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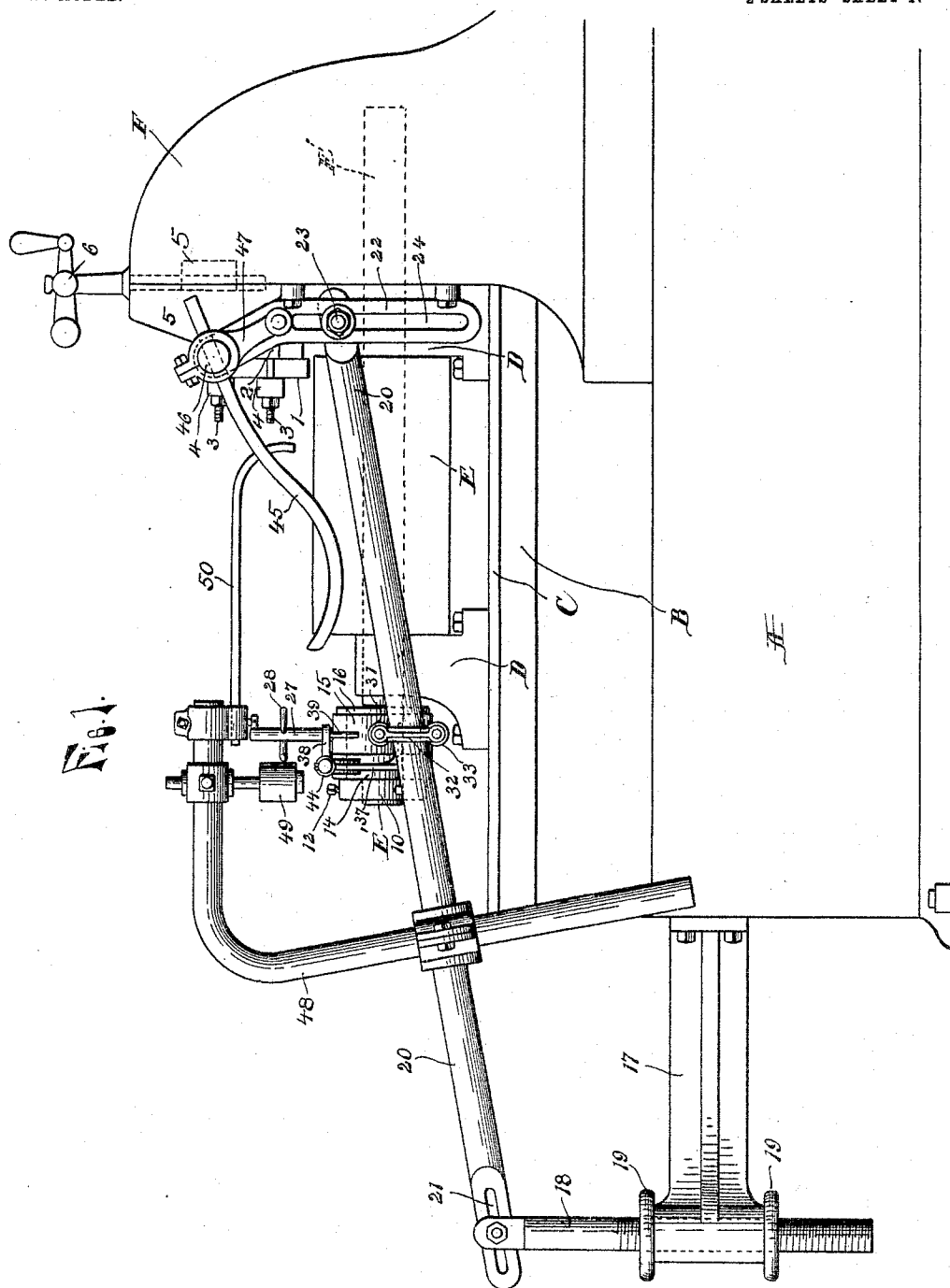
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ATTACHMENT FOR ROLL CORRUGATING MACHINES FOR AUTOMATICALLY
SETTING THE ROLLS.

