March 20, 1956 R. H. GREENE 2,738,935

MOUNT FOR WEB ROLLS

Filed Aug. 14, 1951 6 Sheets-Sheet 1

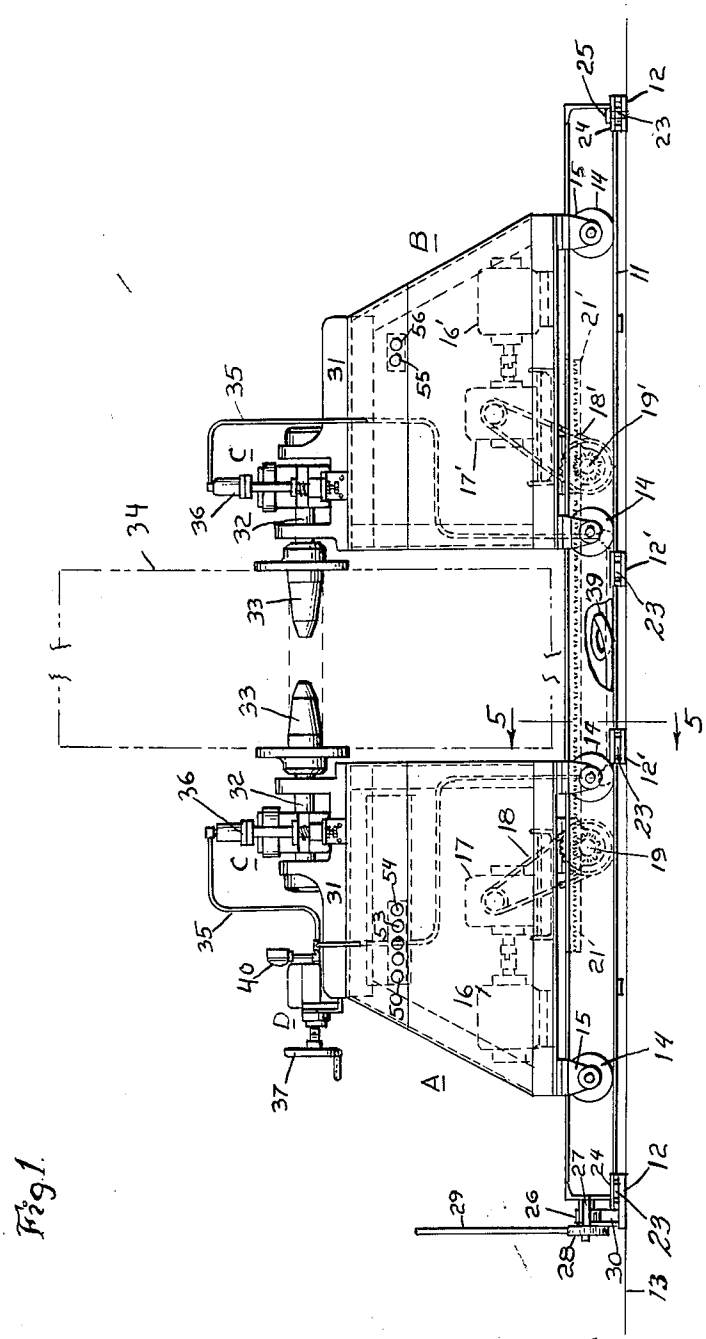


Fig. 1.

