Aug. 19, 1947. R. G. BIRR 2,425,916

TOWEL CABINET STRUCTURE

Filed June 20, 1945 2 Sheets-Sheet 1

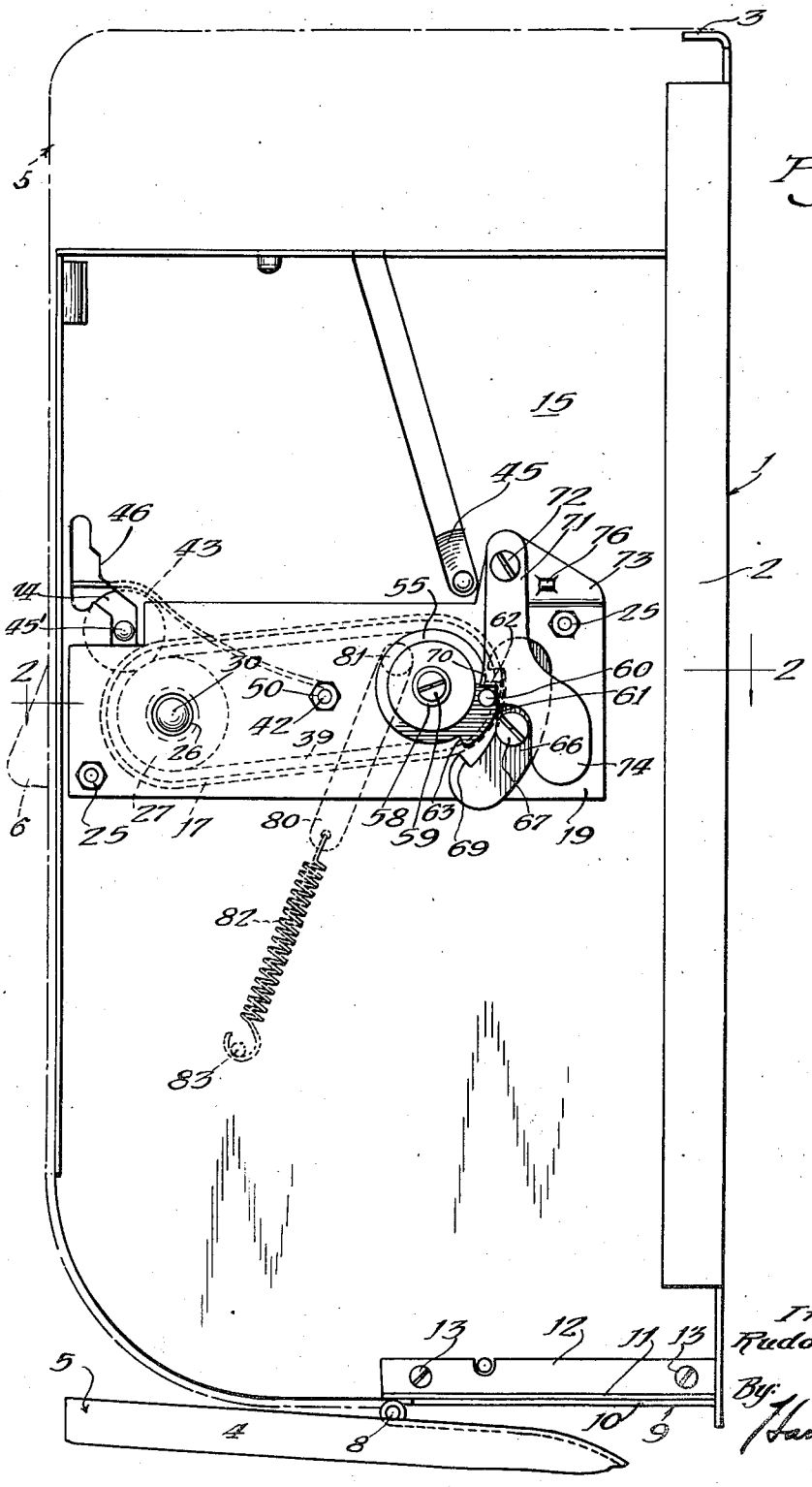


Fig. 1.

