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A. N. MILLER

FABRIC STRETCHER

Filed June 4, 1925

Fig. 1.

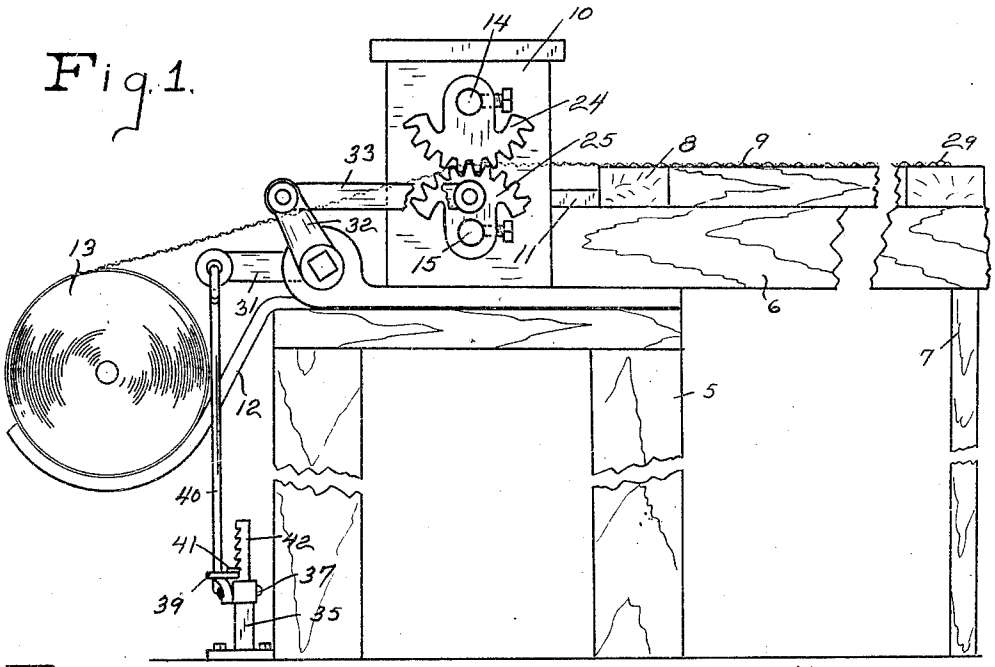


Fig. 3

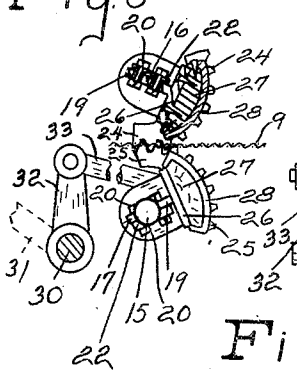
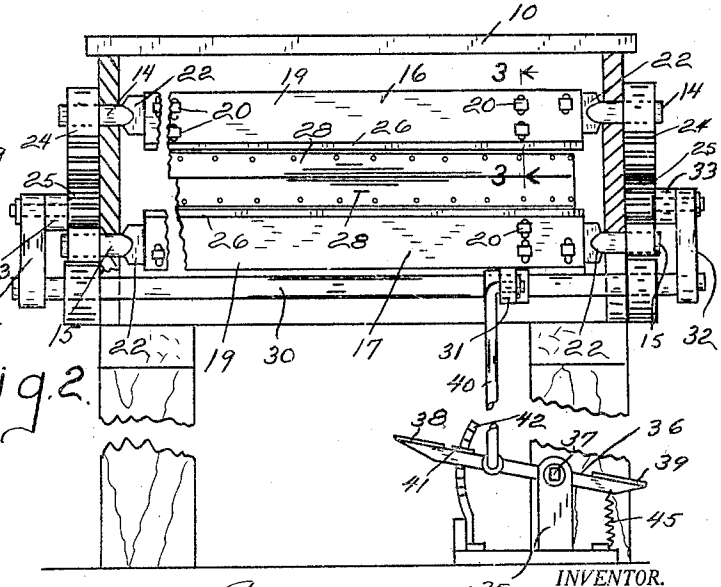


Fig. 2.



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FABRIC STRETCHER.

Application filed June 4, 1925. Serial No. 34,793.

This invention relates to improvements in fabric stretchers, and is particularly adapted to stretch screen cloth on door or window screen frames.

