

H. BROCKSMITH.
Wagon Hay-Presses.

No. 145,986.

Patented Dec. 30, 1873.

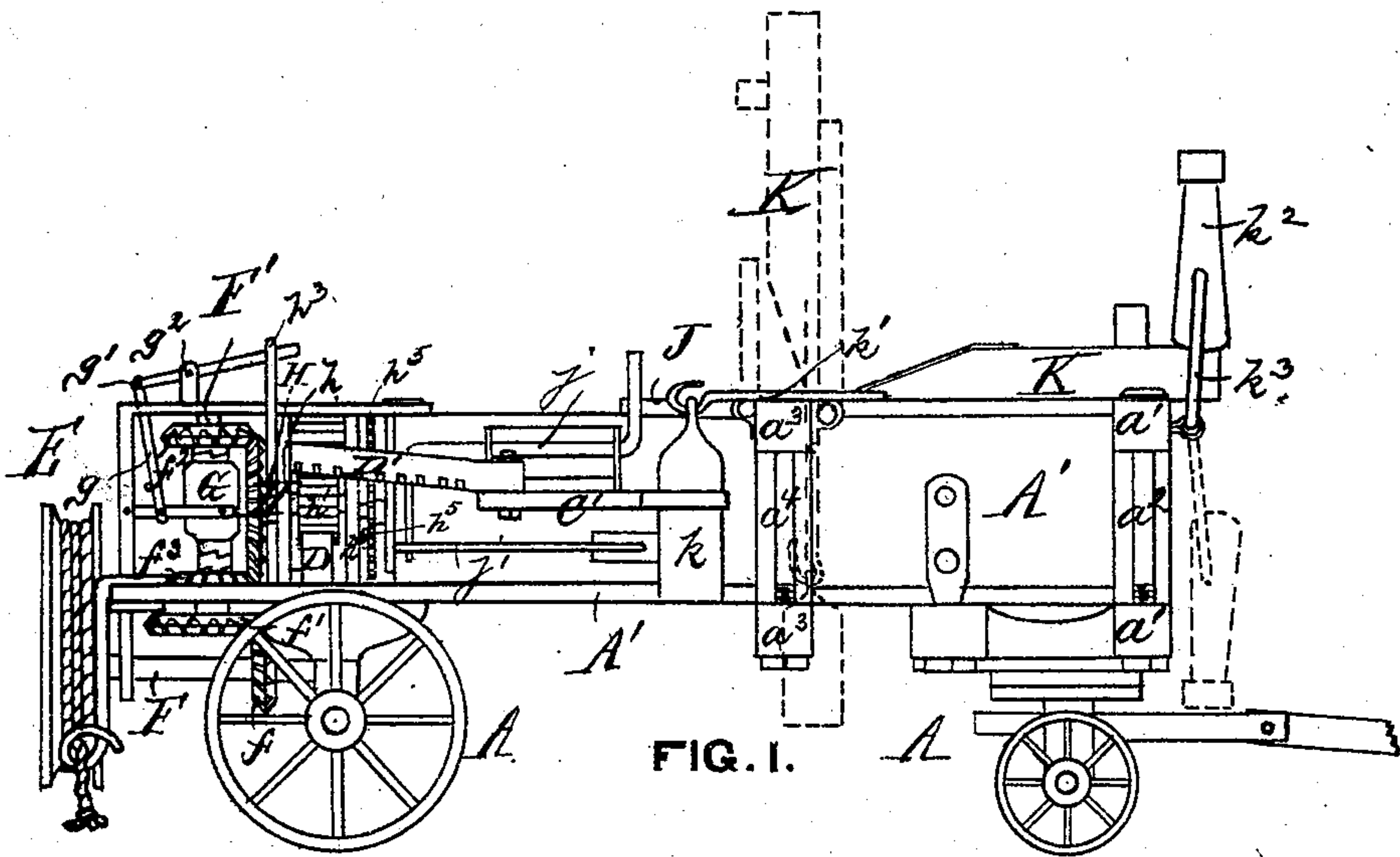


FIG. 1.

