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Bond et al.

[11] **3,911,966**

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[54] **LOOM CLOTH ROLL TAKE UP**

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[21] Appl. No.: **470,458**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 353,237, April 23, 1973.

[52] **U.S. Cl.** ..... **139/1 R**; 139/304

[51] **Int. Cl.**[2] **D03D 49/00**; D03D 49/20

[58] **Field of Search** ..... 139/1 R, 1 E, 97, 99, 304, 139/307, 308, 313; 28/42; 66/147, 149

[56] **References Cited**

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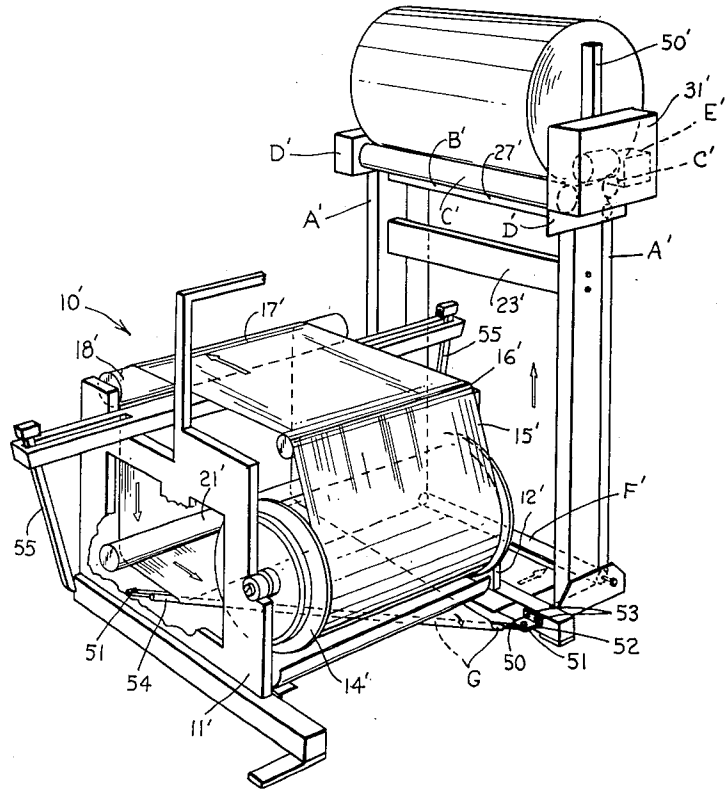
Primary Examiner—James Kee Chi

Attorney, Agent, or Firm—Bailey & Dority

[57] **ABSTRACT**

A cloth roll take up for a textile loom, having means for guiding the cloth from the delivery roll and thence beneath the loom, includes a pair of transversely spaced vertical frame members each including a pair of longitudinally spaced standards carried outboard of the loom frame members adjacent the rear of the loom for positioning a pair of spaced horizontal transverse frictional take up rolls with means for driving the rolls for building a cloth roll above the loom, the cloth being guided from beneath the loom substantially vertically behind the loom beam, and a take up is further illustrated wherein a guide bar is positioned beneath the loom, rearwardly of the means for guiding the cloth from the delivery roll, receiving the cloth therefrom and directing same laterally beneath a loom side frame member.