NO MODEL.

APPLICATION FILED MAR. 28, 1904.

2 SHEETS—SHEET 1.



WITNESSES.

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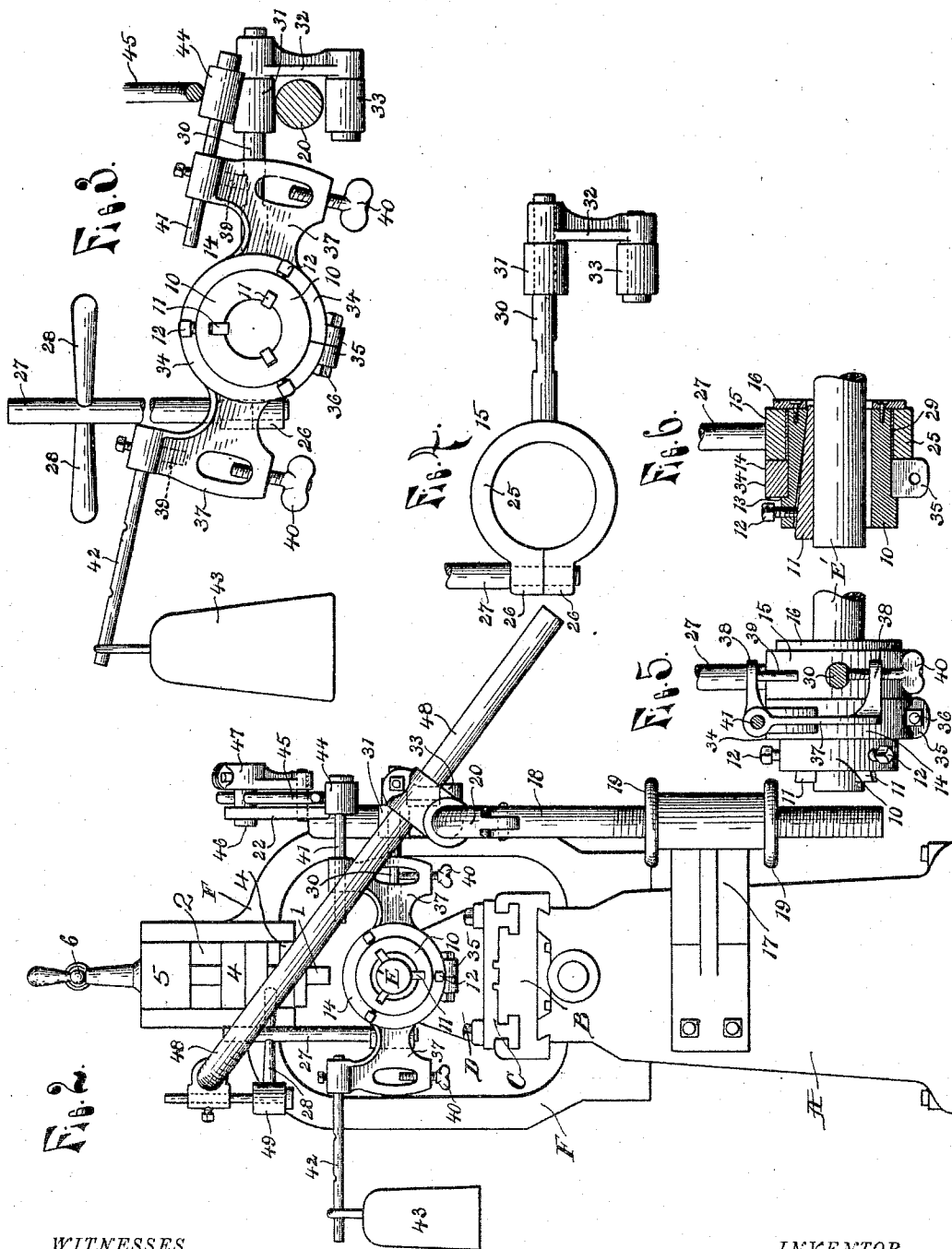
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3 SHEETS—SHEET 2.



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INVENTOR.

