Aug. 25, 1925.

1,550,996

R. L. WILCOX

GRIPPING MECHANISM

Filed Jan. 15, 1923

2 Sheets-Sheet 1

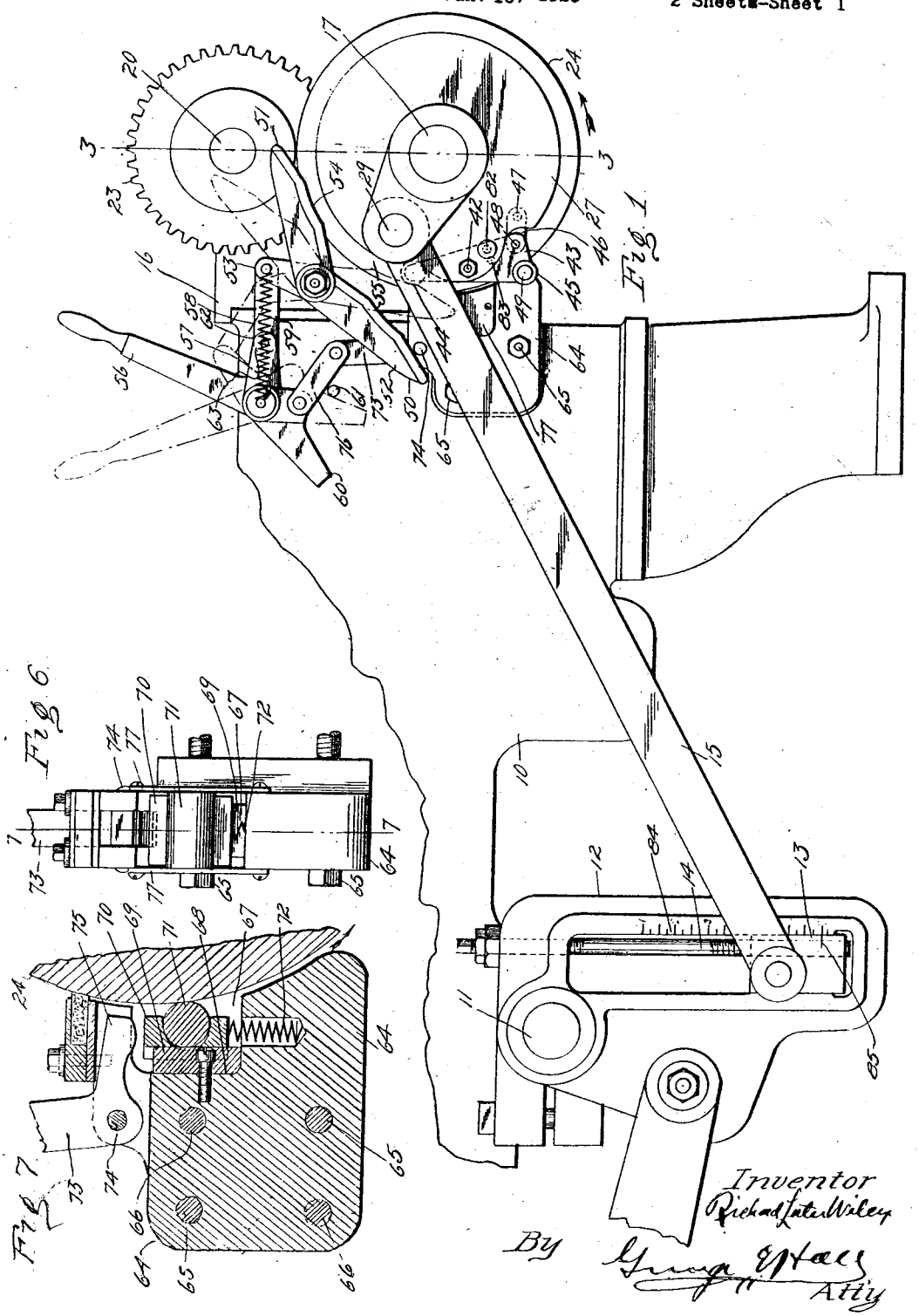


Fig. 1

Fig. 6

Fig. 7

Inventor
Richard Lute Wilcox

By George Ostaes
