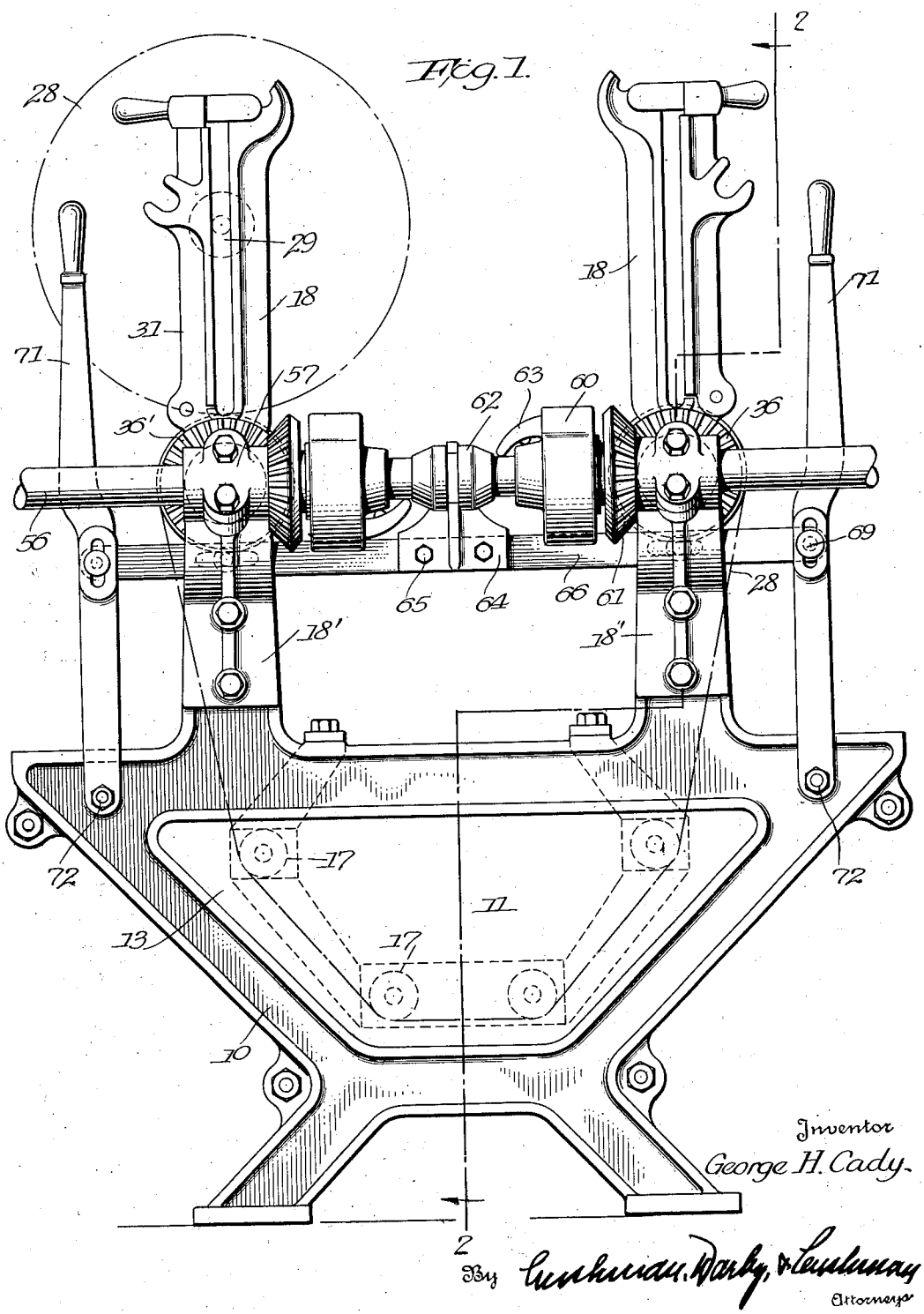
Jan. 21, 1936. G. H. CADY 2,028,436

JIG FOR TREATING MATERIAL

Filed March 7, 1935 5 Sheets-Sheet 1



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JIG FOR TREATING MATERIAL

