Sept. 13, 1949. G. C. BEATRICE 2,481,812

PICKING MECHANISM FOR LOOMS

Filed Oct. 7, 1948

FIG.1

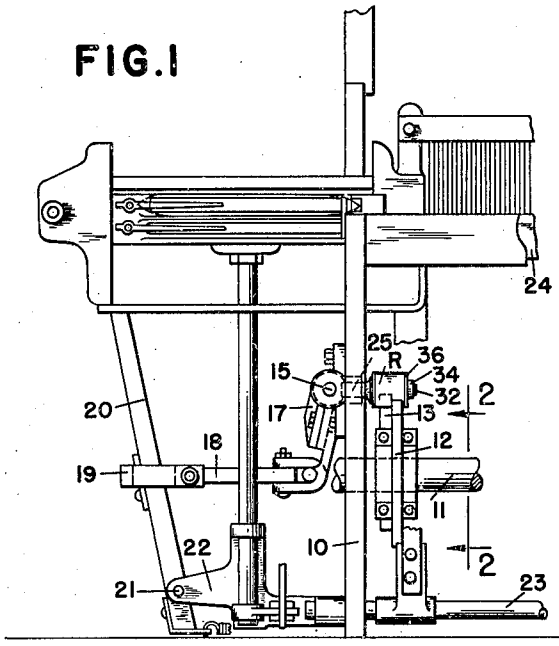


FIG.3

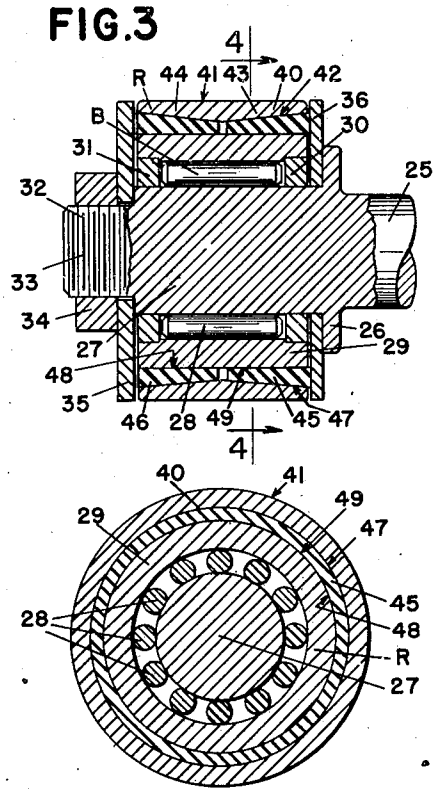


FIG.4

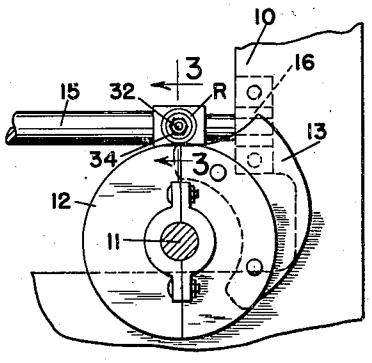


FIG.2

INVENTOR

GABRIEL C. BEATRICE

Chas. T. Hawley

ATTORNEY

Patented Sept. 13, 1949

2,481,812

UNITED STATES PATENT OFFICE

2,481,812

PICKING MECHANISM FOR LOOMS

Gabriel C. Beatrice, Shrewsbury, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a corporation of Massachusetts

Application October 7, 1948, Serial No. 53,329

6 Claims. (Cl. 139—147)

1

This invention relates to improvements in picking mechanism for looms and it is the general object of the invention to provide an improved picking arm and roll constructed to reduce vibration and absorb shock.

A well-known type of picking mechanism utilizes a cam on the loom bottom shaft for engagement with a roll carried by an arm on the picking shaft. Another type has an arm on the bottom shaft carrying a roll which engages a cam on the picking shaft. In the past the roll has generally been solid metal and mounted for rotation directly on the arm which supports it. When picking mechanisms using this type of roll operate at high speed there is likelihood that some part of the mechanism will break due to vibration or shock.

It is an important object of the present invention to construct the picking roll with an outer metallic picking shell supported by a sleeve or the like made of shock absorbing material, such as soft elastic rubber, thereby reducing vibration and shock.

It is a further object of the invention to provide the picking roll with a picking shell the inner surface of which is tapered to fit the tapered surface of the shock absorbing means so that the shell will be held centered on the roll. The shock absorbing means may include sleeves of conical form held against endwise motion by flanges mounted on the arm which supports the roll.

The invention set forth herein is applicable to various types of picking mechanism, but is shown herein as applied to the so-called cone picking mechanism used on certain kinds of high speed looms.

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

In the accompanying drawings, wherein a convenient embodiment of the invention is set forth,

Fig. 1 is a front elevation of one end of a loom having applied thereto a picking mechanism including the subject matter of this invention,

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

Fig. 3 is an enlarged vertical section on line 3—3, Fig. 2, and

Fig. 4 is a vertical transverse section on line 4—4, Fig. 3.