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UNITED STATES PATENT OFFICE.

DAVID S. ANTHONY, OF DURANGO, MEXICO.

ATTACHMENT FOR ROLL-CORRUGATING MACHINES FOR AUTOMATICALLY SETTING THE ROLLS.

SPECIFICATION forming part of Letters Patent No. 776,212, dated November 29, 1904.

Application filed March 28, 1904. Serial No. 200,298. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. ANTHONY, a citizen of the United States of America, residing at Durango, in the State of Durango and Republic of Mexico, have invented certain new and useful Improvements in Attachments for Roll-Corrugating Machines for Automatically Setting the Rolls, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in roll grinding or corrugating machines, and especially to an automatic roll-setting attachment for such machines which will accurately turn the roll the required distance after each cut without the intervention or attention of the operator; and the object of the invention is to provide a simple, cheap, and efficient device for the purpose which may be readily attached to any ordinary machine for grinding or corrugating rolls and which may be set to hold, guide, and turn the roll in cutting a straight or a right or left hand spiral groove.

It is also an object of the invention to provide means for preventing the tool from dragging over the surface of the roll during its idle or back stroke when a tool hinged to operate only in one direction is used and to provide certain other new and useful features, all as hereinafter more fully described, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying the invention and showing the same as attached to a roll-corrugating machine. Fig. 2 is an end elevation of the same. Fig. 3 is an enlarged detail illustrating the operation of the clamping members for turning the roll. Fig. 4 is a detail of the guiding and holding clamp member; Fig. 5, a detailed side elevation of the clamping members; Fig. 6, a central vertical section of the same.

As shown in the drawings, A is the frame of the corrugating-machine, provided with the bed B, upon which is mounted the work-carriage C, provided with brackets D, forming supporting-bearings for the shaft E' of the roll E to be corrugated. Secured to the machine-frame is an arch F for supporting the tool in position to engage the upper side of the roll as it is carried through the arch by the reciprocating carriage. The means for au-

tomatically moving the carriage back and forth being old and well known is not shown, and the parts described are all constructed and arranged in any well-known manner.

The tool 1 as ordinarily constructed is formed of a bar of steel which is corrugated at its lower end to form a number of cutting-teeth to cut the grooves in the roll, and said tool is clamped to a swinging bar 2 by providing said bar with bolts 3, which extend outward from its face at each side of the tool and are provided with clamping-bars 4 to engage the outer face of the tool, said clamping-bars having openings through which the bolts extend and said bolts being provided with nuts engaging the said bars. A supporting-bar 5 is vertically guided on the arch F in any suitable manner and any suitable means, as a screw and hand-wheel 6, provided to raise and lower the said bar to which the bar 2 is pivoted at one end at a distance above the lower end of bar 5, and therefore the tool and its bar may swing away from the vertically-adjustable bar when the work or roll E is moved in one direction, but will be held in a vertical position by the bar 5 to engage and cut the roll when said roll is moved in the opposite direction.

10 is a sleeve to receive the end of the roll-shaft E' and having a bore of greater diameter than the diameter of the shaft, and radially-extending wedges 11, longitudinally movable in internal tapering grooves in the sleeve, are held in contact with the shaft by set-screws 12 to firmly secure the sleeve to the shaft, and thus the sleeve forms a sort of chuck, which may be secured to shafts of different diameters. The sleeve or chuck is reduced in diameter to form a shoulder 13, and on this reduced portion are mounted two clamping members 14 and 15, held thereon by a ring-plate 16, secured to the end of the chuck by screws and projecting into engagement with the side of the member 15.

Bolted to the end of the machine-frame A is a bracket 17, projecting outward therefrom and provided with a vertically-bored head to receive a vertical post 18, which is screw-threaded and made vertically adjustable in the bracket by nuts 19 on the post above and below the head. A track or guide rod 20 is pivotally secured to the upper end of said post

by a bolt passing through ears on the post and through a slot 21 in the rod, and at its opposite end said track-rod is adjustably secured to a bracket 22, bolted to the forward side of the arch F by a bolt 23 passing through a vertical slot 24 in said bracket. The track-rod is thus supported in such a manner that it may be raised or lowered at either end and the track thus inclined at any angles or placed in a horizontal position.