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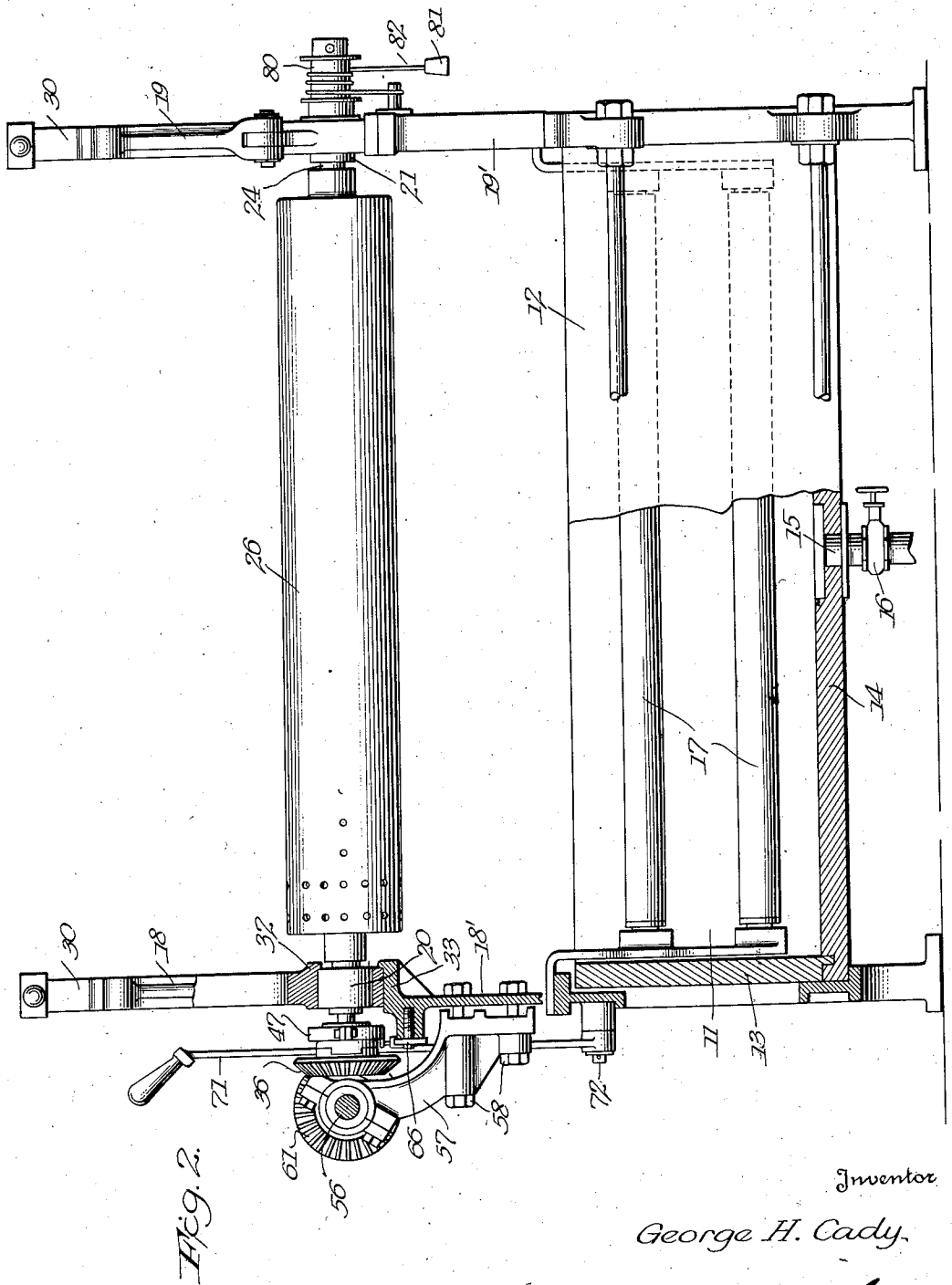


Fig. 2.

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JIG FOR TREATING MATERIAL

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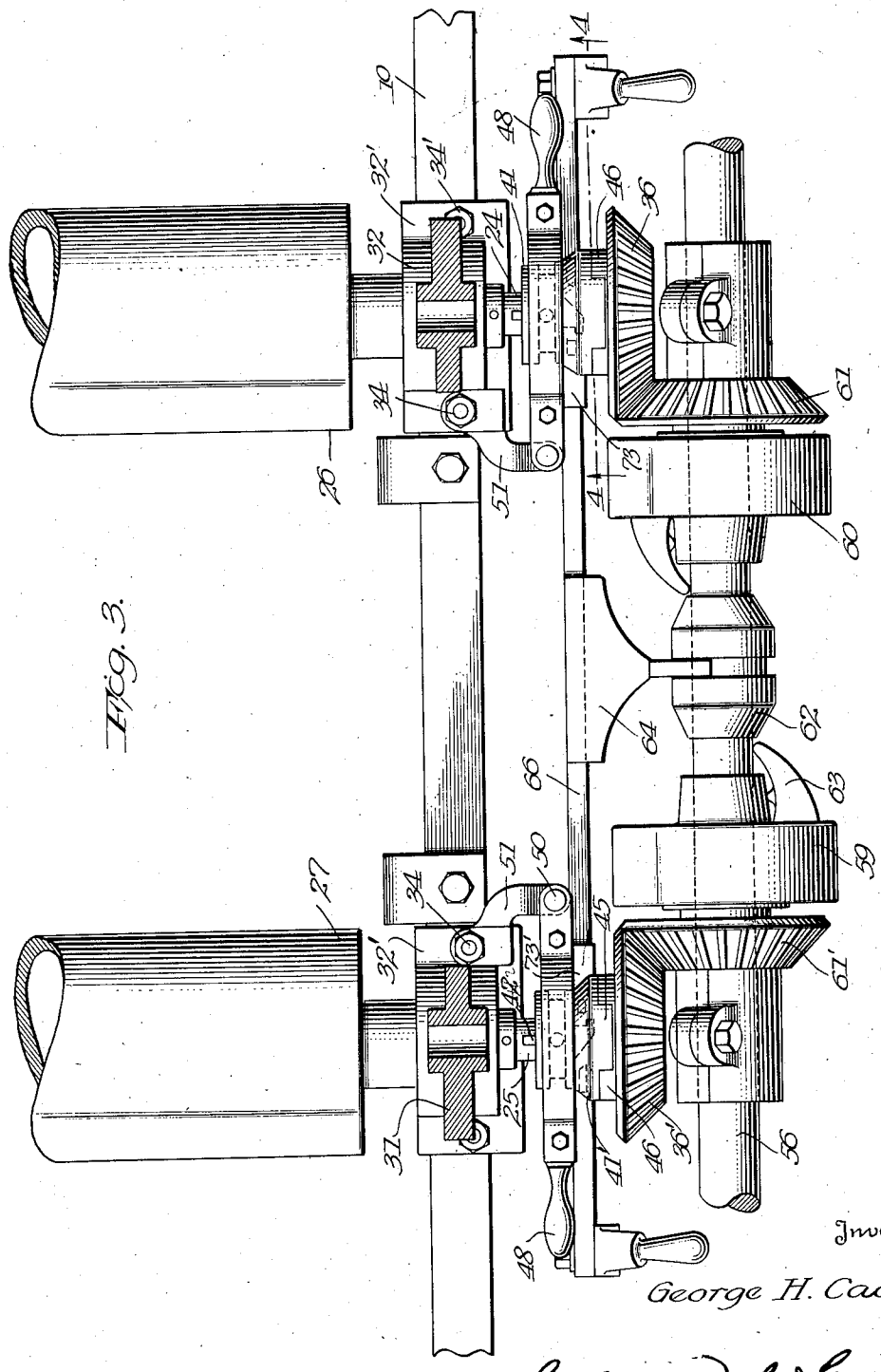


Fig. 3.