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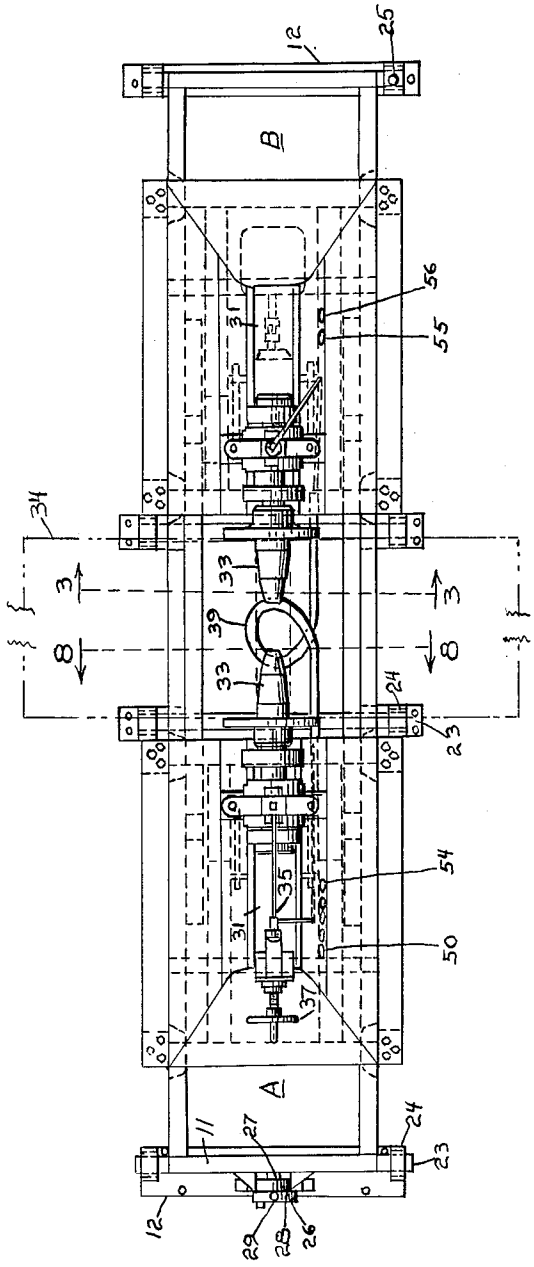


Fig. 2.

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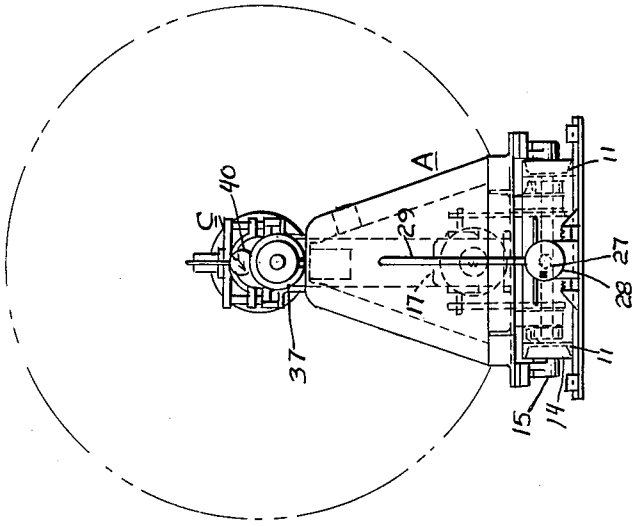


Fig. 4.

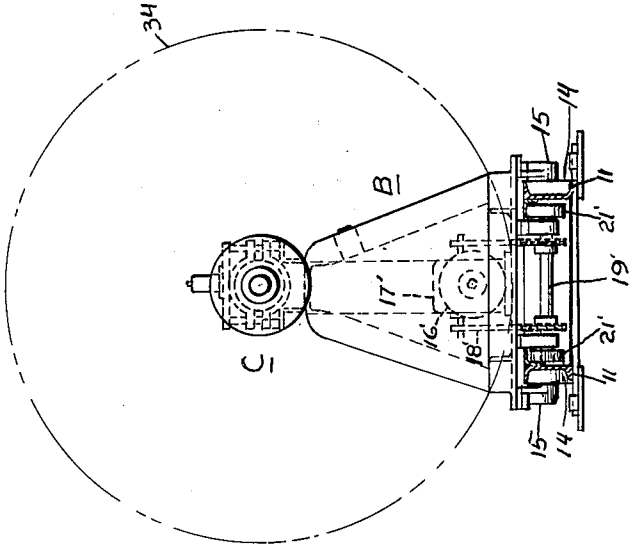


Fig. 3.

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Fig. 5.

