No. 793,639. PATENTED JULY 4, 1905.

R. U. CRAWFORD.

HAY PRESS.

APPLICATION FILED DEC. 15, 1903.

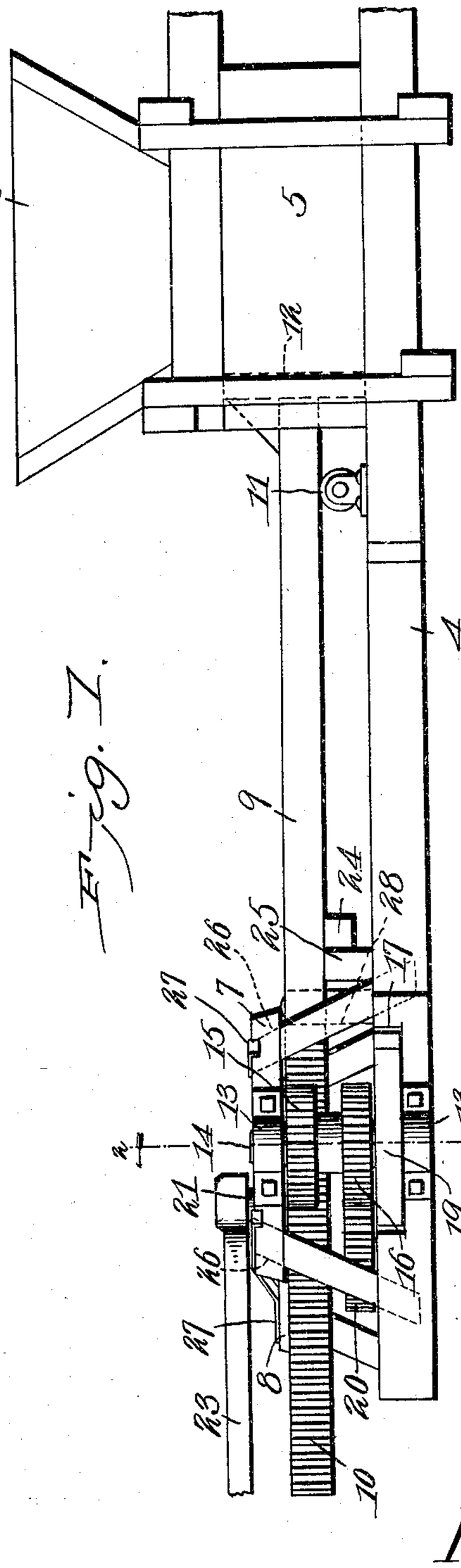

Fig. 1.

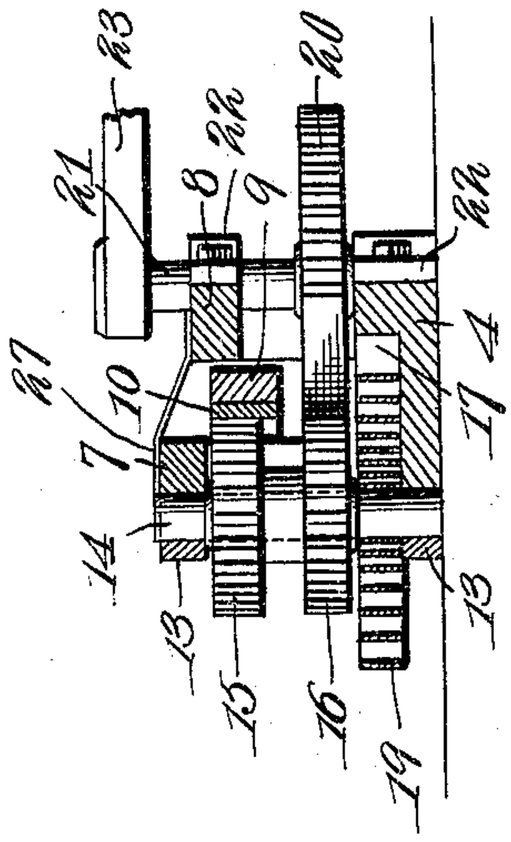

Fig. 2.

Fig. 4.