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JIG FOR TREATING MATERIAL

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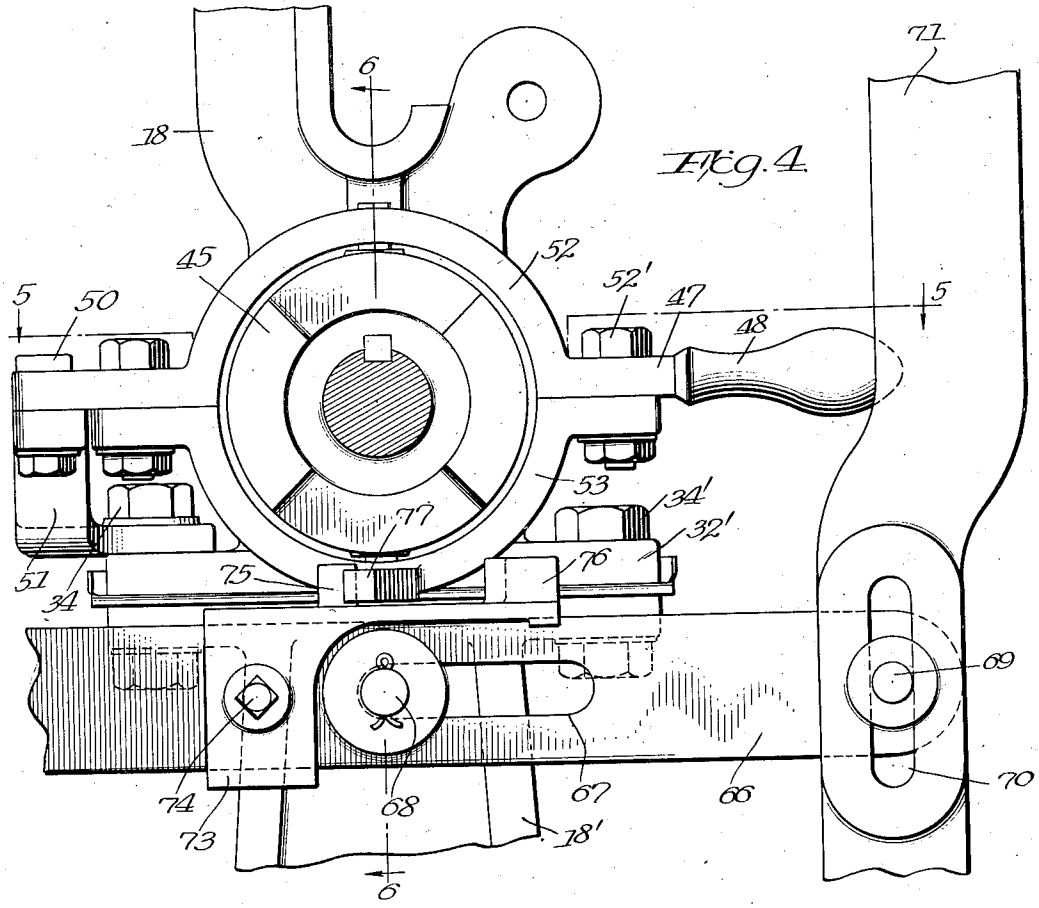


Fig. 4.

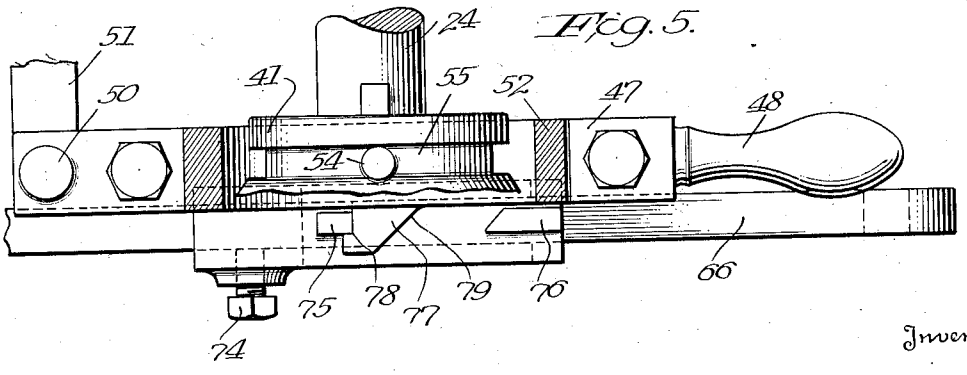


Fig. 5.

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JIG FOR TREATING MATERIAL

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Fig. 6.