The clamping or holding member 15 consists of a ring 25, divided at one side and provided with ears 26, having screw-threaded apertures adapted to be engaged by the reduced and screw-threaded end of the clamping-rod 27, which when turned in one direction by the laterally-extending arms or handles 28, provided near its upper end, will draw the ears toward each other and clamp the member firmly to the chuck or sleeve 10. To prevent the ring 25 from slipping when clamping the chuck, a facing 29, of leather or other suitable material, may be interposed between the ring and chuck, and extending outward from the side of the ring in a direction opposite to that of the ears is a rod or arm 30, provided with a roll 31 at its outer end to engage the upper side of the track-rod 20, and a bracket 32, upon which is journaled a roll 33 to engage the lower side of said rod.

The clamping or adjusting member 14 consists of a ring 34 similar to that of the holding member and provided with ears 35 at its lower side, between which ears the ring is divided, a bolt 36 being provided to engage the openings in the ears and draw the same toward each other to clamp the chuck. 37 represents laterally-extending arms formed integral with the sides of the ring, and formed integral with each of these arms are two arms 38, extending at right angles to the arms 37, with the outer end of one above the rod 30 of the holding member 15 and the outer end of the other below said rod. Secured to the upper arm 38 is a stop-pin 39 to engage said rod 30, and a thumb-screw 40, extending through a screw-threaded opening in the lower arm, forms an adjustable stop to engage the lower side of said rod. Each of the arms 37 is formed with an eye or bearing to receive rods 41 and 42, held therein by set-screws, the rod 41 extending outward at a distance above the track-rod 20 and the rod 42 extending laterally in the opposite direction. The said rod 42 is notched at intervals to engage the bail of a weight 43, and on the outer end of rod 41 is journaled a roll 44, adapted to be engaged, as shown in Fig. 3, by a curved depression-bar 45, adjustably supported in the path of the roll by being secured at one end to a pin 46, journaled on the bracket 22 and adjustably held from turning by a clamping-arm 47.

A supporting-rod 48 is adjustably secured near one end to the track-rod 20 and extends upward and across to the opposite side of the

machine, where it is bent at right angles and extends longitudinally of the machine to a point approximately opposite the clamping members. Adjustably secured to said supporting-rod near its end is a vertical rod upon which is journaled a roll 49, extending in the path of one of the arms 28 on the clamping-rod 27 to form a stop to engage and turn said arm, and adjustably secured to the end of said supporting-rod and extending longitudinally therefrom is a bar 50, having a downwardly-curved end to engage one of the arms 28 at the opposite end of the movement of the carriage and turn said clamping-rod in the opposite direction.

Just before the carriage reaches the rear end of its movement, as shown in Fig. 1, the arm 28 of the clamping-screw 27 engages the stop-roll 49, and the screw is turned thereby to firmly clamp the member 15 to the chuck 10, which in turn is firmly secured to the shaft E' of the roll E to be corrugated. The ring of the adjusting member 14 is also clamped to the chuck, but not so strongly but that when the roll 44 on its laterally-extending arm engages the depressing-bar 45 said member will be turned on the chuck until its stop-pin 39 contacts the rod 30, the chuck being prevented from turning by the member 15 engaging the track-rod 20. When the track-rod is set at an incline, as shown, as the carriage moves forward the roll will be gradually turned by the member 15, which is firmly clamped thereto and has the rigid rod 30 riding upon the inclined track-rod, and thus spiral grooves will be cut in the face of the roll by the stationary tool 1, the amount of slant given the track determining the amount of twist the grooves will have.