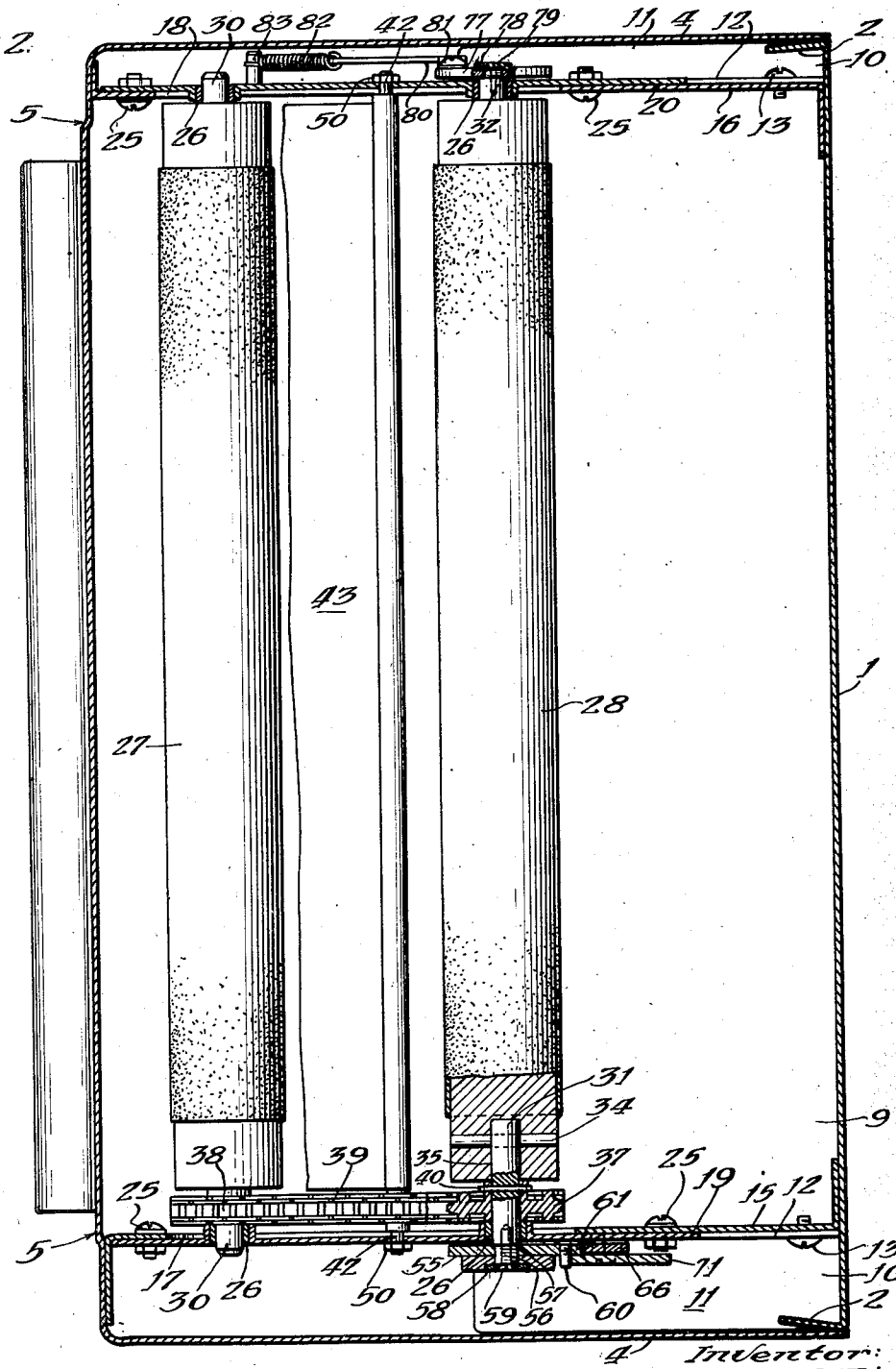
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Filed June 20, 1945 2 Sheets-Sheet 2

Fig. 2.



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Patented Aug. 19, 1947 2,425,916

UNITED STATES PATENT OFFICE

2,425,916

TOWEL CABINET STRUCTURE

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Application June 20, 1945, Serial No. 600,622

7 Claims. (Cl. 312—38)

1

This invention relates to improvements in toweling dispensing structures and has as an important object to provide means by which the rolls can be more easily assembled and disassembled.

