May 15, 1928. 1,669,972

C. B. COTTRELL, 3D

RECIPROCATING BED PRINTING PRESS

Filed July 9, 1924 2 Sheets-Sheet 1

Fig. 1.

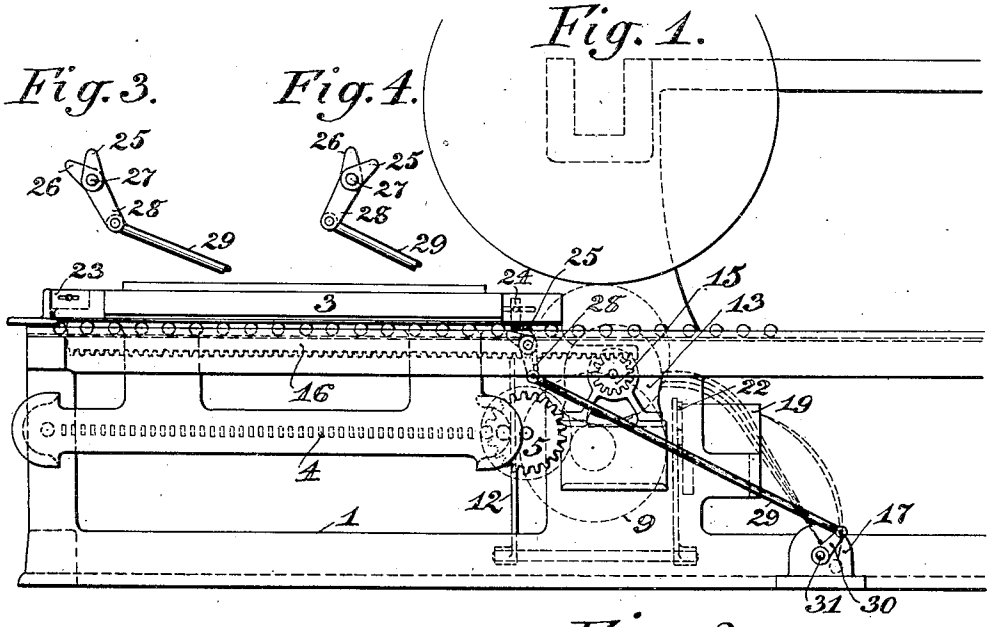
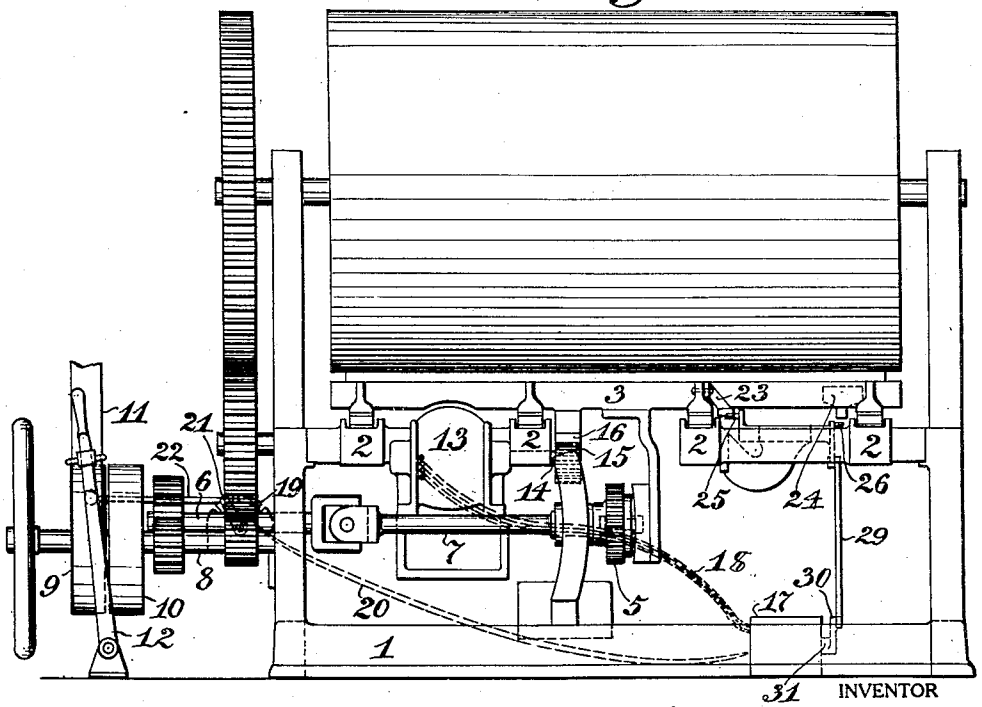


Fig. 3.

