

C. O. L. CARDELL.
 RATCHET RELEASING MECHANISM.
 APPLICATION FILED AUG. 7, 1907.

941,188.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

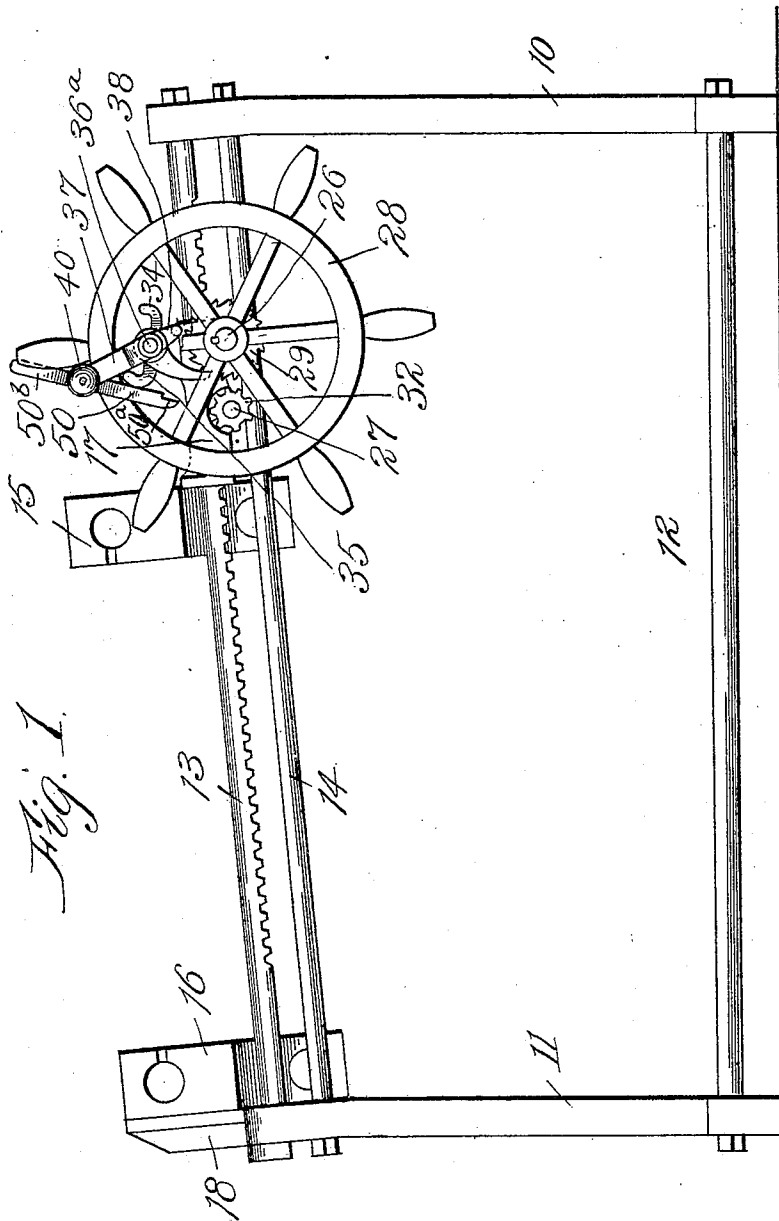


Fig. 1.