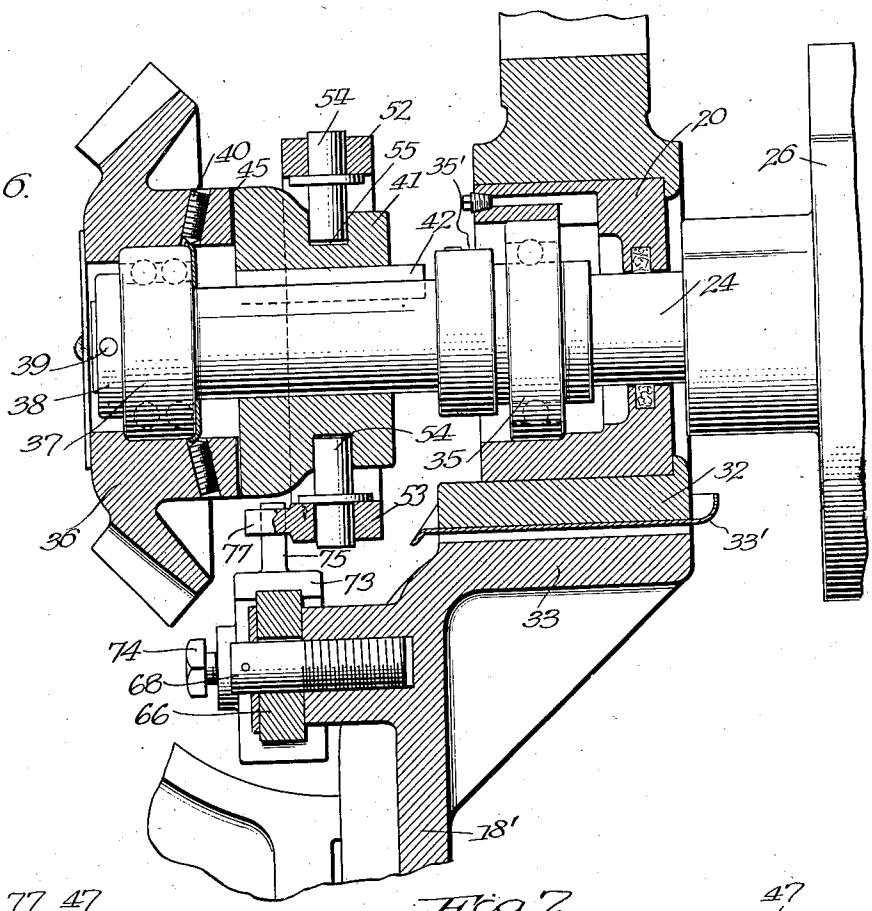


Fig. 7.

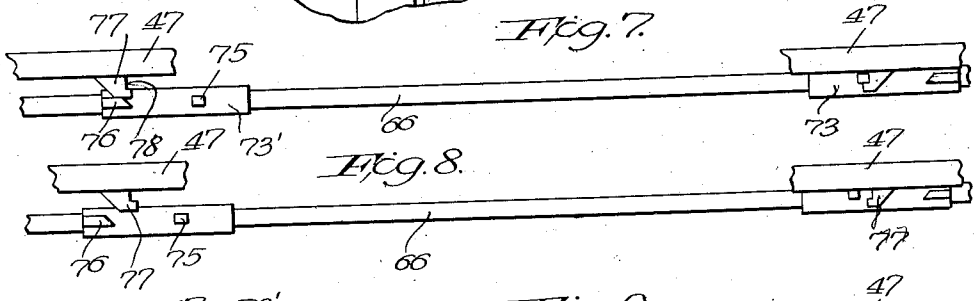
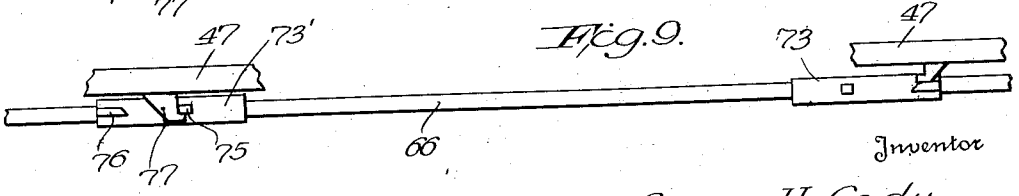


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE

2,028,436

JIG FOR TREATING MATERIAL

George H. Cady, Providence, R. I., assignor to United States Finishing Company, Providence, R. I., a corporation of Connecticut

Application March 7, 1935, Serial No. 9,897

21 Claims. (Cl. 242—55)

The present invention relates to an improved apparatus for jigging goods, such as fabrics and the like, through a liquid bath to treat the same for dyeing, bleaching, finishing and other similar processes.

An important object of the invention is to provide a jig with simple, efficient and positive means for insuring the reeling of the cloth from one beam roll to the other under a uniform minimum tension, so that the material is not subjected to injurious strain or friction tension, but is smoothly and evenly guided during the run, thus avoiding undue stretching or tearing of the fabric.

A further object is to provide a standard jig with means for selectively operating the beam roll shafts in such a manner that the shaft being driven is locked to its drive, while the other beam roll shaft is automatically released from the drive so as to idle freely in its bearings, and thus be relieved from excessive frictional strain or pull.

A further object comprehends the provisions of means operatively associated with the main drive and each of the beam roll shafts whereby when one of the beam rolls is being driven to prevent the other beam roll from being operatively connected at the same time to the main drive, said means requiring the stopping of the main drive and its return to its neutral position before either of the beam rolls can be connected to or released from the main drive.

Another object is to provide a jig with a drive mechanism which effects a gradual acceleration of the beam roll when the latter is connected to the main drive, so as to prevent the starting of the jig with a jerk or the abrupt stopping of the device.

A still further object consists in operatively associating with each of the beam roll clutches, a movable locking member having spaced arms arranged to coact with a complementary member connected to the clutch, to either lock the beam roll shaft to the main drive or release the beam roll shaft and prevent the connection of the same to the main drive.

Other objects and advantages of the invention will become apparent from the following description when taken in conjunction with the accompanying claims and drawings.

