H. P. MACDONALD & H. C. PARKER.

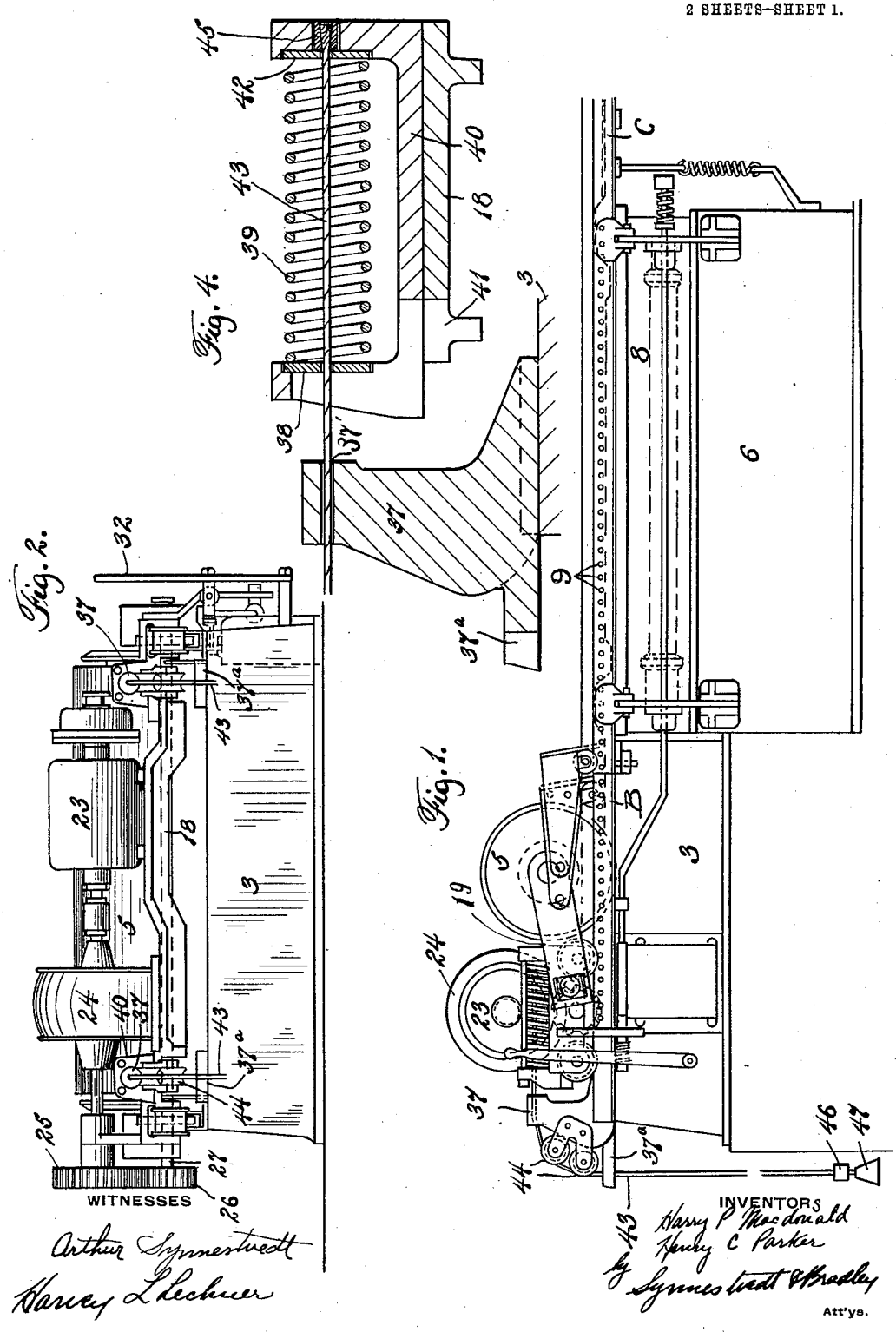
ROLL RAMMING APPARATUS.

APPLICATION FILED NOV. 26, 1913.

1,086,064.

Patented Feb. 3, 1914.