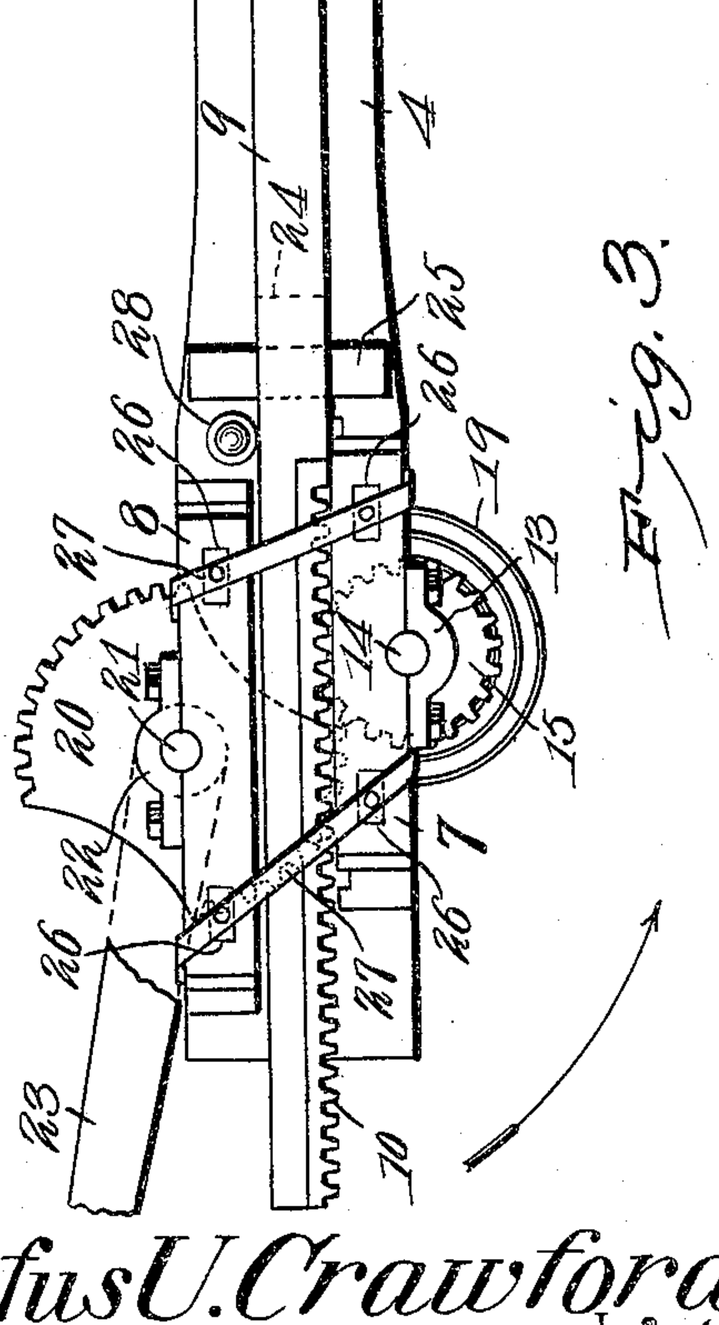

Fig. 3.

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No. 793,639. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

RUFUS U. CRAWFORD, OF PLEVNA, ALABAMA.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 793,639, dated July 4, 1905.

Application filed December 15, 1903. Serial No. 185,307.

To all whom it may concern:

Be it known that I, RUFUS U. CRAWFORD, a citizen of the United States, residing at Plevna, in the county of Madison and State of Alabama, have invented a new and useful Hay-Press, of which the following is a specification.

This invention relates to certain improvements in baling-presses particularly designed for baling hay and similar material and of that general type known as "rebounding plunger."

The objects of the invention are to improve, simplify, and cheapen the construction of presses of this character, to provide novel means for automatically retracting the plunger after a charge has been compressed, and to provide means for guiding and preventing lateral movement of the plunger during its forward and rearward movements.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In the accompanying drawings, Figure 1 is a side elevation of a baling-press constructed in accordance with my invention. Fig. 2 is a vertical sectional view on the line 2 2 of Fig. 1, and Fig. 3 is a top plan view.

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

4 designates a base or bed piece formed of wood, metal, or other suitable material, to the rear end of which is secured the baling box or chamber 5, having the usual hopper 6, through which the hay or other material is fed to the press.

