G. KERSHAW.

TENSION DEVICE OR YARN CLEANER FOR CREELS FOR USE IN WARPING OR BEAMING.

APPLICATION FILED FEB. 20, 1920.

1,397,286.

Patented Nov. 15, 1921.

2 SHEETS—SHEET 1.

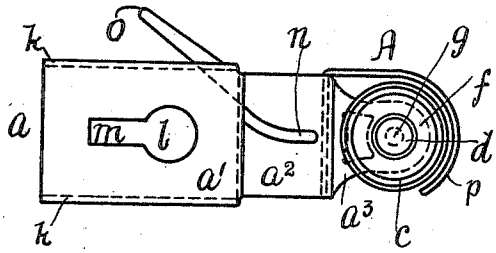


Fig. 1.

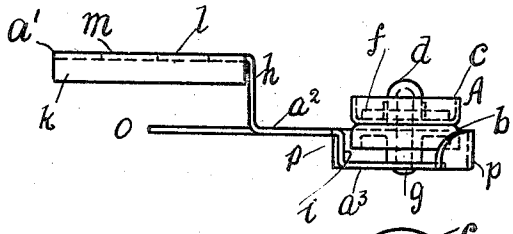


Fig. 2.

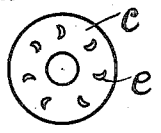


Fig. 3.

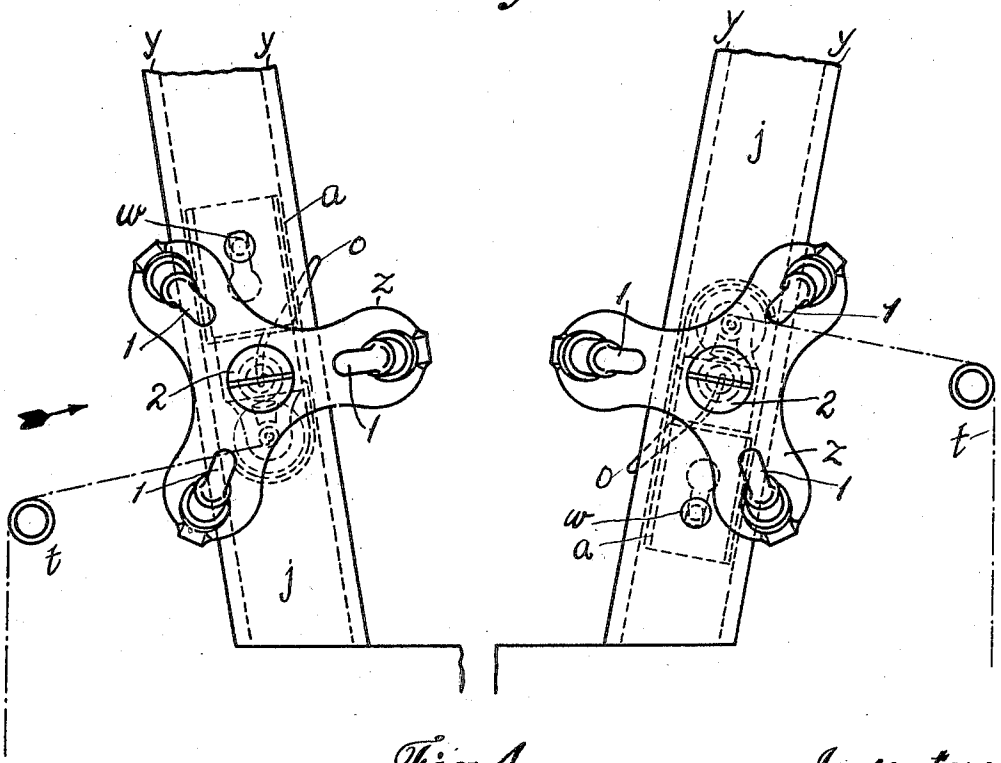


Fig. 4.