2 SHEETS—SHEET 1.



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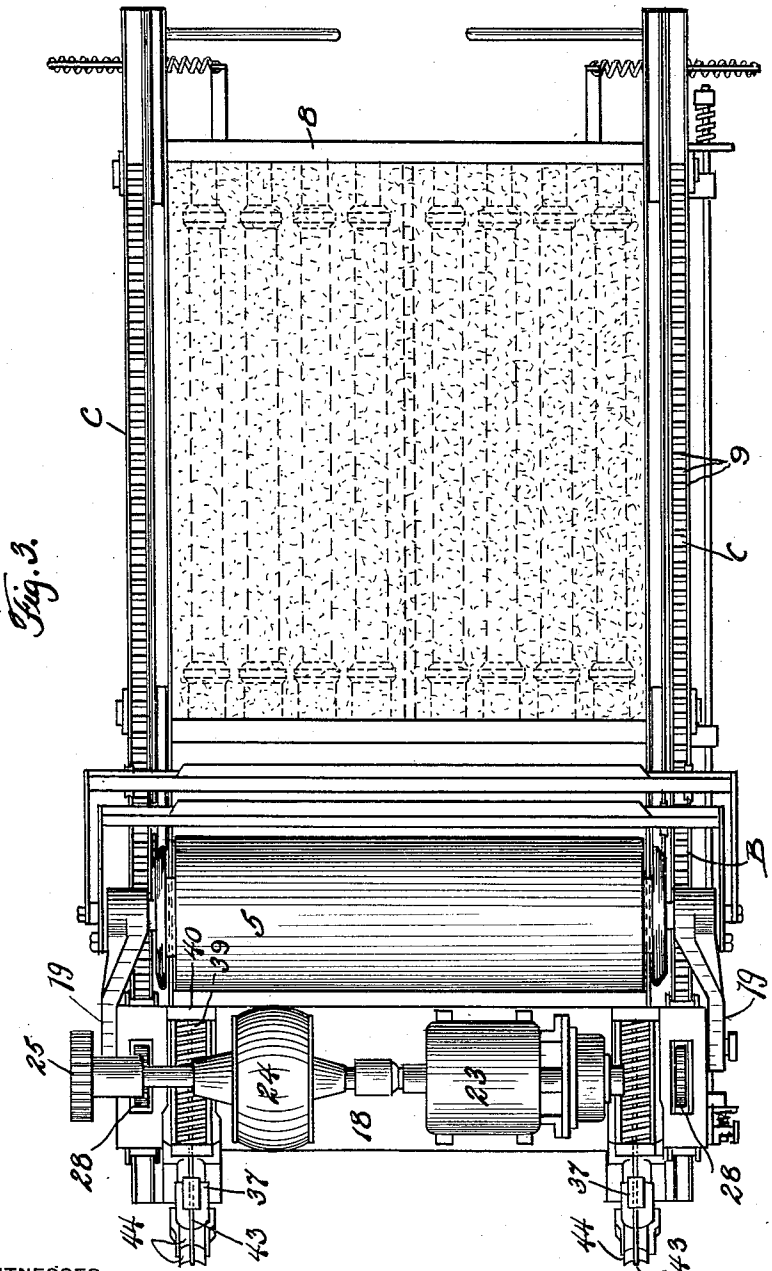
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2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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ROLL-RAMMING APPARATUS.

1,086,064. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed November 26, 1913. Serial No. 803,117.

To all whom it may concern:

Be it known that we, HARRY P. MACDONALD and HENRY C. PARKER, citizens of the United States, residing, respectively, at Montclair, county of Essex, and State of New Jersey, and at Elizabeth, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Roll-Ramming Apparatus, of which the following is a specification.

This invention relates to roll ramming apparatus and more particularly to mechanism for stopping the movement of the ramming roll at either extreme of travel. It has for one of its primary objects the provision of an improved mechanism of the character described which is simple in construction. Our invention also contemplates an improved means for yieldingly stopping the movement of the ramming roll at either extreme of travel, which is double acting. That is to say, the provision of a single means of the character specified which serves to stop the roll at either extreme of movement. The foregoing, together with such other objects as may hereinafter appear or are incident to our invention, we obtain by means of a construction which we have illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 is a side elevation of a roll ramming apparatus such as that shown and described in our co-pending application Ser. No. 803,116 filed November 26, 1913, with our improved mechanism for stopping the roll and its associated parts applied thereto; Fig. 2 is an end view of Fig. 1; Fig. 3 is a plan view of Fig. 1; and Fig. 4 is a sectional view drawn on a large scale of one of the elements of our improved mechanism.

For the purpose of affording a better understanding of our invention, the general form of apparatus to which it is applied will be described. The roll ramming apparatus comprises a framework 3 upon which are mounted stationary tracks B and adjacent to which is located the framework of a pattern drawing apparatus 6 to which is hinged or bracketed the movable tracks C which are adapted to lie clear of the flask 8 carried on the pattern drawing apparatus 6 when in inoperative position, and to lie upon the top of the flask in alinement with the stationary tracks 3 when in operative position. The tracks B and C are preferably of the same construction as that shown and described in co-pending application Serial No. 803,116, filed November 26, 1913, above referred to, and are provided with rack portions 9. The ramming roll 5 is adapted to ride upon the tracks in the usual manner and is operated by means of a motor 23 carried on the truck 18 adapted to ride on the tracks. The roll 5 is connected to the truck by means of links 19 and the motor 23 is connected through an internal reduction gear mechanism 24 to a gear wheel 25 which meshes with another gear 26 mounted on the end of a shaft 27 to which are keyed the sprocket wheels 28. The sprocket wheels engage the rack portions of the track and it will be clear that as the motor is turned one way the truck 18 and roll 5 will be advanced and when the motor is turned the other way, the said members will be reversed. The mechanism for controlling the motor is the same as that shown and described in our co-pending application Serial No. 803,118, filed November 26, 1913, and no description of the same will be here made other than to state that when the manually-controlled lever 32 is moved, the motor is actuated to advance the truck and roll to the forward end of the apparatus where it is automatically reversed and the parts are brought back to initial position at which time the motor is stopped automatically.