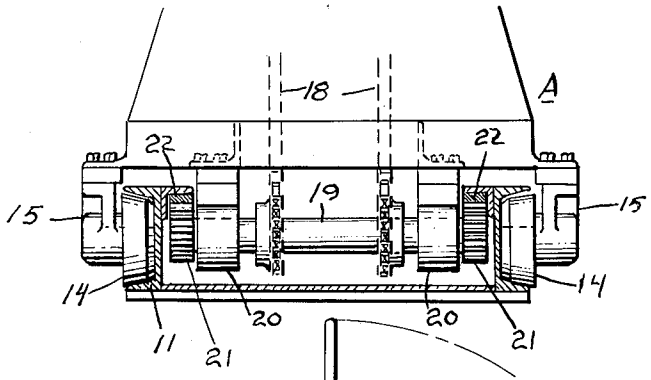


Fig. 6.

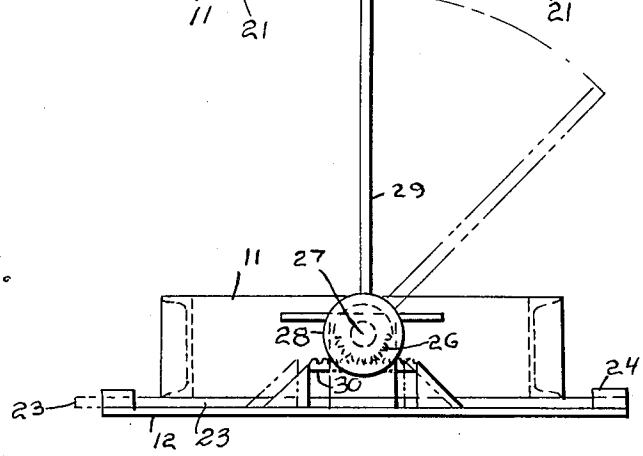


Fig. 7.

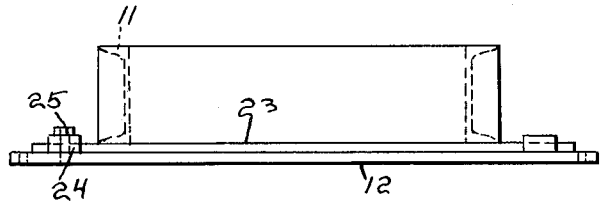
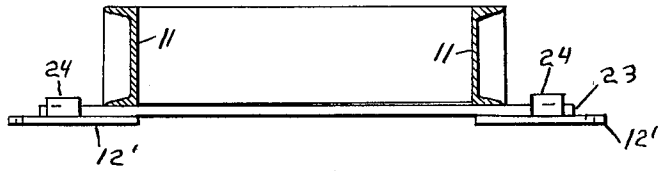


Fig. 8.