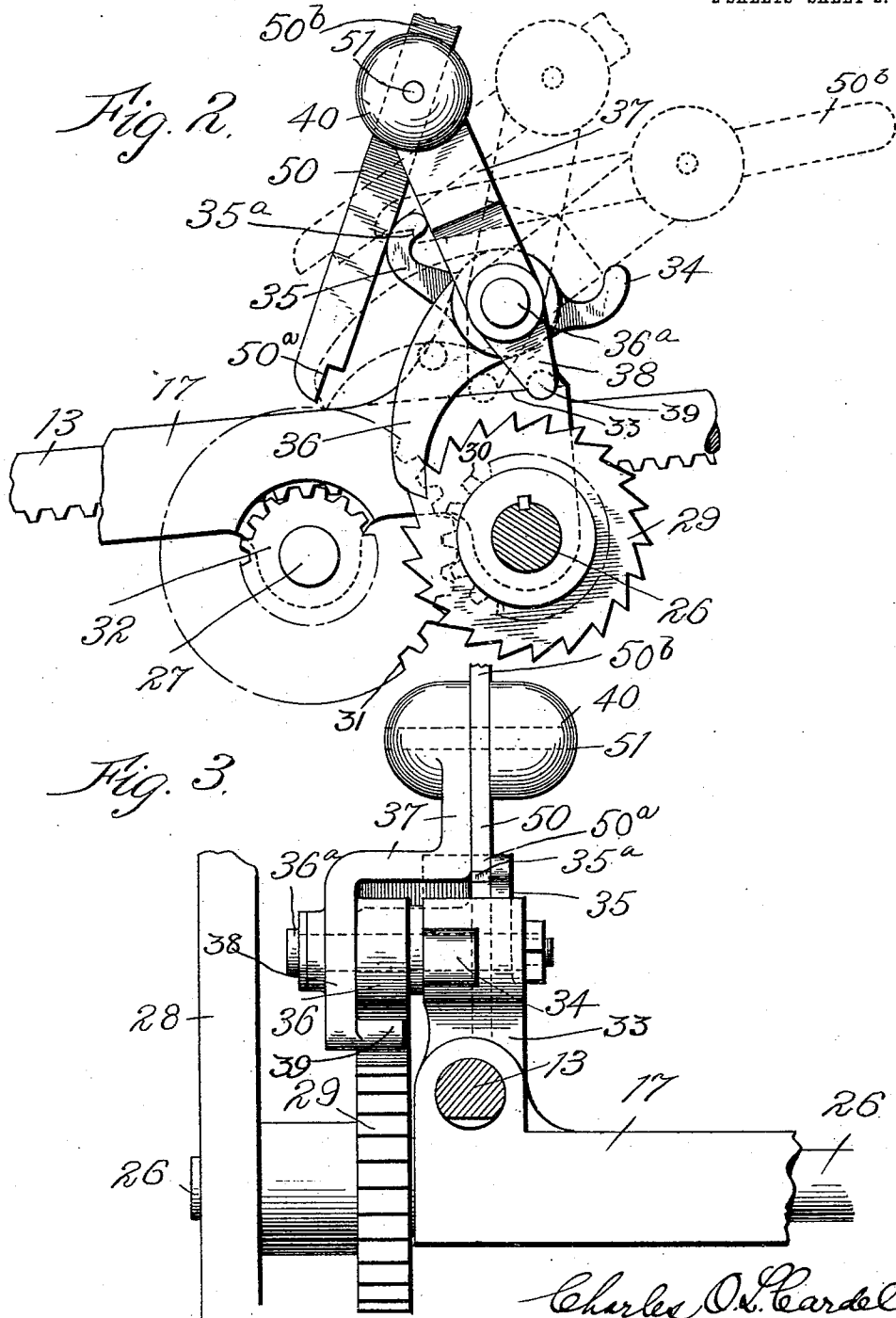
Witnesses:
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Charles O. L. Cardell
 Inventor,
 By his Attorneys *Smith & Roy.*

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Witnesses
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UNITED STATES PATENT OFFICE.

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RATCHET-RELEASING MECHANISM.

941,188.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed August 7, 1907. Serial No. 387,399.

To all whom it may concern:

Be it known that I, CHARLES O. L. CARDELL, a citizen of the United States of America, residing at Pearl River, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Ratchet-Releasing Mechanism, of which the following is a specification.

My invention relates to means for controlling the releasing mechanism of a pawl and ratchet to prevent the accidental engagement of the pawl with the ratchet.

My improvement is particularly applicable to the ratchet mechanism employed in bundling presses of the type shown in the patent of Dexter and Cardell, No. 819,741, granted May 8th, 1906, and for the purpose of illustrating my invention I have shown it applied to the machine covered by this patent.

In the practical operation of the bundling press shown in the said Dexter and Cardell patent, difficulty has sometimes been experienced from the accidental engagement of the controlling pawl with the ratchet, the vibrations of the machine or some accidental shaking of the mechanism sometimes resulting in the movement of the weighted controlling arm or lever and the freeing of the pawl so as to permit the latter to fall into engagement with the ratchet. The accidental engagement of the pawl with the ratchet during the releasing operation of the bundling press is liable to injure the machine because of the great force with which the follower is thrown back from the compressed bundle. In the machine of the Dexter and Cardell patent a weighted controlling arm or lever was wholly relied upon to hold the pawl out of engagement with the ratchet.