In order to release the mechanism of the stress incident to the starting and stopping of the roll, we provide the following apparatus. Mounted on the rear portion of the framework 3 and on opposite sides thereof are two bumpers 37 which are adapted to take against the follower plates 38 which in turn take against the springs 39 carried in cages 40 mounted on the truck 18. The cage 40 is cut away as at 41 so that the cages can slide past the bumpers 37 on rearward movement of the truck 18. At the forward end of the cages 40 are follower plates 42 which correspond to the plates 38 and which take against the forward ends of the springs 39. Cables 43 pass through the plates 42, inside the springs 39, plates 38, through apertures 37′ in the bumpers 37 and around sheaves 44 secured to the bumpers 37. At

the forward ends the cables are provided with chocks 45 which engage the faces of the plates 42 and at the rear ends with chocks 46 which take against the rear faces of the bumpers, the cables being guided by the extensions 37ª formed on the bumpers 37. The extensions or lugs 37ª relieve the sheaves of the shock of the blow at the end of the forward movement of the cables. Weights 47 are secured to the rear ends of the cables 43 to take up slack as the truck 18 and roll move from forward to rear position.

The operation of the apparatus is as follows: When the roll and truck have almost reached the limit of forward travel, the pair of chocks 46 at the rear ends of the cables take against the abutment 37ª and further advance of the cables and follower plates 42 is prevented. As the truck and roll continue to advance the follower plates 38 compress the springs 39 against the plates 42, and the truck and roll are thereby yieldingly stopped. This relieves the parts from shock and serves to assist the motor in reversing the movement of the truck and roll inasmuch as the springs 39 when compressed give the truck an initial impulse rearwardly. As the parts travel rearward, the slack of the cables is taken up by the weights 47. When the truck approaches extreme rear position, the follower plates 38 take against the bumpers and the springs 39 are compressed as the cages move past the bumpers 37. The stopping devices will thus be seen to be double acting.

The arrangement is simple and does away with the provision of bumper devices for the forward end of the apparatus. While the device has been shown applied to roll ramming apparatus, it will be understood that it is useful in other kinds of apparatus. The term cages is also to be broadly understood for it will be apparent that other specific forms of supporting means can be utilized for the springs 39.

What we claim is:

1. In roll ramming apparatus the combination of a longitudinally movable ramming element, a relatively fixed element, and a member attached to one of said elements and having a lost motion connection with the other element for arresting the movement of the ramming element after it has traveled a predetermined distance.

2. In roll ramming apparatus the combination of a longitudinally movable ramming element, a stop element adapted to arrest the movement of the ramming element in one direction, and a member attached to one of said elements and having a lost motion connection with the other element for arresting the movement of the ramming element in the other direction.

3. In roll ramming apparatus, a yielding buffer device movable with the roll, and means acting through the buffer device to stop the roll at the extremes of travel of the roll.

4. In roll ramming apparatus, a yielding buffer device movable with the roll, an abutment against which the buffer is adapted to take at one extreme of movement, and means movable with the buffer but adapted to arrest the movement thereof at the other extreme of travel.

5. In roll ramming apparatus, a yielding buffer device movable with the roll, an abutment adjacent one end of the apparatus against which the buffer takes at one extreme of movement, and a member having a lost motion mounting adapted to arrest the movement of the buffer at the other extreme of movement.

6. In roll ramming apparatus, a yielding buffer device movable with the roll, an abutment adjacent one end of the apparatus against which the buffer takes at one extreme of movement, and a member movable with the buffer from said end having a lost motion connection and adapted to arrest the movement of the buffer at the other extreme of movement.

7. In roll ramming apparatus, a buffer, an abutment against which the buffer takes at one end of its travel, and a cable movable with the buffer a predetermined distance and adapted to arrest the movement of the buffer after the buffer has traveled said distance.

8. In roll ramming apparatus, a buffer, an abutment against which the buffer takes at one extreme of movement, and a cable secured to the buffer and having a lost motion connection with the abutment whereby to stop the movement of the buffer at the other extreme of travel.

9. In roll ramming apparatus, a cage or support movable with the roll, a spring mounted therein, means against which the spring takes at one extreme of travel, and a cable movable with the cage to the other extreme of travel and adapted to arrest the movement of the spring at such extreme.

10. In roll ramming apparatus, a longitudinally movable ramming member, a double acting buffer element, an abutment element coöperating therewith to arrest the movement of the ramming member in one direction, and a member having a lost motion connection with one of the said elements for arresting the movement of the ramming member after it has traveled a predetermined distance in the opposite direction.

11. In roll ramming apparatus the combination with a longitudinally movable ramming element, a stop element adapted to arrest the movement of the roll in one direction, and a member attached to one of

said elements and having a lost motion connection with the other for arresting the movement of the ramming element in the opposite direction, of yielding buffer means adapted to absorb shock in the stopping of the ramming element.

In testimony whereof we have hereunto signed our names in the presence of the two subscribed witnesses.

HARRY P. MACDONALD.
H. C. PARKER.

Witnesses:
J. F. ARNOLD,
C. C. GREENLEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."