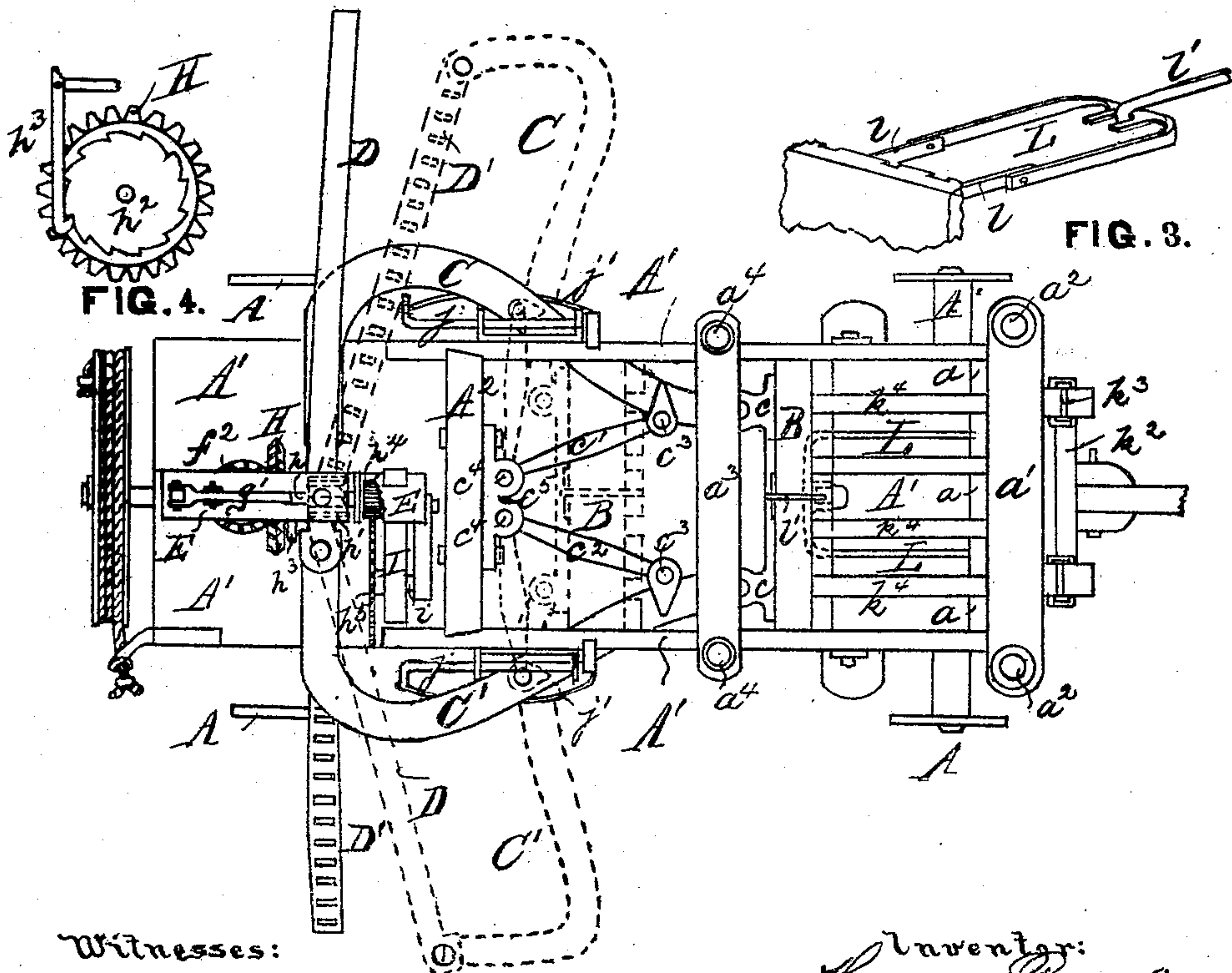


FIG. 2.

Witnesses:

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per
Herbert & Co.
Attys.

UNITED STATES PATENT OFFICE.

HERMAN BROCKSMITH, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN WAGON HAY-PRESSES.

Specification forming part of Letters Patent No. **145,986**, dated December 30, 1873; application filed March 25, 1873.