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MOUNT FOR WEB ROLLS

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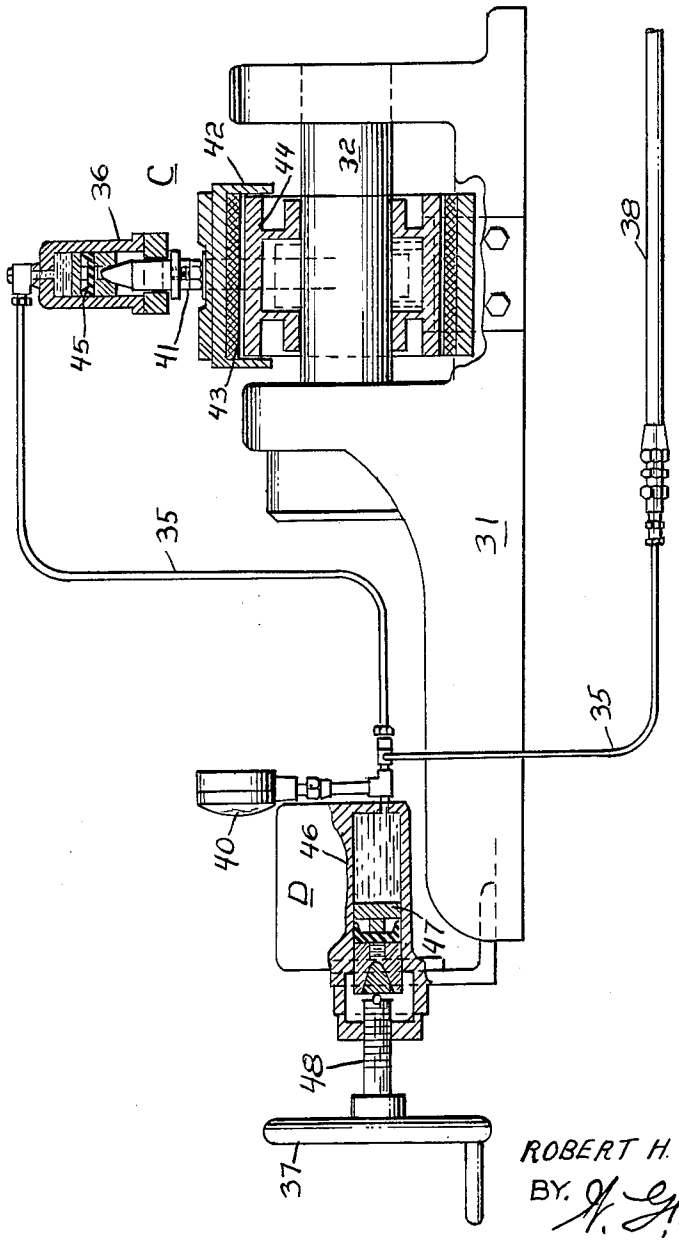


Fig. 9.

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MOUNT FOR WEB ROLLS

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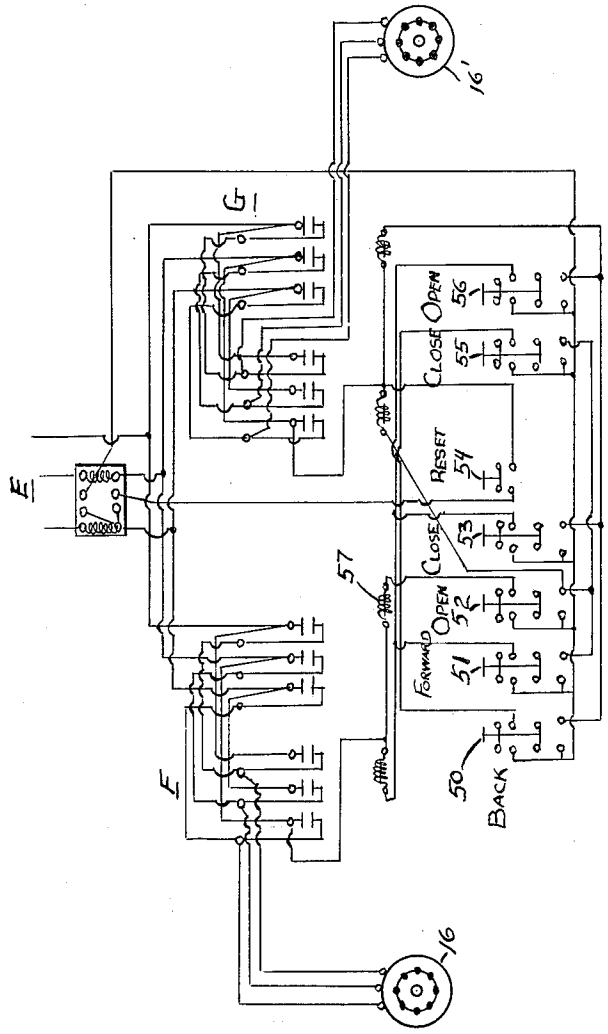


Fig. 10.

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2,738,935

MOUNT FOR WEB ROLLS

Robert H. Greene, Marion, Ind.