Another object is to provide a more advantageous arrangement of the sprocket chain drive elements and to make these elements more easily accessible. Another object is to make the rolls easily removable while connected by the chain drive and to allow their assembly as a unit.

Another object is to provide a structure by which a single roll or both rolls can be removed from either side of the cabinet and to provide means by which the rolls can be held in horizontal position at one end only while their bearings are disconnected at the opposite end. The arrangement is such that when a bearing plate at one end of the rolls is disconnected the rolls are solely held in their substantially true position by the bearings at their opposite ends.

Another object is to provide a structure in which the rolls can be removed and reassembled while the cabinet is on the wall.

Another object of the invention is to closely group the sprocket chain drive and stop mechanism, to facilitate assembly and disassembly. Another object is to provide simple means for assembling and disassembling one element of a stop mechanism for one of the rolls so that this element can be quickly removed, and when removed will permit quick removal of the bearing plate with the remainder of the stop mechanism thereon to expose the drive mechanism for inspection or to permit withdrawal of either roll or of both rolls while connected with the sprocket chain drive elements.

Another object of the invention is to provide removable plates which not only supply bearings for the rolls, but also supply support for an element which separates the clean from the soiled toweling in a cabinet of the so-called "continuous" type.

Another object is to make all parts of the dispensing mechanism easily releasable.

Heretofore in towel dispensing cabinets of the type known as "continuous", it has been the practice to mount the rolls on an inner unit and between a pair of upright plates, and this unit was adapted to be disconnected from an outer casing. In such prior cabinets the chain drive element was arranged at that side of the cabinet opposite to the side on which stop mechanism was arranged. Moreover, it was necessary to dismantle the inner unit to take out the rolls. It is

2

therefore an object of this invention to arrange the drive and the stop mechanisms on one and the same side and therefore immediately adjacent one another, and provide means whereby the two mechanisms can be assembled or disassembled while the cabinet is on the wall and without removal of the inner unit. This object is accomplished in part by providing a one-piece cover which when in fully open position gives direct and easy access to the outer side of the upright mechanism-supporting plates of the cabinet, and therefore gives direct access to any mechanism which is on the outer sides of either upright plate, and to the fastening devices of such mechanisms.

Objects of the invention also are: To provide an improved cabinet structure which is cheap and which can be easily assembled and disassembled while the cabinet is on the wall; to provide for quick access to the stop mechanism and for the removal of the same; to provide for quick assembly or disassembly of the measuring roll or of measuring and soiled towel takeup rolls, or of the stop mechanism, or of a time-stop mechanism while the cabinet is on the wall.

Features, objects and advantages of the invention will be pointed out in the description of the drawings, and in said drawings—

Fig. 1 is a side elevation of one side of the inner section showing the removable bearing plate in relation to the opening through which the rolls can be withdrawn, and showing how the stop mechanism is mounted on, supported by and removable with said plate; and

Fig. 2 is a horizontal section on line 2—2 of Fig. 1.

The invention has been illustrated as applied to a cabinet of the continuous type and that phase of the invention which relates to the chain drive of two rolls is directed particularly to a cabinet of that type. However, that phase of the invention which relates to the use of an easily removable bearing plate or to easily removable bearing plates, and to the attachment of one element of the stop mechanism to the roll, can be used for paper dispensing cabinets, as well as cloth dispensing cabinets like that herein illustrated.

In the drawings the numeral 1 indicates the back plate of the inner or wall section of the cabinet, and this back plate has openings (not shown) by which the cabinet can be hung on fastening devices provided on the wall. The back plate is suitably stiffened by vertical flanges 2 and by a top flange 3, the vertical flanges acting

as inclined planes adapted to guide the rear portions of the sides 4 of the cover generally indicated at 5.

This cover is pivoted as shown at 8 to the forward edge of a bottom plate 9 of the inner section and the cover is adapted to enclose the inner section on five sides, that is, at the bottom, top, front and sides. The plate 9 projects laterally at opposite sides of upright plates 15, 16 as at 10, and to the top surface of each projecting portion is secured one flange 11 of an angle iron, the other flange 12 of which is detachably secured to the outer face of the corresponding plate by screws 13. Thus, the plate 9 is detachable and lies beneath the lower edges of plates 15 and 16, and a bottom of the inner section, and a bottom of the cover cooperate to form the total bottom for the cabinet. In Fig. 1 the cover is shown in its open position and a dot-and-dash line indicates the closed position of the cover, while the cover is shown in full lines in its closed position in Fig. 2.