3 Claims, 5 Drawing Figures



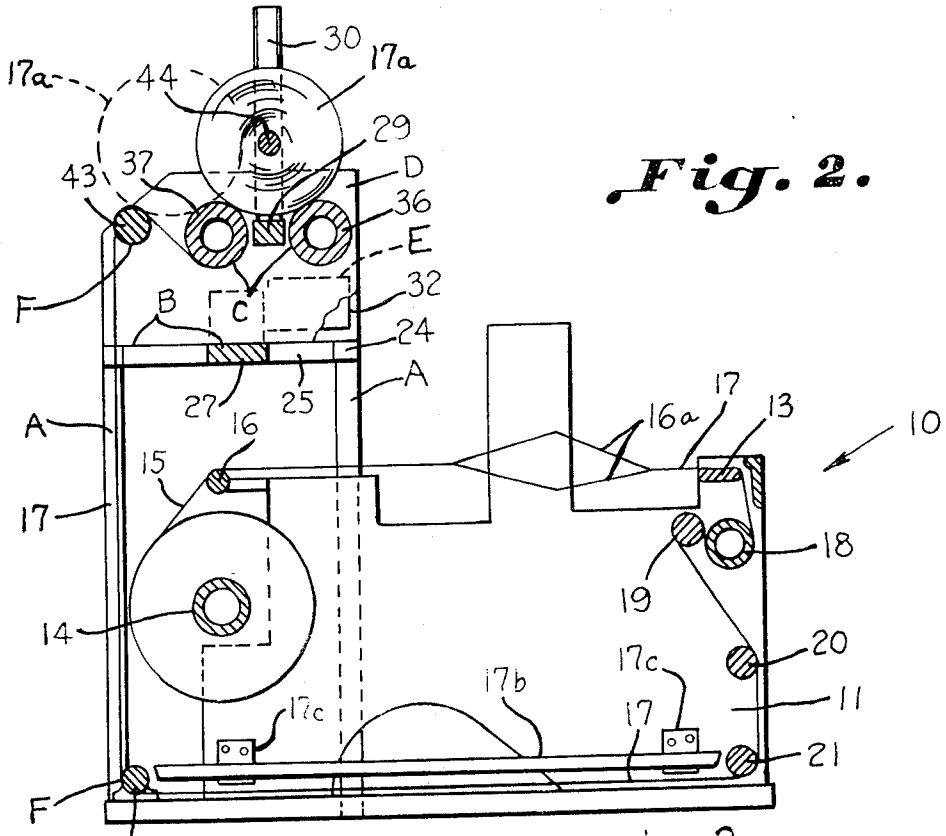


Fig. 2.

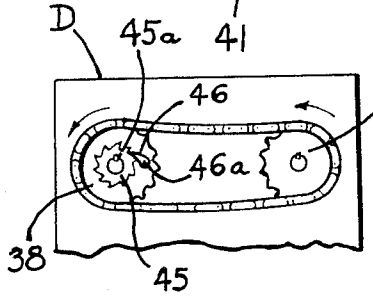


Fig. 3A

Fig. 1.

