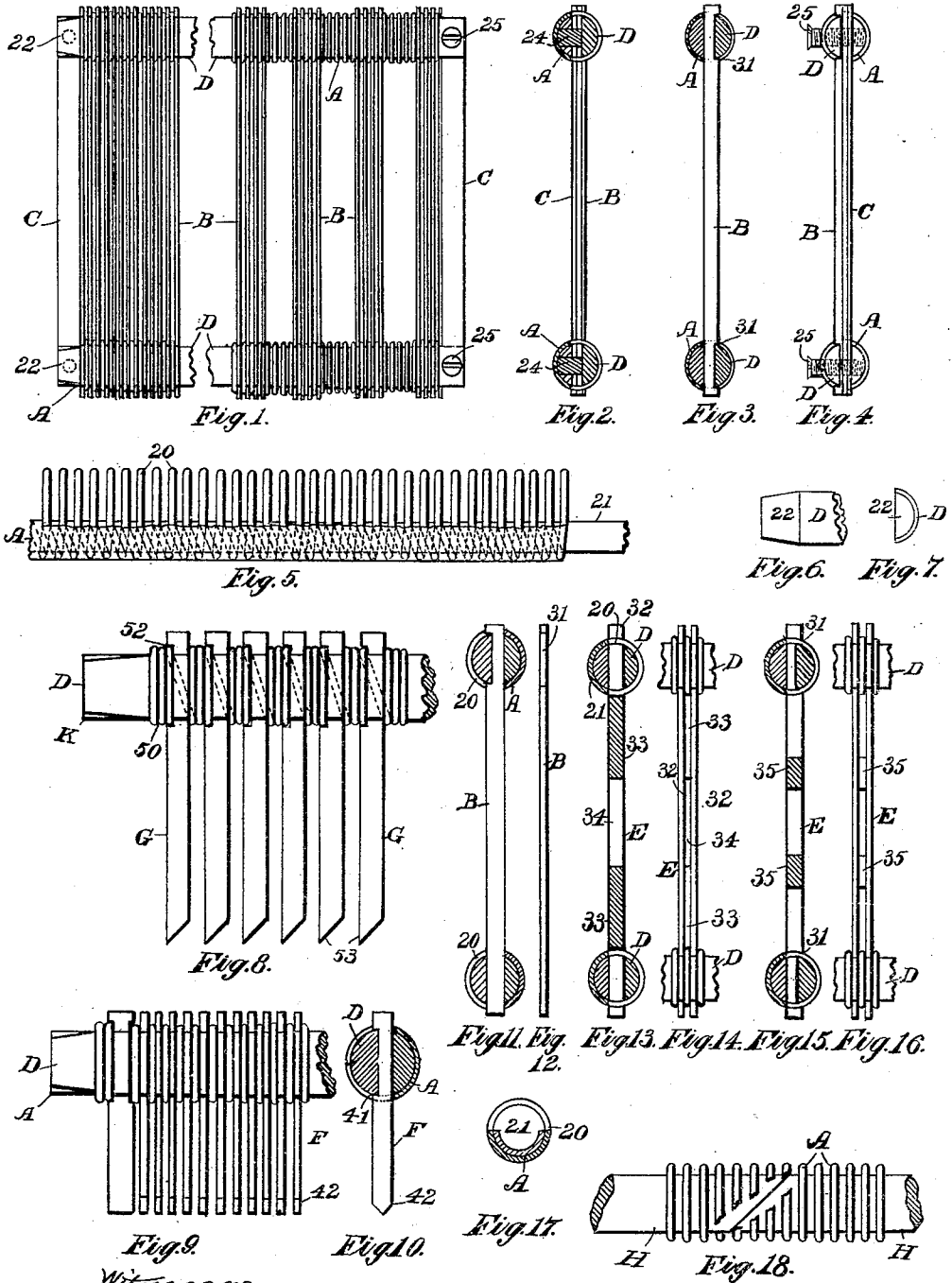


J. G. GOURDEAU.
SPACING DEVICE FOR WARPS.
APPLICATION FILED AUG. 24, 1906.

954,512.

Patented Apr. 12, 1910.



Witnesses
Ludger A. Nicol.
Nehru H. Pearson.

Inventor.
John G. Gourdeau
by Gardner W. Pearson
Attorney

UNITED STATES PATENT OFFICE.

JOHN G. GOURDEAU, OF LAWRENCE, MASSACHUSETTS.

SPACING DEVICE FOR WARPS.

954,512.

Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed August 24, 1906. Serial No. 331,927.

To all whom it may concern:

Be it known that I, JOHN G. GOURDEAU, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Spacing Devices for Warps, of which the following is a specification.