Just before the carriage reaches the forward end of its movement the arm of the clamping-screw 27 will engage the downwardly-extending end of the stop-bar 50, which will turn said clamping-screw to allow the ring 25 to spread and release the holding member 15 from the chuck. The roll is then free to turn, and as the member 14 is clamped thereto in such a manner that considerable force is required to turn the same on the chuck the weight 43 will turn the roll until the stop-screw 40 comes in contact with the under side of rod 30, roll 33 preventing the roll 31 from being raised out of contact with the track-rod. The holding member 15 is not again clamped to the chuck until the carriage nears the rear end of its stroke, and therefore the member 14 will turn the chuck freely as its roll 44 passes from under the depressing-bar 45 during this movement of the carriage. The roll is thus automatically turned the required distance for a new cut each time that the carriage reaches the forward end of its movement, and the distance which the roll will be turned may be regulated by adjusting the thumb-screw 40.

The parts are so constructed and arranged

that they may be reversed or changed to the opposite side of the machine, and thus the direction of the spiral of the grooves reversed, the arms 37 of the member 14 being made
5 alike and the rods 41 and 42 interchangeable for that purpose. The track-rod and attached parts may also be shifted to the opposite side of the machine for this purpose.

Having thus fully described my invention,
10 what I claim is—

1. In combination with a carriage for supporting the roll to be operated upon and means for reciprocating said carriage, of a member for holding the roll, means for operating said
15 member to release the roll at the end of the working movement of the carriage, and means for turning the roll when released by said member.

2. In combination with a carriage for supporting the roll to be operated upon and means for reciprocating said carriage, of a member for holding the roll, means for releasing the roll, an adjusting member to turn the roll in
20 one direction when released from the holding member, and means for turning the adjusting member in the opposite direction.

3. In combination with a carriage for supporting the roll to be operated upon and means for reciprocating said carriage, of a member
30 for holding the roll from rotating independently of said member during the working movement of the carriage, means for operating said member to release the roll at the end of the working movement of the carriage, an
35 adjusting member adjustably secured to the roll to turn the same when released by the holding member and adapted to engage the holding member to limit its adjustment in relation thereto, and means for turning said
40 adjusting member on the roll after having turned the roll.

4. In combination with a carriage for supporting the roll to be operated upon and means for reciprocating said carriage, of a member
45 for holding the roll from rotating independently of said member during the working movement of the carriage, means for operating said member to release the roll at the end of the working movement of the carriage, a
50 member mounted on the roll and adjustably secured thereto to turn therewith, means for turning said adjusting member and roll when the roll is released by the holding member, a stop on the adjusting member to limit the
55 movement of said member and roll, and means for turning said adjusting member on the roll in the opposite direction from that in which the roll is turned.

5. In combination with a carriage for supporting the roll to be operated upon and means for reciprocating said carriage, of a member
60 for holding the roll from rotating independently of said member during the working movement of the carriage, means for operating said member to release the same from the

roll at the end of the working movement of the carriage, an adjusting member mounted on the roll and adjustably secured thereto to turn therewith, means engaging the adjusting
70 member for causing the same and the roll to turn when released by the holding member, a stop on the adjusting member to engage the holding member when the roll is turned to limit the movement thereof, means for turning
75 the adjusting member on the roll to move the stop out of contact with the holding member, and a stop on the adjusting member to limit the turning of the same.

6. In combination with a carriage for supporting the roll and means for reciprocating
80 said carriage, of a holding member to clamp the roll, movable with the carriage, means for releasing the clamp to allow the roll to turn at the end of the working movement of the carriage and for tightening the clamp at the
85 beginning of said movement, means engaging said holding member to guide the same, an adjusting member mounted on the roll to turn the same in one direction when released by the holding member, and means for engaging
90 and turning the adjusting member on the roll in the opposite direction.

7. In combination with a carriage for supporting the roll and means for reciprocating
95 said carriage, of a holding member adapted to clamp the roll, means for releasing the clamp to allow the roll to turn at the end of the working movement of the carriage, a track engaging the holding member to hold and guide the
100 same, an adjusting member adapted to clamp the roll, means secured to said adjusting member for turning the same when the roll is released by the holding member, and a depression-bar for engaging and turning the adjusting
105 member.

