Nov. 2, 1943. J. BUCKMAN 2,333,358

CLOTH ROLL HOLDER

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Fig. 1.

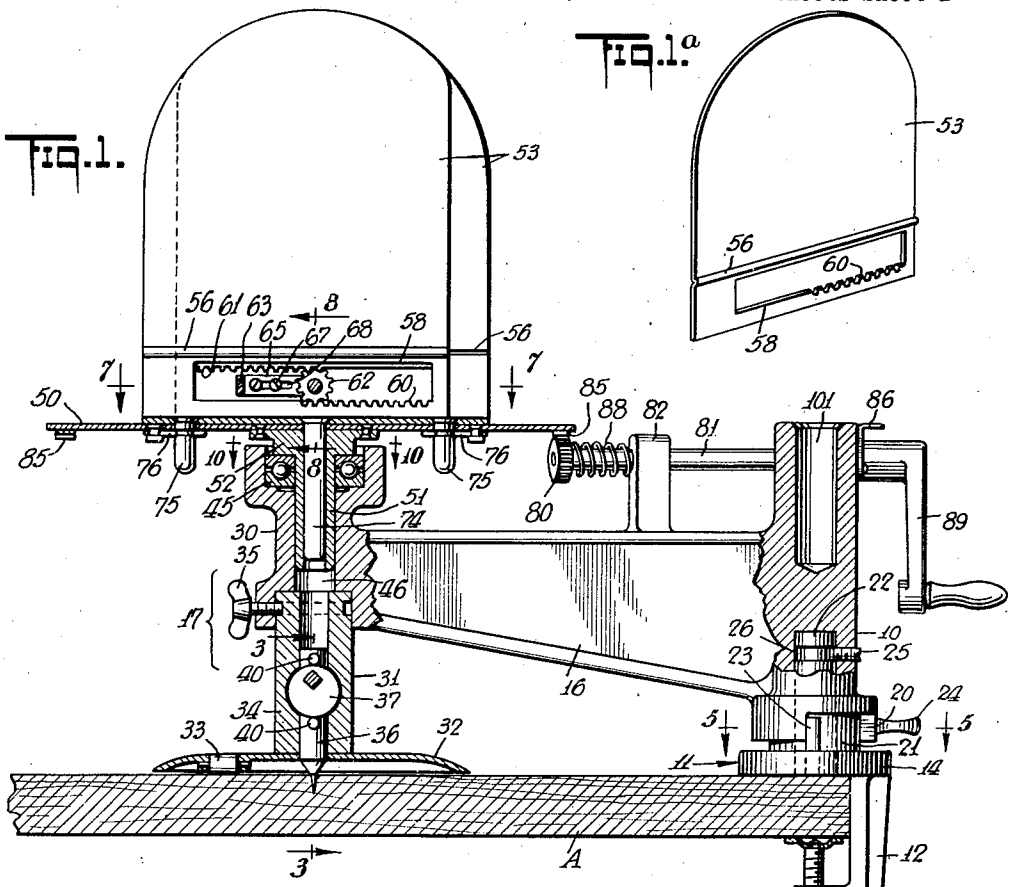
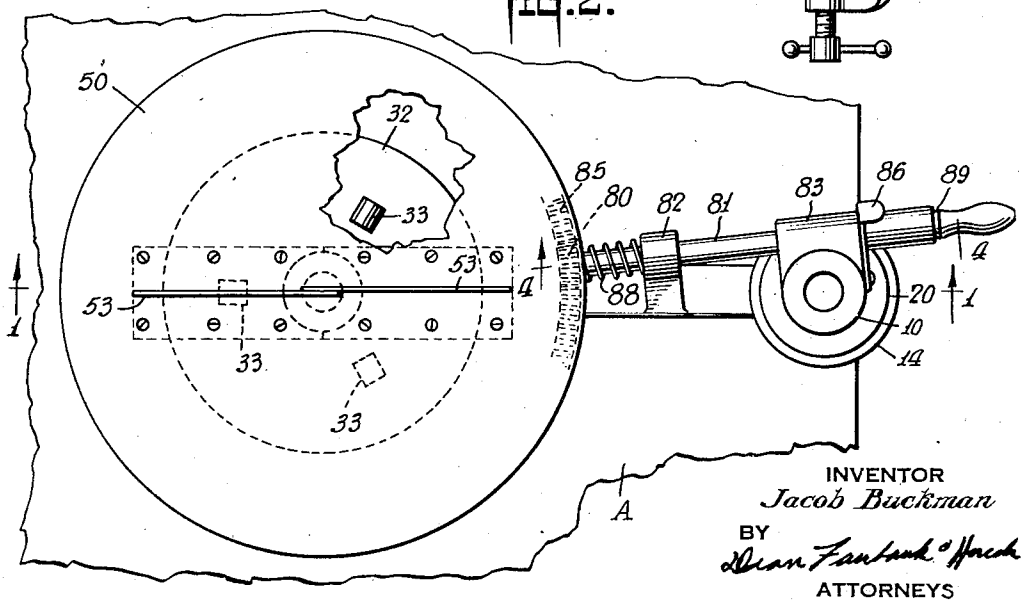