Application August 14, 1951, Serial No. 241,741

9 Claims. (Cl. 242—58)

This invention relates to improvements in a mount for heavy web rolls adapted to receive and support the rolls in selected positions sequentially to be unwound and fed to adjacent processing machinery.

In the usual practice of manufacturing corrugated paper board, paper ply board, and other stock made up from rolls of web, processing machinery of various types suitable for current needs are employed which are supplied with material from the web rolls.

An object of the instant invention is to afford a mount for supporting and moving heavy web rolls sequentially in selected positions while the rolls are unwound and the web supplied to processing machinery disposed adjacent the mount.

Another object of the invention is to construct a web roll supporting mount having adjustable stands oppositely disposed upon a base that is movably positioned on a relatively stationary situs, so the mount including the base together with a web roll supported by the stands is bodily movable into selected positions for unwinding of the roll and feeding of the web to adjacent processing machinery.

And a further object of the invention is to afford a power activated appliance for the reception and support of heavy web rolls in selected positions for unwinding, that is conveniently manipulated by a single operator.

Other objects and advantages of the invention appear in the following description.

An illustrative embodiment of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a side elevational view of a structure in which the invention is incorporated;

Fig. 2 is a top plan view of the structure shown in Fig. 1;

Fig. 3 is an elevational view in section on the line 3—3 of Fig. 2;

Fig. 4 is a front end elevational view of the structure shown in Figs. 1 and 2;

Fig. 5 is a fragmentary end elevational view in section on the line 5—5 of Fig. 1;

Fig. 6 is a front elevational view of the base and its floor support, including an adjusting device for the base;

Fig. 7 is a rear end elevational view of the base and its floor support including a pivot upon which the base swings;

Fig. 8 is an elevational view of the base and its support in section on the line 8—8 of Fig. 2;

Fig. 9 is an elevational view partly in section showing the controlling mechanism for the hydraulically operated brakes used in the apparatus; and

Fig. 10 is a diagram showing the electrical connections and controls for the motors that activate the stands.

The illustrative embodiment of the invention consists of an apparatus in which is included two similar stands, indicated generally by A and B respectively mounted upon a common base 11 of rectangular form preferably made of channel iron and disposed movably on the anchor-plates 12 and 12' (Figs. 1, 2, 6, 7, and 8) that are secured in place upon the floor 13.

The stands A and B each are supported upon the base

by wheels 14 mounted upon brackets 15 that project downwardly from the corresponding stands at the sides thereof and overlap the base. The wheels travel on the lowermost flanges (serving as longitudinally extending guide rails) of the channel iron base and serve to guide longitudinal movement of the stands thereon. In this manner the stands are maintained constantly alined with each other.

The stands A and B are adjustably moved on the base 11 toward and from each other by means of individual propelling mechanisms located in the stands, each propelling mechanism consisting of a reversible motor 16—16' operatively connected with a companion reducing gear 17—17' that has a chain and sprocket connection 18—18' with a countershaft 19—19' that is supported in bearings 20 beneath the corresponding stand and travels therewith. In this manner traction of the stands on the base is afforded. On the ends of the countershaft 19 (Figs. 1 and 5) are splined pinions 21 that mesh with corresponding rack-bars 22 secured to the base 11 adjacent the top thereof, so that movement of the stands lengthwise of the base in one direction or the other occurs accordingly as the countershafts are rotated.

The base 11 has a series of transverse bars 23 secured on its bottom, the ends of which extend loosely through corresponding stirrups 24 on the anchor-plates. The bars extend loosely through said stirrups so as to permit lateral swinging movement of the base 11 about a pivot 25 that projects upwardly from the rear-most anchor-plate 12 The base is adjustably moved on the anchor-plates by means of mechanism (Figs. 1, 2 and 6) consisting of a pinion 26 mounted on a stud 27 that projects from the front end of the base 11 and is provided with a head 28 and a handle 29 by which the pinion is turned about the axis of the stud. The pinion 26 has meshing engagement with a rack 30 that is mounted on the foremost anchor-plate 12 so that lateral swinging movement is imparted to the base 11 accordingly as the handle 29 is manipulated in turning the pinion 26. By this means the base 11 and both stands A and B are bodily swung laterally over the anchor-plates for the purpose hereinafter described.

