April 9, 1935. H. B. ILER 1,996,810

SIZING APPARATUS

Filed March 10, 1934

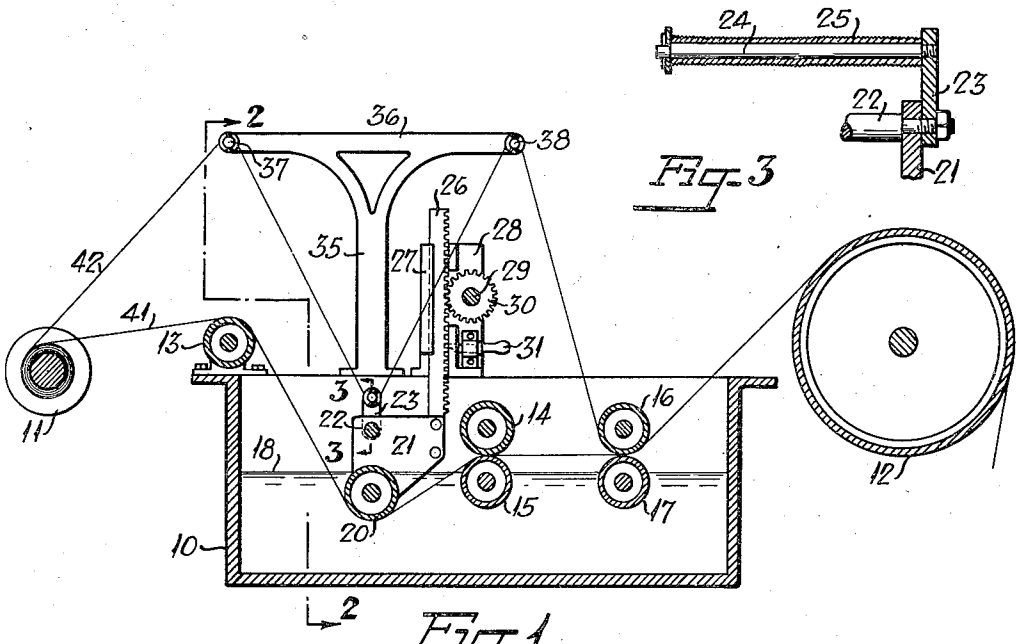


Fig. 1

Fig. 3

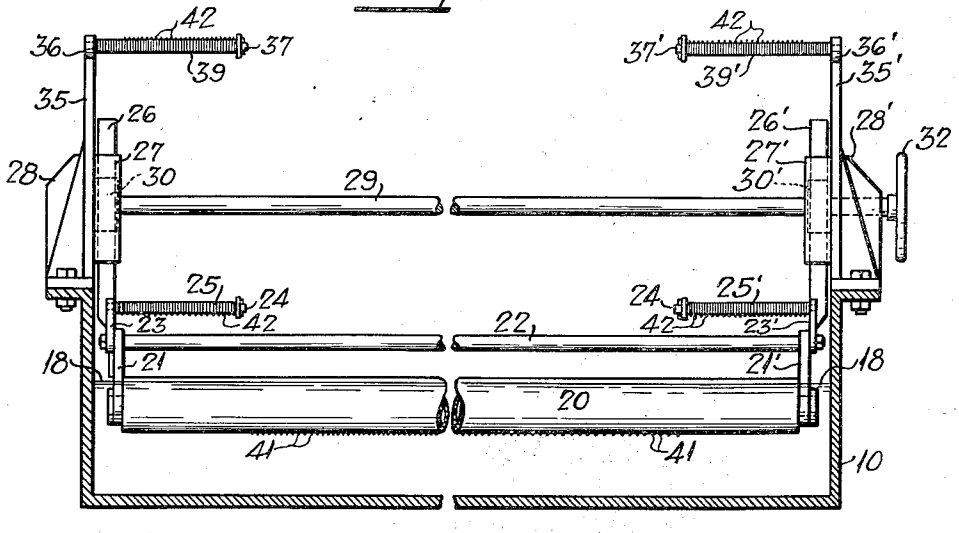


Fig. 2

HARRY B. ILER
Inventor

By James B. Eaton
Attorney

Patented Apr. 9, 1935 1,996,810

UNITED STATES PATENT OFFICE

1,996,810

SIZING APPARATUS

Harry B. Iler, Greenville, S. C.

