

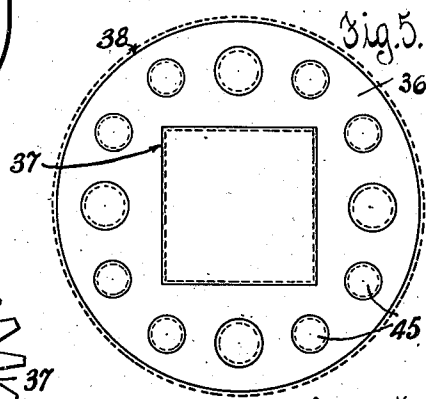
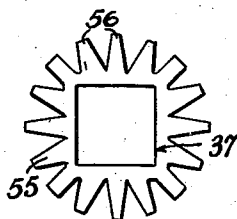
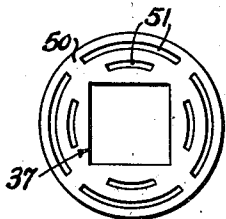
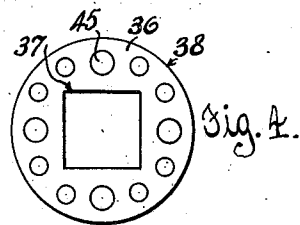
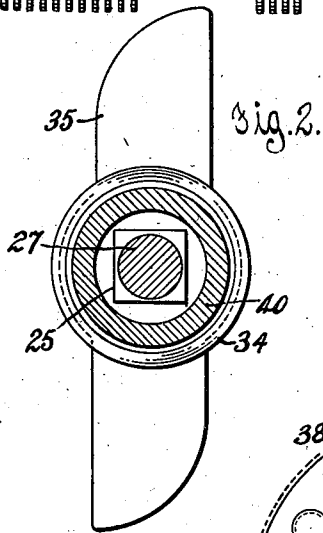
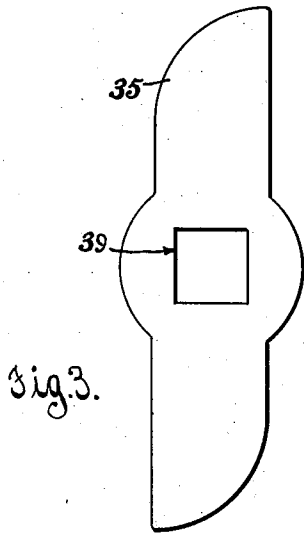
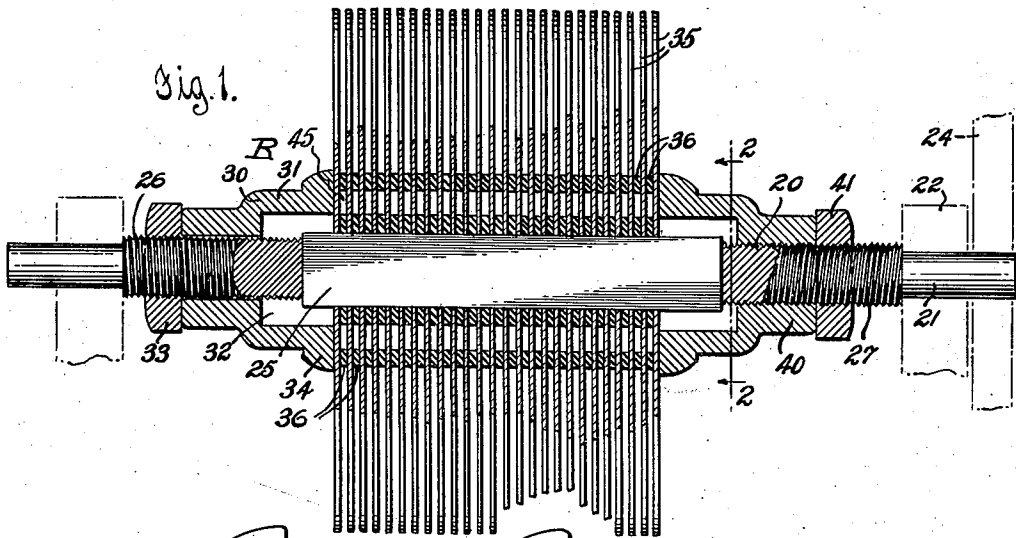
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LOOM REED

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2,396,974

LOOM REED

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This invention relates to loom reeds and it is the general object of the invention to provide a reed in which the spacing of the reed dents may be readily varied.