In my present improvement I propose to further insure against the accidental engagement of the pawl with the ratchet by providing a positive locking device for the controlling arm or lever, so that all danger of accidentally displacing the parts will be removed.

In the simplest form of my invention, I provide a locking dog which is journaled upon the pawl releasing arm or lever, and arrange a positive stop upon the machine frame with which said dog automatically engages when the controlling arm or lever is moved into pawl releasing position.

In order that my invention may be fully

understood, I will first describe the same with reference to the accompanying drawings, and afterward point out the novelty more particularly in the annexed claims.

In said drawings Figure 1 is a side elevation of a bundling press having my improvement applied thereto. Fig. 2 is a detail vertical longitudinal sectional view of part of the press showing my improved pawl controlling mechanism. Fig. 3 is a detail vertical transverse sectional view of the same.

Referring now more particularly to said drawings, 10 is the front frame, and 11 the rear frame, of the machine.

12 designates a pair of bars securing the front and rear frames together near the base.

13 indicates a pair of rack-bars which secure the front and rear frames together near the top, and 14 indicates a pair of trough-bars. It will be understood that the rack-bars 13 and trough-bars 14 together form the trough in which the bundle of signatures about to be compressed is placed.

15 and 16 indicate the front and rear heads, respectively, which are removably positioned in the trough, the front head 15 being secured to the carriage 17, which is adapted to be moved along the trough through mechanism which will be hereinafter described. The rear head 16 is removably secured to a support 18 upon the rear frame 11. The carriage 17 may be of any approved construction, but is preferably constructed as described in the above named Patent No. 819,741, in which it is formed with bearing sockets or collars to fit over rack-bars 13, and transverse bearing sleeves for supporting the operating shafts.

A shaft 26 is journaled transversely in the carriage 17, and carries a hand-wheel 28, a ratchet wheel 29, and a pinion 30, all of which are fixed to said shaft. An intermediate shaft 27 is also journaled transversely in carriage 17 and has splined to it a gear wheel 31, which is in mesh with the pinion 30, and a pair of spur gears 32, which are in mesh with the racks of the rack-bars 13.

A bracket 33 projects upwardly from the carriage 17 at one side and supports two ears or lugs 34 and 35. A heavy controlling pawl 36 is freely journaled upon a short shaft 36^a mounted in the bracket 33 above the main shaft 26 in operative relation to the ratchet wheel 29. The pawl 36 is adapt-

ed to fall by gravity into engagement with the ratchet wheel 29 for holding the bundling compressing mechanism under compression created by the operation of the hand-wheel 28 through the mechanism above described in a manner clearly set forth in the above named Patent No. 819,741.

For disengaging the pawl 36 from the ratchet wheel 29, an operating arm or lever 37 is freely journaled upon the short shaft 36^a alongside of the pawl 36, and is formed with a downwardly extending finger 38 having a laterally projecting pin 39 which is adapted to engage the under edge of the pawl 36 for lifting the pawl out of engagement with the ratchet. This operating arm or lever 37 has a weighted upper end 40 which is adapted to hold the arm in engagement with either of the stops or lugs 34, 35, and when in engagement with stop 34 said arm will retain the pawl 36 out of engagement with the ratchet wheel 29.

The difficulty experienced with the structure so far as specifically described, is that the vibrations of the machine, or some sudden jar, is apt to overcome the inertia of the weighted arm or lever 37, and throw it over from its position in contact with stop 34 to its position in contact with stop 35, which movement will release the pawl and allow it to fall into engagement with the ratchet wheel. My present invention overcomes this difficulty.

50 is a stop dog or lever freely journaled at 51 upon the outer weighted end of arm 37, the weight 40 being preferably divided to permit the pivotal mounting of the dog 50 between the two portions of the weight, as shown in Fig. 3. This locking dog or lever 50 has a notched engaging end 50^a and a handle portion 50^b, the end 50^a being adapted to engage and securely lock against the shoulder portion 35^a of the stop lug 35, as shown in dotted lines in Fig. 2, for locking the controlling arm or lever 37 in its pawl releasing position.

The stop 35^a is formed by cutting a vertical slot in the ear or lug 35, as shown in Fig. 3. This slotting of the ear or lug 35 provides in addition to the stop 35^a, the guide faces for confining the locking dog or lever 50 against lateral displacement, said dog 50 moving freely through the slot in ear or lug 35 when it is shifted from one position to another.

