(No Model.) 2 Sheets—Sheet 1.

D. GESSNER.

CLOTH STRETCHING MACHINE.

No. 546,762. Patented Sept. 24, 1895.

Fig. 2.

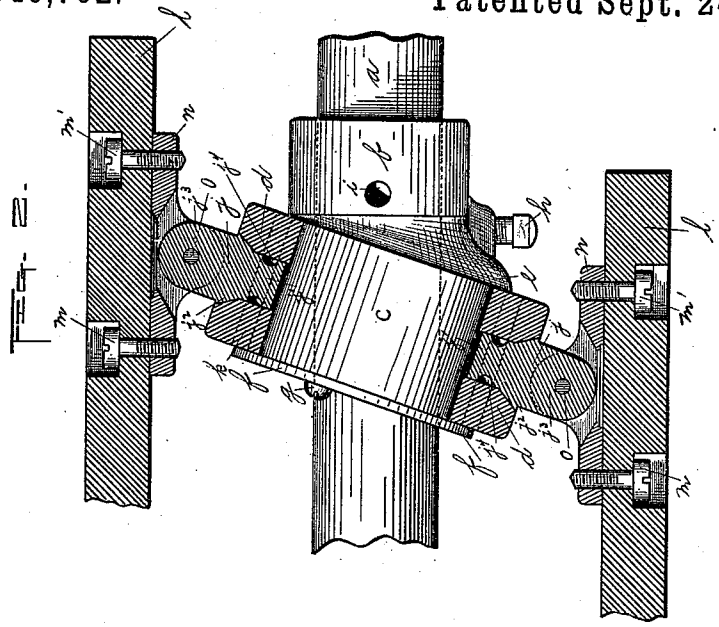
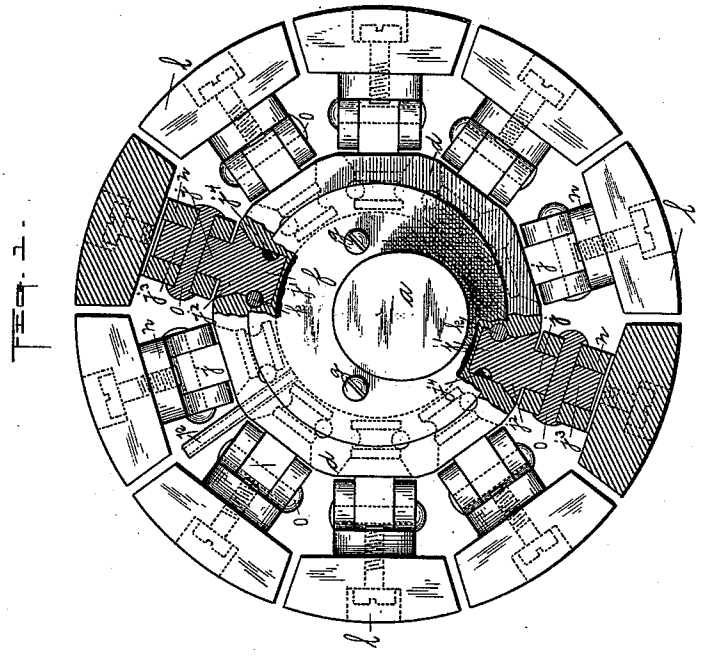


Fig. 1.



Witnesses,
Fred. Kemper
J. L. Greer.

Inventor,
David Gessner.
By Gifford & Law Att'ys.

(No Model.) 2 Sheets—Sheet 2.

D. GESSNER.

CLOTH STRETCHING MACHINE.

No. 546,762. Patented Sept. 24, 1895.

Fig. 4.

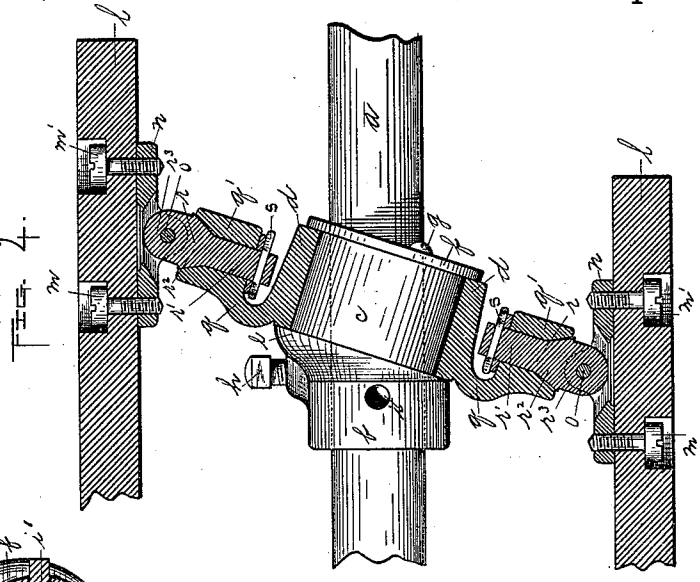


Fig. 5.