In certain types of looms it is desirable to alter the gauge or pitch of a reed to effect changes in the width of a fabric or spacing of the warp threads. In the past it has been necessary to provide a set of different reeds each having its own invariable pitch, and the weaver has been required to keep more reeds on hand than can ever be used at any one time. It is an important object of my present invention to provide an assembled reed in which the length of the group of reed dents can be altered when it is desired to vary the pitch or gauge of the reed.

It is another object of my present invention to provide a reed built up of alternate reed dents and resilient washers or spacers and wherein clamps or the like are used to vary the pressure on the washers so that their thickness may be changed in order to lessen or increase the gauge of the reed.

In carrying out my invention I use a shaft having a square section on which the reed dents and spacers are mounted and held in proper angular relation. It is a further object of my invention to provide the shaft with clamps undercut to receive the ends of the square part of the shaft when the clamps are tightened to compress the spacers.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth.

In the accompanying drawing, wherein three forms of the invention are set forth:

Fig. 1 is a vertical section through a reed made according to my present invention, parts being in elevation,

Fig. 2 is a vertical section on line 2—2 of Fig. 1,

Fig. 3 is a side elevation of one of the dents used in the reed,

Fig. 4 is a side elevation of one of the spacers or washers which is located between the adjacent reed dents,

Fig. 5 is a diagrammatic view showing the alteration in the washer when it is subjected to compressive pressure, and

Figs. 6 and 7 are views similar to Fig. 4 but showing the first and second modifications, respectively, of the washers.

Referring more particularly to Figs. 1 and 2, the reed R comprises a central shaft 20 the ends of which are turned down to form journals 21

to fit bearings 22 indicated in dot and dash lines in Fig. 1. One end of the shaft may have fitted thereto a driving gear 24 also indicated in dot and dash lines. The central part 25 of the shaft is square in cross section and between this section 25 and each journal the shaft is formed with right and left hand screw threaded shanks 26 and 27, respectively. On shank 26 there is mounted a clamp 30 having a hub 31 to slide over the screw threads of the shank. Clamp 30 has an undercut bore 32 of sufficient diameter to permit the clamp to be turned over the adjacent end of square section 25, as shown in Fig. 1. A check nut 33 is provided for threaded shank 26 and its clamp and is the means by which the latter is held in adjusted position along shaft 20. Clamp 30 has a circular flange 34 on the end thereof opposite the hub.

Mounted on the square part of the shaft 25 is a series of reed dents 35 made preferably of sheet steel or the like between which, as shown in Fig. 1, lie resilient spacers 36 of the preferred form. The reed dents may be of the general form shown in Fig. 3, although I am not limited in the practice of my invention to the particular shape of the reed dent. The spacers 36 are provided with rectangular punched holes 37 which fit loosely over the square part 25 of the shaft and have circular peripheries 38 which may be of substantially the same diameter as that of the flange 34. The washers are made of elastic rubber, heavy felt, or any material which is compressible under a force considerably less than that required to compress the reed dents 35. The dents have central square openings 39 which fit snugly the square shaft part 25 to hold the dents in correct angular position. The openings 39 are of such size, however, as to permit the dents to slide on part 25.

In assembling the reed, the clamp 30 will be placed in the approximate position which it will ultimately occupy with its flange 34 overhanging the square shaft section 25, after which the reed dents and spacers are alternately fitted over the shaft from the opposite end and onto the section 25. When the requisite number of dents and spacers have been assembled on the shaft, another clamp 40 similar to clamp 30 will be threaded onto shank 27 and will be turned to apply pressure to the dents and spacers until the proper distance between adjacent reed dents is attained. Then a check nut 41 similar to check nut 33 will be applied to shank 27 to hold the setting of clamp 40.