Application March 10, 1934, Serial No. 714,991

6 Claims. (Cl. 28—28)

This invention relates to a sizing apparatus and more especially to means for sizing warps so that the selvedge threads will not be sized to as great an extent as the other warp threads. It is of course evident that if the selvedge threads, which are much larger than the other threads, are passed through the sizing solution that they will not dry as quickly as the other yarn and if sufficient heat is applied to the yarns to dry the selvedge threads the smaller threads will become damaged on account of excessive heat being applied thereto.

It is an object of this invention to provide means whereby selvedge threads in a warp roll will be sized a proper amount and yet not enough to prevent their being dried with the same amount of heat which is sufficient and proper for drying the other threads in a warp roll. Various warps have a definite number of selvedge threads disposed along the edges thereof so that the cloth when woven from said warp has a selvedge of a given width. In various types of cloth this width of selvedge varies and I have provided means for receiving the selvedge threads which are long enough to receive any desired width of selvedge threads, within given limits, though it is evident that in some warps the selvedge threads would not cover the entire portion of the corrugated tubes provided for accommodating the same.

It is another object of this invention to provide means for sizing warp rolls and giving to the selvedge threads a proper amount of sizing and regulating the tension on the selvedge and the other threads so that the same can be adjusted simultaneously. Means are also provided for accommodating the selvedge threads, said means comprising a plurality of corrugated rollers over which the selvedge threads are adapted to pass to prevent the selvedge threads from creeping inwardly towards the center of the warp.

It is a further object of this invention to provide sizing apparatus in which means are provided for receiving the selvedge threads and passing them through the sizing apparatus but not through the sizing bath and also means for passing the other portions of the warp through the sizing bath and then bringing the selvedge threads and the warp threads together through a pair of rolls so that these rolls will supply the necessary amount of sizing to the selvedge threads and the warp threads will receive their sizing from being subjected to the sizing bath, together with means for preventing lateral displacement of the selvedge threads and also means for simultaneously adjusting the tension applied to the selvedge threads and the other warp threads when the immersion roll is raised or lowered in the size box.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawing, in which:—

Figure 1 is a vertical section of a sizing vat showing my invention applied thereto;

Figure 2 is a vertical section taken along the line 2—2 in Figure 1, but showing both sides of the sizing apparatus;

Figure 3 is a longitudinal sectional view taken along the line 3—3 in Figure 1.

Referring more specifically to the drawing the numeral 10 indicates a suitable sizing vat in a suitable sizing apparatus. A suitable sizing apparatus usually has let-off warp roll 11 and a plurality of heating drums 12 for drying the warp together with take-up means disposed farther to the right in Figure 1, but not shown as they are conventional.

The conventional sizing apparatus also has a roll 13 and a plurality of pairs of squeeze rolls 14, 15, 16 and 17 through which the warp threads are passed after being immersed in the sizing fluid. The sizing fluid can be of any desired depth in sizing vat 10 but is shown as having a top level as at 18.

A suitable immersion roll 20 is provided usually in a sizing apparatus, but I have provided means for mounting the immersion roll comprising brackets 21 and 21' disposed at each end of the immersion roll 20 and in which the immersion roll 20 is rotatably mounted. Each of these brackets 21 and 21' has a shaft 22 passing therethrough which has on each end thereof arms 23 and 23' in the free end of which is mounted a shaft 24 and on shaft 24 is rotatably mounted corrugated brass sleeves 25 and 25'. Brackets 21 and 21' have fixedly secured thereto racks 26 and 26' which are adapted to have sliding movement in guideways 27 and 27' formed integral with brackets 28 and 28' which are fixedly secured on the top edge of the sizing vat 10. Brackets 28 and 28' have rotatably mounted therein a shaft 29 on which pinions 30 are fixedly mounted and meshing with racks 26 and 26'. A suitable sliding dog 31 may be provided for engaging the teeth in rack 26 or 26' for holding the immersion roll in adjusted position.

The shaft 29 has mounted on one end thereof a hand wheel 32 by means of which shaft 29 may be rotated for adjusting the depth of the immersion roll and also the tension applied to the warp and selvedge threads.