Atty

Aug. 25, 1925. 1,550,996

R. L. WILCOX

GRIPPING MECHANISM

Filed Jan. 15, 1923 2 Sheets-Sheet 2

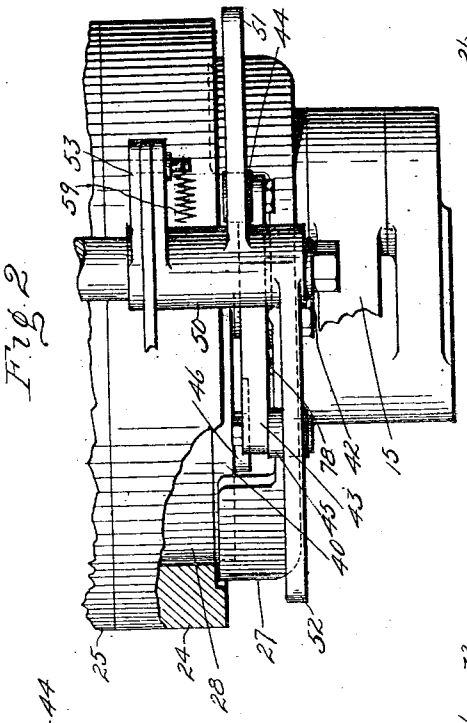


Fig. 2.

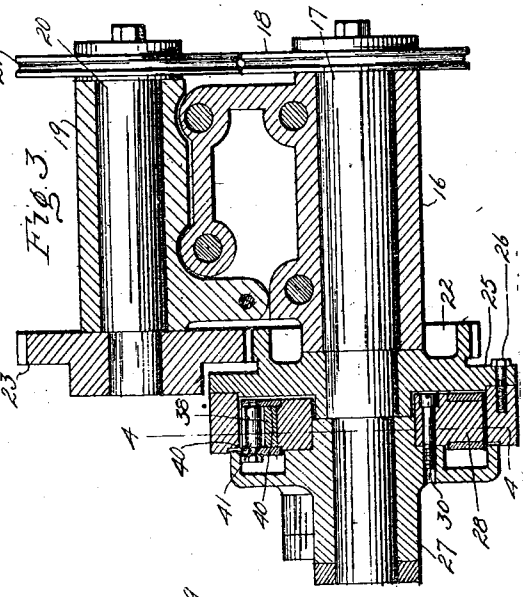


Fig. 3.