Secured to the front end of the bed-piece 5 are a pair of spaced supporting-brackets 7 and 8, which form guides for the plunger 9 and prevent lateral movement thereof. One end of the plunger 9 is provided with a rack-bar 10, the opposite end thereof passing over an antifriction-roller 11, secured to the bed-piece, being provided with a head or follower 12, adapted to compress the charge within the baling-chamber when said plunger is reciprocated, as will be readily understood. Journaled in bearings 13 in the bracket 7 and bed-piece 4, respectively, is a shaft 14, to which is secured a pair of spaced pinions 15 and 16, preferably formed integral, as shown, the pinion 15 being adapted to mesh with the rack-bar 10 and reciprocate the plunger 9, as will be more fully explained hereinafter. The bed-piece 4 is provided with a recess 17, in which is seated a preferably flat coiled spring 19, one end of which is fastened to the lower end of the shaft 14, the opposite end of the spring being secured in any suitable manner to the bed-piece 4, so that as the pinions 15 and 16 are rotated in one direction to force the plunger inward and compress the charge the spring will be contracted, and when said pinions are released the spring will expand and automatically return the plunger to its normal position.

As a means for operating the plunger I provide a segmental gear 20, keyed to an operating-shaft 21, journaled in suitable bearings 22, formed in the bracket 8 and bed-piece 4, respectively, said gear being rotated through the medium of a sweep or lever 23 and adapted to engage the pinion 16 and force the plunger inwardly at every half-revolution of the lever. A suitable stop 24, formed of leather, rubber, or other yieldable material, is secured to the bottom of the plunger 9, said stop engaging a buffer-bar 25, fastened to the bed-piece and serving to receive the impact of the plunger and limit its forward movement. The beams comprising the supporting-brackets 7 and 8 are preferably mortised to each other and to the bed-piece, as shown at 26, and said brackets are connected by the bars 27 in order to give additional strength to the same. An antifriction-roller 28 is preferably mounted on the bed-piece 4 at a point adjacent the bracket 8, said roller serving as an additional guide for the plunger.

From the foregoing description the construction of the device will be readily understood, and the operation thereof is as follows: The hay or other material is fed to the baling-chamber through the hopper 6 and the sweep

or lever 23 turned in the direction indicated by the arrow in Fig. 2, which causes the gear 20 to engage the pinion 16 and the pinion 15 to engage the rack-bar, forcing the plunger inwardly and compressing the charge and at the same time contracting the spring. After the lever or sweep has made a half-revolution the pinion will be disengaged from the gear, the tension of the spring causing said pinion to rotate in the opposite direction and automatically return the plunger to its normal position, said operation taking place at every half-revolution of the lever or sweep. When the teeth on the rack-bar have become worn on one side, said bar may readily be removed and reversed, and likewise the gear-wheel 20. By having the plunger mounted between the supporting-brackets lateral movement of the plunger is effectually prevented, while by having the spring mounted in the bed-piece and secured to the pinions instead of being fastened directly to the plunger, as is at present the case, a more uniform movement of the plunger is obtained and torsional strain on said plunger prevented. While I have shown the spring secured to the lower end of the shaft and seated within the bed-piece, it is obvious that the same may be fastened to the opposite end of the shaft and mounted on the supporting-brackets or any other portion of the machine, if desired. In some cases I find it desirable to reverse the position of the segmental gear 20, so that the same will mesh with the upper pinion 15, in which event the plunger 9 will engage the lower pinion 16 and lie close to or rest upon the bed-piece 4, thereby forming practically no obstruction in the path of the draft-animal.

Having thus described this invention, what is claimed is—

1. In a baling-press, a bed-piece provided with a seating-recess, a pair of spaced supporting-brackets secured to the bed-piece, a plunger provided with a rack-bar mounted for reciprocation between said brackets, a plunger-operating means, a pinion engaging the rack-bar on the plunger, and a spring seated within the recess in the bed-piece and secured to the pinion for rotating the latter in a reverse direction to thereby retract the plunger.

2. In a baling-press, a bed-piece, spaced supporting-brackets secured thereto, a plunger mounted for reciprocation between said brackets, a rack-bar carried by the plunger, a gear-wheel mounted in one of the brackets, a pair of pinions mounted in the opposite bracket and adapted to engage the rack-bar and gear-wheel, respectively, means for rotating the gear and a spring secured to the pinions for rotating the same in a reverse direction to thereby retract the plunger.

3. In a baling-press, the combination with a bed-piece having one end thereof recessed, a pair of spaced supporting-brackets secured to the bed-piece, a plunger mounted for reciprocation between said brackets, a stop secured to the bed-piece, a buffer carried by the plunger for engaging said stop, antifriction-rollers journaled on said bed-piece, a plunger-operating means, a pinion connecting the plunger and operating means, and a spring seated in the recess in the bed-piece and secured to the pinion for rotating the latter in a reverse direction to thereby retract the plunger.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RUFUS U. CRAWFORD.

Witnesses:
H. B. ROHN,
E. B. STEWART.