Upright plates 15, 16 are rigidly attached to the back plate 1 as by welding. On these upright plates are supported all of the dispensing mechanism. Each of the plates 15 and 16 has an elongated opening therein and these openings are respectively indicated at 17 and 18. These openings may be of any suitable size or shape, just as the plates that cover them may be. These openings are covered by bearing plates respectively indicated 19 and 20. These plates are arranged at the outside of upright plates 15 and 16, so that they are removable from the outside when the cover 5 is in the full-line position of Fig. 1. Each plate is secured by a device or devices which can be quickly and easily detached. In this case nuts and bolts are used, the heads of the bolts being at the inner side. These devices are indicated by the numeral 25. When the cover is fully open, all fastening devices are easily accessible.

Each plate has, in this embodiment, two bearings indicated at 26, all bearings being substantially identical in structure and having liners which are held in inwardly punched tubular portions of the plates. One or more bearings may be used. Journaled in these bearings is a measuring roll 27 and a soiled towel takeup drive roll 28. The roll 27 has trunnions 30 and the roll 28 has trunnions 31 and 32. All trunnions are held in substantially the same way, nonrotatably in their rolls, in this instance by means of a cross-pin 34, the trunnion being inserted in an opening 35 at the end of the roll, as best shown in Fig. 2. The trunnions can be detached by axial motion from their bearings, and the plates 19 and 20 can be detached by axial motion from the trunnions.

The rolls are of the same diameter and are driven at the same rate of rotation by a sprocket chain. The position of this chain is new in this art. It is arranged between the plate 20 and the ends of the rolls 27 and 28, and in opposition to the opening 17. The length of the opening 17 is greater than the overall length of the chain and the sprocket gears. One sprocket gear is indicated at 37 and the opposite one 38, and the chain is indicated 39. Both sprocket gears are nonrotatably connected to their trunnions 31 and 30 by means of a cross-pin 40.

It is a feature of the invention that the bearing plates 19 and 20, in addition to supporting the rolls, also support a bar 42 about which swings a plate 43 which separates the clean towel-

ing on the usual pinch roll 44 (see Fig. 1) from the soiled toweling on the soiled towel roll 45. This plate 43 normally rests, during operation of the cabinet, on top of the toweling which is passing over the pinch roll and the pinch roll engages against toweling which is on the measuring roll 27. This pinch roll has trunnions 45' which are arranged in suitable slots of the plates 15 and 16. The bar 42 is detachably held by suitable nuts 50 disposed at the outside of the plates 19 and 20. Thus, when the bar 42 is supported by the plates and it is desired to remove the plates 19 and 20, all that is necessary is to remove one of the nuts 50 and remove the fastening devices 25, and the plate can be moved in an axial direction, leaving the rolls held by their opposite bearings in the opposite upright plate or in the opposite bearing plate.

In case of the plate 19, if it is desired to inspect the sprocket chain drive mechanism, this can easily be done by removing the plate. The rolls 27 and 28 will remain in substantially horizontal position held by their opposite trunnions in the plate 20, and then if desired the two rolls with the chain drive intact can be removed through the opening 17, such movement disconnecting the opposite trunnions from the plate 20.

Another feature of the invention is that the stop mechanism is on the plate 19 and near the sprocket chain drive. It is also a feature of this invention that the stop mechanism is attached to either the roll 27 or 28 and that it is applied at the same side as the drive chain 39. The arrangement by which one element of this stop mechanism is detachably connected to the corresponding trunnion is also a feature of this invention. The stop mechanism per se is not claimed herein but it is a feature of the invention that said stop mechanism can be mounted in part on the plate 19 or on the plate which closes the opening to which the chain drive is opposed.