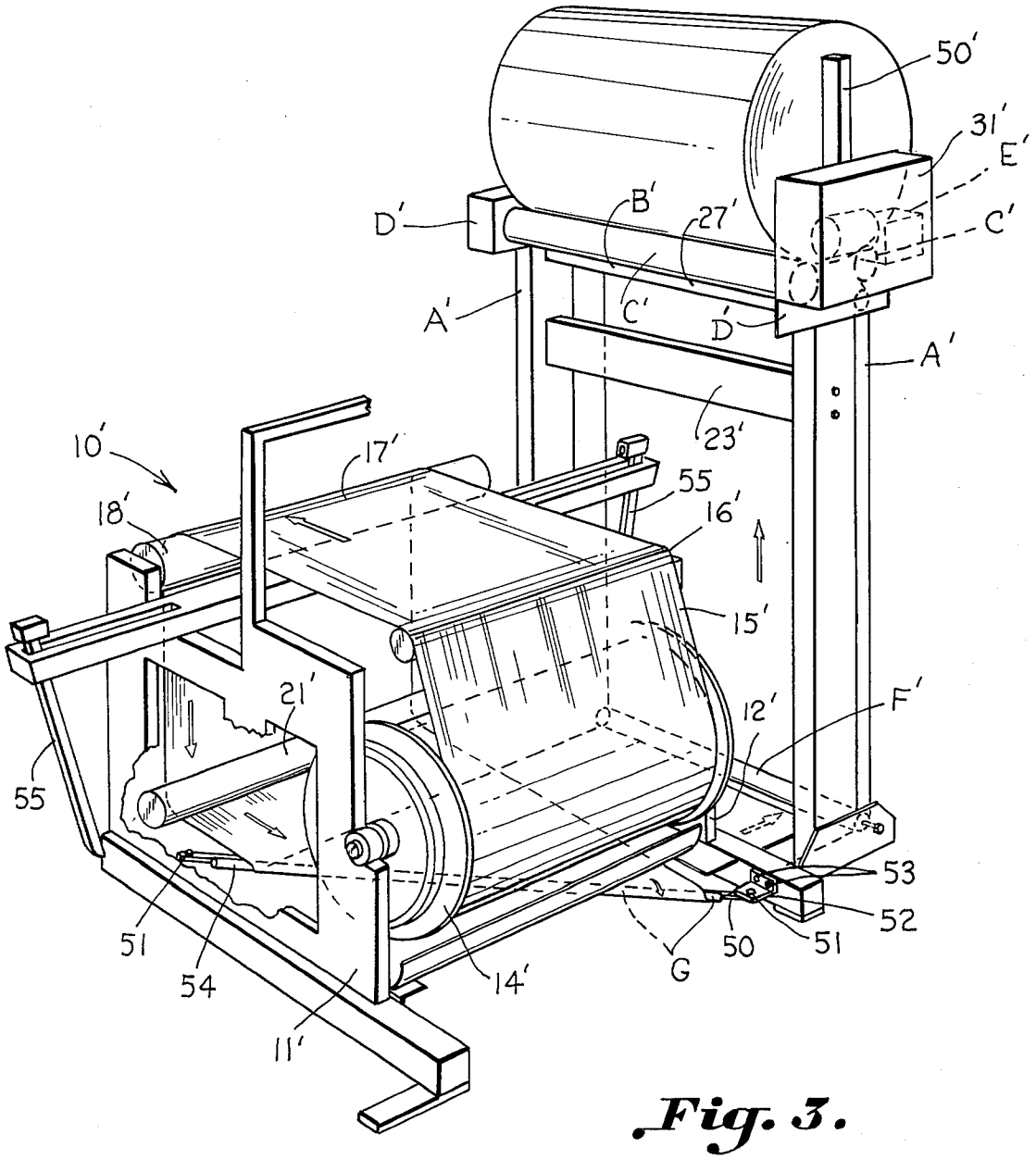

50'
31'
E'
C'
B'
27'
D'
A'
C'
D'
A'
23'
10'
17'
55
18'
16'
15'
21'
12'
F'
55
53
52
51
54
14'
G
50
51
11'

Fig. 3.