It is the object of the invention to provide a novel and simplified device to facilitate the application of cloth or wire fabric to a frame.

More particularly stated, it is the object of the present invention to facilitate the application of fabric to a frame by providing a pair of members adapted simultaneously to move into pinching engagement with the fabric and to direct the same with uniform motion in a direction adapted to subject it to tension.

Further objects of the invention are to provide a novel mounting for the fabric engaging members and novel actuating connections for such members.

In the drawings:

Figure 1 is a diagrammatic side elevation of a device embodying this invention.

Figure 2 is an end elevation of the same device shown in Figure 1.

Figure 3 is a diagrammatic side elevation of the fabric engaging members and their supports, one such member and its support being cut away to a section indicated at 3—3 in Figure 2.

Like parts are identified by reference characters throughout the several views.

A table or bench 5 supports the forward end of a bed 6, the rear end of which is mounted on legs 7. This bed is of a size to receive the sash 8 to which the screening or other fabric 9 is to be attached. A frame 10 is erected on the table and carries the fabric engaging and stretching mechanism hereinafter to be described, and a stop 11 is preferably interposed on bed 6 between the sash 8 and the frame 10. A suitable cradle 12 at the end of the table carries the roll 13 of screen cloth from which the web 9 of cloth is drawn through frame 10.

Suitably journaled in frame 10 are the trunnions 14 and 15 which are connected respectively with transversely extending T irons 16 and 17, respectively. The central web 19 of each T iron is provided with slots or comparatively large holes as shown in Figure 3. The bolts 20 which extend through such holes fit loosely therein to permit of a limited degree of adjustment between the web 19 of the respective T irons and plates 22 which are held to such webs by bolts 20 and which carry the trunnions 14 and 15 above described. The loose connection between plates 22 and their respective T irons permits of a limited adjustment of the trunnions of each T iron to raise or lower the T iron, and thereby to afford a greater or less clearance between the web engaging members of the machine.

Mounted externally of frame 10 at each end thereof are the gear segments 24 carried by trunnions 14 and the gear segments 25 carried by trunnions 15. These segments are intermeshed in pairs, as is best shown in Figure 1, to ensure absolute uniformity of oscillation between trunnions 14 and 15 and the web engaging and tensioning members carried thereby.

Held by screws or the like to the transverse web 26 of each T iron is a segmental block 27. These blocks are preferably surfaced with rubber belting as at 28. The arrangement is such that in the Figure 3 position of the parts the resilient operative surfaces 28 of the web engaging and tensioning members will be slightly spaced to permit the web 9 to be threaded therethrough from supply roll 13. The web is drawn to the extreme end of the sash 8 and is there anchored at 29, after which the oscillatable web engaging members are set in motion to engage the web 9 and then to subject it to tension through their continued movement. It is not necessary to make the web engaging members eccentric, since such members are so adjusted on their respective trunnions that the compression with which the members engage the web will be comparatively high from the initial moment of engagement. It will not ordinarily be necessary to make any adjustments of such members upon their trunnions inasmuch as the resilience of the rubber surfacing 28 makes the machine adaptable to a wide range of materials.

Any desired means for controlling the movement of the web engaging members may be utilized, but the device illustrated has been found satisfactory. It involves the use of a rock shaft 30 having a central laterally projecting arm 31 and upwardly projecting arms 32 adjacent its ends. Links 33 are pivoted to arms 32 and also to corresponding segments 25. The oscillation of the rock

shaft will obviously be transmitted through these links to corresponding segments to produce a uniform movement of both of the fabric engaging and tensioning members.

The arm 31 may be actuated by a pedal device, including a bracket 35 providing a fulcrum for a lever 36 which is loosely mounted on a bolt 37. A pedal 38 may be applied to one end of lever 36 and a pedal 39 may be mounted on the other end thereof. The arrangement is preferably such that pedal 38 has the greater leverage in acting on link 40 which connects lever 36 with arm 31 of rock shaft 30. A dog member 41 carried by the lever 36 may be engaged with any of the teeth of an arcuate detent bar 42 carried by a portion of bracket 35. When the pedal 38 is depressed to oscillate the web engaging members in a web engaging and tensioning direction, the loose fit of the lever on its pivot bolt 37 is such that the lever may be swung into engagement with the detent bar 42 so that the dog 41 will interact with one of the teeth of such bar. This arrangement will hold the web 9 of screen cloth under tension until it can be tacked or otherwise secured to all parts of sash 8. The space provided above stop 11 facilitates severing the used portion of the web from the remainder thereof on roll 13, since it permits of the introduction of a pair of shears beyond frame 10.

