Feb. 21, 1928. 1,660,224

E. FARRELL

CLOTH EXPANDER

Filed June 15, 1926

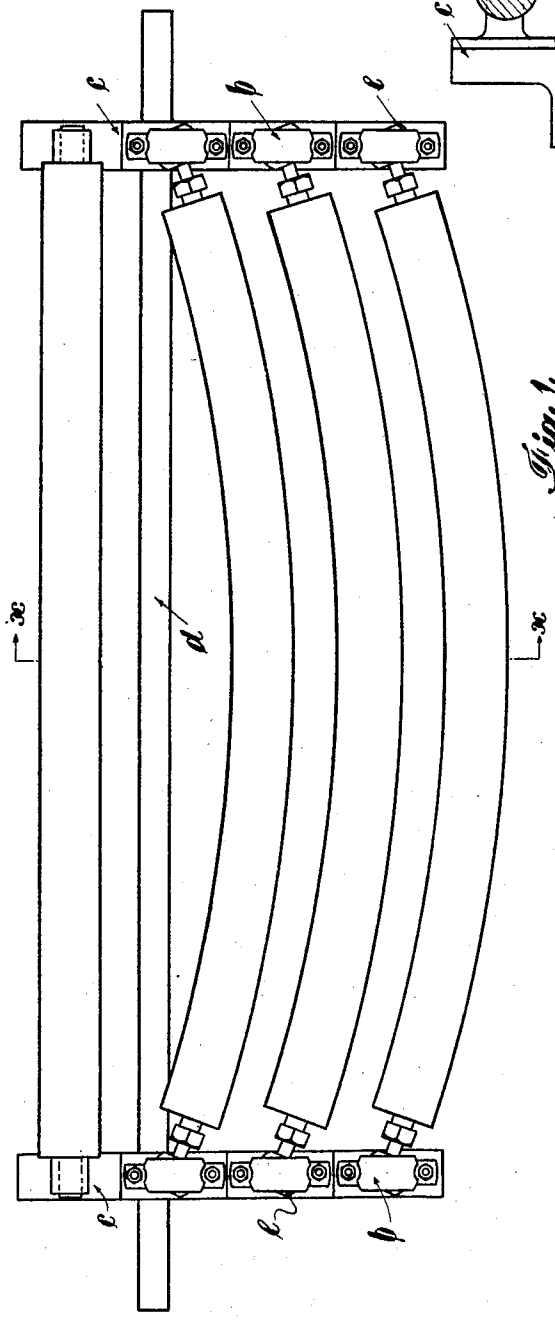


Fig. 1.

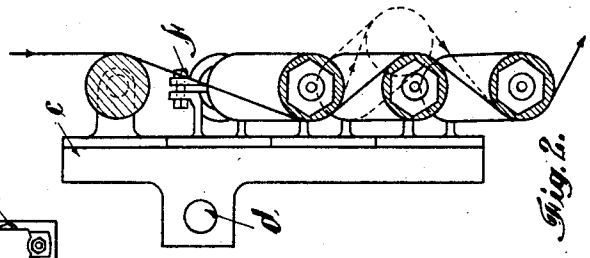


Fig. 2.

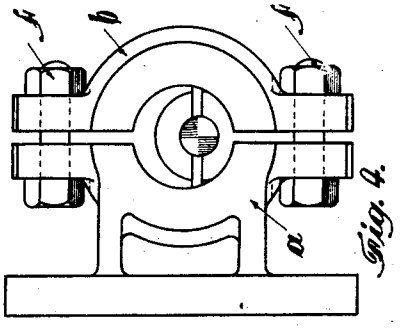


Fig. 4.

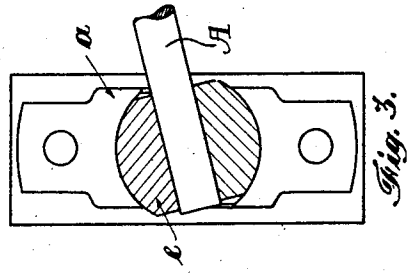


Fig. 3.

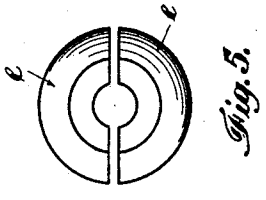


Fig. 5.

