Jan. 17, 1928.

1,656,865

J. R. MITCHELL

WASHBOARD TENSION DEVICE

Filed Aug. 4, 1926

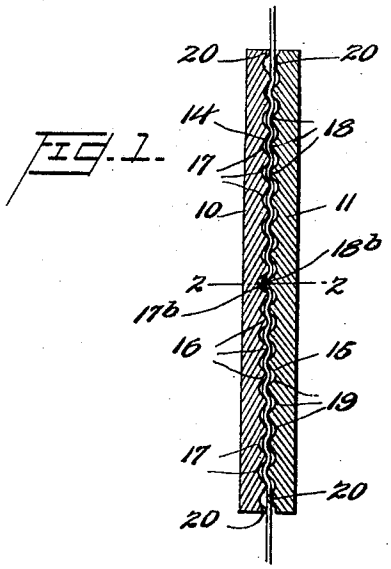


FIG. 1.

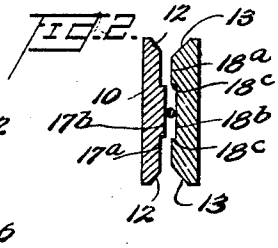


FIG. 2.

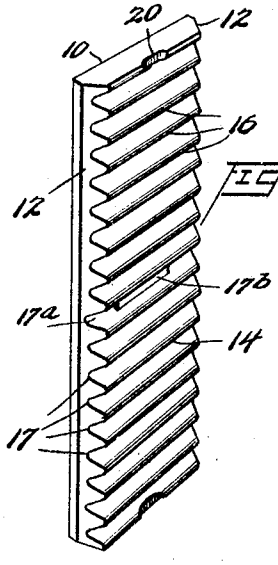


FIG. 3.

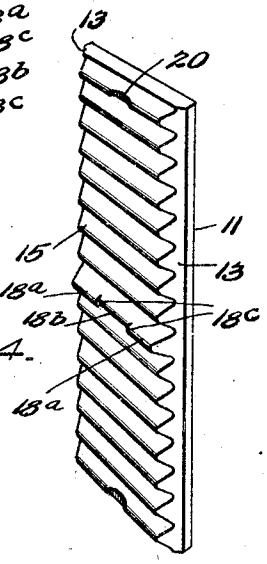


FIG. 4.

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UNITED STATES PATENT OFFICE.

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WASHBOARD TENSION DEVICE.

Application filed August 4, 1926. Serial No. 127,126.

This invention relates to devices for applying tension to thread, cord, yarn or the like in delivering the same to winding machines or other textile apparatus.

The improvement according to this invention relates particularly to that class of tension devices known as corrugated or washboard plate tensions in which the thread or yarn is drawn between two cooperating corrugated plates adapted to be pressed against the yarn to apply the desired resistance to its passage.

The principal object of this invention is to provide such tension plates which will effectively prevent the thread or yarn from looping or ballooning out of its position between the plates.

Other objects and features of novelty will be apparent from the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a central section through the plates in operating position, showing the manner in which a thread is drawn between them;

Figure 2 is a section on the line 2—2 of Fig. 1;

Figure 3 is a perspective view of the operating face of one of the plates; and

Figure 4 is a similar perspective view of the companion or mating plate.

Referring to the drawings, 10, 11 designate companion or mating tension plates which may be made of any desired material, but preferably of smooth porcelain. These plates have tapered edges 12, 13 which assist in threading the cord or yarn between the plates. The plates also have interengaging corrugated faces 14, 15 between which the thread passes. The distance between these corrugated faces may be varied in any well-known manner, as by the use of springs or other adjusting means to accommodate different sizes of thread or to vary the tension on the thread. The corrugations consist of the ridges 16 and valleys 17 on the plate 10 and similar ridges 18 and valleys 19 on the plate 11. At each end of plates 10, 11 the adjoining ridges 16, 18 have notches 20 to guide the thread between the plates.

One of the valleys 17^a preferably near the center of one of the plates is filled or raised as at 17^b along a portion of the length of the valley and the mating ridge 18^a on the other plate is cut away for a corresponding length along the ridge as indicated at 18^b. When the ridge is thus cut away, shoulders or projections 18^c are left at each end of the ridge and serve to retain the thread in the cut away portion 18^b. When the two plates are in operating relation the raised portion 17^b and the cut away portion 18^b fit closely together in a manner similar to the other valleys and ridges to apply tension on the thread and to form a central guide, as shown in Figs. 1 and 2, to prevent the thread from looping or ballooning as it is pulled or jerked between the plates.

The valley 17^a in which the filling 17^b is disposed and the ridge 18^a on which the recess 18^b is formed, may be of uniform depth with the remaining valleys or ridges, respectively, but preferably are of greater depth as illustrated. By making this valley and ridge deeper than the other valleys and ridges the raised portion 17^b can be made to have its bottom surface on a line with the bottom surfaces of the other valleys, and the top of the recess 18^b can be made to have its top surface on a line with the top surfaces of the other ridges. This construction avoids having an unusually sharp bend and consequent tension in the thread at this central guide point.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A tension device for thread and yarn comprising two mating plates, each plate having a plurality of ridges and valleys on one face thereof which mesh with like ridges and valleys on the mating plate, an intermediate ridge of one of said plates having a depressed portion of less extent than the effective length of adjacent ridges forming shoulders to guide the thread or yarn laterally.

2. A tension device for thread and yarn comprising two mating plates, each plate having a plurality of ridges and valleys on one face thereof which mesh with like ridges and valleys on the mating plate, an intermediate ridge of one of said plates having a depressed portion forming shoulders to guide the thread or yarn laterally, and the corresponding valley on the other plate having a raised portion to cooperate with the depressed portion.

3. A tension device for thread and yarn comprising two mating plates, each plate

having a plurality of ridges and valleys forming corrugations on one face thereof which mesh with like ridges and valleys on the mating plate, one of the valleys on one of the plates and the mating ridge on the other plate being made deeper than the remainder of the valleys and ridges, a raised portion formed adjacent the center of the deep valley and a mating depressed portion formed on the deep ridge.

4. A device as claimed in claim 3 in which the bottom surface of the raised portion is on the line of the bottom surfaces of the remainder of the valleys and the top surface of the depressed portion is on the line of the top surfaces of the remainder of the ridges.

5. A device as claimed in claim 3 in which the end ridges of each plate have notches formed therein.

6. A device as claimed in claim 3 in which the plates have cut away faces at their edges, forming together V-shaped threading openings.

In testimony whereof I hereunto affix my signature.

JOHN R. MITCHELL.