8. In combination with the machine-frame, a carriage on said frame for supporting the roll, and means for reciprocating said carriage, of a holding member adapted to clamp
110 the roll and movable with the carriage, a clamping-rod to open and close the clamp of said member, means for turning said rod to release the roll, an adjustable track-rod extending longitudinally of the carriage and secured to
115 the machine-frame, an arm on said member held in engagement with the track-rod, an adjusting member adapted to clamp the roll, an arm on said adjusting member, a depressing-bar to engage said arm and turn the adjusting
120 member on the roll, means for turning the adjusting member and roll when said roll is released, and stops on the adjusting member to engage the holding member.

9. In combination with the machine-frame, provided with a bed, a carriage movable on
125 said bed provided with bearings for the roll to be operated upon, and means for reciprocating the carriage; of a holding member consisting of a clamping-ring provided with laterally-projecting ears having screw-thread-
130

ed openings, a clamping-rod to engage the openings and provided with a laterally-extending arm, stops near each end of the movement of the carriage to engage said arm and
 5 operate the clamping-rod, an adjustable track-rod secured to the frame and extending longitudinally of the bed, a laterally-extending arm on the holding member having rolls to engage the upper and lower sides of the track-
 10 rod, an adjusting member consisting of a clamping-ring to clamp the roll-shaft and having laterally-extending arms, a roll on one of said arms, a depression-bar to engage said roll, a stop on said adjusting member to en-
 15 gage the upper side of the arm on the holding member and an adjustable stop to engage the lower side of said arm, and means engaging the adjusting member to turn the roll when released by the holding member.

20 10. In combination with the machine-frame provided with a bed, a carriage movable on said bed provided with bearings for the roll to be operated upon, and means for reciprocating the carriage; of a holding member consisting
 25 of a clamping-ring, a clamping-rod for said ring provided with a laterally-extending arm, a bracket secured to one end of the frame and provided with a vertical bore, a post adjustably secured within said bore, a track-rod piv-
 30 otally secured at one end to said post, a bracket having a vertical slot secured to the frame, a bolt engaging said slot to adjustably secure the opposite end of the track-rod to the bracket, a supporting-rod adjustably secured to the
 35 track-rod and extending upward, across, and longitudinally of the frame, stops supported by said rod to engage the arm on the clamping-rod, a laterally-extending arm on the hold-
 40 ing member to engage the track-rod, an adjusting member consisting of a clamping-ring engaging the roll-shaft and provided with a laterally-extending arm, stops on said arm to engage the arm on the holding member, a de-
 45 pressing-bar to turn the adjusting member on the roll-shaft, and means for turning the ad-justing member and roll.

11. In combination with the machine-frame

provided with a bed, a carriage movable on said bed and provided with bearings to receive the shaft of the roll to be corrugated, and means
 50 for reciprocating the carriage; of a chuck adapted to be secured to one end of the roll-shaft and reduced in diameter to form an external shoulder, a holding member consisting
 55 of a clamping-ring engaging the chuck, an adjusting member consisting of a clamping-ring engaging the chuck, a ring secured to the chuck to hold said members thereon, a clamp-
 60 ing-rod engaging the clamping-ring of the holding member and provided with a laterally-extending arm, an adjustable track-rod supported by the frame and extending longi-
 65 tudinally of the bed, a laterally-extending arm on the holding member, a roll on said arm to engage the upper side of the track-bar, a bracket on said arm, a roll on said bracket to
 70 engage the lower side of said track-bar, an arm extending laterally from each side of the adjusting member and each having parallel arms extending laterally therefrom, one above
 75 and the other below the arm on the holding member, adjustable stops on said arms to engage said arm on the holding member, rods adjustably secured to each of the laterally-
 80 extending arms on the adjusting member, a weight to engage one of said rods and a roll on the other rod, a depressing-bar adjustably supported at one end and extending longitu-
 85 dinally above the track-rod to engage the said roll, a supporting-rod adjustably secured to the track-rod and extending upward, across and longitudinally of the frame, a roll supported by said rod forming a stop to engage the arm on the clamping-rod at one end of the movement of the carriage, and a stop supported by said rod to engage the said arm at the opposite end of the movement.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID S. ANTHONY.

Witnesses:

OTTO F. BARTHEL,

THOMAS S. LONGSTAFF.