Fig. 1a.

Fig. 2.



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FIG. 3.

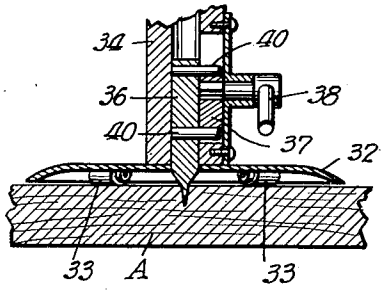


FIG. 4.

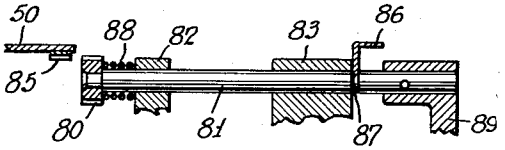


FIG. 7.

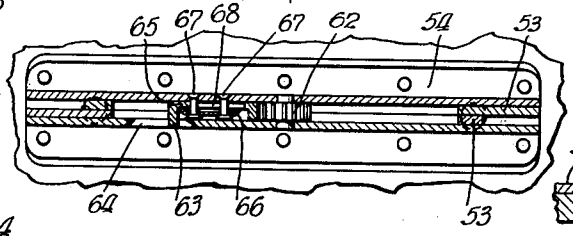


FIG. 8.

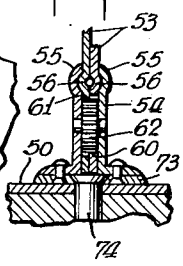


FIG. 5.

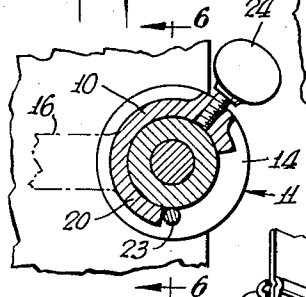


FIG. 9.

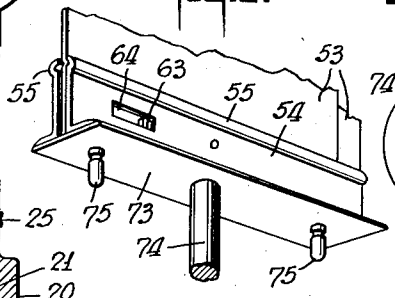


FIG. 10.

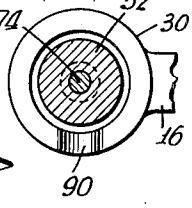


FIG. 11.

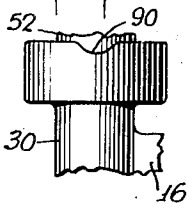


FIG. 6.