My invention relates to devices for spacing the yarn in warps and is used in connection with looms, slashers, drawing in machines for harnesses and other machines in which warps are treated. It is especially adapted for spacing and holding the metal teeth or dents of reeds and of lease combs and slasher combs.

In the drawings, Figure 1 is a front view of a reed made according to my invention, showing on the left the dents set regularly and on the right alternate spaces with dents and without dents. Fig. 2 is a sectional view of the heading or end piece at the left of Fig. 1. Fig. 3 is a sectional view through the middle of Fig. 1. Fig. 4 is a view from the right of Fig. 1. Fig. 5 is a view from the top, of one of my reed holders or spacing devices. Fig. 6 is a view of the tapering end of my sliding rib. Fig. 7 is an end thereof. Fig. 8 is a front view of a part of the end of a striking comb. Fig. 9 is a front view of a portion of another style comb. Fig. 10 is a cross section of this latter comb. Figs. 11, 12, 13, 14, 15, and 16 are views of different styles of dents. Fig. 17 is a section of a tubular spacing rib. Fig. 18 shows the double sliding rib which I use on very wide reeds.

The principal feature of my invention is the spacing rib A, which is constructed by winding a coil of wire 20 of suitable size about a mandrel of the desired size and then soldering this coil of wire to the curved surface of a segmental rib 21 formed from a cylinder of the same size as the mandrel. As shown in Fig. 5, the coil of wire 20 is securely and rigidly soldered on the outside of the curved part of the segmental rib 21. This leaves the balance of the coil projecting above the flat part of the segmental rib 21 and this part serves as the spacing device and as a part of the clamping device for the dents B, B.

Instead of a metal segmental rib 21, I may use a wooden rib, in which case, the wire coil 21 is soldered together about a portion

of its circumference of less than one hundred and eighty degrees. The coiled wire is thus rigidly held in place and the soldered part is then fastened to the curved part of the wooden rib by pins, rivets, or screws. This makes a lighter construction adapted for some kinds of work. Or I may use a wooden rib with a metal covering in the same way, or a section of a tube as shown in Fig. 17.

To construct the ordinary reed such as is shown in Fig. 1, two spacing ribs A, A in which the wire coils pitch in opposite directions are provided at corresponding ends with projecting pins 24, 24 of a length equal to the thickness of the end pieces C, C and at their other ends with screw holes. The end pieces or headings C are bored at each end to permit the passage of pins 24, 24, and screws 25, 25. Ribs A, A are held together by end pieces C, C, which at one end thereof pass over pins 24 and are fastened by screws 25, 25 at the other end thereof. By having the coil on one rib A turn in the opposite direction from that on the other, the dents are held better and at right angles to ribs A.

Figs. 2, 3, and 4 show the manner in which the dents B for an ordinary reed are fastened and held in place. Each dent B is provided near each end with a slot or notch 31, 31, as shown. The dents B, B, are inserted preferably with the notches 31 upward between the adjoining turns of the wire of the spacing ribs A, A. They are evened up so that the notches 31 substantially coincide with the sides of the spacing ribs. The sliding ribs D, D, which are tapered at their forward ends, as shown in Figs. 6 and 7, at 22, 22, are then pushed through under the wire 20 and on top of the dents B, B, and through the notches therein. These sliding ribs D, D should be made of a width to fit closely the notches 31 in the dents B and as their tapering ends are passed therethrough, they aline the dents perfectly. The dents B, B, may be inserted with the notches down so as to overlap segmental rib 21 and the sliding rib D can be passed over them in the same way, but I prefer to pass sliding rib D through the notches. The tapering ends of sliding ribs D, D pass over the pins 24, 24 in the end pieces C, C and, when in place, the other ends are held by screws 25, 25, which pass through the sliding ribs D, D, the end pieces

C, C, and into the spacing ribs A, A. Where very wide reeds are used, I omit the pins 24, 24 and run in sliding ribs H, H, from each end of spacing rib A. In this case, it is well to have the adjoining ends of sliding ribs H, H, beveled to fit each other, as shown in Fig. 18. Their other ends are held by screws 25, 25 as in the other construction to the ends of sliding ribs A, A, and headings C, C. Where it is desired that the dents should have more elasticity to form what are known as elastic reeds, I omit the notches 31 at one end of the dents as shown in Figs. 11 and 12 and the dents are thus spaced at both ends by wire 20 but are held at only one. This construction allows them to give laterally more than where they are held at both ends, and they are thus more flexible.

