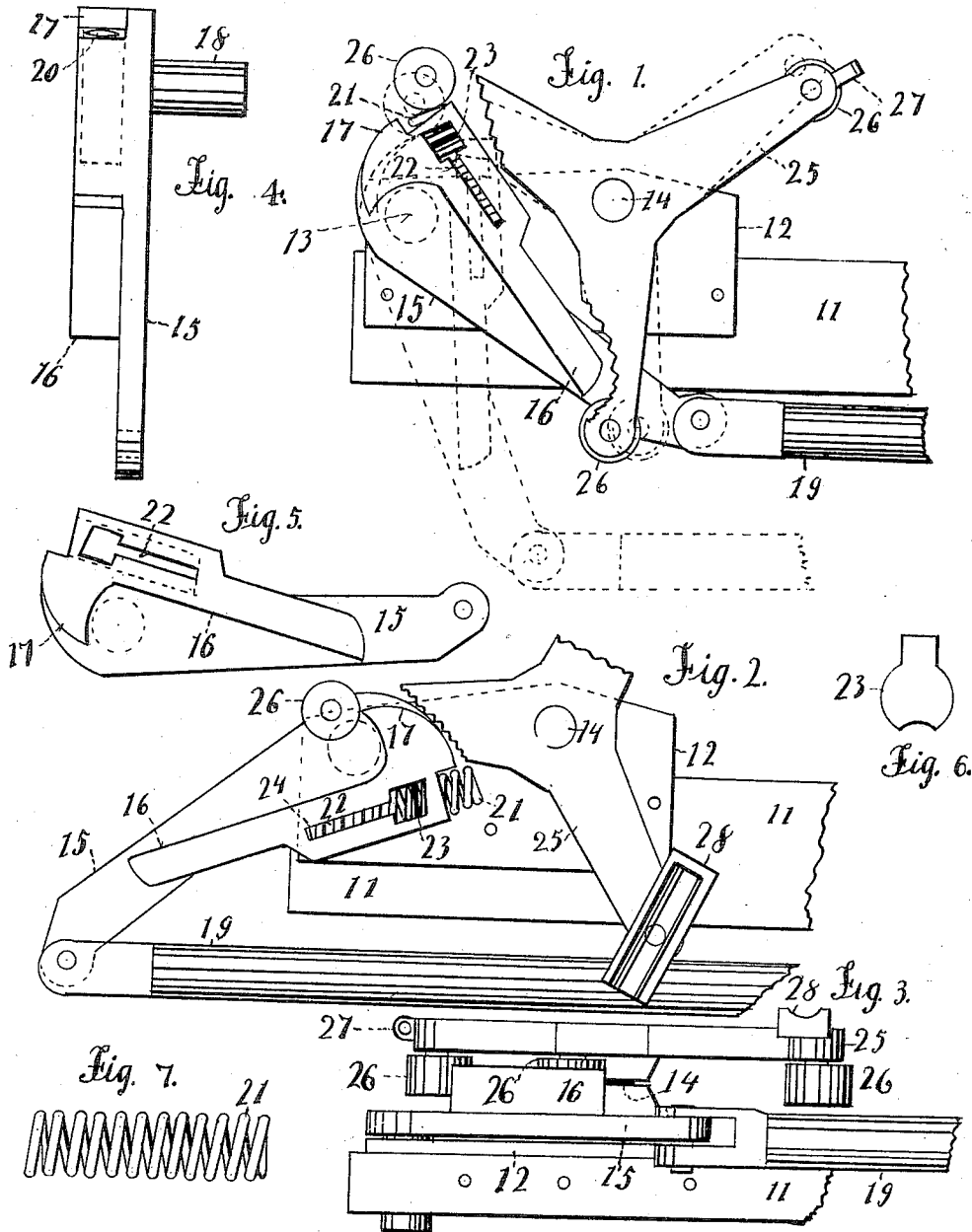


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 SPRING AND POWER PULL BACK FOR HAY BALERS.
 APPLICATION FILED MAY 5, 1909.

971,151.

Patented Sept. 27, 1910.



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Application filed May 5, 1909. Serial No. 494,010.

To all whom it may concern:

Be it known that I, GEORGE SCHUBERT, a citizen of the United States, residing at Fort Worth, R. F. D. No. 5, in the county of Tarrant and State of Texas, have invented new and useful Improvements in Spring and Power Pull-Backs for Hay-Balers, of which the following is a specification.

My present invention relates to a hay baler in which the plunger is moved inward by power and drawn outward by power or by a spring. If a spring is used it is generally arranged to be expanded during the inward movement of the plunger, which adds to the heavy energy needed to make the pressure on the hay; and the heavy back pressure of the compressed material and the power of the spring causes the plunger-bar to kick back with much force as soon as the center of the roller carried by the power-head has passed the center of the plunger-bar, or the end of the cam, and as the plunger-bar thus forces its way backward it shifts the second half of the roller forward and swings the sweep of the power-head forward correspondingly; which is also very disagreeable to the team and the operator. I overcome these objections, first: by pivoting the plunger-bar to an arm pivoted on the extension-beam and provided with cams to be operated on by rollers on a power-head, the first cam to move the plunger inward and a second cam to move the plunger outward, and second: by locating a strong spring in the rear end of the second cam, and with its end projecting to be compressed by a roller of the power-head at the time another roller of said power-head moves around the end of the first cam and prevent the heavy forward swing of the sweep, and also avoid the tensioning of the spring during the time the pressure is needed for the hay.