Fig. 4.

Fig. 2.



INVENTOR

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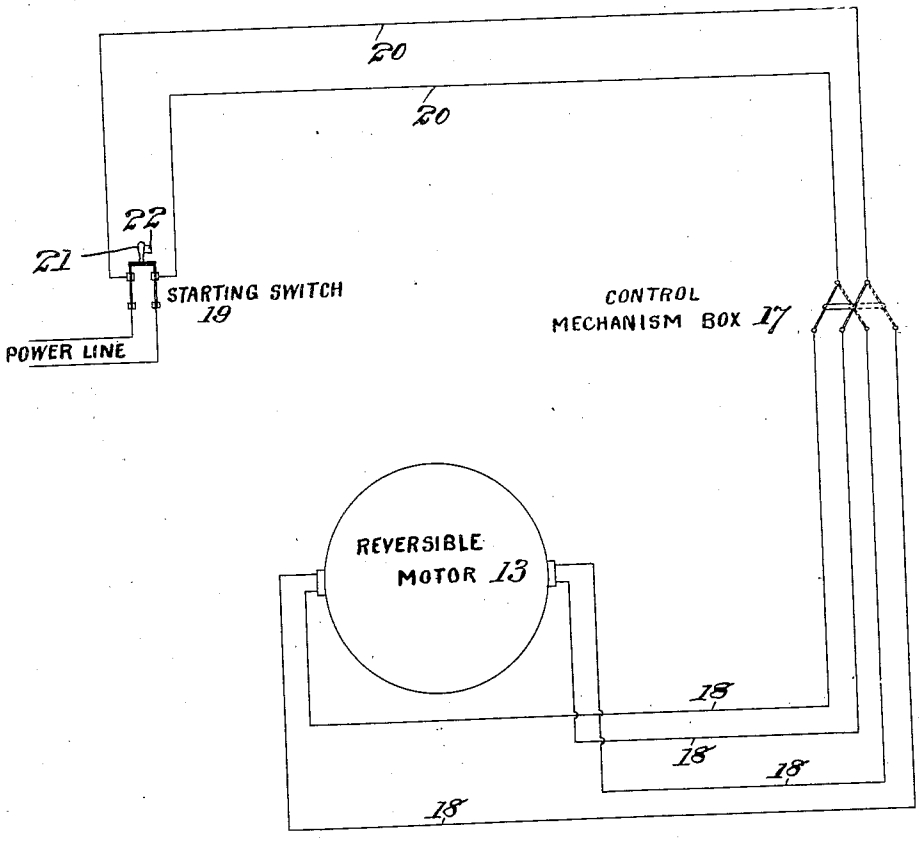
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Filed July 9, 1924 2 Sheets-Sheet 2

Fig. 5.



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Patented May 15, 1928. 1,669,972

UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, 3D, OF WESTERLY, RHODE ISLAND, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

RECIPROCATING-BED PRINTING PRESS.

Application filed July 9, 1924. Serial No. 724,997.

In reciprocating bed printing presses it has been usual to employ devices of various kinds such as springs and cushions for retarding or checking the momentum of the bed before the direction of its travel is reversed. The object of this invention is to provide novel means for this purpose, said means, in the present instance, being a reversible electric motor operatively connected to the bed and reversed by the bed as the bed nears the limits of its movement, so as to cause the motor to exert a resistance to the further movement of the bed, the reversing of the motor also serving to cause it to help the bed to come up to the required speed as it starts on its return stroke.

A practical embodiment of this invention is represented in the accompanying drawings, in which

Fig. 1 represents a detail side view of a reciprocating bed printing press with my invention applied thereto.

Fig. 2 represents an end view of the same.

Fig. 3 represents a detail view showing the control mechanism lever thrown into one position.

Fig. 4 represents a similar view showing the lever thrown into the other position.

Fig. 5 represents a diagrammatic view illustrating the reversible motor, control switches and circuits.

The printing press frame is denoted by 1, the ways by 2, the reciprocating bed by 3, the rack by 4, the gear by 5 and the mangle shaft by 6, 7. The mangle shaft is geared, as usual, to the drive shaft 8 which carries the fast and loose pulleys 9 and 10. The driving belt is denoted by 11 and the belt shifter by 12.