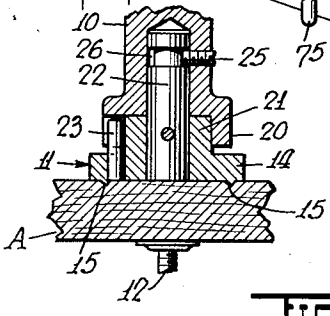
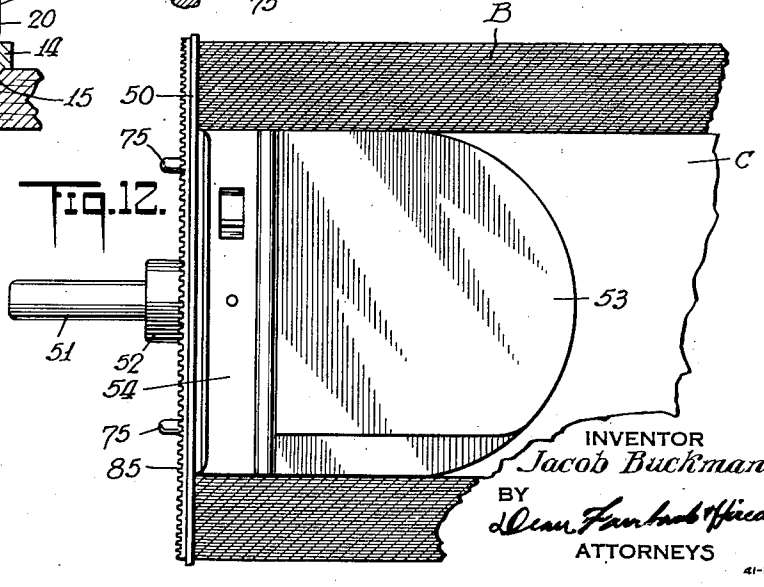


FIG. 12.



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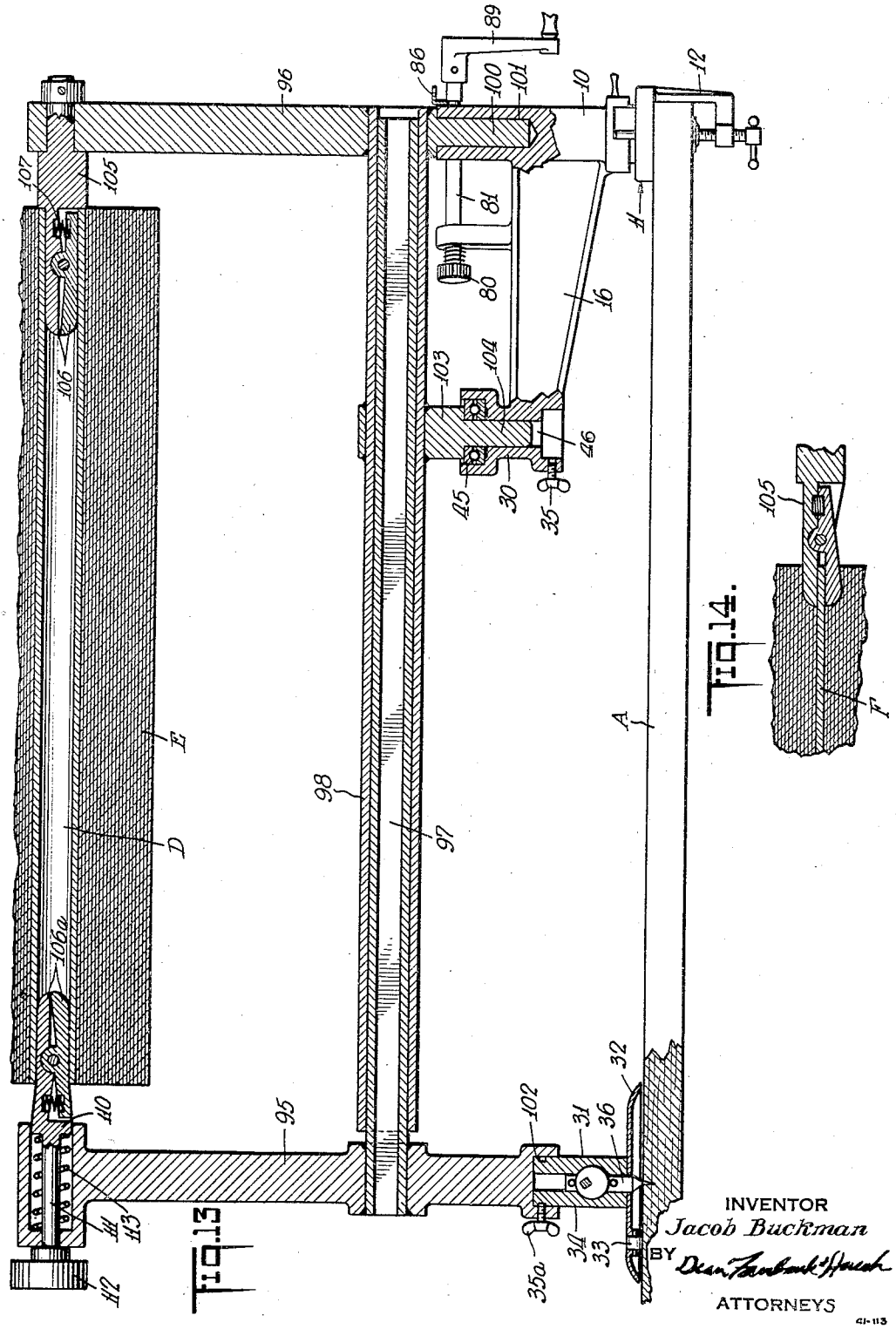


FIG. 14.