Upon the top of each stand (Figs. 1, 2 and 9) is positioned a mount 31 having a horizontal spindle 32 provided on one end thereof with a centering chuck 33, the chucks being disposed in axial alinement permanently with each other and oppositely disposed.

The particular construction of the chucks is immaterial to the invention as any type of chuck may be employed that is suitable to support a web roll 34 when the chucks are inserted into and fit the bore of the roll. The spindles 32 for said chucks each have in connection therewith a brake mechanism (Fig. 9), indicated generally by C, preferably of a type operated hydraulically in the usual manner. Each brake mechanism C is provided with a liquid feed pipe 35 that has connection with a liquid pressure generator, indicated generally by D, that is secured on the foremost stand A and provided with a hand-wheel 37 for manipulating it. This generator is of any suitable type adapted to vary the pressure supplied to or withdrawn from the feed pipes 35 accordingly as the hand-wheel 37 is manipulated. The feed pipes 35 are coupled together by means of a flexible conduit 38 whereby the pressure in both hydraulic mechanisms C is raised or lowered alike. The conduit has formed therein an expansion loop 39 by which is permitted relative movement of the stands A and B without interference with the flow of oil in the feed pipes 35. In connection with the generator D is arranged a pressure gauge 40 by which to observe the amount of pressure supplied to the brake mechanisms.

The purpose of the brake mechanisms C and generator D is to control rotation of the web roll as it is unwound

and especially to prevent racing of the roll and to control the tension of the web as it is supplied to an adjacent processing apparatus (not shown).

The construction of the hydraulic brake mechanism C and the generator D here shown and described (Fig. 9) is exemplary. Each brake mechanism has an hydraulic jack cylinder **36** mounted on a yoke **41** that extends up from the mount **31** astride a brake-shoe **42** forming part of the brake mechanism C. The brake shoe has a friction lining **43** that bears against a brake-drum **44** splined on the chuck spindle **32**, and a plunger **45** in the jack cylinder is operatively connected with the brake shoe, so that when liquid pressure is applied through the feed pipe **35** to the jack cylinder the brake mechanism is activated.

The generator D is mounted on the adjacent mount **31** and has a cylinder **46** connected with the feed pipes **35** and provided with a piston **47** and jack screw **48** for activating the piston. The cylinder **46** is filled with liquid which is forced into the feed pipes with more or less pressure when the jack-screw is turned upon manipulation of the hand-wheel **37**. In this manner the brake mechanisms are applied with more or less force and unwinding of the web roll tensioned accordingly.

As exemplified in the diagram (Fig. 10) the motors **16** and **16'** are energized by current from a suitable source (not shown) by conductors, indicated generally by E, through which current is supplied to the motor **16** by an intermediate group of circuit wires, indicated generally by F, and to the motor **16'** through another group of circuit wires, indicated generally by G. The energizing current is controlled by a group of push button switches **50**, **51**, **52**, **53**, **54**, **55** and **56**, there being solenoid-operated switches **57** appropriately connected with the groups of circuit wires F and G respectively.

Preferably, the push button switches **50** to **54** inclusive are grouped together and positioned on the foremost stand A and exposed to the exterior thereof within easy reach of the operator, and the other push button switches **55** and **56** are similarly located on the stand B and used by the operator to supplement push button switches in the former group when the operator is located in that vicinity.

In the diagram the push button switches are arranged with the other electrical connections so that closing the switch **51** is accompanied by rotation of both motors **16** and **16'** in the same direction causing travel of both stands A and B forwardly upon the base, and when the push button switch **50** is closed the action of the motors is reversed causing the stands both to travel rearwardly on the base. Upon closing the push button switch **53** both stands A and B are moved toward each other upon the base, and closing the push button switch **52** causes movement of the stands on the base apart from each other. The push button switch **54** is arranged to cause resetting of the electrical apparatus as in the usual practice. The switches **55** and **56** are supplemental to the switches **52** and **53** by which the operator is enabled when located at either end of the mount to jockey the stands forwardly or backwardly on the base in order to perfect alinement of the web with the processing apparatus located adjacent the mount.