The electric means which I have shown for retarding or checking the momentum of the reciprocating bed as it nears the limits of its movement and for assisting in bringing the bed up to speed as it starts on its return stroke, is as follows:

Any well known or approved reversible electric motor 13 is suitably mounted in the press frame 1. The shaft 14 of this motor is provided with a gear 15 which meshes at all times with a rack 16, carried by the reciprocating bed 3. The control mechanism box 17 is electrically connected to the motor 13 through the wiring 18 and to the switch 19, through the wiring 20. The switch handle 21 is operated by the belt shifter 12, through the connecting rod 22, whereby the starting of the electric motor 13 is controlled by the starting and stopping of the press.

Adjustable abutments 23, 24, carried by the reciprocating bed 3 are arranged to engage their respective arms 25, 26 of a rock lever 27, mounted in the press frame, which rock lever is provided with an arm 28 connected by a rod 29 with an arm 30 on the shaft 31 of the control mechanism box 17, to reverse the current in the motor thereby tending to reverse the movement of the motor shaft 14 just before the bed reaches the limit of its movement in either direction. This not only causes the motor to act as an electric brake or resistance for retarding or checking the bed, but also causes the motor shaft 14, when permitted to reverse its movement, to help the main drive to bring the bed back to speed after it reverses at the end of each stroke.

From the above description it will be seen that I have provided an electric means for retarding or checking the momentum of the bed, which means is also operable to assist the main drive in bringing the bed rapidly up to speed after it reverses its movement, said electric means permitting the elimination of all springs and cushions heretofore used for checking the momentum of the bed and providing a very simple and effective device for this purpose.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence, I do not wish to limit myself to the particular embodiment herein shown and described, but

What I claim is:—

1. In a reciprocating bed printing press, the bed, means for reciprocating it and electric means to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

2. In a reciprocating bed printing press, the bed, means for reciprocating it, and electric means operable as the bed nears the limits of its movement to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

3. In a reciprocating bed printing press

the bed, means for reciprocating it, and a reversible motor operatively connected to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed.

4. In a reciprocating bed printing press, the bed, means for reciprocating it, and a reversible motor operatively connected to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

5. In a reciprocating bed printing press, the bed, means for reciprocating it, and a reversible electric motor operatively connected to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed.

6. In a reciprocating bed printing press, the bed, means for reciprocating it, and a reversible electric motor operatively connected to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

7. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor geared to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed.

8. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor geared to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

9. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor geared to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed.

10. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor geared to the bed and reversed thereby as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

11. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor operatively connected to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed.

12. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor operatively connected to the bed, said bed having devices arranged to reverse the motor as the bed near the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

13. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor operatively connected to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed.

14. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor operatively connected to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

15. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor geared to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed.

16. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible motor geared to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

17. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor geared to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed.

18. In a reciprocating bed printing press, the bed, means for reciprocating it, a reversible electric motor geared to the bed, said bed having devices arranged to reverse the motor as the bed nears the limits of its movement, to check the momentum of the bed and to help in bringing the bed up to speed as it starts on its return stroke.

19. In a reciprocating bed printing press, the bed, means for reciprocating it, a rack extending along the bed, abutments positioned on the bed, a reversible motor operatively connected to the bed, and current reversing mechanism operated by said abutments to reverse the current as the bed nears the limits of its movement.

20. In a reciprocating bed printing press, the bed, means for reciprocating it, a rack extending along the bed, abutments adjustably positioned on the bed, a reversible motor operatively connected to the bed, and current reversing control mechanism operated by said abutments to reverse the current as the bed nears the limits of its movement.

21. In a reciprocating bed printing press, the bed, means for reciprocating it, a rack

extending along the bed, abutments positioned on the bed, a reversible motor geared to the bed, and current reversing control mechanism operated by said abutments to reverse the current as the bed nears the limits of its movement.

22. In a reciprocating bed printing press, the bed, means for reciprocating it, a rack extending along the bed, abutments adjustably positioned on the bed, a reversible motor geared to the bed, and current reversing control mechanism operated by said abutments to reverse the current as the bed nears the limits of its movement.

In testimony, that I claim the foregoing as my invention, I have signed my name this 7th day of July, 1924.

CALVERT B. COTTRELL, 3RD.