Referring to the drawings, in which is disclosed a preferred embodiment of the invention,

Figure 1 is a side elevation of a jigger having my invention associated therewith.

Figure 2 is an end elevation of the jigger with parts in section taken substantially along the line 2—2 of Figure 1.

Figure 3 is a detail plan view of one side of the jigger with parts in section.

Figure 4 is a sectional view taken substantially along the line 4—4 of Figure 3.

Figure 5 is a sectional view along the line 5—5 of Figure 4 with parts broken away.

Figure 6 is a sectional view taken substantially along the line 6—6 of Figure 4.

Figures 7, 8 and 9 are diagrammatic plan views showing the different positions assumed by the locking member and its associated parts during the operation of the jig.

Referring to the drawings, in which like numerals indicate like parts in the several views, 10 designates the supporting frame of a standard jig which carries the liquid tank or tub 11 having the usual straight end walls 13, slanting side walls 12, and bottom 14, the latter being provided with a discharge opening 15 controlled by the valve 16. Revolubly mounted in the tank 11 are the idle rolls 17 for guiding the cloth or fabric in a serpentine course through the bath during the jigging operation.

Extending upwardly from the sides of the frame 10 are pairs of standards or supports 18 and 19 arranged in transversely opposed pairs having aligned bearings 20 and 21 (Fig. 2) in which are journalled the shafts 24 and 25 of the beam rolls or shells 26 and 27 (Fig. 3). The fabric 28 to be treated is initially wound or carried on a shaft 29 (Fig. 1) the ends of which shaft are arranged to extend into the vertical slots 30 in the opposed pair of supports 18 and 19, so that the fabric during the unwinding operation rests on the adjacent beam roll. As shown, the fabric is carried by the supports above the beam roll 27 and has its free end passing downwardly around the beam roll 27 through the liquor or bath in the tank 11 to engage the idle rolls 17 and be carried upwardly around the opposed beam roll 26. When the cloth is unwound from the beam roll 26, it will wrap around the beam roll 27 and this reversal of operation may continue until the material is thoroughly treated.

Arms 31 pivoted to the standards 18 and 19 may be provided for maintaining the shaft 29 in the slots 30 when the fabric is initially being reeled from one beam roll to the other. The standards 18 and 19 are preferably of sectional formation and have their lower sections 18' and 19', extending upwardly from the frame 10. Each of the upper sections 18 and 19 has a housing

32 for receiving the bearings 20 and 21 of the beam roll shafts 24 and 25 respectively. Housings 32 terminate in laterally disposed flanges 32' which are secured to complementary flanges 33 on the lower sections 18' and 19' by the bolts 34 and nuts 34'. The bearings 20 and 21 carry anti-friction rollers 35 about which the shafts 24 and 25 are freely revoluble. A locking collar 35' may be arranged to retain the roller bearing 35 in position. An oil pan 33' (Fig. 6) is positioned beneath each of the housings 32 and is supported by the flange 33 so as to prevent the lubricant for the bearings, falling into the tank 11. The power ends of the shafts 24 and 25 extend through the bearings 20 and have connected to them, the gears 36 and 36' respectively, which are normally rotatably supported on the shafts 24 and 25 by the anti-friction rollers 37. Each of the rollers 37 is connected to their respective shafts 24 and 25 by a retaining collar 38 and a pin 39. Additionally, set screws 40 may be provided for securing the rollers 37 to the hubs of the gears 36 and 36'.

Interposed between the bearings 20 and the gears 36 and 36' are slidable clutches 41 and 41' keyed to their respective shafts 24 and 25 as at 42 (Fig. 6) so as to be axially movable thereon. The opposed faces of the hubs of the gears 36 and 36' are provided with teeth 46 (Fig. 3) arranged to engage complementary teeth 45 on the clutches 41 and 41', so that when these teeth are engaged, they will lock or non-rotatably secure the gears 36 and 36' to their shafts 24 and 25 respectively. The clutches 41 and 41' are preferably moved into and out of locking engagement with their complementary gears 36 and 36' by operating members 47. Each of the members 47 (Fig. 4) has a handle 48 at one end and is pivotally connected at its opposite end as at 50 to a bracket 51 secured to the housing 32 by the bolts 34 and nuts 34'. The intermediate portion of the operating member 47 is preferably of yoke-shape and comprises an upper curved section 52 and a similarly formed lower section 53 connected to the section 52 as at 52'. These sections have diametrically opposed inwardly extending pins 54 (Fig. 6) which fit into an annular groove 55 in the outer surface of the jaw clutches 41 and 41', so that upon the actuation of the operating members 47 about their pivot 50, the clutches 41 and 41' are moved into or out of locking engagement with their respective gears 36 and 36'.

Operatively associated with the beam rolls 26 and 27 is a main drive having a continuously revoluble drive shaft 56 connected to a prime mover such as a motor or the like not shown. The shaft 56 may be journalled in the spaced brackets 57 connected to the lower sections 18' of the standards by the bolts 58 (Fig. 2). Revolubly mounted on the main drive shaft 56 are a pair of main friction clutch members 59 and 60 to which are keyed gears 61 and 61' in mesh with their complementary gears 36 and 36' on the beam roll shafts 24 and 25. Associated with each of the main clutches 59 and 60 is a slidable double-faced cone clutch 62 arranged when moved axially to engage the toggles 63 on either the clutches 59 or 60 for selectively operatively connecting the gear 61 or 61' to the shaft 56. The cone clutch 62 is moved to establish a driving connection between either the gear 61 or 61' with the main shaft 56 by a clutch arm 64 connected as at 65 to an actuating member or rod 66 (Fig. 1) which extends transversely and adjacent to the power ends of the beam roll shafts 24 and 25. The actuator 66 is provided with elongated openings 67 (Fig. 4) through which extend pins 68 connected to the standards 18' for guiding and supporting the same. Each end of the actuator 66 carries a pin or lug 69 movable in an elongated vertically disposed slot 70 in the adjacent actuating handle 71. The lower end of each of the handles 71 is pivoted as at 72 (Fig. 1) to the jig frame 10 so that the handles 71 may be selectively actuated to impart a longitudinal movement to the actuator. It will be seen that upon the actuation of either one of the handles 71 about its pivot, the actuator 66 will cause the arm 64 to move the cone clutch 62 from its neutral position into engagement with either one of the main clutches 59 or 60, to operatively connect either the gear 61 or 61' with the main shaft 56.