The operation of the bundling press will be understood from the Dexter and Cardell Patent No. 819,741. When the bundle is being compressed, the dog 50 is disengaged from the stop 35^a and the controlling arm or lever 37 is thrown over to rest in the position shown in full lines in Fig. 2, the pawl 36 being in this position in engagement with the ratchet wheel 29 to permit the forward rotation of the ratchet wheel, but prevent

any backward movement thereof. When the bundle is compressed, the compression being maintained by the pawl and ratchet mechanism, it is suitably tied up in preparation for its removal. The operator then throws the controlling arm 37 backwardly to bring the pin 39 in engagement with the pawl 36, the parts being then in the central dotted position shown in Fig. 2. The pawl will be held rigidly in engagement with the ratchet wheel because of the backward pressure of the bundle. The operator then exerts a slight additional forward pressure to free the pawl 36 from the ratchet wheel, when the weighted controlling arm or lever 37 will fall by gravity over into engagement with the stop 34, to raise the pawl out of engagement with the ratchet wheel, and the stop dog 50 moving over the stop 35^a will automatically engage said stop and lock the parts in this disengaged or released position. When this position of the parts has been assumed, the operator releases his hold upon the hand wheel 28 and permits the compressing mechanism to move backwardly in the press. When it is desired to again operate the press, the operator first disengages dog 50 from shoulder 35^a by pressing down upon handle 50^b, and then moves the parts into position shown in full lines in Fig. 2.

While I have shown and described my invention as applied to a bundling press, in connection with which it is of especial value, I would have it understood that I do not limit my invention to this application, since it may with equal advantage be applied to many other structures in which it is desirable to positively hold a pawl and ratchet mechanism in released position.

What I claim is:

1. The combination, with a ratchet, a pawl normally engaging said ratchet, and stops; of a controlling lever arranged to directly engage said pawl and disengage it from said ratchet, and locking means carried upon said controlling lever for engaging one of said stops and retaining the controlling lever in position against the other stop to hold said pawl disengaged from said ratchet.

2. The combination, with a ratchet, a pawl normally engaging said ratchet, and stops; of a controlling lever arranged to directly engage said pawl and disengage it from said ratchet, and a locking dog carried upon said controlling lever for engaging one of said stops and retaining the controlling lever in position against the other stop to hold said pawl disengaged from said ratchet.

3. The combination, with a ratchet, a pawl normally engaging said ratchet, and stops; of a controlling lever oscillating upon the same axis with said pawl and arranged to directly engage said pawl and disengage it from said ratchet, and locking means carried upon said controlling lever for engaging one

of said stops and retaining the controlling lever in position against the other stop to hold said pawl disengaged from said ratchet.

4. The combination of a ratchet wheel, a pawl mounted in operative relation to said ratchet wheel, a controlling arm or lever adapted to engage said pawl and move it out of engagement with said ratchet wheel, limiting stops for said controlling arm or lever, a locking dog pivotally mounted upon said arm or lever and adapted to engage one of said stops.

5. The combination of a ratchet wheel, a pawl mounted in operative relation thereto, a controlling arm or lever adapted to engage said pawl and move it away from the ratchet wheel, a locking dog or lever mounted upon said controlling arm or lever and formed with an operating handle, and rigid stops for said controlling arm or lever, with one of which said locking dog or lever engages to hold said pawl disengaged from said ratchet.

6. The combination of a ratchet wheel, a pawl mounted in operative relation thereto, a controlling arm or lever adapted to engage

the pawl for moving it away from the ratchet wheel, stop ears or lugs for said controlling arm or lever, one of said stop ears or lugs being formed with a guide slot and a stop shoulder, and a locking dog or lever pivotally connected with the controlling arm or lever and resting in said guide slot of the stop lug and adapted to engage said stop shoulder.

7. The combination with a ratchet, and an oscillating pawl normally engaging said ratchet, of a weighted pawl controlling lever normally resting out of engagement with said pawl and adapted to be moved into engagement with said pawl and free said pawl from said ratchet, a pair of lugs limiting the movement of said lever, and a locking dog pivoted upon said lever and adapted to engage one of said lugs and hold said lever in pawl disengaging position.

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