Where what are known as block reeds are desired, the dents are formed as shown in Figs. 13 and 14. Here each dent E, E, Figs. 13 and 14 consists of parallel strips of metal 32, 32 soldered together from a point which should touch the coiled wire 20 on each side, as at 33, 33, but leaving the space 34 of about equal length in the center, as shown. In this case, the dents need not be slotted, as the soldered parts 33, 33 on each end butt up against the wire 20 and are by it prevented from sliding back and forth. The sliding ribs D, D are used to hold them in between wire 20 and rib 21.

Another style of block reed is shown in Figs. 15 and 16 wherein the soldered portions 35, 35 are very narrow, and this style requires the notches 31, 31, as can be readily seen.

Figs. 9 and 10 show a lease comb constructed according to my invention. This comb differs from the reed only in the fact that the dents F, F are shorter and are pointed at their free ends 42, 42. The dents F, F in this comb are held at only one end, by means of spacing rib A, notches 41, and sliding rib D. In building a comb of this kind, the pitch of wire coil 20 may give a like pitch to the dents. This pitch is removed and the dents are brought to a line at right angles to the ribs A and D by the usual processes.

Fig. 8 shows what is known as a striking comb. In this construction the coiled wires 50 of the spacing rib K are not spaced uniformly but a number are grouped together, leaving a space between for the insertion of the dents G, G. In this case, the dents G, G are laid flat and the notches 52, 52 therein coincide in length with the outside diameter of the wire coil 50, which, in this case, holds them in place, so far as being pulled out is concerned, while the sliding rib D holds them closely against the spacing rib K. These dents G, G are also pointed at the free end 53.

It is well-known that with the ordinary

soldered metal reeds and with what are known as pitch band reeds or combs, now in use, when one tooth is injured, broken or destroyed, the whole reed or comb must be thrown away or returned to the factory. With my invention, any or all of the dents can be removed and replaced by others. If one or more are broken, it is only necessary to remove the screws from the ends of the sliding ribs, which are then slid out. The injured dents can be then removed and replaced by new ones, after which the sliding ribs are replaced and screwed into place. As shown on the right of Fig. 1, if it is desired, as in some classes of weaving to leave out one or more dents at regular intervals, a reed with a complete set of dents can be taken and as many dents in the places desired can be removed and the rest retained in place.

My spacing device can also be used in connection with machines for drawing in warps to harnesses, as a spacing device. In such machines, the spacing rib A alone is used and preferably with a wooden segmental rib 21. It is passed over the heddles of the harness to space them properly and to aline their eyes.

What I claim as my invention and desire to cover by Letters Patent is:—

1. In a dent holding device, a segmental metal rib, a coil of wire inclosing said rib and soldered to the cylindrical surface thereof, dents passed between the turns in said coil, and a sliding rib passed between the dents and the coil as described.

2. In a dent holding device, a segmental metal rib, a coil of wire inclosing said rib and soldered to the cylindrical surface thereof, dents passed between the turns in said coil and comprising notches near their ends, and a sliding rib passed through the notches in the dents and under the coil as described.

3. In a dent holding device, a segmental metal rib, a coil of wire inclosing said rib and soldered to the cylindrical surface thereof, dents formed with uniform slots near their ends, a sliding rib tapered at one end passed through the slots in the dents and under the coil, and means for retaining the sliding rib in place, as described.

4. In a reed for looms, parallel segmental metal ribs, coils of wire inclosing said ribs and soldered to the cylindrical surfaces thereof, end pieces connecting and holding together said parallel segmental ribs, dents passed between the turns in the coils, and sliding ribs passed over the dents and under the coils as described.

5. In a reed for looms, parallel segmental metal ribs, coils of wire inclosing said ribs and soldered to the cylindrical surfaces thereof, end pieces connecting and holding together said parallel segmental ribs, dents having uniform slots near their ends passed

between the turns in the coils, and sliding ribs passed through the slots in the dents and under the coils as described.

5 6. In a dent holding device, a segmental metal rib, a coil of wire inclosing said rib and soldered to the cylindrical surface thereof, dents passed between the turns of said coil and comprising notches near their ends, and a sliding rib passed under the coil
10 and over the dents as described.

7. In a dent holding device, a segmental metal rib, a coil of wire inclosing said rib and soldered at the bottom to the cylindrical surface of said rib but free of solder at the
15 top, detachable dents between the unsoldered portion of the turns in said coil, and a re-

movable, slidable rib under and in contact with the unsoldered portion of said coil and over the dents, as described.

8. In a dent holding device, a metal rib 20 formed of a longitudinal section of a tube, a coil of wire inclosing said rib and soldered to the outer cylindrical surface thereof, dents passed between the turns in said coil, and a rib passed between the dents and the coil as 25 described.

In testimony whereof I hereto affix my signature in presence of two witnesses.

JOHN G. GOURDEAU.

Witnesses:

J. M. BIRDSALL,

M. J. SQUEIRIG.