The actuator 66 adjacent the slidable clutches 41 and 41' preferably has adjustably connected thereto, locking members 73 and 73' by the set screws 74 (Fig. 4). Each of the locking members 73 and 73' has extending from its upper surface a lug or stop 75 and a spaced cam 76 which are arranged to coact with a complementary projection or arm 77 which may extend laterally from the lower section 53 of the operating member 47 so as to be moved into a position between the lug 75 and the cam 76 or out of this position, by the actuation of the yoke handle 48. The projection 75 is formed on one side with a notch or recess 78 arranged when the actuator 66 is moved from its neutral position (Fig. 3) to the right as shown in Figure 5, to engage the lug 75. The projection 77 on its opposite side is formed with an inclined surface 79 which contacts with the cam 76 when the actuator 66 is moved to its extreme opposite position.

It will be observed that the gears 61 and 61' on the main drive shaft 56 constitute driving members, while the gears 36 and 36' on the beam roll shafts 24 and 25 provide driven members for selectively establishing a driving connection between the main shaft 56 and either one of the beam rolls 26 or 27. Moreover, the connection of the main drive with either of the beam roll shafts through the cone clutch permits gradual acceleration of the drive, thus preventing starting of the beam roll shafts with a sudden jerk which would subject the fabric to undue strain and probably tear the same.

The ends of the beam roll shafts 24 and 25 which extend through the standards 19 (Fig. 2) may each be provided with a pulley 80 to which is attached a weight 81 by the flexible connection 82 so as to exert a constant light turning resistance to the movement of the shafts 24 and 25.

In operation, assuming that the goods or cloth 28 to be treated is wound on the shaft 29 journalled in the grooves 30 above the beam roll 27 (Fig. 1), the end of the cloth is passed over the beam roll 27 and is introduced into the liquid in the tank to engage the rollers 17 and is then wrapped around the opposite beam roll 26. The operator takes his position on the side of the machine adjacent the beam roll 26. The actuator 66 is first moved to its neutral or inoperative position (Fig. 3) since otherwise, the lug 75 and the cam 76 on the lock 73 adjacent the beam roll shaft 24 will prevent the projection 77 from being moved to a position between the lug 75 and cam 76. Assuming that the actuator 66 is in its neutral or intermediate position, the operator moves the handle 48 which causes the slidable

clutch 41 on the beam roll shaft 24 to interlock with the gear 36, so as to operatively connect this gear with the shaft on the beam roll 26. During this movement the projection 77 is moved between the lug 75 and cam 76 so as to be in the path thereof. The operator then moves the handle 71 to the right which moves the lug 75 into the recess 78 (Fig. 5) and establishes a driving connection between the main shaft 56 and the clutch 60 which, in turn, causes the actuation of the beam roll 26 through the gears 61 and 36. At the same time, the locking member 73' adjacent the beam roll shaft 25 will be moved so that its cam 76 moves its complementary lug 77 together with the clutch 41' so as to release or disengage this clutch from its driven member 36'. The actuator 66 and its associated parts will now assume the position as diagrammatically shown in Figure 7. The initial forward movement imparted to the beam roll 26 causes the lug 75 to be firmly engaged in the recess 78 of the projection 77, thus preventing the release of the clutch 41 from its driven member 36 when the shaft 24 is being driven. Similarly, the locking member 73' associated with the opposite beam roll 25, precludes the possibility of this shaft being operatively connected to the main drive when the beam roll 26 is being driven. By reason of this novel arrangement of parts, it is necessary before the beam roll 26 can be released from the main drive, for the arm 64 of the actuator 66 to be moved to its neutral position as shown in Figure 8. When one of the beam rolls is in operation, the other beam roll is prevented from being connected to the main drive. Moreover, the direction of movement of the run of the fabric cannot be accidentally reversed should the machine be stopped.

The lug 77 on each of the operating members 47 is positioned so that when the actuator is in its neutral position it will extend substantially medially between the lugs 75 and cam 76. Consequently, if the connector 66 is not in its neutral position and it is attempted to connect the clutch 41 with its driven member 36, either the lug 75 or cam 76 will be positioned in the path of movement of the lug 77 to prevent its insertion between the lug 75 and the cam 76.

It will be observed that when the beam roll 26 is being driven, its clutch 41 cannot be disengaged from the main drive nor can the clutch 41' on the beam roll 27 be engaged until the actuator 66 is first moved to its neutral or inoperative position. Consequently, unless the operator is on the proper side, he cannot start the machine. Should the actuator be moved beyond its neutral position when disconnecting either of the beam rolls from the main drive to stop the same, the locking members carried by the actuator and the operating members 47 will prevent the unintentional connection of the other beam roll to the main drive and thus insure the automatic release of the rolls from the driving mechanism.