Operation

In using the invention the stands A and B are initially set apart from each other on the base **11** to permit insertion of a web roll **34** between the centering chucks **33** which is readily accomplished by momentarily closing the push button switch **52**. The web roll is then moved into position between the centering chucks in alinement therewith by use of any suitable hoisting or elevating appliance (not shown), following which the stands are moved toward each other on the base, readily accomplished by closing the push button switch **53**. By this action the centering chucks are driven into the bore of the web roll in readiness for the unwinding operation.

In order to prevent buckling of the web as it is drawn into a processing apparatus placed adjacent the mount the angularity of the base **11** is adjustably shifted upon the anchor plates **12** as is necessary to establish proper parallelism between the mount and the opposing web receiving end of said processing apparatus, this adjustment being made by manipulating the handle **29** to cause swing of the base upon its pivot **25**. To assure correct alinement of the web roll with respect to the processing apparatus, the stands A and B together with the web roll mounted thereon are jockeyed forwardly or backwardly on the base **11** by selectively manipulating the push button switches **50** and **51**.

It is desirable that tension of the web as it is unwound from the roll and drawn into the processing apparatus be maintained with more or less uniformity, and this is accomplished by manipulation of the hand wheel **37** by which the liquid pressure generator D is operated and the brake mechanism C controlled whereby resistance to unwinding of the roll to a proper extent as to sustain the required tension of the web is affected.

What I claim is:

1. A mount for web rolls in which are included a base supported upon a stationary situs for adjustable horizontal movement, means operatively connected to said base for movably supporting the latter on said stationary situs, two similar stands arranged upon the base for independent longitudinal movement thereon, axially alined centering chucks on said stands, oppositely disposed and adapted to support a web roll concentrically thereon, motor activated individual propelling mechanisms for said stands having operative relation with said base, means included in said mechanisms for moving selectively said stands either in synchronism or oppositely to each other, energizing means for the motors of said mechanisms, and a mechanism in connection with one end of said base provided with an operating handle for adjustably swinging the base.

2. A mount for web rolls comprising a unitary base, pivot means connected to said base for providing angular movement thereof in a horizontal plane, rack and pinion means spaced from said pivot means and connected to said base for controlling said angular movement, two similar stands mounted on said base for independent longitudinal movement thereon, axially alined centering chucks on said stands, oppositely disposed and adapted to support a web roll concentrically thereon, motor activated individual propelling mechanisms for said stands having a driving connection with said base, and energizing means for controlling said propelling mechanisms to move said stands horizontally relative to one another or unidirectionally together.

3. A mount for web rolls comprising a unitary base, pivot means connected to said base for providing angular movement thereof in a horizontal plane, lever operated means spaced from said pivot means and connected to said base for controlling said angular movement, two similar stands mounted on said base for independent longitudinal movement thereon, axially alined centering chucks on said stands, oppositely disposed and adapted to support a web roll concentrically thereon, and electrically activated propelling mechanism for said stands and operable for moving said stands horizontally relative to one another or unidirectionally together.

4. A mount for web rolls comprising a unitary base, pivot means at one end of said base for providing angular movement thereof in a horizontal plane, rack and pinion means connected to the other end of said base for controlling said angular movement, two similar stands mounted on said base for independent longitudinal movement thereon, axially alined centering chucks on said stands, oppositely disposed and adapted to support a web roll concentrically thereon, and motor activated individual propelling mechanisms for said stands having a driving connection with said base, energizing means for the motors of said mechanisms, and switches in connection with said en-

ergizing means for controlling said propelling mechanism to move said stands relative to one another or unidirectionally together.