Inventor:-
Grindrod Kershaw

By his Attorneys:-

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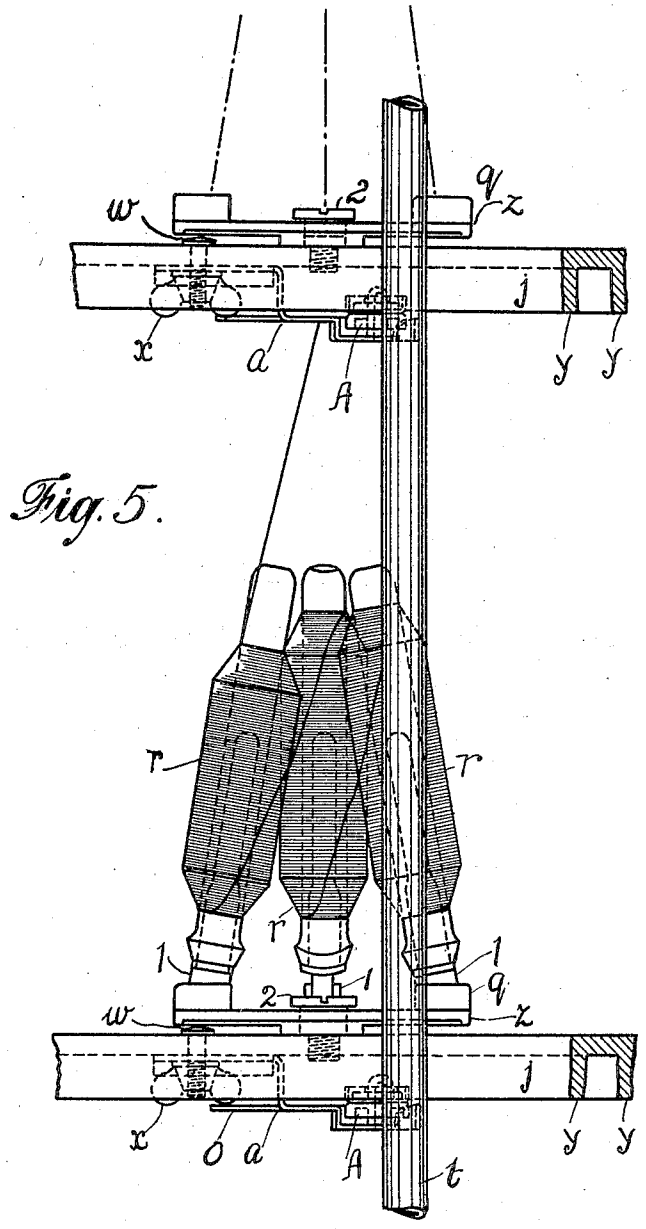


Fig. 5.

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By his Attorneys:- Brown & Seward

UNITED STATES PATENT OFFICE.

GRINDROD KERSHAW, OF WHITWORTH, ENGLAND.

TENSION DEVICE OR YARN-CLEANER FOR CREELS FOR USE IN WARPING OR BEAMING.

1,397,286. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed February 20, 1920. Serial No. 369,106.

To all whom it may concern:

Be it known that I, GRINDROD KERSHAW, a subject of the King of the United Kingdom of Great Britain and Ireland, and resident of 62 Market street, Whitworth, in the county of Lancaster, England, have invented new and useful Improvements in Tension Devices or Yarn-Cleaners for Creels for Use in Warping or Beaming, of which the following is a specification.

This invention relates to means for supporting tension disks in creels in which yarn packages are mounted in order that yarn may be warped or beamed.

The object of the invention is to facilitate mounting tension disks beneath the horizontal rails of creels for shelter from falling fluff, dust and the like while insuring that yarn shall be properly subjected to tension by the disks and facilitating the threading or introduction of yarn between the tension disks whenever there may be occasion so to do.

With the said object the invention consists in supports which enable tension disks to be mounted and can themselves be mounted easily and conveniently beneath the horizontal rails of creels and so sheltered from falling fluff, dust and the like and to insure that yarn shall pass in proper path between the disks and so be properly subjected to tension thereby and also enable attendants easily to thread or introduce the yarn between the tension disks whenever there may be occasion so to do, and are strong, stiff and light.

In the accompanying drawings, Figures 1 and 2 are respectively a plan and side elevation of a tension device and yarn cleaner comprising two disks carried by a support of one form provided according to this invention.

Fig. 3 is a face view of a tension disk.

Fig. 4 is a detail plan view of a part of a creel.

Fig. 5 is a detail side view of a part of a creel.

The same letters of reference indicate corresponding parts in all the figures.