FIG. 13.

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UNITED STATES PATENT OFFICE

2,333,358

CLOTH ROLL HOLDER

Jacob Buckman, New York, N. Y.

Application October 27, 1941, Serial No. 416,689

14 Claims. (Cl. 242—62)

The present invention relates to roll holders of the type which permits the unreeling of cloth from the rolls in which it is usually made up. Although the device of the present invention may be used for cloth dispensing, measuring or display purposes, it is especially adaptable for use in connection with cloth cutting operations in which the cutter unreels from the roll or bolt the desired length of cloth, spreads it out on the table, cuts it off at the bolt, pulls off another section and spreads it on the table over the first section. These operations are repeated until the desired number of layers of cloth have been built up. The cutter then cuts all of the built up layers at the same time with a standard cloth cutting machine.

One object of the present invention is to provide a new and improved roll holder device of the general type referred to.

Another object is to provide a new and improved roll holder device which can be used to support a roll or bolt of cloth for rotation about a vertical axis or which can be easily converted to support a roll for rotation about a horizontal axis.

Another object is to provide a new and improved roll holder device which is adapted to vertically or horizontally support rolls of different lengths.

Another object is to provide a new and improved roll holder device designed to permit easy and expeditious mounting of a bolt of cloth thereon.

Another object is to provide a new and improved roll holder device adapted to support a cloth roll which is either wound around the usual flat board or around the usual tubular rod.

Another object is to provide a new and improved portable roll holder device, which is simple and comparatively light but nevertheless rugged in construction, easily operable and easily set in various convenient operative positions.

Various other objects, features and advantages of the invention will be apparent from the following particular description, and from an inspection of the accompanying drawings, in which

Fig. 1 is a vertical section taken on the line 1—1 of Fig. 2 through one form of roll holder device embodying the present invention, and shown mounted in position to support a roll for rotation about a vertical axis.

Fig. 1*a* is a perspective of one of the plates on which the bolt of cloth is impaled in roll supporting position.

Fig. 2 is a fragmentary top plan view of the device shown in Fig. 1.

Fig. 3 is a section taken on line 3—3 of Fig. 1.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

Fig. 5 is a section taken on line 5—5 of Fig. 1.

Fig. 6 is a section taken on line 6—6 of Fig. 5.

Figs. 7 and 8 are sections taken on lines 7—7 and 8—8 respectively of Fig. 1.

Fig. 9 is a perspective of the portion of the mounting means for the roll impaling plates.

Fig. 10 is a section taken on line 10—10 of Fig. 1.

Fig. 11 is a side elevation of the upper portion of the stand on which the roll is adapted to be rotatably supported.

Fig. 12 is a vertical section through a portion of an impaled cloth bolt shown prior to the mounting of said bolt into unreeling position.

Fig. 13 is a vertical section of a roll holder embodying the present invention, and shown converted to horizontally support a roll with a tubular core rod, and

Fig. 14 is a vertical section showing the application of the device of Fig. 13 for supporting a roll with a flat core board.

In the embodiment of the invention shown in Figs. 1 to 12, there is provided a pivot post 10, rotatably supported on a bearing 11, having rigid therewith a clamp 12 by which the holder device can be detachably secured to the edge of a table A, over which unreeled cloth is adapted to be spread. The bearing 11 comprises a base section 14 forming the upper jaw of the clamp 12, and provided on its lower side with a series of projections 15 (Fig. 6) for firmly gripping the table A in the clamped position of the device. Integral or otherwise rigid with the post 10 is a radial arm 16 carrying at its outer end a stand 17 on which the bolt of cloth is adapted to be rotatably supported. The stand 17 can be swung into any desired angular position within a limited range with respect to the axis of the post 10, and for that purpose the lower end of said post is formed with a circular depending flange 20 telescoped over a cylindrical portion 21 of the bearing 11. A pivot pin 22 fixed in this bearing part 21 extends with a bearing fit into a bore of the post 10. In order to prevent the axial withdrawal of the post 10 from the bearing mounting 11, a set screw 25 is provided extending into a reduced portion 26 of the pivot pin 22.