Inventor:-
Ernest Farrell.
By his Attorney:- Walter Gunn

Patented Feb. 21, 1928. 1,660,224

UNITED STATES PATENT OFFICE.

ERNEST FARRELL, OF SALFORD, MANCHESTER, ENGLAND.

CLOTH EXPANDER.

Application filed June 15, 1926, Serial No. 116,237, and in Great Britain June 29, 1925.

This invention refers to arched, curved cloth expanders and chiefly to such expanders arranged in series or groups, the cloth to be expanded being interlaced between the expanders and the expanding being done by the cloth passing from one expander to another at points of relatively small and large arcs, so that with the successive expanders a considerable expansion is obtained. In some cases, one expander only is employed, and the cloth is expanded by first contacting with parts of the expander of smaller arc, and then contacting with parts of the expander of larger arc.

The invention is intended more particularly for use with the construction of cloth expander forming the subject of my prior patent application No. 74,420, now Patent No. 1,595,544. Arched curved expanders are usually mounted in groups (three or five) in end frames, which latter are carried upon a cross shaft which allows of the group of bars being swung to and fixed in various positions relatively to the machine with which the expanders are used. One or more of the expanders is or are also bodily adjustable relatively to the end frames by means of a cross-shaft, bevel wheels and screws, in order to vary the "bind" of the expanders on the cloth.

The object of this invention is mainly to mount an arched curved expander in a manner such that it can be moved in the arc of a circle to obtain the desired variation in "bind" of the expander on the cloth, no cross-shaft bevel wheels and screws being necessary.

Upon the accompanying drawing:—

Fig. 1 illustrates a front elevation of a group of arched curved bar expanders mounted according to the invention.

Fig. 2 illustrates a cross section of Fig. 1, on line x, x.

Fig. 3 is an enlarged (part sectional) face view of one of the bearings with the cap removed, and showing the end of the bar, and

Fig. 4 is a like side view of the complete bearing.

Fig. 5 illustrates the half spheres of such bearing.

As shown each bearing comprises a base part a, and a cap part b, the base part being in one with or secured to the usual frames c, c carried by a cross-shaft d, or to the frames of the machine with which the expanders are used. e, e are the two half balls, which grip the expander bar A when forced into engagement therewith by the base and cap parts of the bearing on said parts being tightened up by the nuts and bolts f, f.

In Figs. 1 and 2 the expanders are shown mounted on frames carried by the cross-shaft d, so that, in addition to the expanders being individually capable of being adjusted to various angular positions in their bearings they can be adjusted as a whole about the shaft d in the usual manner relatively to the machine with which they are used.

In Fig. 2 the middle expander is shown by dotted lines moved out of the plane of the other expanders, and the path of the cloth to be expanded or opened out, is indicated by the arrow pointed line. If desired, the uppermost and lowermost expanders (or either of them) can be swivelled to a position lying to the left of the central or normal plane, and thus further increase the expansion of the cloth, but usually (in the case of three expanders) the angular adjustment of the central expander out of the plane of the other two expanders is sufficient.

In the case of five expanders, any two but preferably the second and fourth expanders, will usually be adjusted to lie at an angle to the plane of the other three expanders. In some cases the alternate expander bars are fixed, and only the intermediate expander bar or bars is or are adjustable. When made free to swivel each expander bar will move about a horizontal line for axis, which passes centrally through the bearings. The bar is non-rotary about its own axis, and is held stationary when the expander is in use, the roller sleeve (when the expander is made according to my prior patent aforesaid) revolving around the bar.

With the bar A curved from end to end, the ball and socket bearings, allow for the curvature of the bar as well as for the rotation of the bar about a horizontal axis. They also save the cost of shaping the ends of the bar to suit any other arrangements of bearings.

What I claim is:—

An arched, curved cloth expander and bearings therefor, characterized in that the

bar is curved from end to end, and in that each bearing comprises a relatively stationary base part and an adjustable cap part formed with hemi-spherical sockets respectively, and in that each bearing also comprises a ball in segments, which latter fit next the expander bar and grip such bar, and are gripped by the base part and cap of the bearing, when the cap is tightened thereon by bolts and nuts, as set forth.

In testimony whereof I have signed my name to this specification.

ERNEST FARRELL.