When it is desired to release the web engaging and tensioning members to permit such members to be opened so that a new length of web 9 may be advanced therethrough, a pedal 39 of lever 36 will be kicked toward the table, thereby releasing dog 41 from the detent bar 42. Thereupon a slight pressure of the foot downwardly on pedal 39 will serve to oscillate the web engaging and tensioning members to the position in which such members appear in Figure 3. If desired, a tension spring 45 may be used to actuate the mechanism toward the releasing position of the web engaging and tensioning members when the dog 41 is released from the detent bar.

I claim:

1. In a device of the character described, the combination with a support for sash, of web engaging and tensioning members associated therewith, a gear secured to each of said members and meshing with the gear of the other member, whereby to ensure uniform oscillatory movement of said members, said members comprising web engaging segments adapted in one position to be spaced sufficiently to permit a web to be threaded therethrough and adapted upon oscillation to engage such web and, during continued oscillation, to subject it to tension, together with a pedal operatively connected for the oscillation of said members, and a detent bar adapted releasably to secure said members in a given position of oscillation, whereby a web engaged by said members may be maintained under tension.

2. In a device of the character described, the combination with a pair of oscillatable work engaging segments, a gear secured to each of said segments and meshing with the gear of the other member, whereby to ensure simultaneous uniform movement of said segments, of a frame for supporting said segments, trunnions operatively journaled in the frame, and means adjustably connecting said trunnions with respective segments.

3. In a device of the character described, the combination with a pair of oscillatable work engaging segments operatively intergeared for simultaneous uniform movement of said segments, of a frame for supporting said segments, trunnions operatively journaled in the frame, and means adjustably connecting said trunnions with respective segments, said means comprising plates connected with said trunnions and T irons adjustably attached to said plates and supporting said segments.

4. As a new article of manufacture, a web engaging member comprising a T iron having a segmental block secured to its transverse web, plates adjustably connected with the ends of the other web of said T iron, and trunnions carried by said plates.

5. As a new article of manufacture, a web engaging member comprising a T iron having a segmental block secured to its transverse web, plates adjustably connected with the ends of the other web of said T iron, and trunnions carried by said plates, said block being provided with a facing of resilient material.

6. The combination with a frame and suitably intergeared web engaging members oscillatable in said frame, of a bell crank having a plurality of arms, a link connecting one of said arms with one of said members, and a pedal operatively connected with another of said arms for the actuation of said bell crank and said members.

7. The combination with a frame and suitably intergeared web engaging members oscillatable in said frame, of a bell crank having a plurality of arms, a link connecting one of said arms with one of said members, and a pedal operatively connected with another of said arms for the actuation of said bell crank and said members, together with a detent bar operatively adapted for interaction with said pedal.

8. In a device of the character described, the combination with a frame and two sets of trunnions oscillatable therein, of segmental web engaging members operatively supported by said trunnions, gears applied to said trunnions at each end of said frame and operatively intermeshed to provide for

uniform simultaneous oscillation of said segments in opposite directions, motion transmitting connections for actuating said segments and including a link operatively connected with one of said gears, a bell crank acting upon said link, a pedal connected with said bell crank and adapted to oscillate said segments in a given direction through such connections, and a tension spring acting upon a portion of said connections to adjust them oppositely to the direction of adjustment produced by the actuation of said pedal.

9. In a device for tensioning a wire fabric to be attached to a sash, a pair of fabric engaging members each oscillatable about an axis parallel to the axis of the other member, gears secured to each of said members and meshing with the gears of the other member, whereby the fabric may be tensioned across a sash uniformly, and means for oscillating said members.

10. In a device for tensioning a wire fabric to be attached to a sash; a pair of fabric engaging members each oscillatable about an axis parallel to the axis of the other member, said members each comprising fabric engaging segments adapted in one position to be spaced sufficiently to permit a wire fabric to be threaded therethrough and adapted upon oscillation to engage such fabric and, during continued oscillation, to subject it to tension uniformly; gears secured to each of said members and meshing with the gears of the other member, whereby the fabric may be tensioned across a sash uniformly and means for oscillating said members.

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