Secured on one side of the upper edge of the sizing vat **10** is a T-shaped bracket **35** having a horizontal portion **36** in the ends of which are mounted rods **37** and **38** on which are rotatably mounted corrugated sleeves **39** over which one side of the selvedge threads are adapted to pass. The other side of the sizing vat has an identical structure indicated by the same reference characters **35** to **39** inclusive with the prime notation added and hence the description of the same is not deemed necessary. The corrugations on sleeve **25** and the like are circumferentially disposed.

The warp threads **41** are smaller in size than the selvedge threads and hence the selvedge threads cannot be immersed in the sizing solution and then dried as quickly as the smaller threads. Therefore, the selvedge threads are passed over the corrugated rollers or tubes as shown in the drawing while the central warp threads are passed through the sizing solution. The selvedge threads and the other threads are all passed between the rolls **16** and **17** which apply sufficient sizing to the selvedge threads, after which the warp and selvedge threads are passed through the drying operation.

It is evident that the circumferentially disposed grooves on the tubes or rollers prevent the selvedge threads from moving inwardly towards the warp threads.

In the drawing and specification there has been set forth a preferred embodiment of my invention, and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. Means for applying size to the selvedge threads of a warp roll in lesser quantities than to the remainder of the threads in the warp roll, comprising a sizing vat, an immersion roll for directing the warp threads through the sizing vat, means for adjusting the position of the immersion roll, means for directing the selvedge threads past the sizing vat but out of contact with the sizing solution therein, a pair of rolls through which the warp threads and selvedge threads are passed, the lowermost of said rolls being partially immersed in the sizing solution to apply sizing to the selvedge threads as they are passed between the rolls, and means for simultaneously applying like tension to the warp and selvedge threads when the position of the immersion roll is changed.

2. Sizing apparatus for warp rolls having warp threads and selvedge threads comprising a sizing vat, an immersion roll for immersing the warp threads, means for raising and lowering the immersion roll, a plurality of grooved rollers over which the selvedge threads are adapted to be passed out of contact with the sizing solution, a pair of rolls between which the warp threads and the selvedge threads are adapted to be passed, the lowermost of said pair of rolls being partially immersed in the sizing solution whereby sizing solution is applied to the selvedge threads, a portion of the grooved rollers being movable with the immersion roll whereby the tension of the warp and selvedge threads may be adjusted simultaneously.

3. Sizing apparatus for warp rolls having selvedge threads disposed along the ends thereof comprising a sizing vat having sizing solution therein, an immersion roll beneath which the warp threads are adapted to be passed, means for supporting the ends of the immersion roll and for adjusting the position of the immersion roll vertically with relation to the sizing solution, a pair of corrugated tubes rotatably mounted on the means for supporting the ends of the immersion roll, the tubes being disposed above the level of the sizing solution in the vat whereby the tension of the selvedge threads passing beneath the tubes may be adjusted simultaneously with the adjustment of tension on the warp threads by movement of the immersion roll, a pair of brackets disposed on the sides of the sizing vat and having a pair of corrugated tubes rotatably mounted thereon for also supporting the selvedge threads, and a pair of rollers through which the selvedge and warp threads are adapted to be passed, one of the rollers being in contact with the sizing solution whereby sizing solution is applied to the selvedge threads in lesser quantities than to the warp threads.

4. Sizing apparatus for sizing warp rolls having selvedge threads and warp threads thereon, an immersion roll beneath which the warp threads are adapted to be passed, a pair of corrugated tubes mounted for movement with the immersion roll and beneath which the selvedge threads are adapted to pass out of contact with the sizing solution and means for simultaneously moving the immersion roll and the tubes vertically.

5. Sizing apparatus for warps having warp threads and selvedge threads, comprising an immersion roll, means for passing the warp threads under said roll and through a sizing solution and other means mounted for movement with said roll for passing the selvedge threads through the apparatus out of contact with the sizing solution, means for adjusting the position of the warp threads and selvedge threads simultaneously with relation to the sizing solution and means for indirectly applying sizing to the selvedge threads.

6. Sizing apparatus having a sizing vat, an immersion roll vertically adjustable, means for supporting the ends of the immersion roll, tubes rotatably mounted on the means for supporting the ends of the immersion roll and beneath which the selvedge threads are adapted to be passed, means disposed laterally and above the immersion roll for separately supporting the warp threads and the selvedge threads, a pair of rolls between which the warp and selvedge threads are adapted to be passed, one of the rolls being partially immersed in the sizing solution whereby sizing solution is applied to the selvedge threads.

HARRY B. ILER.