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CLOTH ROLL SUPPORT MEANS FOR LOOMS

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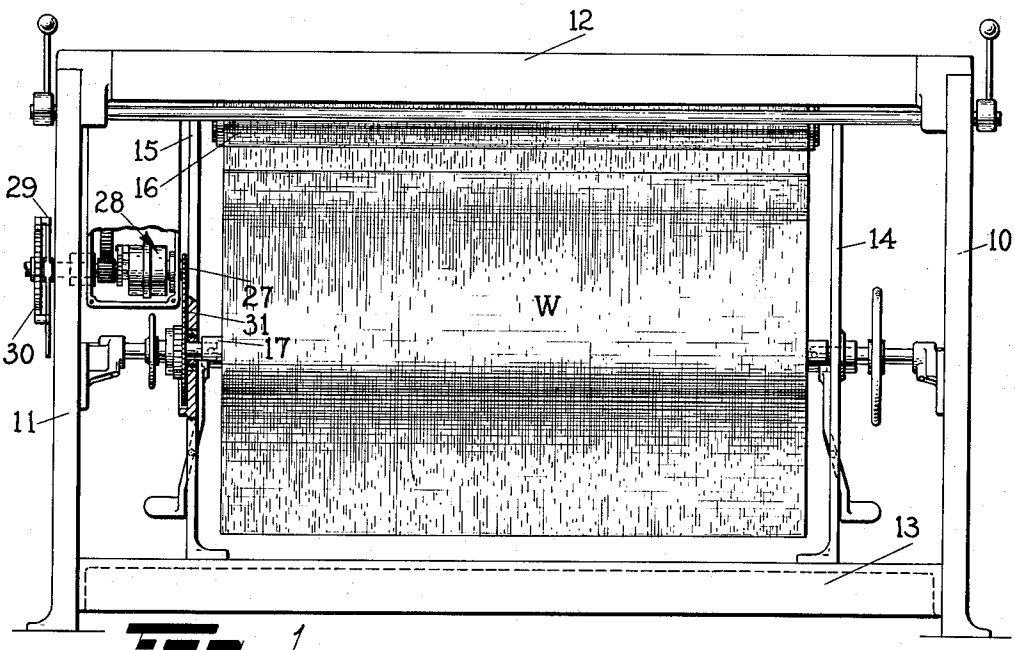