When the beam roll 26 is being driven to reel the fabric thereon, the opposite beam roll 27 will idly rotate in its ball bearings and the clutch 41' will be maintained in a position to prevent the operative connection of the driven member 31' with the shaft 25, so that the fabric will be wound on the roll 26 uniformly and under a minimum tension. Moreover, as positive means are provided for releasing the shaft from which the material is being unwound from the main drive mechanism, neither the drive mechanism nor the fabric is subjected to excessive frictional strain or wear during the run.

After the treated material has been wound on the beam roll 26 and it is desired to rewind the same on the beam roll 27, it is first necessary for the operator to go over to the opposite side of the machine and while the main drive is in its neutral position, to move the operating handle so as to cause the slidable clutch 41' to engage its gear 36' so as to operatively connect the beam roll 27 to its driven member. The adjacent handle of the actuator 66 is then operated to establish a driving connection between the driving member 61' and the driven member 36'. The initial rotary movement of the beam roll 27 automatically locks the clutch 41' to its driven member 36' and at the same time the movement of the cam on the locking member adjacent to the beam shaft 24 engages the lug 77 on the operating handle so as to cause release of the slidable clutch 41 with its driven member 36, thus establishing a positive drive of the beam roll shaft 25 with the main drive and at the same time preventing connection of the beam roll shaft 24 with the main drive. The actuator 66 and its associated parts during the rotation of the beam roll 27, assume the position as shown in Fig. 9. When the fabric is being wound on the beam roll 27, the beam roll 26 will idle freely in its bearings so as to reduce friction and strain on the fabric, thus insuring a uniform and even operation of the jigger.

It will be seen that the locking members 73 and 73' are operable by the actuator 66 and are so associated with each of the beam roll shafts as to provide means for eliminating manual release of the slidable clutch on each of the beam roll shafts. The locking members also insure the positive engagement of one beam roll shaft with the main drive and the simultaneous disconnection or release of the other beam roll shaft from the main drive so that only one beam roll can be operated at a time. Moreover, the connection of the main drive to the beam roll shafts is such that when the fabric is being wound, it does not exert an excessive pull on the unwinding beam roll. Furthermore, sudden starting or stopping of the beam roll shafts which would result in the straining or tearing of the goods, is eliminated. Each of the locking members 73 and 73' additionally provides a positive clutch release which prevents stopping of the jig only when operated in a predetermined manner and requires the operator to be on the correct side of the machine for starting the same and also prevents the unintentional reversing of the direction of run of the fabric when the machine has been stopped. In other words, by reason of the present invention, simple and efficient means are provided for selectively connecting the main drive with either of the beam rolls so as to effect a smooth, even, and uniform run of the fabric and without danger of subjecting the cloth to excessive strain or frictional wear due to the sudden starting or stopping of the rolls. Moreover, by reason of the automatic feature of the jig, human negligence is avoided.

It is to be understood that the form of the invention herewith shown and described is merely illustrative of a preferred embodiment and that such changes may be made as fall within the purview of one skilled in the art without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member arranged to be operatively connected to the driven member, means for operatively connecting the driven member to said shaft, means operatively connecting the driving member to the driven member, and means for preventing release of the driven member from said shaft when the latter is being driven.

2. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member arranged to be operatively connected to the driven member, means for operatively connecting the driven member to said shaft, means operatively connecting the driving member to the driven member, and means operable by said last mentioned means for maintaining the driven member operatively connected to said shaft when the latter is being driven.

3. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member arranged to be operatively connected to the driven member, means for operatively connecting the driven member to said shaft, and means for operatively connecting the driving member to the driven member and simultaneously locking the driven member to the shaft to prevent release of the driven member from said shaft when the latter is being driven.

4. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member arranged to be operatively connected to the driven member, slidable means on said shaft for operatively connecting the driven member to the shaft, means operatively connecting the driving member to the driven member and means operable by said last mentioned means for preventing the release of the driven member from said shaft when the latter is being driven.

5. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member arranged to be operatively connected to the driven member, a slidable clutch on said shaft for operatively connecting the driven member thereto, an actuator for operatively connecting the driving member to the driven member, and means on said actuator for maintaining the driven member operatively connected to said shaft when the latter is being driven.

6. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member, a main clutch for operatively connecting the driving member to the driven member, a slidable clutch keyed on said shaft and arranged to engage said driven member to lock the latter to the shaft, operating means for moving the slidable clutch into engagement with the driven member, an actuator for moving the main clutch to establish a driving connection between the driving member and the driven member, and means operable by said actuator for preventing the release of the slidable clutch from said driven member during the operation of the latter.

7. A jigger of the class described including a beam roll shaft, a driven member rotatable on said shaft, a driving member, a main clutch for operatively connecting the driving member to the driven member, a slidable clutch keyed on said shaft and arranged to engage said driven member to lock the latter to the shaft, operating means for moving the slidable clutch into engagement with the driven member, an actuator for moving the main clutch to establish driving connection between the driving member and the driven member, and means operable by said actuator and arranged to engage said operating means for maintaining the slidable clutch in engagement with the driven member during the operation of the latter.

8. A jigger of the class described including a beam roll shaft, a driven member normally rotatable on said shaft, a driving member, a main clutch for operatively connecting the driving member to the driven member, a slidable clutch keyed on said shaft and arranged to engage said driven member to lock the latter to the shaft, operating means for moving the slidable clutch into engagement with the driven member, and an actuator for moving the main clutch to establish driving connection between the driving member and the driven member, said actuator having a lock arranged when the actuator is moved to its operative position to engage the operating means to maintain the slidable clutch in engagement with the driven member.

9. A jigger of the class described including a beam roll shaft, a driven member rotatable on said shaft, a driving member, a main clutch for operatively connecting the driving member to the driven member, a slidable clutch keyed on said shaft and arranged to engage said driven member to lock the latter to the shaft, operating means for moving the slidable clutch into engagement with the driven member, an actuator for moving the main clutch from its neutral position to establish a driving connection between the driving and driven members, said actuator having a lock provided with means arranged to engage complementary means on the operating means for positively maintaining the slidable clutch in engagement with the driven member during the operation of the machine and until the main clutch is returned to its neutral position.

10. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, means associated with each of said shafts for locking its driven member thereto, an actuator for moving said clutch means to operatively connect one of the driving members to its driven member when the latter is operatively connected to its shaft and automatically releasing the other driven member from its shaft, and means for preventing the release of the driven member from its shaft when the latter is being driven.

11. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, means associated with each of said shafts for locking its driven member thereto, an actuator for moving said clutch means to operatively connect one of the driving members

to its driven member when the latter is operatively connected to its shaft, and means operable by said actuator for preventing the release of one of the driven members from its shaft when the latter is being driven and for maintaining the driven member on the other shaft out of engagement with its shaft when the first shaft is being driven.

12. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, each of said shafts having a slidable clutch arranged to engage its driven member to lock the latter to the shaft, operating means for moving each of the slidable clutches into engagement with its driven member, an actuator for moving said clutch means to operatively connect one of the driving members to its driven member when the latter is operatively connected to its shaft, and means simultaneously operable by said actuator for locking one of the driven members to its shaft and preventing the connection of the other driven member with its shaft when the first shaft is being driven.

13. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, each of said shafts having a slidable clutch arranged to engage its driven member to lock the latter to the shaft, operating means for moving each of the slidable clutches into engagement with its driven member, an actuator for moving said clutch means to operatively connect one of the driving members to its driven member when the latter is operatively connected to its shaft, and means operable by said actuator for preventing the disconnection of the driven member from its shaft until the main drive is released from the driven member.

14. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, each of said shafts having a slidable clutch arranged to engage its driven member to lock the latter to the shaft, operating means for moving each of the slidable clutches into engagement with its driven member, an actuator for moving said clutch means to operatively connect one of the driving members to its driven member when the latter is operatively connected to its shaft, and means for preventing the connection of the driven members to their shafts until after the main drive is moved to its neutral position.

15. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members and its complementary driven member, each of said shafts having a slidable clutch arranged to engage its driven member to lock the latter to the shaft, operating means for moving each of the slidable clutches into engagement with its driven member, an actuator for moving said clutch means to operatively connect one of the driving members to its driven member when the latter is operatively connected to its shaft, said actuator and said slidable clutches having interengaging locking members, means for moving the actuator from its neutral position to connect the main drive with one of said beam roll shafts and automatically to maintain the other beam roll shaft out of engagement with its driven member, said locking members when the actuator is moved beyond its neutral position to disconnect one of the beam roll shafts from the main drive constituting means for preventing the unintentional connection of the other beam roll shaft with the main drive.

16. A jigger of the class described including a pair of beam roll shafts, each of said shafts having a driven member normally rotatable thereon, a main drive having complementary driving members arranged to be operatively connected to the driven members, clutch means for selectively establishing a driving connection between one of the driving members, and its complementary driven member, each of said shafts having a slidable clutch arranged to engage its driven member to lock the latter to the shaft, operating means for moving each of the slidable clutches into engagement with its driven member, an actuator rod extending transversely of the shafts and provided with means for moving the main clutch from its neutral position to establish a driving connection between one of the driving members and its driven member when the latter is operatively connected to its shaft, said actuating rod having a pair of locking members connected thereto, one of the locking members being positioned adjacent one of the shafts, and means on the locking members whereby when one of the shafts is being driven, its locking member engages the operating means on the shaft to maintain the shaft connected to its driven member, the other locking member having means for moving its operating means to prevent its shaft from being operatively connected to its driven member when the first shaft is being driven.

17. A device of the class described having in combination, a pair of revoluble members, a main drive, a clutch operatively associated with each of said members for connecting the main drive thereto, an actuator for selectively establishing a driving connection between the main drive and said members, a pair of locking members connected to said actuator and positioned so that one of the locking members is associated with one of the revoluble members, means on each of the locking members whereby when the actuator is moved to connect the main drive with one of the revoluble members, the locking member associated therewith maintains the revoluble member connected to the main drive and the locking member associated with the other revoluble member acts to prevent the latter from being connected to the main drive.

18. A device of the class described having in combination a pair of revoluble members, a main drive, a clutch operatively associated with each of said members for connecting the main drive thereto, an actuator for selectively establishing a

driving connection between the main drive and said members, and separate means associated with each of said clutches and simultaneously operable by said actuator whereby when one of the members is being driven to maintain the clutch of the other of said members inoperative.

19. A device of the class described having in combination a pair of revoluble members, a main drive, a clutch operatively associated with each of said members for connecting the main drive thereto, an actuator for selectively establishing a driving connection between the main drive and said members, and separate means associated with each of said clutches and simultaneously operable by said actuator whereby when one of the members is being driven to maintain its clutch positively connected to the main drive.

20. A device of the class described having in combination a pair of revoluble members, a main drive, a clutch operatively associated with each of said members for connecting the main drive thereto, an actuator for selectively establishing a driving connection between the main drive and said members, and separate means associated with each of said clutches and simultaneously operable by said actuator whereby when one of the members is being driven to maintain its clutch positively connected to the main drive and for maintaining the clutch of the other of said members inoperative.

21. A device of the class described having in combination a pair of revoluble members, a main drive, a clutch operatively associated with each of said members for connecting the main drive thereto, and an actuator for selectively establishing a driving connection between the main drive and said members, said actuator and clutches having coacting means operable by the movement of the actuator whereby when one of the members is being driven to prevent connection of the main drive with the clutch of the other of said members.

GEORGE H. CADY.