When it is desired to reduce the distance be-

tween the dents one or the other of the clamps will be fed toward the center of the reed thereby subjecting the resilient or elastic spacers 36 to compression and reducing their thickness to permit the reed dents 35 to move toward each other.

As shown in Fig. 4, the preferred form of washer 36 is provided with a series of punched holes 45 located between the square opening 37 and the periphery 38 thereof. I find it is desirable to form the washer so that it will have a large number of edges which will permit expansion when the washer is subjected to pressure. This expansion is illustrated in Fig. 5 wherein the full lines indicate the normal form of the washer while the dotted lines indicate the form which the washer takes under pressure. If the washer were made without perforations or their equivalents the central parts of it would be under excessive pressure and would offer undue resistance to attempts to change the pitch or gauge of the reed.

In Fig. 6 there is shown the first modification in which the washer 50 serves the same purpose as does washer 36 and has a square perforation 37 as in the preferred form of washer, but arcuate slots 51 are provided to permit expansion after a manner similar to that suggested in Fig. 4. Fig. 7 shows a second modification in which washer 55 is of stellated form, being provided with a large number of projections 56, and having the square perforation 37 as in the other forms.

In all forms of the spacer or washer it is desirable to avoid relatively large uninterrupted areas. While I have shown three forms of washers or spacers made to facilitate compression, yet I do not wish necessarily to be limited to the form shown herein, nor is it intended that the expansion suggested in Fig. 4 is an exact portrayal of the form which washer 36 will take under compression. The solid parts of the washer, however, will flow into open spaces and the periphery 38 will be somewhat enlarged.

The depth of the undercut 32 may be varied depending upon the total width of the reed with respect to the length of the square section 25. When assembling the reed the pressure of the clamps may, if desired, be high enough to compress the spacers so they will expand to increase the pitch of the reed when the flanges are subsequently separated.

From the foregoing it will be seen that I have provided a simple form of reed comprising a shaft along which are arranged reed dents alternating with compressible spacers and that clamps or the like on the shaft afford means for compressing the spacers so that the distance between adjacent reed dents can be varied. The spacers are all made of the same material, hence they will have substantially the same resistance to compression and the reduction in the distance between the reed dents will be uniform. It will also be seen that the flanges are undercut to accommodate the square section 25 of the shaft

when it is desired to move the clamps toward each other. Furthermore, it will be noted that the normal dimension of the spacers is such that the square holes 37 thereof are somewhat larger than the cross section of shaft section 25 to permit the spacers to expand inwardly toward the shaft when subjected to pressure. In this connection it will also be noted that the spacers or washers are formed in such a way that they do not present large uninterrupted areas and for this reason the material of the washers can expand readily. The flanges 34 are preferably at least as large in diameter as the spacers to insure the application of adequate and uniform force to the spacers when variation in their thickness is desired.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In a reed, a shaft having a part thereof of non-circular cross section intermediate the ends thereof, reed dents having non-circular openings therein fitting around said part, spacers arranged along said section and alternating with said reed dents, said spacers being more compressible under a given force than said dents, and means on said shaft between the ends thereof and said part having portions thereof overhanging said non-circular part to exert compressive forces on said dents and spacers to reduce the thickness of the latter and thereby lessen the distance between adjacent dents.

2. In a reed, a shaft having a part thereof spaced from an end thereof and formed with a non-circular cross section, reed dents arranged along and fitting on said part, resilient spacers which are more compressible under a given force than said dents alternating with the latter, and clamp means supported on said shaft between said end thereof and said part and having portions overhanging said part of non-circular cross section to exert variable compressive forces on said dents and spacers to vary the thickness of the latter and thereby alter the distance between adjacent dents.

3. In a reed, a shaft having screw threads thereon and a part having a non-circular cross section, reed dents having non-circular openings therein fitting said part, spacers arranged along said section and alternating with said reed dents, said spacers being formed of inherently elastic material more readily compressible than said dents, and clamp means threaded on said screw threads and having portions overhanging said part and rotatable on said screw threads to exert variable compressive forces on said dents and spacers to vary the thickness of the latter and thereby alter the distance between adjacent reed dents.

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