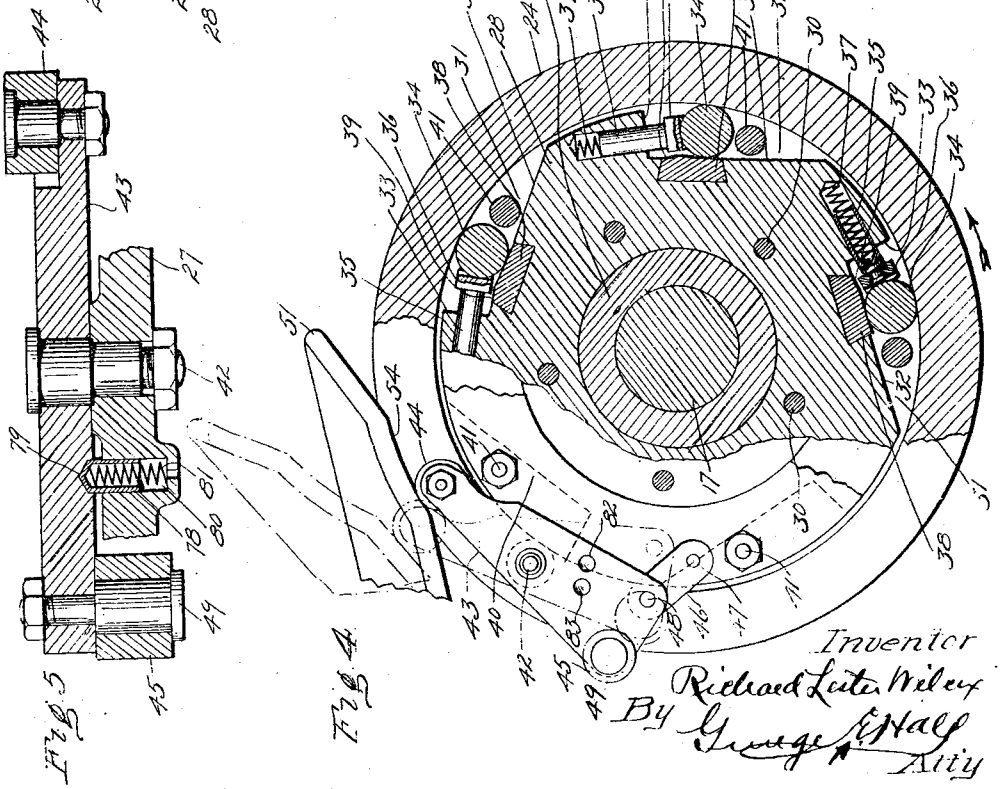


Fig. 4.

Fig. 5.

Inventor
Richard Lester Wilcox
By George E. Hall
Atty

Patented Aug. 25, 1925. 1,550,996

UNITED STATES PATENT OFFICE.

RICHARD LESTER WILCOX, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY FARREL FOUNDRY AND MACHINE COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

GRIPPING MECHANISM.

Application filed January 15, 1923. Serial No. 612,839.

To all whom it may concern:

Be it known that I, RICHARD LESTER WILCOX, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Gripping Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and Improved gripping mechanism more especially as applied to a device having an intermittent feed.

It is the object of this invention, among other things, to provide mechanism of this character wherein the maximum efficiency may be obtained with the minimum expenditure of power and at the same time will be relatively compact and composed of parts that are relatively few in number.

To these and other ends my invention consists in the gripping mechanism, having certain details of construction and combinations of parts as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings in which like numerals of reference designate like parts in the several figures;

Figure 1 is a fragmentary side elevation of a heading or upsetting machine with my improved mechanism attached thereto;

Figure 2 is an enlarged plan view of a portion of my improved mechanism;

Figure 3 is a sectional view of some of the parts and of the feed rolls of the feed mechanism, taken generally upon line 3—3 of Figure 1;

Figure 4 is an enlarged fragmentary sectional elevation of a portion of the mechanism, taken generally upon line 4—4 of Figure 3;

Figure 5 is a fragmentary sectional detail of the lever retaining mechanism;

Figure 6 is an elevation of the exterior gripping mechanism; and

Figure 7 is a sectional elevation taken generally upon line 7—7 of Figure 6.

Gripping mechanisms particularly as applied to feed mechanisms are well known and common in the art of heading and upsetting machinery, an example of which is shown in Letters Patent No. 1,253,322 for feed mechanism, dated January 15, 1918, and also in Letters Patent No. 1,309,749 for feed mechanism, dated July 15, 1919.

I have shown in the drawings and will describe my improved gripping mechanism as particularly applied to heading or upsetting machines and to a feed mechanism substantially as shown in the patents mentioned, but is not limited, however, to such use or application.

Referring to the drawings, 10 designates the frame of a heading machine, 11 the rock shaft journaled therein, 12 an arm fixed to said shaft having a block 13 that is adjustable within the arm 12 by means of the rod 14 threaded therethrough, and 15 is a connecting rod pivotally joined at one end to said block. Fixed to one end of the frame 10 is a roll frame 16 within which is mounted a shaft 17 having a feed roll 18 thereon.

Pivotally connected with the roll frame 16 is a journal block 19 within which is mounted a roll shaft 20 having a feed roll 21 thereon.

The mechanism above described is of a type well known in the art and requires no further detail description herein.

An operative connection between the shafts 17 and 20 is maintained through the gears 22 and 23 and the wire or rod length is fed into the machine by reason of the intermittent rotation of the feed rolls 18 and 21 and my improved gripping mechanism is utilized to produce this result and consists primarily of a make and break device that is actuated from the rock shaft 11 through the connecting rod 15.