To all whom it may concern:

Be it known that I, HERMAN BROCKSMITH, of St. Louis, in the county of St. Louis and State of Missouri, have invented an Improved Portable Wagon-Press, of which the following is a specification:

The object and purposes of this invention are to press hay, cotton, or other fibrous products to be baled in a wagon-press, and by means whereof the baled material can be transported or shipped.

The nature thereof consists, first, in the combination, with the follower and its toggle-joints, of a coiled spring adapted to return the follower after the bale has been pressed; second, in the manner of raising and out-lifting from wagon-bed the pressed bale by the release operation of the press, in combination with a drag-frame attachment; third, in the combination of a pivoted door and weight with certain detent-hooks and springs, which feature, in connection with the other parts, will be fully described hereafter.

To enable those skilled in the art to make and use my said improvements, I will now more fully describe the same, referring to—

Figure 1 as a side elevation, to Fig. 2 as a top plan with doors removed, also such parts of the wagon-bed as to show the interior working parts, and to Fig. 3 as a perspective detail figure of the drag-frame attachment; to Fig. 4 as an enlarged detail side view of ratchet-connection with bevel-wheel.

A represents a strong, durable, and firmly-constructed wagon. A¹ is the wagon-bed. The front board of bed is provided with bolsters *a*, and is firmly braced by top and bottom cross-braces *a*¹ and brace-rods *a*², so as to form a strong abutment to resist the pressure action. A², the "tail-board," is properly secured to the wagon-bed, so as also to form an abutment, but from which the pressure-power is applied or exerted. The wagon-bed A¹ is further braced by top and bottom cross-braces *a*³ and brace-rods *a*⁴, and otherwise is made sufficiently strong to resist any thrusting force that can be produced by the action of the press. B is the movable follower. This is similarly provided with bolsters corresponding to the front abutment of the wagon-bed. The follower B fills up the cross-section of the wagon-bed, and

slides in same when operated to and fro. The pressure to follower B is applied by means of the peculiarly constructed toggle-press, as follows: C C' are main extension-levers, of the curved formation shown in Fig. 2. The inner ends of the main levers C C' are pivoted to proper journal-bearings *c*, which are secured back of follower. *c*¹ *c*² are the toggle-joints, one end of each being pivoted at *c*³ to the main levers C C', the other ends of said toggle-joints being pivoted at *c*⁴ to a proper bearing, *c*⁵, which is secured to the tail-board A². (See Fig. 2.) When, therefore, the main levers C C' are operated to close inward, the follower B is forced forward, and said follower is forced to return, when the main levers assume their original positions. To accomplish this movement, the outer curved ends of the levers C C' are pivoted to the traversing rack-bars D D'. The rack-bars D D' have their rack-faces in vice-versa position, and are operated by the combination of gear-wheels from the power-source, as follows: In the rear of the wagon is properly secured a standard-frame, E, to support the gearing devices top and bottom of wagon. At bottom of frame E is arranged, to turn, the driving-shaft F. The shaft F is provided with a bevel-wheel, *f*, meshing with a bevel-wheel, *f*¹, which is secured to the lower end of the vertical shaft F'. The shaft F' is further provided with the top and lower bevel-wheels *f*² *f*³, which are thrown in or out of gear by a suitable clutch-box, G. (See Fig. 1.) The clutch-box G is operated by a rod, *g*, to which is connected, on top, a hand-lever, *g*¹, having its fulcrum at *g*², Figs. 1 and 2. Arranged between and meshing with the bevel-wheels *f*² *f*³ is a driving bevel-wheel, H, on the end of a horizontal shaft, *h*. The shaft *h* also turns in the frame E, and is shown in Fig. 1, and by dotted lines in Fig. 2. Further on the shaft *h* is provided a pinion, *h*¹, which meshes with the rack-faces of the respective rack-bars D D'. (More plainly shown in Fig. 1.) When, therefore, the clutch-box G is operated to place the top bevel-wheel *f*² in gear with driving bevel-wheel H, and the power is applied to the driving-shaft F by means of the gearing aforesaid, the rack-bars D D' traverse in transverse opposite directions inwardly toward each other, carrying the levers C C' at

the same time inward, which movement forces the follower B outward to do its pressing action. In the return movement of the gearing, the racks D D', with levers C C', traverse outwardly, which forces the follower B to recede to its original position. Thus the press proper can be worked in or out, and by so doing the follower B is forced up against the bale or released from it.