FIG. 1

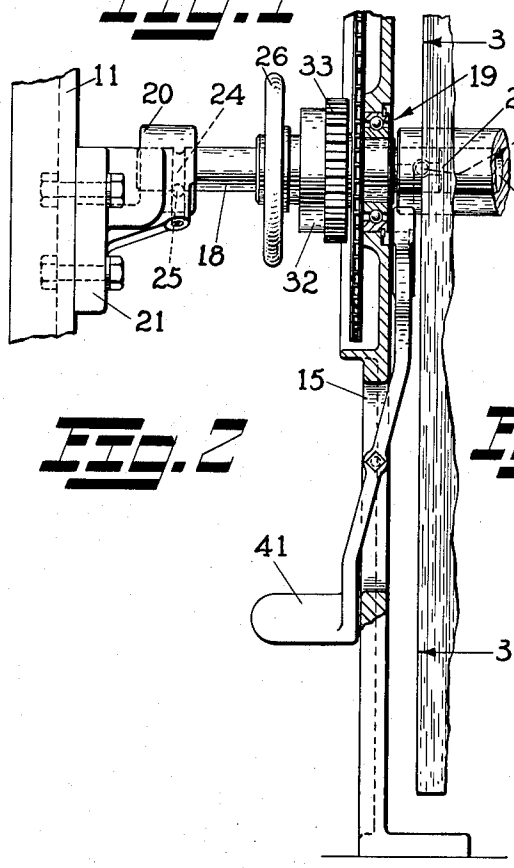


FIG. 2

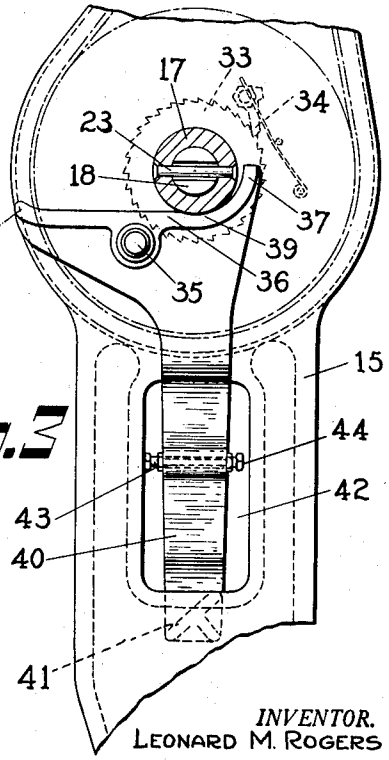


FIG. 3

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CLOTH ROLL SUPPORT MEANS FOR LOOMS

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4 Claims. (Cl. 139—304)

This invention pertains to looms for weaving, and more specifically to means forming a part of said looms for facilitating the installation of a cloth roll on which the woven materail is wound, and for lifting the roll and materail thereon to render less difficult the doffing of the material.

It is a general object of the invention to incorporate in looms a simple and effective means for assisting in the introduction of a cloth roll to the cloth roll take-up means and for lifting the roll and material wound thereon so as to withdraw the supporting and/or driving gudgeons therefor, also for increasing the safety and for expediting the removal of the woven material from the loom.

It is a more specific object of the invention to devise a cloth roll raising means which shall function to elevate the roll and the heavy material thereon by pressure of the loom attendant's foot on a convenient pedal to remove the weight of the roll and material from the supporting gudegons, but which will not give rise to over-travel or excess movement of the parts which might thereby add a different but equally effective deterrent to easy disengagement of the supporting and driving elements.

Other objects of the invention will become apparent from the following description.

In looms for weaving the fabric is passed over a take-up roller or other means adapted to draw it at a fixed rate and to advance it on toward a cloth roll which is rotated in some convenient manner for winding up that fabric until a roll of sufficient diameter has been formed whereupon the roll and material may be removed from the loom. In some instances the cloth roll has been borne upon gudgeons one at least of which is positively driven and which therefore rotates the fabric roll to wind the material as fast as it is woven. These supporting and driving means for the cloth roll are preferably to be slid axially into and from engagement with the roll and there must be at the driving end at least, a connection by means of which torque transmitted to the gudgeon will also be conveyed through to the roll.

While some means have heretofore been devised for facilitating the removal of these cloth rolls, it has generally been the practice in weaving establishments to release the roll after suitable conveying means have been placed beneath the cloth and to handle the material more or less awkwardly or inefficiently in that a great deal of manual effort has been required. Now that it has become practical to wind much larger cloth rolls than were at one time considered possible, one of the major difficulties involved is that of disengaging the roll supporting and driving gudgeons which, due to the great weight imposed thereon, present considerable frictional resistance to movement. According to the invention hereinafter to be described in greater detail, a cloth roll lifting means which serves to position the roll as it is introduced and also to lift the roll and cloth thereon prior to removal of the woven material is so devised that by a minimum of effort on a convenient foot pedal, each

end of the material may be independently lifted thereby to relieve pressure on the gudgeons which may then be slid axially and disengaged without more than a minimum of physical effort being expended. The lifting means also serves to assist in moving the completely filled cloth roll forwardly so that it may more easily be transferred to a truck or other instrumentality for taking it away. The movement of the lifting mechanism is capable of being adjustably stopped so that there shall be no likelihood of the pedal pressure doing more than lifting the material to free the gudgeon, that is, it is not possible once the mechanism has been properly adjusted to press against the pedal with such force as to lift the material and to press it upwardly against the gudgeon so hard that in instances the effort required to disengage the parts might actually be greater than otherwise would be the case due merely to the load imposed by the weight of the mass supported.

The invention will be described hereinafter by reference to the accompanying figures of drawing wherein:

Fig. 1 is a front elevation of a part of a loom to which the invention has been applied.

Fig. 2 is a section showing certain parts enlarged and illustrating details of the gudgeon at the driving end, its bearings and the lifting means for the cloth roll and fabric.

Fig. 3 is a side elevation of that mechanism shown in Fig. 2.