It comprises essentially a clutch ring 24 that is secured to the flange 25 on gear 22 by bolts 26 or the like. A carrier 27 that is rotatably mounted upon the roll shaft 17 having fixed thereon by means of screws 30, or the like, a clutch plate 28 having connection by means of a stud 29 with one end of the connecting rod 15 whereby the rocking movement of the arm 12 imparts a similar rocking movement to the carrier 27.

This clutch plate is provided with a plurality of notches 31 in the edges thereof, each having a roll face 32 and an end wall 33. Within each of these notches is a roll 34 that is moved in one direction between the face 32 and the inner face of the clutch ring 24 by the pin 35 having a plate 36 upon

its outer end, which is maintained in contact with the roll 34 by means of a spring 37 that provides a yielding pressure to the roll 34.

In each of the roll faces 32 is inserted a block 38, preferably hardened, to take the wear of the roll 34 and the outer face thereof is formed at one end with an angular cam face 39, the lower edge of which is flush with the roll face 32 so as to insure the roll 34 riding onto the outer face of the block 38 if perchance during the movement of the clutch plate 28, it should ride off said block at that end adjacent to the wall 33.

Journaled so as to have relative rotary movement upon each side of the clutch plate 28 are the release rings 40 which are connected by a plurality of release pins 41 corresponding in number with the notches 31 and passing therethrough. Rotatably mounted upon a stud 42 fixed in the carrier 27 is a rock lever 43 having a roll 44 rotatably mounted near one end thereof and a similar roll 45 at the opposite end. These rolls are upon opposite sides of the rock lever 43.

Between this rock lever 43 and one of the release rings 40 is a toggle link 46 so that movement of the lever 43 upon its pivot mounting imparts a limited rotary movement to the rings 40 and the pins 41 connected therewith.

When the clutch plate 28 is moved in the direction of the arrow in Fig. 4, each of the rolls 34 immediately impinge between the face of the block 38, assisted by the action of the pins 35 and springs 37 against the inner face of the clutch ring 24, causing frictional or gripping engagement between the clutch plate 28 and the clutch ring 24. The clutch ring 24 will now rotate with the clutch plate as a unit and through it the gears 22 and 23, shafts 17 and 20 and the feed rolls 18 and 21, causing the same to impart an endwise feed movement to the wire, rod or strip of metal length therebetween.

Upon the reverse movement of the clutch plate 28, the frictional or gripping hold of the rolls 34 between the clutch plate and the clutch ring 24 is released.

To disengage the feed the rolls 34 are held in such relative position within the notch 31 as to prevent a frictional or gripping engagement between the clutch plate and clutch ring by the relative position of the pins 41, each of which contacts with each one of the rolls and moves the same toward the walls 33 of each of the notches, thereby compressing each of the springs 37 in the pins 35. The above is accomplished by changing the relative position of the rock lever 43 from that shown by full lines to that shown by dotted lines in Fig. 4. During the movement between these two positions the release ring 40 receives a rotary movement relative to that of the clutch plate and by reason thereof the release pins 41 move the rolls 34 to such a position against the tension of the spring 37 that they are out of engagement with the inside of the clutch ring 24. When the parts are in the relative position just described no gripping action can take place between the clutch plate and clutch ring and no motion is imparted to the feed rolls 18 and 21. It will be noted in Fig. 4 that a straight line drawn through the center of the pin 47, connecting the toggle link 46 with the release ring 40 and the center of the stud 42 upon which the rock lever 43 is mounted, the pin 48 connecting the link 46 to the lever 43, will, when moved as shown by the dotted lines, pass the line that will extend from the center of the pin 47 and stud 42, or just beyond dead centers, thereby insuring the release of rings 40, and the parts associated therewith being held in a fixed position relatively to the clutch plate 28. The rock lever 43 is actuated upon its pivot mounting through a rock lever 50 having radial arms 51, 52 and 53. Upon the outer face of each of the arms 51 and 52 are the curved cam faces 54 and 55, the center of which is coincident with the center of the roll shaft 17 when said arms are in their operative positions.