In order to check the press at any desired point of its operation, the gearing can be estopped by a ratchet-wheel, h^2 , arranged alongside of the bevel-wheel H. (See Fig. 1, and detail, Fig. 4.) Engaging the ratchet-wheel h^2 is a catch-lever, h^3 , which extends to top of wagon, and has its fulcrum on frame E.

In order to automatically achieve the return of the gearing and the press proper to their original positions after pressing the bale, I have provided the frame E, at one side thereof, with a coil-spring, I. (See Fig. 2.) One end of said spring is secured to its shaft i , the other end to the frame E.

To wind the spring I, I provide on the inner end of the shaft h a pinion, h^4 ; this meshes with a spur-gear, h^5 , on the shaft i . (Clearly shown in Fig. 2.) The coil-spring I is, therefore, wound by the gearing that operates the press during its pressure action, and as soon as the bale is pressed, or the press released, the tension of the spring automatically returns the press and its connections to their original operative position.

The driving-shaft F can be operated by hand, horse, or steam power.

Mortises are provided in the sides of wagon-bed to allow for the movements of the main levers. The rear open part of wagon can be inclosed. The material to be pressed and baled is thrown in wagon-bed chiefly through the door J, which is hinged to the cross-brace a^3 . (See Fig. 1.) At one side of the top of the door J I attach a hook, from which a suitable weight is suspended. (The weight and hook are not shown in drawing, being similar to that of the front door hereinafter described, and as shown in Fig. 1.)

To automatically open the door J, I provide each side of wagon-bed with detent-hooks j , fitted to engage and hold the door when closed. The hooks j turn in proper bearings, and have their lower ends attached to one end of a spring, j' , the other end of spring being properly secured to side of wagon. (See Figs. 1 and 2.) The weight being placed on the door J when closed, by simply pressing the detent-hooks j , the disengagement takes place, and the door flies in proper open position, and is held securely in said position. Similar to cross-brace a^3 is hinged an enlarged door, K,

fitted to close the wagon-bed space, out of which the pressed bale is to be taken. The door K I likewise provide with a weight, k , suspended from its hook k^1 , so as to prevent the door from closing accidentally.

To adequately and most readily secure the door K in closed position, I provide a cross-frame, k^2 , hinged by its links k^3 to the front of the wagon, as shown in Figs. 1 and 2. The bottom of the wagon-bed has grooved mortises k^4 , in line with grooves formed between the bolsters a , in which the ropes, hoops, and like fastenings can be inserted to surround the pressed bale, and thus the same can be bound, as ordinarily.

When the bale is completed, in order to facilitate the uplifting, as well as displacement, of same out of the wagon-press, I provide the same with a drag-frame attachment, L. The drag-frame L is of the constructive form shown clearly in detail, Fig. 3, and by its pivoted links l is hinged to the front abutment a of wagon-bed.

When not used, the drag-frame L is out of the way of the bale, being seated or bedded in the bottom of the wagon, as indicated in Fig. 2. The drag-frame L is operated in the release movement of the press, and this is accomplished by a hook, l' , which is pivoted to the follower B. When, therefore, the follower B is brought in line during compressing action, its hook l' engages and holds fast to the drag-frame L, as indicated in Figs. 2 and 3. As soon as the follower B returns, or is released by its hook, it drags the frame L with it, which action lifts the bale to such a height that the same can readily be displaced. When the drag-frame L achieves nearly a horizontal position, the hook l' of the follower automatically disengages itself, and the parts can be made to assume a reoperative position.

Having thus fully described my said improvements, what I claim is—

1. In combination with the follower B and toggle-joints C C' c^1 c^2 and rack-bars, the coiled spring I, arranged as shown and described, to return the follower, as and for the purpose specified.

2. The combination of the follower B, having hook l' , with the draw-frame L, as described, for the purpose set forth.

3. In combination with the pivoted door J, having the weight k , the detent-hooks j , springs j' , and lever C, as described.

In testimony of said invention I have hereunto set my hand.

HERMAN BROCKSMITH.

Witnesses:

WILLIAM W. HERTHEL,
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