5. A mount for adjustably supporting a web roll while a web is being payed off said roll comprising a horizontally arranged base, a pivot support provided on one end of said base for altering the angle of said base with respect to said pivot support, a gear and rack assembly including an operating handle provided on the other end of said base and operable to vary the angle of said base with respect to said pivot support, two upright frame sections carried by said base for movement toward and away from each other, two chucks supported by said frame sections respectively and adapted to carry for rotation a web roll, braking mechanism carried by one of said sections and operative to apply braking torque to the chuck of said one section, and power means operatively associated with said sections and arranged to move selectively said sections toward or away from each other.

6. A mount for adjustably supporting a web roll while a web is being payed off said roll comprising a horizontal elongated base providing guide rails on the two longitudinal sides thereof, two upright stands carried by said base, each stand having supporting wheels which ride on said rails for moving the stand longitudinally of said base, both stands having horizontally disposed rotatable chucks arranged in axial alignment whereby the core of a web roll may be held for rotation about a horizontal axis by means of said chucks, a rotation retarding mechanism operatively associated with at least one of said chucks for regulating the speed of rotation of the aforementioned web roll, a power mechanism adapted to move selectively both of said stands and comprising a gear rack mounted on said base parallel to the aforesaid rails, a motor on each stand and having a gear pinion operatively associated therewith which is arranged to engage said rack for moving the stand relative to said base in accordance with the energization of the motor whereby both stands may be moved simultaneously or individually, an upright pivot support on one end of said base adapted to permit horizontal pivoting action of said base and stands, a stationary anchor plate supported adjacent the other end of said base and having a gear rack mounted thereon which extends in a direction normal to the longitudinal extent of said base, a pinion pivotably supported in said other end of said base for intermeshing with the anchor plate gear rack, and handle means fixedly mounted with respect to said last-mentioned pinion operable to rotate this pinion for pivoting said base about said pivot support whereby the lateral edges of a web payed off the web roll may be equally tensioned.

7. A mount for adjustably supporting a web roll while a web is being payed off said roll comprising a horizontally arranged base, a pivot support provided on one end of said base for altering the angle of said base with respect to said pivot support, a gear and rack assembly including an operating handle provided on the other end of said base and operable to vary the angle of said base with respect to said pivot support, two upright frame

sections carried by said base for movement toward and away from each other, two chucks supported by said frame sections respectively and adapted to carry for rotation a web roll, and power means operatively associated with said sections and arranged to move selectively said sections toward or away from each other.

8. A mount for adjustably supporting a web roll while a web is being payed off said roll comprising a horizontally arranged base, a pivot support provided on one end of said base for altering the angle of said base with respect to said pivot support, mechanism provided on the other end of said base and operable to vary the angle of said base with respect to said pivot support, two upright frame sections carried by said base for movement toward and away from each other, two chucks supported by said frame sections respectively and adapted to carry for rotation a web roll, and power means operatively associated with said sections and arranged to move selectively said sections toward or away from each other.

9. A mount for adjustably supporting a web roll while a web is being payed off said roll comprising a horizontal elongated base providing guide rails on the two longitudinal sides thereof, two upright stands carried by said base, each stand having supporting wheels which ride on said rails for moving the stand longitudinally of said base, both stands having horizontally disposed rotatable chucks arranged in axial alignment whereby the core of a web roll may be held for rotation about a horizontal axis by means of said chucks, a power mechanism adapted to move selectively both of said stands and comprising a gear rack mounted on said base parallel to the aforesaid rails, a motor on each stand and having a gear pinion operatively associated therewith which is arranged to engage said rack for moving the stand relative to said base in accordance with the energization of the motor whereby both stands may be moved simultaneously or individually, an upright pivot support on one end of said base adapted to permit horizontal pivoting action of said base and stands, a stationary anchor plate supported adjacent the other end of said base and having a gear rack mounted thereon which extends in a direction normal to the longitudinal extent of said base, a pinion pivotably supported in said other end of said base for intermeshing with the anchor plate gear rack, and handle means fixedly mounted with respect to said last-mentioned pinion operable to rotate this pinion for pivoting said base about said pivot support whereby the lateral edges of a web payed off the web roll may be equally tensioned.

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