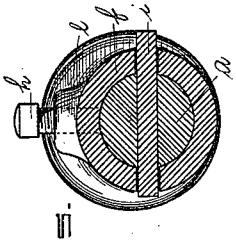
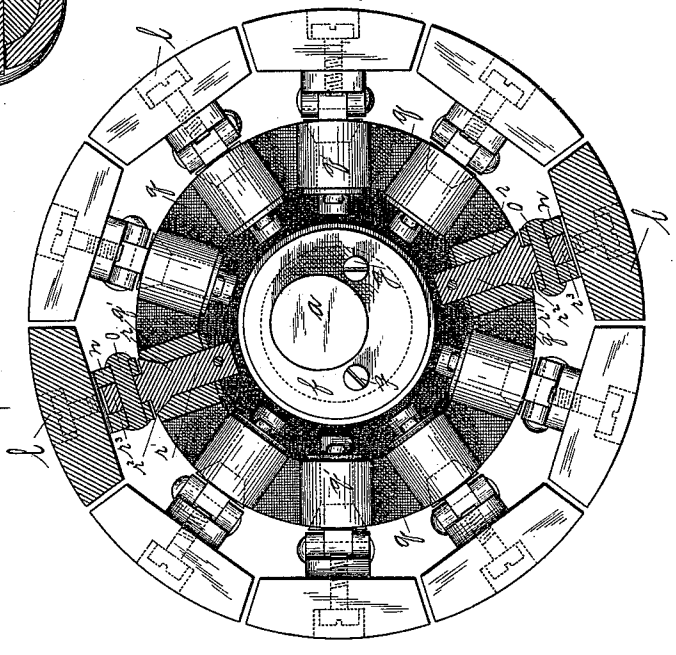


Fig. 3.



Witnesses;
Fred. Kemper.
J. E. Greer

Inventor;
David Gessner
By Gifford & Law Att'ys.

UNITED STATES PATENT OFFICE.

DAVID GESSNER, OF WORCESTER, MASSACHUSETTS.

CLOTH-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 546,762, dated September 24, 1895.

Application filed October 8, 1891. Serial No. 408,195. (No model.)

To all whom it may concern:

Be it known that I, DAVID GESSNER, of Worcester, in the State of Massachusetts, have invented a new and useful Improvement in Cloth-Stretching Machines, of which the following is a specification.

My invention relates to that class of cloth-stretchers in which the stretching bars or lags are carried by four heads turning on oblique arbors, two heads being inclined in one direction and two in the opposite direction, and in which the lags are connected with the peripheries of the heads by means permitting of freedom of movement, the two heads inclined in one direction carrying one set of lags and the two heads inclined in the opposite direction carrying the other set of lags, so that as the lags are revolved by the action of the cloth the two sets of lags will recede longitudinally from each other and thus produce the requisite stretch.

My invention relates to the means by which each of these heads is mounted upon the central shaft and also the means by which each head is connected with the lags. Heretofore in stretchers which I have known to be in use the connections employed between the periphery of the head and the lags have, for ease of movement, required so much play as to admit of one head traveling ahead of the other until the lags got out of line with the shaft, and became locked, the difficulty occurring when the cloth traveled toward one end or the other of the stretcher. Heretofore, also, a set-screw alone has been employed for fixing the position of the oblique arbor upon the shaft, resulting in throwing the arbor out of true with the shaft, throwing the head out of line, and producing a binding action unless the parts were made very loose to counteract it. Heretofore, also, in setting up the stretcher the oblique arbors were unprovided with any means for retaining the heads upon the arbors excepting after the lags had been secured in position, which introduced a difficulty in adjusting the heads to their proper position along the shaft. Heretofore, also, the removal of a lag required the removal of the whole head, resulting in the displacement of all the lags. The object of my invention is to obviate these difficulties, as well as others.

In the accompanying drawings, Figure 1 is an end view, partly in section, of one of the heads viewed parallel with the axis of the oblique arbor, the lags for clearness of illustration being supposed to be moved to a position parallel with the axis of the arbor. Fig. 2 is a cross-section of the head and lags, with a side view of the shaft and oblique arbor. Fig. 3 is an end view, partly in section, of a modification viewed parallel with the axis of the oblique arbor. Fig. 4 is a view of the same modification, showing the head and lags in cross-section and the shaft and oblique arbor in side view. Fig. 5 is a cross-section of the arbor and pin by which the arbor is secured to the shaft.