Now referring to the figures, enough of a loom has been illustrated to show the application of the invention thereto. The loom comprises loomsides **10** and **11**, a breast beam **12** and a front girt **13** between which are conveniently supported cloth roll stands **14** and **15**. Adjacent and behind the breast beam **12** is the usual take-up or sand roll **16** about which the material is passed and by which it is frictionally gripped and advanced at a predetermined rate depending upon the number of picks of filling per inch which it is desired to insert. That material then passes downwardly and is wound upon a cloth roll **17** this cloth roll being supported and rotated as will hereinafter be described and serving to have wound thereon a sizeable roll of woven material W, it being possible in modern types of looms to wind a package of very large diameter thereby making it unnecessary to doff the material from the loom except at more extended periods.

The cloth roll stands and the supporting and driving means for the roll **17** are substantially alike at each side of the loom except for the fact that at the left hand side, Fig. 1, is positively rotated while that at the right hand side merely serves to support the roll and fabric carried thereby. In this Fig. 1 and to an enlarged scale in Fig. 3, this means is shown as comprising a gudgeon **18** mounted for rotation in a bearing such, for example, as the anti-friction bearing **19** carried in the stand **15** at that side of the loom and in a second bearing **20** which is in fact a part of a bracket **21** which attaches to the adjacent loomside **11**. The inner end of this gudgeon **18** is slotted as at **22** and since the roll **17** is tubular or at least hollow at its ends, the gudgeon is adapted to slide into it for a limited extent and the notch or slot **22** engages about a pin **23** which is passed through and fixed in that end of roll **17**. The opposite end of the gudgeon borne in bearing **20** is grooved as at **24** and a spring pressed ball or plunger **25** engageable in the groove and carried by the bearing serves to hold the gudgeon inwardly so that once engaged as herein illustrated with the cloth roll, it may not become disengaged except as manipulated by the loom attendant when a roll is to be inserted or finished material removed, or for other reasons. A hand wheel **26** is fixed to the

gudgeon and serves as a means for sliding it axially as above described.

The mechanism at the opposite or right hand side of the loom is substantially the same as that just above described and it is not believed necessary to describe the parts there or to indicate them by reference numerals. Preferably, one gudgeon is driven thereby to impart the necessary rotational movement to roll **17** and that drive is, according to the present construction, associated with the left hand gudgeon and is taken from a shaft **27**, Fig. 1, which is continuously driven or rotated through a frictional means generally indicated at **28** and not necessary of description here except to say that the same constitutes something in the nature of a slip clutch by means of which rotation imparted through pawl and ratchet means **29** and **30** is carried through to a sprocket and then through a chain **31** to a second and larger sprocket which is adapted to drive a hub member **32** splined or keyed to the gudgeon **18** so that it continuously drives the latter although axial movement between the two is contemplated. A ratchet wheel **33** is also fixed to the hub **32** to rotate therewith and with the sprocket and also serves to prevent reverse rotation since a spring pressed pawl **34** is engaged therewith although the same may be disengaged manually thereby to permit reverse rotation when it is desired to draw off a small amount of the fabric thereby to inspect it or to cut out a length for some particular purpose.

The drive from pawl and ratchet wheel **29** and **30**, clutch **28** and the chain **31** is primarily derived from some suitable moving part of the loom and is carried through to take-up roll **16**. Such mechanisms are known to those conversant with this art and need not be described in greater detail here.