In Figs. 1 and 2, *a* is a support for the two disks *b c* of the tension and yarn cleaning device A. The support *a* is shown as formed by being stamped or shaped from metal plate in order to be made as light as is practicable. The disks *b c* are similar to disks already much used in tension devices or yarn cleaners applied in machines for winding yarns or threads. The lower disk *b* has an upwardly directed central sleeve *d* around which the upper disk *c* is loosely mounted. The upper disk *c* is shown as formed of thin metal with upwardly directed flanges around its outer edge and central orifice and furnished with grooves or recesses *e* in its lower face. In the annular space between the inner and outer flanges of the disk *c* annular weights *f* may be applied as indicated by illustration of one such weight *f*, so that the application or removal of one weight *f* or more may be made to adjust the pressure, and consequently the drag or tension and cleaning action on yarn passed between the disks *b c* as may be requisite or desirable from time to time. The lower disk *b* is mounted to turn around a pin *g* secured in the support *a*.

According to the conditions of different cases of use, the lower disk *b* may be made to bear on the apex of the pin *g* or to bear by a central boss or part of its lower surface on the surface from which the pin *g* projects.

For the purpose of and according to this invention the support *a* is formed with three horizontal parts a^1 a^2 a^3 in the lowest a^3 of which the pin *g* is secured. The three horizontal parts a^1 a^2 a^3 are at different levels and are shown as connected by vertical parts *h i*. The uppermost horizontal part a^1 is intended to be applied against the lower surface of the rail *j* on which the tension device or yarn cleaner A is to be mounted and has flanges *k* at two sides to stiffen it and a hole *l* and communicating slot *m* respectively to allow passage of the circular part of a wing nut and to allow passage of the wings or lateral extensions of the nut and also passage of the bolt by which the support *a* may be secured to the rail *j* on which it is to be mounted.

If a support *a* is to be mounted between the flanges of a channeled supporting rail it is preferable that the flanges *k* of the support *a* shall be just so far apart as to fit between the flanges of the rail as in the case illustrated.

The central horizontal part a^2 is formed with a guide notch *n* to present its closed end in position to act as a guide for yarn and with a laterally extending arm or hook *o*

making it easy to introduce yarn into the guide notch n. The part a^2 is formed so far below the part a^1 that when the part a^1 is applied to the lower surface of a rail in a creel, the arm or hook o is so far below the rail that yarn can easily be caught upon and made to pass along the arm or hook o so as to become guided by the closed end of the guide notch n. The lowest horizontal part a^3 is cut away or shaped so as to afford as little surface as is practicable for the lodgment of fly or dust or other loose material and is formed so far below the part a^2 that the part a^2 is a little below the horizontal surface presented by the disk b to the lower face of the disk c. The vertical part i connecting the horizontal parts a^2 a^3 is provided with a finger p shown for example as secured to it, which has its upper edge a little below the horizontal surface presented to the disk c by the disk b and extends around one half of the circumference of the disk b and so prevents yarn from being passed accidentally beneath the disk b.

By way of example of the application of supports according to this invention, Figs. 4 and 5 illustrate such supports applied to a creel with revoluble holders adapted each to carry three yarn packages with the beginning of the yarn or thread of one connected to the end of the yarn or thread of another so that they may be unwound in succession in the manner aforesaid.

In the creel shown, j, j are horizontal rails which may be inclined one to another in pairs placed one over another, which rails may be furnished with a number of revoluble holders q for the yarn packages r, from which the yarn is to be led in the usual way to beams.

The rails j of the creel are made to carry a number of revoluble holders q equal to the number of yarns intended to be warped or beamed at any one time and above each holder q a tension device A is mounted by its support a being secured to the rail j above it by means of a bolt w and wing nut x. The rails j are shown as of channel section with downwardly directed flanges y.

The revoluble holders q are shown as each comprising a three armed plate z provided with three pegs 1 inclined inwardly upward from the arms so that their central lines are directed toward the guide notch n of the tension device A above to which yarn is to pass from the yarn packages r on the pegs 1. Each of the plates z is mounted to revolve around a stud 2 screwed into the rail j and formed with a shank of height greater than the thickness of the plate z so that the holders q can be turned easily.

The supports a are applied to the rails j so that the parts a^1 are between the flanges y of the rails j and the flanges k of the supports a fitting against the flanges y of the rails j make it easy to adjust the supports a in position lengthwise of the rails j.

In being applied to or removed from a rail j the support of a tension device A is made to present the hole l and slot m to and passed over the nut x on the bolt w for securing it and when the slot m is made to receive the bolt w the nut x may be used to fasten the support a.