To limit the extent of rotative adjusting movement of the post 10 about its bearing 11, the flange 20 is of segmental shape with the ends

spaced preferably a little over 90° apart. A stop pin 23 is fixed in the bearing base 14, and extends in position to abut the ends of the post flange 20 in either one of two extreme angular positions of the post 10. This stop pin 23 is desirably mounted to limit the angular movement of the arm 16 from a position lengthwise of the table to a position crosswise.

To lock the post 10 in desired angular position, a thumb screw 24 is provided passing through the segmental post flange 20 and bearing against the bearing part 21.

The stand 17 is formed with two separable superposed sections 30 and 31, the upper section 30 being integral or otherwise rigid with the outer end of the arm 16, and forming a bearing housing for the roll journal as will be described, while the lower section 31 forms a base adapted to rest directly on the table A. This stand section 31 is formed with a footing or pedestal 32 provided with a series of supporting rolls 33 engaging the table, and surmounted by a leg 34, the upper end of which extends into a socket formed in the lower end of the upper stand section 30. This leg 34 is adjustably and releasably retained in this socket in desired rotative position by means of a wing screw 35 extending into an annular groove formed near the upper end of said leg.

In order to assure the holding of the stand 17 in the desired position against accidental transverse movement during unreeling operations, there is provided a locking bolt 36, terminating at its lower end in a pointed extension, and slidable in a bore of the leg 34. In order to slide the locking bolt 36, there is provided an eccentric 37, connected to one end of a shaft, the other end of which carries a suitable handle 38. A pair of pins 40 secured to the locking bolt 36 engage diametrically opposite sides of the eccentric 37, so that upon rotation of this eccentric 37 through manipulation of the handle 38, the locking bolt 36 is either raised or lowered. By means of this arrangement, this bolt 36 can be lowered, so that the pointed end thereof will dig into the table and thereby firmly hold the stand 17 against the pull resulting from the roll unreeling operation.

The upper stand section 30 is in the form of a sleeve having its upper end enlarged to hold a ball bearing 45. This bearing 45 in conjunction with the lower part of the stand section 30 defines a cylindrical bore 46 adapted to receive the journal of the turntable device which supports the roll to be unreeled.

The gudgeon turntable device adapted to be mounted at one end of the bolt of cloth to be supported comprises a turntable 50 shown in the form of a circular plate having centrally riveted or otherwise rigidly secured to the lower end thereof a hollow journal or gudgeon 51, adapted to extend with a snug rotative fit into the sleeve bore 46. This gudgeon 51 is formed at its upper end with an enlargement 52 seated upon the ball bearing 45. With this construction the turntable 50 is free to rotate, and can be axially removed from the stand section 30 for the purpose to be made apparent.

Certain classes of goods are wound around a flat board retained in the roll. In order to support a roll of this type, there is detachably secured to the turntable 50 a roll impaling device, comprising a pair of impaling plates 53 mounted face-to-face, and formed with arcuate upper ends to permit easy entry thereof into the end of the bolt of goods into face-to-face engagement with the usual flat core board. The base sections of these plates 53 are mounted in a holder 54, and are slidable edgewise therein in opposite directions in order to adjustably accommodate them to core boards of varying width. To retain the plates 53 in this holder 54 against vertical movement with respect thereto, while permitting them to slide edgewise therein, the opposed side members of this holder 54 are curved to form channels 55, and the lower sections of the plates 53 are formed with corresponding ribs 56 extending in these channels as shown in Figs. 8 and 9.

To effect simultaneous equalized slide movement of the two plates 53 in opposite directions, each of said plates is formed near its lower end with a rectangular recess 58. The lower edge of the recess of one of the plates 53 is formed with a series of rack teeth 60, while the upper edge of the recess of the other rack is formed with similar rack teeth 61. A pinion 62 rotatably supported on and between the opposed side members of the plate holder 54 meshes with the two sets of rack teeth 60 and 61, so that the two plates 53 can only be moved simultaneously and equally in opposite directions with respect to the holder 54, thereby maintaining the symmetry of the opposed edges of the combined plates with respect to the vertical axis of rotation of said plates.