Figure 1 is a plan view of a power-head and free end of an extension-beam provided with my improved mechanism; showing the spring compressed and the plunger-bar ready to move back. Fig. 2 is a similar view, with the plunger-bar moved back and the spring expanded. Fig. 3 is a side view of the same mechanism. Figs. 4 and 5 are edge and plan views of the arm to operate the plunger-bar. Fig. 6 is an enlarged view of a washer employed to retain the spring in its position, and Fig. 7 is an enlarged view of the spring.

In the drawings: 11 represents the extension-beam the power end of same only being shown.

12 is a seat secured on the power end of the extension-beam and provided with a perforation 13 and pivot 14, for the purpose later on noted.

15 is an arm having the long cam 16 and the short cam 17, and pivoted by its boss 18 in the perforation 13, above noted; and having pivoted to its swinging end the end of the plunger-bar 19.

20 is a perforation formed in the connecting stock of the cams 16 and 17 with a slot 22 extending through the upper surface of said stock.

21 is a spring of a size to freely enter the perforation 20, and of a length to project a short distance from said perforation and with a projecting washer 23 inserted in the larger part of the slot 22 to engage in between one of the coils of the spring 21 to prevent the spring 21 disengaging the perforation 20.

24 are common washers inserted in the rear end of the perforation 20 when so desired.

25 is the usual power-head having the depending rollers 26 26 26 to operate the arm 15.

27 and 28 are lugs on the power-head to receive the usual sweep, not shown in the drawings.

During the first portion of the rebound the outward movement of the plunger-bar, whether from the power of the compressed spring or from the compressed hay, is much faster than it can be moved by a cam of proper gain; for this reason, the rear end of the cam 17, (the end having the spring 21,) is cut back beyond a working gain. The portion or corner near numeral 17 can be rounded or remain square as shown in Fig. 1. By cutting away this first part of the cam 17 and depending on the spring in said cam or on the rebound from the compressed hay for the first portion of the outward movement of the plunger-bar the roller of the power-head will be in contact with the part of the cam having the working gain at a time that the outward movement of the plunger-bar has decreased to about the speed produced by the team and thereby avoiding the stopping and restarting of the plunger-bar during its outward movement. The restarting of the plunger-bar and its heavy

mechanism to the high speed used for its outward movement by the cam is impossible without checking the team, for this reason it is very essential to cut away the first portion of the cam as above described and depend on the spring to accomplish the first part of the outward movement of the plunger-bar.

In operating the press: The power-head is rotated in direction of dotted lines in Fig. 1, and as one roller 26 passes the end of the cam 16 the opposite roller 26 compresses the spring 21 as seen in Fig. 1, the compressed spring being of ample strength to shift the plunger bar and the arm 15 back, or at least to the position seen in dotted lines in Fig. 1, after which the roller 26 will engage the cam 17 and complete the rearward movement of the arm and plunger-bar to the position seen in Fig. 2; the spring 21 expanding again and allowing the washer 23 to rest against the front end of the slot 22. The tension of the spring 21 can be varied by the use of common washers 24 in the bottom of the perforation 20.

I claim—

1. In a baling press of the kind described, an extension beam, a seat having pivots or perforations and secured on said extension beam, a power-head journaled on the seat, an arm journaled on the seat and having pivoted to its swinging end the end of the plunger bar, cams on said arm, a spring carried by said arm and engaged by the arms of the power-head to compress said spring.

2. In a baling press of the kind described, a power-head having arms, rollers on said arms, an arm pivoted within the field of the rollers and having pivoted to its swinging end the end of the plunger bar, a main cam on said arm to be engaged by a roller of one of the arms of the power-head, a spring carried by said arm to be compressed by another roller of said power-head during the time the first said roller is passing the end of the main cam to absorb the forward swing of the power-head or sweep.

3. In a baling press of the kind described, a power-head, an arm pivoted within the field of the power-head, and having pivoted to its swinging end the plunger bar, a main cam on said arm to be engaged by the power-head, a spring carried by said arm to be compressed by the power-head to shift the plunger bar back.

4. In a baling press of the kind described, a power-head, an arm pivoted within the field of the power-head and having pivoted

to its swinging end the end of the plunger bar, a main cam on said arm to be engaged by the power-head, a spring carried by said arm, said spring to be compressed at a time that the load on the power-head on the main cam is decreasing.

5. In a baling press of the kind described, a power-head, rollers on said power-head, an arm pivoted within the field of the power-head and having pivoted to its swinging end the end of the plunger bar, a main cam on said arm to be engaged by a roller of the power-head to shift the plunger bar inwardly, a spring carried by said arm to be engaged by a second roller of the power-head and a second cam on said arm to be engaged by said second roller to move the plunger bar outwardly.

6. In a baling press of the kind described, a power-head, rollers on said power-head, an arm provided with a perforation or recess and pivoted within the field of the power-head and having pivoted to its swinging end the end of the plunger bar, a main cam on said arm, a spring in said perforation to shift the plunger bar back or outwardly, a slot extending through the stock of the perforation, a washer extending into said slot and engaging said spring to retain said spring in said perforation.

7. In a baling press of the kind described, a power-head, rollers on said power-head, an arm pivoted within the field of the power-head and having pivoted to its swinging end the end of the plunger bar, a main cam on said arm engaged by a roller of the power-head to shift the plunger bar inwardly, a second cam on the said arm engaged by a roller of the power-head to shift the plunger bar outwardly, the first portion of said second cam being cut away to bring the roller in contact with said cam having the working gain at the proper time to prevent the stopping and restarting of the plunger bar during its outward movement.

8. In a baling press of the kind described, a power-head, rollers on said power-head, an arm pivoted within the field of the power-head and having a perforation or recess, a plunger bar pivoted to the swinging end of said arm, a spring in said perforation and engaged by the rollers to shift the plunger bar outwardly.

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Witnesses:

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