The oblique arbor and means for securing the same to the shaft are the same in both modifications, as I will first describe.

a is the shaft.

b is a ring, to which is cast the oblique arbor *c*.

d is the head rotating upon the oblique arbor.

e is a shoulder upon the casting, which retains the head *d* in position at one end of the arbor *c*, and *f* is a flange detachably secured to the opposite end of the arbor by the screws *g*, which flange serves to retain the head upon the arbor at that end.

h is a set-screw by which the casting may be held in position upon the shaft in setting up the parts while the pin-hole *i* is being drilled.

i is a pin-hole drilled through the ring or collar *b* on the shaft *a*. This pin-hole, being drilled through the cast-iron collar *b* and the steel shaft *a*, will, from the nature of the two metals, be larger through the casting than it is through the shaft, so that when the pin *i'* is driven into the hole it will be solid with the shaft, but will permit of slight play with the cast collar, as shown in Fig. 5. Therefore, although when the cast collar is held in position by the set-screw as the drilling is performed the collar will be held slightly out of true by the pressure of the set-screw, yet as soon as the pin is driven in place and the pressure of the set-screw is relaxed the collar will drop back into true with the shaft, so that any binding which might have existed with the set-screw tightened will entirely dis-

appear as soon as the set-screw has been released and the pin is in place. It may be observed, also, that the pin-hole i is bored in a line parallel with the line of intersection between the axial plane of the oblique arbor and the axial plane of the shaft and as near as practicable thereto, which brings the pin into proper position to admit of a slight pivotal action between the oblique arbor and the shaft, and thereby still further permit the parts to adjust themselves in a manner to prevent any binding action. It may also be observed that the line of the set-screw is at right angles with the line of the pin.

I will now describe the means by which the head d is connected with the lags, as shown in Figs. 1 and 2.

Holes are drilled through the head d, one for each lag. These holes extend all the way through from the outer circumference or periphery to the inner circumference or bearing of the head and are of the form shown in the drawings. In each of these holes is inserted a stud j, containing a cylindrical portion j', surmounted by a conical portion j^2, which is in turn surmounted by a portion j^3, providing for pivotal connection with the lag. The cylindrical portion j' is circumferentially grooved at j^4. k is a pin constituting a separate cross member which extends through a hole drilled longitudinally through the head in such position that when the head is in place it will engage with the groove j^4 and hold the stud j in place, while at the same time permitting of its rotation.

l is the lag, to which is secured by the screws m m' a piece n, provided, as shown, with means by which it is pivotally connected by the pivot o with the stud j, the pivot o extending transversely of the lag. Now, it will be observed that although the joints of the connecting parts between the lag and the head fit snugly the greatest latitude of movement is permitted both in the plane of the axis of the oblique arbor and also in a plane of rotation around the radius of the oblique arbor. At the same time, by the screws m and m', any one of the lags may be removed from outside the stretcher without disturbing the others, and when removed the parts to be fastened to the lag remain in place in readiness for the replacing of the lag without any difficulty.

p is an oil-tube extending through the head to the inside bearing thereof. The oil which is introduced through this tube will first lubricate the bearings of the head upon the oblique arbor and from this will work into the holes drilled for the studs j and up the sides of those studs to the pivots o, so as to lubricate all of the working parts.

In the modification shown in Figs. 3 and 4 the head is provided with an outside circumferential disk q, provided with a radial boss q' for each of the studs, the inner ends of the bosses being squared off. The stud r is constructed with the cylindrical portion r', the conical portion or shoulder r^2, and the means r^3 at the top whereby it is pivotally connected with the piece n, carrying lag l. The cylindrical portion r' extends all the way through the boss and is pierced at its inner end by the pin s. l is the lag, which is secured by the screws m and m' to the piece n, which is pivotally connected with the stud r by the pivot o. It will be observed that this modified construction allows the same latitude of movement between the head and the lags as in the construction first described, while admitting of the same close fitting of the joints.

I claim—

1. In a cloth stretcher, in combination, an oblique arbor, a head containing radial openings conical at the outer ends and cylindrical toward the center, radial studs conforming to said openings and means whereby the same are rotatably secured thereon, substantially as described.

2. In a cloth stretcher, in combination, an oblique arbor, a head provided with an oil channel and openings extending from its inner bearing surface outward, lags and lag supporting studs in said openings whereby the oil supplied to the bearing surface on said arbor will be distributed through said openings to lubricate said studs, substantially as described.

3. In a cloth stretcher, in combination, an oblique arbor, a head, radial studs rotatably mounted on said head, separate cross members whereby said studs are secured in place and lags pivotally secured to said studs; the said studs being provided with conical bearings on the outside of said head, substantially as described.

4. In a cloth stretcher, in combination, an oblique arbor, a head, radial studs mounted in said head and separate cross members carried by said head and engaging with grooves in the peripheries of said studs whereby said studs are secured in place, substantially as described.

DAVID GESSNER.

Witnesses:
FRED L. KEMPER,
J. E. GREER.