To yieldably hold the two plates 53 in adjusted relative slidable position, a friction lock is provided comprising an angle member, one flange 63 of which extends through an opening 64 in one side of the holder 54 to serve as a finger piece, the other flange 65 being spring-pressed into frictional engagement with the other side of the holder 54 by means of a bowed leaf spring 66 slidable along a pair of pins 67, which are fixed to said latter side, and which pass through a slot 68 in said flange 65. The outer end of the flange 65 is formed with a series of teeth adapted to extend into mesh with the pinion 62, and thereby hold said pinion against rotation.

When it is desired to slide the two plates 53 relatively in a position to accommodate the core board of the roll to be supported, the friction lock 63, 64 is slid to the left as shown in Fig. 7 to release the pinion 62. This permits the two plates 53 to be moved edgewise into the desired relative position. When this position has been reached, the friction lock 63, 64 is then returned into mesh with the pinion 62, thereby frictionally locking said plates against relative slidable movement.

The two plates 53 with their holder 54 form a unit which can be mounted on the turntable 50 for rotation therewith, and which can be removed from said turntable.

For that purpose the plate holder 54 is formed with a base plate 73 having rigid with the lower end thereof a pin 74. The turntable 50 has a central opening in alignment with the bore of the journal 51 to snugly receive the pin 74.

In order to lock the roll impaling unit shown in Fig. 9 in position against rotation with respect to the turntable 50, the base plate 73 of the plate holder 54 is formed with a pair of studs 75 adapted to pass through a pair of corresponding holes in the turntable 50. A pair of suitably supported clamping springs 76 are mounted on the lower side of the turntable 50, and are adapted to be spread apart as the studs 75 are inserted through the holes in the turntable 50, and to snap into the reduced sections of said studs 75 to frictionally hold the impaling unit against withdrawal from the table 50. However, this unit can be withdrawn by applying sufficient force to effect

disengagement of the studs 75 from the clamping springs 76.

With the roll vertically supported on the turntable 50 and impaled on the plates 53 as the cloth is pulled from the roll, the roll is freely rotated. In order to easily rereel any surplus material which has been pulled off the roll, there is provided a pinion 80 which is secured to a shaft 81, journalled in a pair of brackets 82 and 83 forming extensions of the arm 16 and post 10 respectively, and which meshes with a crown gear 85 on the bottom side of the turntable 50. A crank handle 89 is provided at the end of the crank shaft 81 to rotate the pinion 80.

The pinion 80 is movable in inoperative position out of mesh with the crown gear 85, and for that purpose the shaft 81 is slidable in the bearings 82 and 83, and can be locked in inoperative position with the pinion 80 out of mesh with the crown gear 85 by means of a latch 86 pivotally mounted on the post 10, and adapted to extend in a recess 87 formed by an annular reduction of the shaft 81 as shown in Fig. 4.

A coil spring 88 encircles the shaft 81, and has its ends bearing against the pinion 80 and the bearing block 82 to urge the shaft 81 towards the left as shown in Fig. 1 into position to effect intermesh between the gears 80 and 85.

When it is desired to operate the device shown in Fig. 1 free from the retarding effect of the pinion 80, the shaft 81 is pulled endwise towards the right as shown in Fig. 1 until the recess 87 of said shaft is opposite the latch 86. This latch 86 is then swung into said recess to lock the shaft 81 into inoperative position.

The gear train 80, 85 may also be utilized to prevent overrunning of the roll. For that purpose the gear train 80, 85 in intermeshed relationship acts as a brake, the tightness of the bearings of the shaft 81 controlling the extent of braking action.

In the set-up as shown in Fig. 1, the bolt of goods can be lifted and then impaled on the plates 53, so that the plates extend through one end of the bolt in juxtaposition to the flat core board of the roll. In case the roll is so heavy that it would be inconvenient to lift it and directly impale it on the discs 53 while they are mounted on the turntable as shown in Fig. 1, these discs with their holder 54 and the turntable 50 can be lifted as a unit and said discs inserted into the end of the roll B in face-to-face engagement with the flat core board C as shown in Fig. 12 while this roll is resting horizontally on the table. When this preliminary mounting of the turntable 50 and the discs 53 on the roll B has been effected, the whole unit shown in Fig. 12 is then lifted and the journal 51 slipped into the bore 46 of the stand section 30. In order to facilitate the guiding of the journal 51 into this bore 46, the upper end of the stand section 30 is formed with a radial guide slot 90 wide enough to permit the sliding of the lower end of the journal 51 therealong towards the bearing bore 46.