The supports a of all the tension devices A being alike, it is to be noted that as seen by a person between the two sides of a creel and looking toward the apex of the creel or toward the beaming frame s, the supports a on the rails j to the right hand are disposed so as to have the arms o and the openings of the guide notches n directed away from the beaming frame s and those on the rails j to the left hand are disposed so as to have the arms or hooks o and the openings of the guide notches n directed toward the beaming frame s and thus it is made easier for an attendant to use the same hand in introducing yarn into the guide notches n whether the tension devices A to be threaded are to the right hand or the left hand.

The disposition of the tension devices A on the rails j at opposite sides of the creel requires the guide rods t at opposite sides of the creel to be mounted as is indicated in the drawing so that those on the right as seen from within the creel and looking toward the beaming frame w are on the left of yarn passing to them and those on the left of the creel are to the right of yarn passing to them in order that the yarns passing to them respectively may pass around the sleeves d of the disks b.

Further since the tension devices A are underneath the rails j on which they are mounted and more especially in the use of rails of channel section as shown, the tension devices A, and more particularly those below others, are effectively sheltered from falling dust, fluff and the like, so that the deposit of dust, fluff and the like in masses liable to become attached to the yarn passed through the tension device is obviated.

From the foregoing it will be seen that in a support for tension disks provided according to this invention there are provided three horizontal parts connected together. The upper horizontal part serves to bear against the rail to which the support is to be attached and in an advantageous formation is furnished with a hole and slot to receive a bolt or screw for securing the support in position and is preferably furnished with lateral flanges for stiffness. The second horizontal part has a notch forming a guide for yarn and preferably a lateral extension or finger with which yarn may be engaged so as to be passed into the notch and serves to guide yarn to the tension disks. The third and lowest horizontal part is adapted

to carry the tension disks. The holder is also provided with a curved finger or guard extending around part of the circumference of the tension disks to insure that yarn shall pass properly between them. Most advantageously as in the case illustrated the support is stamped or shaped from metal plate so as to be as light as is practicable.

Formation of the supports in the manner described, especially when the supports are made to fit between the flanges of channeled rails, makes it a very easy and convenient operation to mount and to adjust tension devices on the lower sides of the rails of creels while making it quite easy for yarn to be introduced into them and insures that yarn shall pass through the tension devices in the proper path so as to be subjected to tension and cleaned thereby.

Supports formed according to this invention are particularly advantageous for supporting tension disks in creels of the kind in which yarn packages are mounted in groups with the beginning of the thread or yarn of one connected to the end of the thread or yarn from another, so that yarn may be drawn off these successively without stoppage of the warping or beaming and while the warping or beaming continues uninterruptedly fresh yarn packages can be applied to take the place of those from which yarn has been drawn off.

What I do claim as my invention and desire to secure by Letters Patent is:—

1. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted, the second having a guide notch and the third adapted to bear tension disks, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a tension disk on the support, to present its upper edge a little below the horizontal surface presented by one tension disk to another.

2. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted, the second having a guide notch and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

3. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having a hole and communicating slot, the second having a guide notch and laterally projecting hook or arm and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

4. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having flanges at two sides, the second having a guide notch and the third adapted to bear tension disks, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a tension disk on the support, to present its upper edge a little below the horizontal surface presented by one tension disk to another.

5. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having flanges at two sides, the second having a guide notch and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

6. A support for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted by having flanges at two sides and a hole and communicating slot, the second having a guide notch and laterally projecting hook or arm and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

7. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted, the second having a guide notch and the third adapted to bear tension disks, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a tension disk on the support, to present its upper edge a little below the horizontal surface presented by one tension disk to another.

8. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted, the second having a guide notch and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal

surface presented by one such disk to another.

9. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having a hole and communicating slot, the second having a guide notch and laterally projecting hook or arm and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

10. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having flanges at two sides, the second having a guide notch and the third adapted to bear tension disks, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a tension disk on the support, to present its upper edge a little below the horizontal surface presented by one tension disk to another.

11. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having flanges at two sides, the second having a guide notch and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

12. A support of metal plate for tension disks, characterized by three horizontal parts, the uppermost to bear against a rail on which the support is to be mounted having flanges at two sides and a hole and communicating slot, the second having a guide notch and laterally projecting hook or arm and the third bearing a pivot, a plurality of tension disks horizontally mounted thereon and an arm extending around part of the circumference of a disk around the pivot to present its upper edge a little below the horizontal surface presented by one such disk to another.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this thirtieth day of January, 1920.

GRINDROD KERSHAW.

Witnesses:

HOWARD CHEETHAM,

RUTH M. WILSON.