The stop mechanism shown is of the same type shown in Grunwald Patent 2,175,192. This mechanism comprises a disk 55 (see Fig. 2) secured on a reduced squared portion 56 of trunnion 31. A trunnion of the same type as trunnion 31 may be used on measuring roll 27. The disk 55 is held against a shoulder 57 by means of a washer 58, in turn secured by a screw 59 which is threaded into the trunnion. This is a very simple device and can be easily and quickly released to allow removal of the disk 55, and of the plate 19. This stop mechanism functionally represents a form of stop which automatically releases when a pull on the toweling ceases. It will be understood, however, that any form of stop mechanism or time-stop mechanism can be mounted on the plate, and that the bearing plate can be enlarged or shaped differently from that shown. The point is that after release of one element of the stop mechanism and release of the fastening devices of the plate 19, the whole plate with its stop mechanism may be easily removed, leaving the rolls connected by the chain drive, in their original position. Thus, the stop mechanism can be easily removed for adjustment or repair.

The disk 55 has a pin 60 and also a peripheral projection or segment 61 which provides at one end a stop shoulder 62 and at the opposite end a stop shoulder 63. The segment 61 acts to swing a pivotal stop 66 about a pivot 67 which is carried by the plate 19 so that a shoulder 69 of the stop 66 lies in the path of the shoulder 63 of the segment 61.

In the figure the stop is shown in open position, at which position it falls by gravity as soon as the user ceases pulling on the toweling. The kicking action by the segment 61 is obtained as a result of rapid motion, in this instance of the takeup drive roll as operated through the sprocket chain connection by means of the measuring roll 27. In order to assure release of the stop 66 after the shoulders 63 and 69 have engaged, a spring is provided for reversing the rotation of the roll 28 to move the pin 60 in anticlockwise direction to the position shown and against a shoulder 70 of a gravity-operable pawl 71 pivoted as at 72 to an extension 73 of the plate 19. The lower part of this pawl is enlarged as at 74 to automatically move toward the left in the figure to assume the position shown. Motion of the pawl 71 to the right is limited by a stop 76 struck from extension 73.

The rotation of the roll 28 is reversed by means of a disk 77 secured to the squared terminal of trunnion 32 as shown in Fig. 2. The disk 77 is held by means of a washer 78 and screw 79 threaded into the trunnion 32. This disk 77 has a link 80 pivoted thereto as at 81 and the opposite end of the link has a spring 82 attached thereto, the far end of the spring being attached to a pin 83.

Where the back-off spring 82 is arranged as shown in Grunwald 2,175,192, that is when it is directly attached to disk 55 instead of to a disk 77 at the outer side of plate 20, it is only necessary to remove the screw which attaches the link, or to remove the screw 59, before the plate 19 is removed.

Although in Fig. 2 I have shown a bearing plate 20 on the opposite side, it will be understood that the trunnions may have direct bearing in the side plate 16 without the use of an opening. It is, however, much more advantageous to use an opening 17 or 18 in each of the upright plates and to use two bearing plates 19, 20 to close these openings. The broad gist of the invention is the use of a bearing plate in conjunction with an opening which will allow the simultaneous or separate withdrawal of the rolls after the plate is removed, and to provide simple means by which disconnection of one element of the stop allows the plate with the other elements of the stop to be removed.

Insofar as I am aware, no wall type cabinet has been made in which the measuring roll and/or the stop mechanism could be easily removed from the cabinet while the cabinet is on the wall, nor in which a journal plate for the roll or rolls can be disconnected therefrom by simple outward motion resulting in the uncovering of an opening through which either one or both rolls can separately or simultaneously be drawn and in which rolls which are intergeared can be withdrawn without disconnecting the gearing, or without disconnecting one of the upright plates.

In Fig. 1 the position of the closed cover has been shown by dot-and-dash lines. It will be understood that the cover has a suitable lockable latching means and that the cover also has a horizontal slot lying above the towel-spacer element 6. The towel passes from a pinch roll downwardly and outwardly through the slot and downwardly in front of and against the element 6, which element spaces the toweling forwardly from the front face of the cover to facilitate grasping. The toweling forms a loop below the cabinet and passes upwardly through an opening in the bottom of the cabinet and is connected to the takeup roll 45.