In the set-up as shown in Fig. 1, the roll is supported on the stand 17, which in turn is directly supported on the table in any convenient selected position with respect to said table. This permits the use of only one journal and bearing for the roll, thereby easily accommodating the device to the support of rolls of varying height. This direct support of the stand 17 on the table also permits the accommodation of heavier rolls, and reduces to a minimum the stresses transmitted to the pivot post 10 and its bearing 11.

In case it is desired to support a roll of the type having a tubular rod core, or in case the roll is too long to permit convenient unrolling operation while supported for vertical rotation, the construction shown in Figs. 1 to 11 may be converted to horizontally support the roll by the removal of certain parts and the addition of other parts as shown in Fig. 13. In accordance with this construction, a pair of stand sections or frame members 95 and 96 have rigid therewith square tubes 97 and 98 respectively, mounted in telescopic relationship whereby these frame members can be adjustably moved towards or away from each other in accordance with the length of the roll to be supported. Set screws (not shown) threaded in the outer tube 98 and bearing against the inner tube 97 may be provided to assure the locking of the two tubes in adjusted position. The frame member 96 has a reduced projection 100 at its lower end adapted to extend into a bore 101 formed at the upper end of the post 10. The other frame member 95 is formed at the bottom with a socket 102 adapted to receive the upper end of the stand leg 34 and adapted to be locked thereto by means of the wing nut 35a.

Intermediate sections of the telescopic tubes 97 and 98 are supported on the sleeve 30 by means of a bracket 103, apertured to receive the outer telescopic tube 98, and having a lower cylindrical section 104 fitted snugly in the sleeve bore 46.

The upper end of the frame member 96 has journalled therein a trunnion 105 formed with a pair of pivotally interconnected jaws 106 urged towards each other by means of a spring 107.

The other frame member 95 carries at its upper end a trunnion 110, formed with a pair of pivotally mounted jaws 106a similar in construction to that of the trunnion 105. The trunnion 110 is slidable endwise, and for that purpose is mounted on a spindle 111 terminating at its outer end in a handle 112 by which the spindle 111 can be pulled outwardly against the action of a spring 113 tending to move the trunnion 110 inwardly. The two trunnions 105 and 110 are adapted to extend into the usual tubular core rod D of a bolt E.

In case it is desired to horizontally support a roll having a flat core board on the device shown in Fig. 13, the trunnions 105 and 110 can be used to grip the ends of the core board F as shown in Fig. 14. Or, if desired, an impaling plate device as shown in Fig. 1 may be used for that purpose.

In the set-up shown in Fig. 13, the whole unit can be swung about the axis of the post 10 in any desired angular position within a range of 45°, and locked in this adjusted position in the manner similar to that already described with reference to the set-up shown in Fig. 1.

It should be noted that the device is of light construction, thereby permitting the easy portable handling thereof, can be easily adjusted in any position with respect to a table, and easily locked in adjusted position with positive assurance against accidental displacement of the device from this adjusted position, and can be easily converted to support a roll of cloth of any width either horizontally or vertically whether rolled on a flat board or a tube.

As many changes could be made in the above apparatus, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying

drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A cloth roll holder comprising a stand having a bearing for supporting a cloth roll for rotation about its axis, and having a foot section adapted to rest directly on a table, a pivot mounting for said stand permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, and means for directly fastening said stand to said table to hold said stand in adjusted position against swinging movement.

2. A cloth roll holder comprising a stand having a bearing for supporting a cloth roll for rotation about its axis, and having a foot section adapted to rest directly on a table, a pivot mounting for said stand permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, a locking bolt carried by said stand, and releasable means for digging said bolt into said table to hold said stand in adjusted position against swinging movement.

3. A cloth roll holder comprising a stand having a bearing for supporting a cloth roll for rotation about its axis, and having a foot section adapted to rest directly on a table, a pivot mounting for said stand permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, and a substantially vertical locking bolt carried by said stand and having a pointed lower end, said bolt being slidable vertically to imbed said pointed end in said table and thereby hold said stand in adjusted position against swinging movement.

