W., T. W. H. & P. C. PHILIPSON.

APPARATUS FOR STRETCHING FABRICS.

APPLICATION FILED MAR. 4, 1911.

1,068,005. Patented July 22, 1913.

Fig. 1

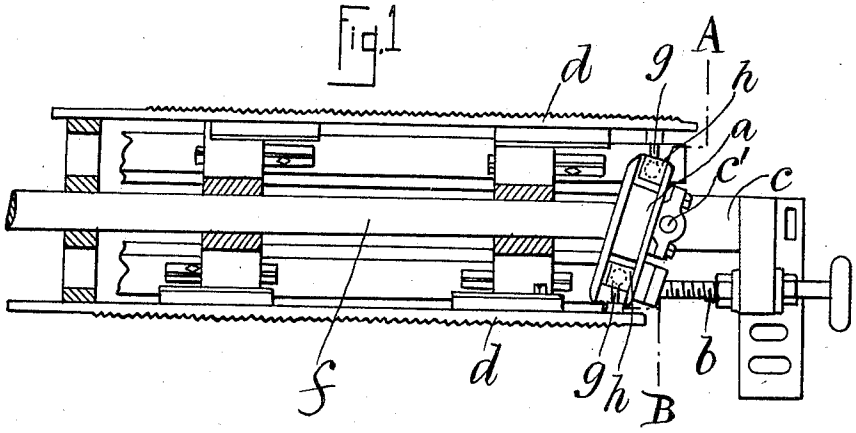


Fig. 3

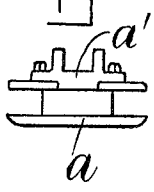


Fig. 2

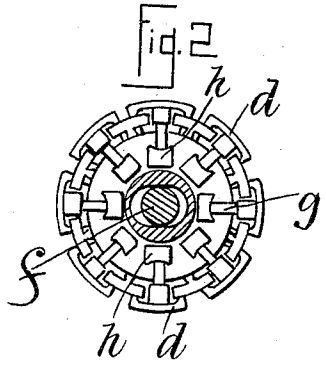


Fig. 7

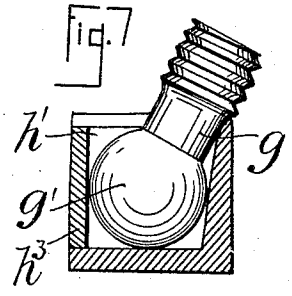


Fig. 4

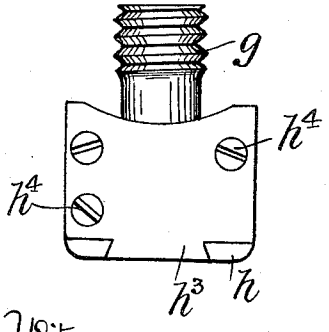


Fig. 5

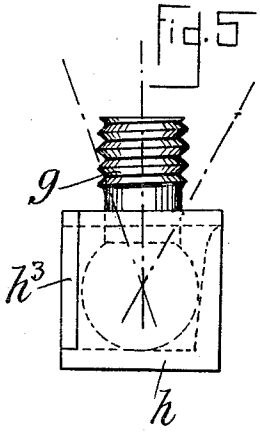
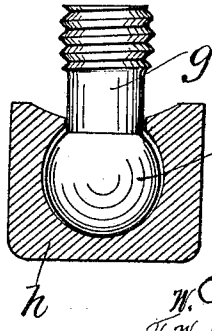


Fig. 6



Witnesses
P. C. Pezzetti
E. Batchelder

Inventors
W. Philipson
T. W. H. Philipson
P. C. Philipson
by Wright Brown Quinby & May
attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM PHILIPSON, THOMAS WHITTLE HOPWOOD PHILIPSON, AND PERCY CLARKSON PHILIPSON, OF BOLTON, ENGLAND.

APPARATUS FOR STRETCHING FABRICS.

1,068,005. Specification of Letters Patent. **Patented July 22, 1913.**

Application filed March 4, 1911. Serial No. 612,427.

To all whom it may concern:

Be it known that we, WILLIAM PHILIPSON, THOMAS WHITTLE HOPWOOD PHILIPSON, and PERCY CLARKSON PHILIPSON, subjects of the King of Great Britain, and residents of Holland Street Works, Astley Bridge, Bolton, in the county of Lancaster, England, have invented a certain new and useful Improvement Appertaining to Apparatus for Stretching Fabrics, of which the following description is a specification.

It relates to that type of apparatus for stretching fabrics known as "revolving stretchers" the same being employed in connection with bleaching, washing and like machinery. These stretchers consist of a number of ribbed or toothed rails which are arranged to travel in a circular path while they are also movable in the direction of their length so as to cause more or less lateral stretch of the fabric passing over them, and our said invention consists in an improvement in the devices through or by which said longitudinal movements are transmitted to said rails by which improved devices the movement thereby given to said rails may be extended to a greater length than is the case with those devices as heretofore made use of.