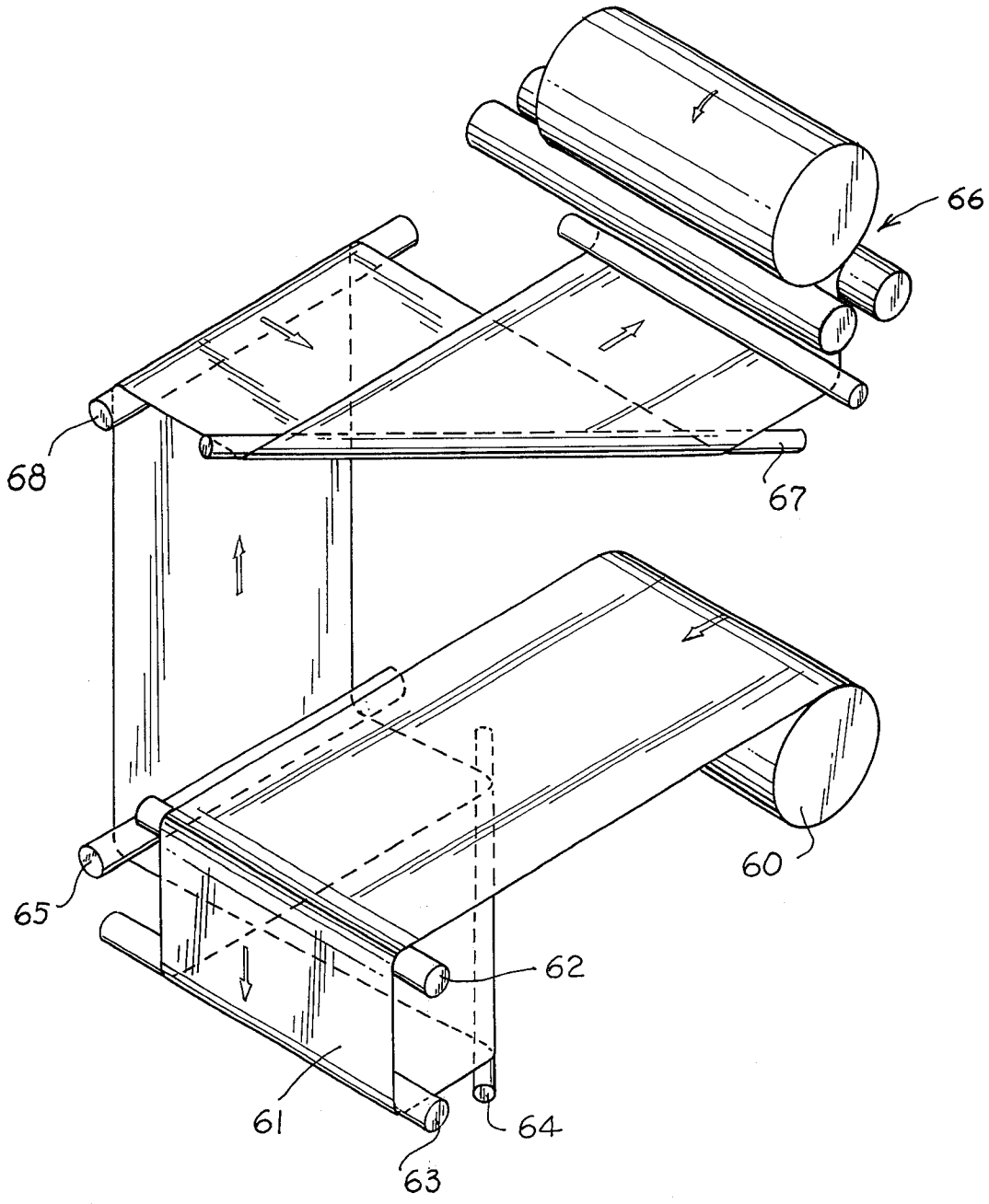


Fig. 4.

LOOM CLOTH ROLL TAKE UP

This is a continuation in part of our copending application Ser. No. 353,237 filed Apr. 23, 1973 for LOOM CLOTH ROLL TAKE UP.

This invention relates to an improved cloth roll take up for a loom wherein a pair of transversely spaced members are carried outboard of the loom frame members adjacent the rear of the loom for carrying driven roll supports above the loom for receiving cloth from beneath the loom behind the loom beam. Such an arrangement permits the building of a very large cloth roll without interference with the various loom parts while saving space in the mill to accommodate personnel and auxiliary equipment. This invention further relates to a take up having means guiding the cloth from the delivery roll and directing same laterally beneath a side frame member to a take up roll.

BACKGROUND OF THE INVENTION

Loom cloth roll take ups have been proposed wherein surface driven take up rolls are carried on the top of the loom and mounted on the loom frame. Such structure is shown in British Pat. No. 1,018,109 published Jan. 28, 1966 and similar structure is shown in United States Letters Pat. Nos. 2,811,176, 3,502,115 and 3,677,305. The prior art also contemplates a winding mechanism comprising a pair of spaced horizontal transverse frictional take up rolls which are suitably driven and mounted forwardly of the loom, such as illustrated in U.S. Letters Pat. No. 3,433,430, but space requirements are increased thereby. It has heretofore proved to be impractical, however, in practice to position frictional take up rolls over the loom for building very large rolls while conserving space within the mill. It has been found that exceptional vibration is imparted from the loom frames to the take up mechanism carried thereby. Moreover, in the case of very large rolls, it is necessary that the take up mechanism be cantilevered outwardly behind the loom to avoid interference of the cloth with the loom beam.

It is important to overcome the vibration problem and provide a practical structural arrangement for supporting the take up equipment plus the very large cloth roll while avoiding obstructing the working mechanism of the loom. It is also important to provide effective mechanisms for exerting control over the cloth for building a tight very large cloth roll while disposed out of the way of the loom parts, as well as personnel and auxiliary roll doffing equipment such as lift trucks, etc.