In Fig. 1 the relative position of this lever 50 with the carrier 27 is such that the center of the cam face 54 is coincident with the center of said carrier and the roll 44 during its movement passes thereunder, just touching the surface thereof or being a very limited distance therefrom, so that there is no friction against the face. As so arranged the gripping mechanism operates so as to impart an intermittent feed to the feed rolls 18 and 21. If it is desired to discontinue this feed, the lever 50 is moved so that the center of the cam face 55 upon the arm 52 is coincident with that of the carrier. The roll 45 during the movement of the carrier engages said cam face and moves the lever 43 upon its pivot mounting and through it actuates the release rings 40 and the rolls 34 are held out of engagement with the clutch ring. No motion is now imparted to the feed rolls 18 and 21. Such conditions remain until the rock lever 50 is again moved on its pivot mounting and the cam roll 44 engages the cam face 54, imparting a partial rotary movement to the rolls 18 and 21.

The arms 51 and 52 are not in line with each other (see Figure 2), hence, the roll 44 can only contact with the cam face 54 and likewise the roll 45 with the cam face 55.

Pivotally secured to the frame 10 is a handle 56 having an arm 57 formed thereon and between which and the arm 53 of the lever 50 is a link 58 so that manipulation of said handle imparts a rocking movement

to the lever 50, and spring 59 assists in holding the parts in their relative position irrespective of the position of the handle 56. Movement of the handle 56 is limited in one direction by the tail piece 60 which engages a stop pin 61 fixed in the frame 10 and in the other direction by the engagement of the face 62 upon the end of the link 58 engaging a similar face 63 upon the arm 57. This stop mechanism is well known and constitutes no part of my present invention.

To actuate the feed rolls 18 and 21 and feed material into the machine, the lever 50 is moved to the full line position shown in Figures 1 and 4 and to the dotted line position to discontinue the feed to adjust the parts and dies, or for other reasons.

In operation the rocking movement of the arm 12 imparts a similar movement to the carrier 27 through the connection 15 and the rolls 18 and 21 by the means above described.

The rock lever 43 is held in both of its extreme positions by a detent mechanism comprising a hollow pin 78 having a conical end 79, which is slidably mounted within the opening 80 in one side of the carrier 27 and normally moved to its out position by a spring 81. In one face of the rock lever 43 are the stop recesses 82 and 83 having bottoms that have substantially the same taper as the conical pin end 79.

The pressure of the spring 81 is sufficient to project and maintain the pin 78 in either one of the stop recesses 82 or 83 and thus hold the rock lever 43 against movement except when the latter is moved upon its pivot mounting in the manner above described. When so actuated the spring 81 will yield, allowing the pin 78 to be forced out of engagement with the rock lever 43 by reason of the contact of the conical end 79 and that of the bottom of the stop recess. The spring will, however, force the pin 78 into either of the stop recesses 82 or 83, whichever may be next brought into register therewith. These stop recesses 82 and 83 are so arranged as to hold said rock lever 43 in either of its two extreme positions.

It is desirable that the clutch ring 24 should remain stationary between the intermittent feed movements thereof and an encircling frictional device, such as is shown in the above patents, is the means usually employed for this purpose. Such device is objectionable, however, for many reasons and to overcome these objections I have provided a device, which will securely lock and hold the clutch ring against movement in one direction and retain the full length of the feed stroke.

This mechanism consists essentially of a bracket 64, fixed to the frame 10 by bolts 65 and dowel pins 66, or the like, and having an opening 67 in one edge thereof, to the rear wall 68 of which is fixed a plate 69 upon which is movable a cage 70 having a roll 71 mounted transversely therein. This cage is held against lateral movement by the plate 69 and a spring 72 bears against the underside thereof and exerts its tension so as to move the same upwardly and thereby maintain the periphery of the roll 71 in contact with that of the clutch ring 24. This spring, however, is only of sufficient strength to maintain the weight of the cage and the roll, thus applying practically no friction to the surface of the clutch ring 24 by reason thereof.

