective outer ends with the plunger-rod C and the frame A^2 . In place of connecting such lever directly with the plunger-rod C a vertical bracket g' is interposed in order that the spring-lever G may free the body portion e' of the power-lever E as the latter rotates. A spring or springs g^2 are applied to the jointed ends of the lever members, the same being so arranged as to exert tractive force tending to close the lever members like a pair of shears, and thereby hold the plunger-rod C against the lever E. This always insures the required contact or engagement of the lever part e' with the plunger-rod. It will be perceived that when the end of the lever portion e' which is nearest the press-box is in the position shown in Fig. 3 the further rotation of the lever E causes its opposite end to press laterally against the plunger-rod C, so as to insure disengagement of the inner end from the shoulder c^2 of the plunger-rod, (see Fig. 7,) and thereupon the spring X being left free to exert its force the plunger-rod slides along the portion e' of the power-lever and shoots past it, (see full lines, Fig. 7,) until its shoulder c^2 engages the outer end of the loop e' , as indicated by dotted lines, Fig. 7, whereby further movement of the plunger-rod and plunger is arrested. Then as the rotation of the lever E continues the outer end of its loop e' slides along the cut-out portion of the plunger-rod, which is thus pushed laterally and in turn engages the shoulder c^2 of the latter, so as to again force the plunger forward, as before. The arrest of the rearward movement of the plunger-rod is effected without material shock to the team, since it is received or taken up by the lever E and the strongly-braced frame A^2 .

Within the press-box A is arranged a pivoted valve or detent H, (see Figs. 5 and 6,) which is in the nature of a narrow metal plate suspended from and adapted to rotate with a transverse crank-shank h . A torsion retracting-spring h' is applied to one end of this shaft, and a crank-arm h^2 is formed on the other end, both parts h' and h^2 being exterior

to the press-box. The spring h' tends to hold the valve or detent H in vertical position, as shown in Fig. 5, the torsional movement being limited by contact of the crank-arm h^2 with the frame of the hopper a . The function of the detent H is to cut off or arrest the rearward movement or expansion of the charge compressed in the press-box. Being pivoted, it is adapted to swing toward the discharge end of the press-box, as indicated by dotted lines, Fig. 5, and hence does not materially interfere with the movement of a charge rearward from the hopper. In the sides of the press-box A below the hopper a I also provide two spring-detents h^3 , (see Figs. 1 and 5,) which further serve to hinder the return movement of a charge.

In Figs. 1 and 4 I illustrate means for permitting expansion or enlargement of the press-box A in a vertical direction. The top a' of the press-box is movable vertically at its outer end and is held pressed down by a cross-bar a^2 , (see Fig. 4,) upon which helical springs a^3 are adapted to bear. The said springs encircle rods a^4 , that pass through the cross-bar a^2 and also through a bar a^5 , which is arranged parallel to the first one, a^2 . Nuts a^6 , having handles or prongs for convenience of operation, are applied to the threaded upper ends of the screws, as shown.

It is apparent that by the means described pressure of various degrees may be applied to the movable top a' of the press-box, as required, in the operation of baling. On the other hand, the pressure may be relieved to any extent desired—as, for example, for releasing a bale from the press-box.

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

1. The combination, with a rigid frame, a press-box, a plunger adapted to reciprocate in the latter, and a rod connected with the plunger, of a pivoted sweep having its body portion bent to form an oblong loop or frame extending in opposite directions horizontally from the pivotal point and adapted to engage the plunger-rod as the sweep is rotated and means for retracting the plunger, substantially as shown and described.

2. The combination, with a rigid frame, a press-box, a plunger adapted to reciprocate therein, a rod which is pivotally connected with the plunger and provided with a shoulder near its outer end, of a pivoted sweep having its body portion bent to form an oblong loop or frame extending equidistantly in opposite directions from its vertical axis, and a spring-actuated lever formed in two sections pivoted at their inner ends connecting the plunger-rod with the frame and tending to press the same laterally against the body of the sweep, substantially as shown and described.

3. The combination, with the press-box and a frame extending therefrom, of a plunger, a

rod pivoted thereto and adapted to swing laterally, a sweep pivoted vertically in said frame and having a wing or arm projected radially and adapted to engage a projection of the plunger-rod, a spring-actuated lever formed in two sections pivoted at their inner ends and having their outer ends pivoted respectively to the plunger and the frame for drawing the plunger-rod laterally into engagement with the sweep, and means for retracting the plunger and rod, substantially as shown and described.

4. The combination, with the press-box and its extended frame, of a sweep pivoted vertically in the latter and having a body portion bent to form a continuous loop or frame extended from its axis and lying in a horizontal plane, a plunger, and a plunger-rod having a shoulder near its outer end, the latter being extended beyond the limit of the body portion of the sweep, a pivoted spring-actuated lever for drawing the plunger-rod laterally

into engagement with the body of the sweep and a retracting coiled spring arranged directly in line with the axis of the plunger and the press-box and connecting the rod with the frame, substantially as shown and described.

5. The combination, with the press-box, its extended frame, a plunger reciprocable in the press-box, and the plunger-rod pivoted thereto, of a roller journaled in the said frame and adapted to support the rod and allow lateral movement thereof, a bracket secured to the plunger-rod, a spring-actuated lever formed in two sections pivoted at their inner ends and having their outer ends pivoted respectively to the bracket and the frame, and means for retracting the plunger and rod, as shown and described.

WILLIAM C. KEY.

Witnesses:

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E. B. RITCHIE.