A further important object of the invention is to avoid obstruction of the loom beam and associated parts in the back of the loom by providing a take up which directs the cloth laterally beneath the loom.

SUMMARY OF THE INVENTION

It has been found that by positioning spaced vertical frame members, each including a pair of longitudinal standards, outboard of the frame members of the loom, it is possible to avoid excessive vibration and provide sufficient support to carry the required load in a position to avoid interference by the cloth with the loom beam.

Since the frame members are constructed of spaced standards, reasonable access may be had for operating and maintaining the various conventional loom parts with which the device is used. It has further been found that a take up mechanism having a pair of driven

spaced horizontal transverse frictional take up rolls with means for guiding the cloth thereto, including a transverse roll carried in horizontal alignment with an adjacent take up roll, affords effective control upon the cloth by maintaining a predetermined wrap of the cloth about the adjacent take up roll.

An imperforate dirt shield is carried by the loom in superposed relation to a width of cloth passing beneath the loom. The driving means preferably includes a reversible motor driving one of the take up rolls at a first speed, a driving connection between the rolls causing the one roll to impart rotation at a slightly different second speed to the other roll for building a tight cloth roll, and means releasing such driving connection when the motor is reversed to permit an even take off of cloth avoiding any tendency to pucker.

By positioning the vertical frame members outboard of the loom frame members, a sufficiently rugged structure can be afforded to carry the various drive mechanisms for the frictional rolls above the loom while isolating the drive and take up mechanism from the oscillations and vibrations during weaving. Horizontal alignment of the peripheries of the transverse roll and a take up roll facilitates a manual placement of a full cloth roll thereon making it more accessable to the tines of a lift truck for doffing.

It has further been found that guide means may be positioned beneath the loom, rearwardly of means for guiding cloth from the delivery roll for directing the cloth laterally beneath a loom side frame member in open width to means positioned laterally of the loom for directing the cloth to the take up roll.

BRIEF DESCRIPTION OF THE DRAWING

The construction designed to carry out the invention will be hereinafter described, together with other features thereof.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing forming a part thereof, wherein an example of the invention is shown and wherein:

FIG. 1 is a perspective view illustrating a loom equipped with a cloth roll take up constructed in accordance with the present invention including the drive mechanism and control devices for handling the cloth,

FIG. 2 is a longitudinal sectional elevation taken on the line 2—2 in FIG. 1 further illustrating the support structure and frictional rolls,

FIG. 3A is a side elevation looking toward the upper right hand portion of FIG. 1, with parts omitted and parts broken away,

FIG. 3 is a perspective view illustrating a loom provided with a cloth roll take up constructed in accordance with a modified form of the invention, and

FIG. 4 is a schematic diagram illustrating a loom provided with a cloth roll take up constructed in accordance with another modified form of the invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

The drawing illustrates a cloth roll take up for a loom having a loom beam adjacent the rear of the loom and a cloth delivery roll mounted to receive woven cloth carried between the loom side frame members adjacent the front of the loom. The take up has means for guiding the cloth from the delivery roll and thence beneath toward the rear of the loom.

A pair of transversely spaced vertical frame members A, each including a pair of longitudinally spaced standards, are carried outboard of the loom frame members adjacent the top of the frame members. A pair of spaced horizontal transverse friction take up rolls C are carried for rotation by a pair of spaced roll supports D. The roll supports are carried by the platform in transverse alignment therewith for supporting the pair of take up rolls for rotation above and in substantial vertical alignment with the loom beam. Means E for driving the pair of take up rolls are carried by the platform. Means F are provided for guiding the cloth from beneath the loom substantially vertically behind the loom beam to the take up rolls. Preferably, the means for guiding the cloth from beneath the loom includes a transverse roll carried in horizontal alignment with an adjacent take up roll C for affording a predetermined wrap of the cloth thereabout.

A loom of standard construction is broadly designated at **10** and includes a pair of side frame members **11** and **12** bridged by the usual breast beam **13.** A loom beam **14** is carried adjacent the rear of the frame members **11** and **12** and supplies warp yarn **15** over the usual whip roll **16.** The warp yarn **15** forms a shed **16***a* for making the cloth **17** which is illustrated as passing over the breast beam **13** to the usual delivery or take up sand roll **18.** At this point the procedure varies from the conventional and the cloth is carried over a press roll **19** and thence downwardly around a pair of guide rolls **20** and **21** beneath the loom preparatory to its being guided by the mechanism hereof and wound into a very large cloth roll.