Upon starting, the gudgeons are moved axially or outwardly endwise of their bearings so as to permit introduction of the cloth roll after which each is slid into place until the locking plunger **25** engages its respective groove **24**. The mechanism described and claimed hereinafter is adapted to facilitate that operation and also to assist in removing the roll after a mass of woven material has been wound thereon. For that purpose, a member adapted to swing throughout a limited angular extent is pivoted on stud **35** held in stand **15** and positioned somewhat below and forwardly of the axis of gudgeon **18**. This member comprises a track portion **36** of width suitable to retain the end of the roll **17** and extending rearwardly and forwardly of the pivot being bent upwardly as at **37** at its rearmost end and having a slight upturn **38** at the forward end. The track generally slopes downwardly toward the front except that at the rear portion underlying the roll **17** a slight depression **39** is formed in which the roll is adapted to seat and which is just deep enough to prevent its rolling toward the front of the loom accidentally. A downwardly extending arm **40** terminates in a pedal **41** adjacent its lower end and, as herein shown, is offset so that it extends from one side to the other of the stand **15** projecting through a cored opening **42** therein. In actual practice the weight of the member is so disposed with respect to the pivot **35** that it swings forwardly and downwardly so that there will be a slight clearance when the parts are properly adjusted and the roll is in position on its gudgeons. Upon the loom attendant pressing his toe against the pedal **41**, arm **40** is swung to the rear and the track adjacent the cloth roll moves upwardly sufficiently to engage and to raise that roll so that its weight will be removed from the gudgeon. It is preferred to limit the movement of the arm **40** by stops screws **43** and **44** threaded into an enlarged section of the depending arm and locked in adjusted position by the usual lock nuts. The stop screw **43** prevents excessive forward movement of the parts and maintains the position of the parts when the weight is upon them while the screw **44** at the opposite side of the arm prevents too great a movement in the direction of raising the roll. That obviates any likelihood of one exerting excessive pressure on the pedal and subjecting the parts to pressure in an upward direction which might actually prevent withdrawal of the gudgeon as effectively or more effectively than would the weight of the roll and cloth since the leverage provided is considerable and it is contemplated that a very light pressure on pedal **41** may suitably elevate the heaviest roll of fabric which may at any time be wound.

In actual operation of the device, of course, one end is released independently and then the other, although if two persons are at the same loom, they may disengage both sides simultaneously. After the gudgeons have been withdrawn, the roll merely rests at the rear portion of the track and a slight amount of effort employed to draw or roll the cloth package forwardly will result in moving the material toward the front of the track. There is no danger of overtravel since the upturned end **38** prevents that. At that position a truck or other device adapted to remove the material may be manipulated for engaging the roll and for conveying it away from the loom preparatory to insertion of another roll and starting a second fabric package thereon.

While the pedal **41** has been spoken of as such and is designed for foot operation, it is, of course, evident that the attendant may employ it as a hand grip, or it may be formed in any manner convenient for that purpose.

The depression **39** may be varied in depth as may the upturned ends **37** and **38** of the track, the latter necessarily serving as a barrier to unintended movement of the cloth roll off the track, while the former serves to center the roll as the gudgeons are placed in driving engagement therewith and during lifting when doffing.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive concept may be carried out in a number of ways. This invention is, therefore, not to be limited to the precise details described, but is intended to embrace all variations and modifications thereof falling within the spirit of the invention and the scope of the claims.

I claim:

1. In a loom having a cloth roll upon which fabric is wound and means for supporting and rotating said cloth roll, said means being retractible to release the roll, a means for facilitating the release and handling of the roll which comprises at each end thereof, a pivoted member having a roll engaging track, a depending pedal operated means comprised as a functionally unitary part of said pivoted member for swinging said member to engage said track and roll and to lift the latter, and other means for limiting the swinging movement of the member in either direction.

2. In a loom having a cloth roll upon which fabric is wound and means for supporting and rotating said cloth roll, said means being retractible to release the roll, a means for facilitating the release and handling of the roll which comprises at each end thereof, a member pivoted forwardly of the cloth roll, a roll engaging track forming a part of said member and extending forwardly of the pivot and also rearwardly thereof to underlie the said roll, and means to impart to the member a small angular movement to engage said track with and to lift the roll which includes an integrally formed, depending arm and and pedal, and stop means to limit the swinging movement of the pedal in either direction.

3. Mechanism as defined in claim 2 wherein said roll engaging track is upwardly curved at each end and that portion thereof which underlies said cloth roll is slightly depressed to receive the roll.

4. In a loom having a cloth roll upon which fabric is wound and means for supporting and rotating said cloth roll which comprises cloth roll stands one at each end of the roll and gudgeons borne in said stands

and axially slidable to and from engagement with the ends of the roll, means for rotating one gudgeon including drive gears and a chain and sprockets, means for facilitating the release and handling of the roll which comprises at each end thereof, a pivot on said cloth roll stand, a member movable for limited angular extent on said pivot and comprising a roll engaging track, a depending arm formed as an integral part of said member and a pedal adjacent the end thereof and stop means carried by the arm and engageable with the cloth roll

stand for limiting the movement of said arm and track so that upon pressing said pedal the cloth roll shall be raised to relieve the gudgeon of the weight of roll and cloth thereon.

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