It is obvious that when the clutch ring 24 is rotated in the direction of the arrow shown in Figures 1 and 7 that the roll 71 will rotate in the cage 70 without interfering therewith, but instantly grips and holds the clutch ring 24 against movement in the opposite direction. This results from the fact that the horizontal center of the roll 71 is below that of the shaft 17 so that practically the periphery of the clutch ring 24 between the horizontal center of the roll 71 and that of the shaft 17 is an inclined cam or wedge face, which narrows the space within which the roll 71 can move in an upward direction.

Thus the clutch ring 24 can move in a continuous rotary path in one direction without interference by my improved gripping mechanism, but instantly the parts become locked if any attempt is made to reverse the direction of the rotation thereof.

Occasionally it is desirable that the clutch ring 24 may be permitted to rotate in both directions, as when material is being fed by hand, for adjustment of the parts and for other reasons.

To provide means for moving the roll 71 so that it will be held out of engagement with the periphery of the clutch ring 24, I have provided a lever 73 that is pivoted at 74 to the bracket 64, and having an arm 75 that projects inwardly and over the top of the cage 70.

This lever is connected by the link 76 with the handle 56. When the handle 56 is moved from the full line position to the dotted line position of Fig. 1, the lever 73 is rocked so that the arm 75 thereon engages the top of the cage 70 and moves and holds the same in its down position against the tension of the spring 72, at which time the roll 71 is out of engagement with the clutch ring 24. The recess 67 in the bracket 64 is closed on both sides after the parts are assembled therein by the plates 77.

The arm 12 is provided with graduations 84 and the indicating line 85 upon the block 13 is caused to register therewith during the rotation of the rod, thus the length of feed is actually predetermined. Heretofore this has not been possible, an approximate ad-

justment was made near the arm 12 and an exact adjustment adjacent to the clutch mechanism, thus requiring two adjustments, one coarse and the other fine, and these only by successive trial feeds.

What I claim as new and desire to secure by Letters Patent, is:

1. In mechanism of the character described; a rotary member having an interior circular wall; a clutch plate therein; means between the clutch plate and circular wall for forming a make and break connection therebetween in part engaging the circular wall; a trip member having parts thereon that engage the said means and impart movement thereto; a movable carrier; a rock member mounted upon the carrier; a connecting member between the rock member and trip member; and means for imparting an independent movement to the rock member relatively to the carrier, whereby the position of the trip member is varied, comprising in part an element mounted upon a stationary part, and movable into and out of the path of the rock member.

2. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; a link having connection at one end with said rock member and at the other end with the said trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied.

3. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; a link having connection at one end with said rock member and at the other end with the said trip member, through which motion from said rock member is transmitted to said trip member.

4. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; a link having connection at one end with said rock member and at the other end with the said trip member; means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied; and means for locking said rock lever against premature movement when in its extreme positions.

5. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; a link having connection at one end with said rock member and at the other end with the said trip member; means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied; and means for locking said rock lever against premature movement when in its extreme positions, comprising a yielding detent which enters an opening that registers therewith in the said extreme positions of said rock member.

6. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; and a positive connection between said rock member and trip member through which motion from said rock member is transmitted to said trip member.

7. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; an oscillating carrier; a rock member mounted upon said carrier; a link having a pivotal connection at one end with said rock member and a pivotal connection at the other end with said trip member whereby the oscillating movement of said rock member imparts movement to said trip member about its axis.

8. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein having a plurality of peripheral notches; a roll in each of said notches which in one of the relative positions of the parts engages one face of the notch and said circular wall; a trip plate adjacent to said clutch plate; a

plurality of elements that project laterally therefrom, there being one of such elements for each of said rolls with which it contacts in one position of said trip plate; and means for imparting movement to said trip plate, comprising an oscillating carrier; a rock member movably connected therewith; and a positive connection between said rock lever and trip plate.

9. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein having a plurality of peripheral notches; a roll in each of said notches which in one of the relative positions of the parts engages one face of the notch and said circular wall; a trip plate adjacent to said clutch plate; a plurality of elements that project laterally therefrom, there being one of such elements for each of said rolls with which it contacts in one position of said trip plate; means for imparting movement to said trip plate, comprising an oscillating carrier; a rock member movably connected therewith; a positive connection between said rock lever and trip plate; and means connected with said clutch plate, adjacent to each of the notches therein, which engage each of said rolls therein and move the same in one direction by yielding pressure.

10. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein having a plurality of peripheral notches; a roll in each of said notches which in one of the relative positions of the parts engages one face of the notch and said circular wall; a trip plate adjacent to said clutch plate; a plurality of elements that project laterally therefrom, there being one of such elements for each of said rolls with which it contacts in one position of said trip plate; means for imparting movement to said trip plate, comprising an oscillating carrier; a rock member movably connected therewith; a positive connection between said rock lever and trip plate; and a block in one face of each of said notches, having a cam face thereon in the path of movement of each of said rolls.

11. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom.

12. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, said arms being movable in different vertical planes.

13. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, said arms being so arranged that only one end thereof will be in the path of each end of said rock arms.

14. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip

member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, said arms being so arranged that when one is in the path of movement of one end of said rock member, the other is out of the path of movement of the opposite end thereof.

15. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, said arms being so arranged that said rock member is not controlled thereby, except during a limited portion of its movement with said carrier.

16. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, each of said arms having thereon a circular wall which in one position is substantially concentric with the axis of said rotary member and after initial movement of said rock member by one of said arms has no further controlling action thereon while the said arm remains in such concentric position.

17. In mechanism of the character described, a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; and means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied, comprising a member mounted upon a fixed part and having arms thereon, which in their different positions are brought into the path of movement of said rock member and by reason of the contact of the latter therewith receive movement therefrom, each of said arms having thereon a circular wall which in one position is substantially concentric with the axis of said rotary member and after initial movement of said rock member by one of said arms has no further controlling action thereon while the said arm remains in such concentric position, said circular wall being out of the path of movement of said rock member for a portion of the movement thereof.

18. In mechanism of the character described: a rotary member; a clutch plate therein; means between said clutch plate and rotary member for forming a make and break connection therebetween, whereby an intermittent movement is imparted to said rotary member; and means for preventing a reverse movement of said rotary member between said intermittent movements, comprising a gripping device having contact with a portion only of an exterior wall of said rotary member, and composed in part of an independently mounted roll; and means for automatically actuating said independently mounted member at the same time as the connection is broken between said clutch plate and rotary member to permit movement of said rotary member in both directions.

19. In mechanism of the character described; a rotary member; a clutch plate therein: means between said clutch plate and rotary member for forming a make and break connection therebetween, whereby an intermittent movement is imparted to said rotary member; and means for preventing a reverse movement of said rotary member between said intermittent movements, comprising a gripping device having contact with a portion only of an exterior wall of said rotary member, and composed in part of an independently mounted member having a curved surface which is in contact with said exterior wall when said gripping device is functioning; and means for automatically actuating

said independently mounted member at the same time as the connection is broken between said clutch plate and rotary member to permit movement of said rotary member in both directions.

20. In mechanism of the character described; a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; an arm member for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied; a handle pivotally connected with a fixed part; and a connection between said handle and arm member.

21. In mechanism of the character described; a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a trip member having parts thereon that engage the said means to impart movement thereto; a movable carrier; a rock member mounted upon said carrier; a connecting member between said rock member and trip member; manual means for imparting an independent movement to said rock member relatively to said carrier whereby the relative position of said trip member is varied; an independently mounted roll; and means for automatically actuating said independently mounted roll at the same time as the connection is broken between said clutch plate and rotary member to permit movement of said rotary member in both directions.

22. In mechanism of the character described; a rotary member having an interior circular wall; a clutch plate therein; means between said clutch plate and circular wall for forming a make and break connection therebetween; a gripping device having contact with a portion only of an exterior wall of said rotary member, which automatically holds said rotary member against reverse movement when there is no operative connection between said clutch plate and said rotary member; and means for automatically moving said gripping device so that the same is held in a position out of contact with said exterior wall when there is no operative connection between said clutch plate and rotary member.

In testimony whereof, I have hereunto affixed my signature.

RICHARD LESTER WILCOX.