A pair of transversely spaced vertical frame members A each including a pair of longitudinally spaced standards **22** are braced at the bottom by cross frame members **23** and at the top by the various components of the mounting platform B which bridge the respective standards **22** and extends transversely between the respective vertical frame members A.

The platform B on the left hand side of FIG. **1** includes spaced horizontal transverse members **24** which are bridged by a suitable longitudinal frame member **25.** The frame A on the right hand side of FIG. **1** is bridged by a longitudinal member **26.** The platform further includes a transverse frame member **27** which bridges the longitudinal frame members **25** and **26** to provide rigidity to the platform structure as well as the frame members which support it. Suitable angularly disposed frame members **28** may be employed as desired to add rigidity to the aforesaid frame and platform structure. An additional transverse member **29** (FIG. **2**) spans the vertical frame members and carries a pair of spaced standards **30** for limiting transverse movement of the cloth roll upon the frictional take up rolls C. The transverse frame member **29** is secured to the frame and platform members through a pair of spaced roll supports D.

The means E for driving the pair of take up rolls C are carried by the platform and contained within a suitable housing **31.** The means E includes a motor **32** which through a gear box **33** drives a chain **34** for imparting rotation to the frictional take up rolls C through a sprocket **35.** The sprocket **35** is carried by the forward roll **36** of the rolls C. The back roll **37** is driven through a sprocket **38** which, in turn, is driven through an endless chain **39** driven by the sprocket **40** carried by the opposite end of the roll **36.**

A means F for guiding the cloth beneath the loom includes a guide roll **41** carried by extensions **42** of the frame members **11** and **12** and is positioned to guide the cloth upwardly substantially vertically behind the loom beam to a cooperating transverse roll **43** which controls the wrap of the cloth **17** and the adjacent frictional roll **37.** Thus, the tension exerted upon the cloth **17** as it is wound about a suitable core **44** to form a cloth roll **17***a*, is continuously built upon the frictional rolls C to a very large size.

An imperforate dirt shield **17***b* is carried by brackets **17***c* by the loom side frame members just above the run of cloth passing beneath the loom. The motor **32** is preferably a reversible motor for backing cloth off the cloth roll producing slack in the vertical run of cloth past the loom beam. Thus, access may be had as when a warp end comes down. It has been found desirable, in order to get a tight warp on cloth on the cloth roll, to drive one of the take up rolls at a slightly faster speed than the other. In the embodiment illustrated the take up roll **36** is driven faster, having one less tooth than take up roll **37.** As noted in FIG. **3**A, a ratchet wheel **45** is keyed to the shaft carrying roll **37** as at **45***a*. A spring biased pawl **46** is pivoted as at **46***a* upon the sprocket. During reversing the pawl will be out of engagement with the ratchet so that the rolls **37** and **36** will be driven at the same speed as has been found necessary to avoid placing a pucker in the cloth roll on reversing.

A modified form of the invention is illustrated in FIG. **3** wherein like parts are designated by like reference characters with prime notations added. A pair of longitudinally spaced vertical frame members A are carried independently of the loom frame members. A pair of spaced horizontal friction take up rolls C are carried for rotation on a pair of spaced roll supports D. The roll supports are preferably carried by a platform B in alignment therewith for supporting the pair of take up rolls for rotation above said loom. Means E for driving the pair of take up rolls are carried by the platform.

Means F′ are positioned laterally of the loom receiving the cloth and directing same to the cloth roll take up. A guide bar or roll G is positioned beneath and across the loom, rearwardly of the means for guiding the cloth from the delivery roll, receiving the cloth and directing same transversely beneath a loom side frame member.