In the accompanying sheet of drawing which illustrates our said invention: Figure 1 is a sectional plan of a revolving stretcher having our improved parts applied thereto. Fig. 2 is a sectional end elevation on line A—B of Fig. 1. Fig. 3 is a side elevation of a certain part of said revolving stretcher, hereinafter referred to. Fig. 4 is a side elevation of our improved block or bearing. Fig. 5 is an elevation thereof as seen at right angles to that shown by Fig. 4. Fig. 6 is a sectional side elevation of our improved parts. Fig. 7 is also a sectional side elevation thereof as seen at right angles to Fig. 6. Figs. 4 to 7 inclusive are drawn to an enlarged scale as compared with the other views.

In carrying out our invention we provide the usual rotative series of longitudinally movable rails *d* to perform the usual stretching upon the cloth. The cam or cams *a*, under our invention, will be pivotally mounted at *c'* upon bracket *c* which are suitably supported independent of the shaft *f*. By means of a screw such as shown at *b* the angle of the cam relative to the axis of rotation of the series of rotatively mounted rails may be adjusted, the cam swinging on the pivot *c'*. As shown by comparing Figs. 1 and 2, the cam *a* has flat, parallel opposing faces. The side *a'* is preferably removable to facilitate assembling. Fitted to slide between the opposing flat faces of the cam are boxes *h*, these boxes being entirely independent of each other so that movement of one relatively to the cam faces will be independent of movement of the others. Each block or box is formed with an opening or recess *h'* which is spherical in form, as indicated in Fig. 6. Said spherical recess receives the spherical head *g'* of a stud *g* projecting inwardly from a rail *d*. To facilitate assembling of the boxes with the stud heads, they are formed with removable cover plates h^3 held in place by screws h^4.

When the rails *d* are acted upon by the strip of cloth being passed there-over so that said rails as a series, revolve about the axis of shaft *f*, said rails are caused to reciprocate or move longitudinally by reason of their studs and the spherical heads thereof being engaged by the boxes *h* which latter must follow the contour of the annular space provided between the opposing flat faces of the cam. The flat sides of the boxes slide freely between the flat opposing faces of the cams so as to oppose the least possible resistance to the movements of the parts under the influence of the passing web of cloth. As the boxes move around the cam they of course shift to different distances relatively to the axis of rotation, and this amount of shifting is increased when the cam is shifted on its pivot *c'* so as to impart greater length of reciprocation to the rails *d*.

The cam around which the boxes rotate is obviously stationary so far as regards rotary motion, and the amount of stretching to be imparted to the cloth is controlled by altering the angle of such cam. The cam is not mounted on the shaft but on an independent support, and the engagement of the spherical heads *g'* with the spherical shaped recesses of the blocks is such that there can be no disengagement, or undue friction, during the rotation of the blocks around the cam, this being true whether the angle of the cam is changed materially or not from the position shown in Fig. 1.

As has been stated, Fig. 7 is a sectional side elevation at a right angle to Fig. 6.

By comparing these two figures it will be seen that the boxes and the studs have co-operating guiding portions which will prevent rocking movement of the boxes on the heads g' in a direction around the cam. These coöperating guiding portions comprise the shoulders at each side of the entrance to the spherical recesses in the boxes h. In other words, the boxes h are contracted so as to present parallel walls through which the stem of each stud projects. The result is that, while the structure permits a great amount of relative movement of the studs and boxes in one direction, there is practically no relative movement in the other direction. In other words, the structure results in confining the relative movement between the studs and boxes to a direction parallel with the traverse movement of the bar, and permits of ample movement in this direction while preventing movement at a right angle to that required for allowing such traverse of the bar.

We claim:—

1. A cloth stretcher comprising adjustable non-rotary cams having parallel opposing flat surfaces, longitudinally movable rails mounted to rotate about said cams and having inwardly projecting studs provided with heads, and independent boxes having flat sides engaging the opposing flat surfaces of the cams, said boxes having recesses for the said stud heads, the boxes and studs having coöperating guiding portions to prevent rocking movement of the boxes in a direction around the cams.

2. A cloth stretcher comprising adjustable non-rotary cams having parallel opposing flat surfaces, longitudinally movable rails mounted to rotate about said cams and having inwardly projecting studs provided with spherical heads, and independent boxes having flat sides engaging the opposing flat surfaces of the cams, said boxes having spherical-shaped recesses for the said stud heads, the boxes and studs having coöperating guiding portions to prevent rocking movement of the boxes in a direction around the cams.

3. A cloth stretcher comprising adjustable non-rotary cams naving parallel opposing flat surfaces, longitudinally movable rails mounted to rotate about said cams and having inwardly projecting studs provided with spherical heads, and independent boxes having flat sides engaging the opposing flat surfaces of the cams, said boxes having spherical-shaped recesses for the said stud heads, said boxes having parallel shoulders to co-act with the stems of the studs to prevent rocking movement of the boxes in a direction around the cams.

4. A cloth stretcher comprising adjustable non-rotary cams having parallel opposing flat surfaces, longitudinally movable rails mounted to rotate about said cams and having inwardly projecting studs provided with spherical heads, and independent boxes having flat sides engaging the opposing flat surfaces of the cams, said boxes having spherical-shaped recesses for the said stud heads, the cams having removable side members, the boxes and studs having coöperating guiding portions to prevent rocking movement of the boxes in a direction around the cams.

WILLIAM PHILIPSON.
THOMAS WHITTLE HOPWOOD PHILIPSON.
PERCY CLARKSON PHILIPSON.

Witnesses:
JOHN WILLIAM THOMAS,
ERNALD SIMPSON MOSELEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."