4. A cloth roll holder comprising a stand having a bearing for supporting a cloth roll for rotation about its axis, and having a foot section adapted to rest directly on a table, a pivot mounting for said stand permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, a substantially vertical locking bolt carried by said foot section, and having a pointed lower end, and means including an eccentric for vertically sliding said bolt to imbed said pointed end in said table and thereby hold said stand in adjusted position against swinging movement.

5. A cloth roll holder comprising a stand having a bearing for supporting a cloth roll for unreeling rotation, and having a footing provided with supporting rollers engaging said table, a pivot mounting for said stand permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, and means for locking said stand in adjusted position against swinging movement.

6. A cloth roll holder comprising a stand having a bearing member for vertically supporting a cloth roll for rotation about a vertical axis, and having a foot section adapted to rest directly on said table, said bearing member being removable from said foot section to permit replacement of said bearing member by another bearing member adapted to support one end of a roll for rotation about a substantially horizontal axis, a pivot mounting for said stand parallel to and spaced from said bearing member, and permitting swinging adjusting movement of said stand about a substantially vertical axis, means for securing said pivot mounting to said table, and means for locking said stand in adjusted position against swinging movement.

7. In a cloth roll holder, the combination comprising a pair of opposed roll impaling members adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, bearing means for supporting said impaling members for rotation in unison, said impaling members being relatively movable in respect to each other in opposite directions and substantially radially with respect to the axis of rotation of said bearing means, and means for holding said impaling members in adjusted relative position.

8. In a cloth roll holder, the combination comprising a pair of roll impaling plates in face-to-face relationship adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, bearing means for supporting said plates for rotation in unison, said plates being relatively slidable transversely edgewise with respect to the axis of rotation of said bearing means to selectively vary the over-all width of said plates, and means for holding said plates in adjusted slide positions.

9. In a cloth roll holder, the combination comprising a pair of roll impaling plates facing each other in opposed relationship, and adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, bearing means for supporting said plates for rotation in unison, said plates being slidable edgewise in opposite directions transversely with respect to the axis of rotation of said bearing means to selectively vary the over-all width of said plates, and means for equalizing the extent of slide movements of the two plates in opposite directions.

10. In a cloth roll holder, the combination comprising a pair of roll impaling plates facing each other in opposed relationship, and adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, bearing means for supporting said plates for rotation in unison, said plates being slidable edgewise in opposite directions transversely with respect to the axis of rotation of said bearing means to selectively vary the over-all width of said plates, a pinion, and a pair of rack gears on said plates respectively meshing with opposite sides of said pinion for equalizing the extent of slide movements of the two plates.

11. In a cloth roll holder, the combination comprising a pair of roll impaling plates facing each other in opposed relationship, and adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, bearing means for supporting said plates for rotation in unison, a holder for said plates, said plates being slidable edgewise in opposite directions in said holder transversely with respect to the axis of rotation of said bearing means to selectively vary the over-all width of said plates, a pin extending axially from said holder, and a turntable having a hollow journal for receiving said pin.

12. In a cloth roll holder, the combination comprising a pair of roll impaling plates facing each other in opposed relationship, and adapted to be inserted into one end of a cloth roll in juxtaposition to the usual flat core board of said roll, a holder for supporting said plates, and having means for guiding said plates for slidable edgewise movements in opposite directions, bearing means

for supporting said holder for rotation, and a turntable adapted to support the end of said roll and rotatable with said plates.

13. A cloth roll holder including a pivot post, a stand spaced from said post, and having a pair of superposed sections, the upper section having a trunnion for one end of a horizontal cloth roll, the lower section serving as a footing for said upper section, and being detachable therefrom to permit the replacement of said upper section by a stand section having a bearing member for supporting a roll for rotation about a vertical axis, a second stand detachably secured to said post, and carrying a trunnion for the other end of the horizontal roll, and means interconnecting the upper section of said first-mentioned stand and said second-mentioned stand to permit swinging movement of said first-mentioned stand about the axis of said post.

14. A cloth roll holder including a pivot post, a stand spaced from said post, and having a footing adapted to rest on a table, a second stand supported on said post, trunnions carried by said stands for rotatably supporting the ends of a horizontal cloth roll, a pair of tubes one connected to each stand, and mounted in telescopic relationship to permit relative movement of said stands towards and away from each other, an arm connected to said post and rotatable therewith, and means for supporting the intermediate sections of said telescopic tubes on the outer end of said arm.

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