A loom is broadly designated at **10′** and includes a pair of side frame member **11′** and **12′**. A loom beam **14′** is carried adjacent the rear of the frame members **11′** and **12′** and supplies warp yarn **15′** over the usual whip roll **16′**. Cloth **17′** is illustrated as passing over the usual delivery or take up sand roll **18′**. At this point the cloth is beneath the loom on the roll **21′** preparatory to its being guided by the mechanism hereof and wound into a very large cloth roll.

A pair of transversely spaced vertical frame members A′ are braced as by cross frame member **23′** and at the top by the various components of the mounting platform B′ which preferably bridge the respective frame members.

The platform B′ on the right hand side of FIG. **3** includes longitudinal frame member **27′** which bridges the frame members A′ to provide rigidity to the platform structure as well as the frame members which ssupport it. A pair of spaced standards **50′** for limiting

transverse movement of the cloth roll upon the frictional take up rolls C are carried upon the platform.

The means E for driving the pair of take up rolls C' are carried by the platform and contained within a suitable housing **31'**. The means E includes a motor (not shown) which through a gear box **33** drives suitable drive means for imparting rotation to the frictional take up rolls C' as shown in FIG. **1.**

Means F' are positioned laterally of the loom to guide the cloth upwardly substantially vertically longitudinally of the loom to the cloth roll take up which includes the rolls C'.

The guide bar on roll G is illustrated positioned beneath and across the loom at substantially a 45° angle. The bar G is illustrated as being stationary with an integral flat extension **50** which is secured as by a bolt **51** to a bracket **52** suitably secured to respective loom sides as by bolts **53.** The rearward cloth contacting the edge of the bar is preferably rounded as at **54.** It will be observed that the upward course of the cloth passes outside the picker sticks **55** and does not substantially limit access to loom parts.

Another modified form of the invention is illustrated in FIG. **4.** Warp yarn passes from the loom beam **60** and is woven into the cloth **61** which passes in a vertical downward flight over the loom take up roll **62.** The cloth then passes under a roll **63** beneath the loom to a guide bar **64.**

The guide bar **64** is positioned beneath and across the loom, rearwardly of the means in the form of roll **64** for guiding the cloth from said delivery roll. The bar, or roll **64** receives the cloth from the roll **64** and directs same laterally beneath and beyond the loom. A roll **65** is positioned laterally of the loom receiving the cloth from the roll **64** directing same upwardly. Thus, the cloth roll take up may be positioned in a desired position remote from the loom. It is even contemplated that the cloth roll take up could be positioned on the floor and passed directly thereto instead of to the roll **65.**

Means similar to those shown in FIG. **3** are provided for mounting the cloth roll take up broadly designated at **66** above and across a forward portion of the loom. A second guide bar **67** is positioned above and across the loom receiving the cloth from the roll **65** via roll **68** directing same longitudinally forwardly to said cloth roll take up.

While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

What is claimed is:

1. For use in a cloth roll take up for a loom having a loom warp beam adjacent the rear of the loom and a cloth delivery roll mounted to receive woven cloth carried between loom side frame members adjacent the front of the loom, said take up having means for guiding the cloth from said delivery roll and thence beneath toward the rear of the loom, the improvement comprising:

a guide bar positioned beneath and across the loom in a substantially horizontal plane at about a 45° angle to said loom side frame members, rearwardly of said means for guiding the cloth from said delivery roll, receiving the cloth from said means for guiding the cloth and directing same transversely beneath a loom side frame member; and

means positioned laterally of the loom adjacent a lower portion of an adjacent loom side frame member receiving the cloth from said guide bar and directing same to said cloth roll take up;

whereby said cloth roll take up may be positioned in a desired position remote from the upper forward portion of the loom.

2. The structure set forth in claim **1,** including:

a pair of longitudinally spaced vertical frame members carried independently of said loom side frame members laterally of the loom;

a mounting platform carried by said frame members above the loom;

means mounting said cloth roll take up on said platform; and

means for guiding the cloth from said means positioned laterally of the loom to the cloth roll take up.

3. The structure set forth in claim **1** including:

means mounting said cloth roll take up above and across a forward portion of the loom; and

a second guide bar positioned above and across the loom receiving the cloth from said means positioned laterally of the loom and directing same longitudinally forwardly to said cloth roll take up.

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