What I claim is:

1. A towel dispensing cabinet which has first and second upright plates, between which are a measuring roll, a soiled towel takeup drive roll and a partition to separate toweling material when on the rolls, said rolls and partition having trunnions, an opening in the first plate through which the rolls and partition can be withdrawn, and a bearing plate covering said opening and disposed at the outer side of the first plate and operatively supporting one trunnion of each roll and of said partition in a manner to permit their detachment by axial motion, the opposite trunnion of each roll and of said partition being operatively supported in the second plate to permit detachment by axial motion, and easily releasable means accessible from the outer side of the first upright plate and detachably securing the bearing plate to the first upright plate.

2. A towel dispensing cabinet which has upright plates, between which are a measuring roll, a soiled towel takeup drive roll and a partition to separate toweling material when on the rolls, said rolls and partition having trunnions, an opening in each plate through either of which the rolls and partition can be withdrawn, and a bearing plate bridging each opening and disposed at the outer side of the corresponding upright plate and operatively supporting trunnions of said rolls and partition in a manner to permit their detachment by axial motion, and easily releasable means accessible from the outer side of the upright plates and detachably securing the bearing plates to the upright plates.

3. A device of the class described comprising, a pair of spaced upright plates, each having an opening, a pair of rolls extending between the plates and capable of axial withdrawal through either opening, journal plates, one for each opening and disposed at the outer side of the upright plates, means detachably securing each journal plate to its upright plate over the opening, each plate having means in which the rolls are journaled, said means being adapted for detachment by axial motion of the plates or of the rolls, whereby after removal of one of the plates the rolls can be removed through the corresponding opening, and a stop mechanism carried on and at the outside of one of the plates and having a driving connection with one of said rolls which is adapted to be broken as a result of outward motion of the plate.

4. A device of the class described comprising, a pair of spaced upright plates, one plate having an opening, a pair of rolls extending between the plates, means by which the rolls are driven in unison, the said means being disposed between the ends of the rolls and the inner side of that upright plate which has the opening, the size of the opening being such that said rolls while connected by said driving means can be withdrawn or introduced by axial motion through the opening, a journal plate at the outer side of the upright plate and opposed to the opening and having combined sighting and bearing openings therethrough, and means detachably securing the plate to the corresponding upright plate, each roll having trunnions respectively rotatable in one upright plate and in a sighting opening of the journal plate so that after release of said detachable securing means said journal plate can by simple outward motion be detached from the trunnions.

5. A dispensing cabinet including, a pair of upright plates, one having an opening, a roll adapted to be passed through the opening and mounted on and between the plates and having one trunnion in a bearing of one of the plates and one trunnion passing through the opening of the other plate, a bearing plate at the outer side of the upright plate and covering the opening, said roll having a trunnion in a bearing of said bearing plate, which trunnion projects at the outer side of said plate, a stop mechanism entirely carried on the outer side of said bearing plate with the exception of a stop element which is nonrotatably secured to the outer end of said projecting part of the trunnion by easily releasable means, and means releasably securing the bearing plate to the upright plate.

6. A dispensing cabinet including, a pair of upright plates, one having an opening, a pair of rolls arranged between the plates, each having one trunnion in a bearing of one of the plates and one trunnion passing through the opening of the other plate, a sprocket chain drive means connecting those two trunnions which project through the opening, a bearing plate in which said two trunnions are journaled disposed at the outer side of said other upright plate and opposed to the opening, said rolls while connected with their drive means being adapted to be withdrawn through said opening, one of the trunnions in the bearing plate projecting at the outer side of said plate, and a stop mechanism entirely carried on the outer side of said bearing plate, with the exception of a stop element which is nonrotatably secured to the outer end of said projecting trunnion by easily releasable means, and means releasably securing the bearing plate to said other upright plate.

7. A device of the class described comprising, first and second upright plates, a pair of rolls extending between the plates and rotatably journaled in the second plate, means carried by the rolls to drive them in unison, the said driving means being disposed between the ends of the rolls and the inner side of the first plate, said first plate having an opening through which both rolls can be withdrawn or introduced by axial motion while connecting with said driving means, a journal plate at the outer side of said first plate and opposed to said opening, and having two combined sighting and bearing openings therethrough, and means detachably securing the plate to the first plate, each roll having a trunnion rotatable in a sighting opening, so that after release of said detachable securing means said journal plate can by simple outward axial motion be detached from the trunnions, whereby during assembly the ends of the trunnions can be viewed through said sighting openings to facilitate registration of the trunnions with their bearing openings.

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