Referring particularly to Fig. 1, the loom frame 10 supports a bottom shaft 11 mounted in appropriate bearings and rotating ordinarily once every other pick of the loom. Secured to this shaft is a cam designated generally at 12 having a cam tappet 13 which may be of the general shape shown in Fig. 2. A picking shaft 15 extends backwardly and forwardly in the loom transverse of the bottom shaft 11 and is mounted for rotation in the loom at both its front and back ends, the

2

rear end thereof being shown in Fig. 2 as supported by one of its bearings indicated at 16. Shaft 15 is provided with a downwardly extending arm 17 operatively connected at its lower end to a sweep stick 18 the left end of which as viewed in Fig. 1 carries a lug strap 19 extending around the picker stick 20 of the loom. The latter is pivoted as at 21 on the rocker iron 22 which is fastened to the usual rocker shaft 23. The latter ordinarily supports the lay 24 of the loom along which the shuttle is picked by stick 20.

The matter thus far described is duplicated at the opposite end of the loom and is of usual construction and operates in the ordinary manner.

Referring more particularly to Figs. 3 and 4, the picker shaft 15 has extending laterally therefrom a picking arm 25 which may be secured to the shaft in any approved manner, or be formed integrally therewith. Arm 25 is provided with an integral flange 26 and a gudgeon 27 supporting a needle or roller bearing B including bearing rollers 28. Engaging the outer peripheries of the latter is a bearing shell 29 between which and the gudgeon are located right and left retainer rings 30 and 31, respectively, as viewed in Fig. 3. These rings position the rollers 28 and confine lubricant.

As shown in Fig. 3, the left end of the gudgeon is reduced as at 32 and provided with screw threads 33 to receive a nut 34 which engages a disk 35 surrounding the reduced end 32 of the gudgeon. A second disk 36 engages the flange 26, and the rollers, bearing shell 29, and retainer rings 30 and 31 lie between the disks 35 and 36.

Surrounding the inner or bearing shell 29 and concentric therewith is an outer picking shell 40 having preferably an outer cylindrical surface 41 for engagement with the cam tappet 13. This surface 41 need not be strictly cylindrical and may if desired be slightly crowned. The inner surface of shell 40 is provided with a bearing surface 42 which in longitudinal cross section parallel to the gudgeon is convex toward the latter, see Fig. 3. The convexity of surface 42 is attained by forming the surface with two tapered or conical areas 43 and 44 at the right and left, respectively, as seen in Fig. 3, these areas being inclined toward each other and toward the gudgeon so that the diameter of the inner surface 42 at the longitudinal center of the picking shell is less than its diameter at the ends of the shell.

Located between the picking shell 40 and the inner shell 29 are two shock absorbing sleeves 45 and 46 having outer conical surfaces 47 engaging and conforming to the corresponding conical areas 43 and 44. These sleeves are made of an inherently resilient shock absorbing material, such for instance as a soft elastic rubber, and substantially fill the space between the two shells,

this space being wider at its ends than at its center, see Fig. 3. The sleeves have inner cylindrical surfaces 48 fitting the outer cylindrical periphery 49 of the inner shell 29. The resilient sleeves are located between the disks 35 and 36 which limit substantial endwise movement of the sleeves away from each other. Picking shell 40 is also between the disks, but due to the centering effect of the conical engaging surfaces of the shell 40 and the resilient sleeves, shell 40 tends normally to be spaced from the disks. The bearing B, bearing shell 29, sleeves 45 and 46, and picking shell 40 may be considered to be a picking roll R rotatable on the gudgeon 27.

From the foregoing it will be seen that the invention sets forth a simple form of picking roll for loom picking mechanism wherein an outer metallic sleeve adapted for engagement with a picking cam is mounted on inherently resilient sleeves 45 and 46 made preferably of inherently resilient elastic material, such as soft rubber. The sleeves are mounted on an inner bearing shell 29 forming part of a needle or roller bearing B rotatable on the gudgeon 27. The resilient sleeves are the only part of the structure which engages the picking shell 40, and the latter is centered on the sleeves due to engagement of the tapered surfaces on the picking shell with similar surfaces on the resilient shock absorbing sleeves 45 and 46. The sleeves frictionally engage the shells 29 and 40 and will ordinarily be held by such engagement against endwise movement, but should the latter occur the disks will limit such motion.

Having thus described the invention it will be seen that changes and modifications of the foregoing specific disclosure may be made without departing from the spirit and scope of the invention.

What is claimed as new is:

1. In picking mechanism for a loom having a picking cam and a picking shaft provided with an arm, a bearing shell surrounding part of the arm, bearing rollers between the shell and arm, a picking shell surrounding the bearing shell having an inner surface formed with conical areas inclined toward each other and toward the arm, inherently resilient soft elastic sleeves between said shells having inner surfaces engaging the bearing shell and having conical outer surfaces engaging the conical surfaces of the picking shell, and spaced disks on the arm between which the shells and sleeves are located.

2. In picking mechanism for a loom having a picking cam and a picking shaft provided with an arm, a roller bearing on said arm having a cylindrical bearing shell, a picking shell spaced from and surrounding and concentric with the bearing shell, the inner surface of the bearing shell being tapered from the ends thereof toward the longitudinal center thereof and toward said bearing shell, inherently resilient soft elastic sleeves between the bearing and picking sleeves having exterior surfaces engaging and conforming to the shape of said inner surface of the picking shell and having inner surfaces engaging the bearing shell, and disks on the arm preventing substantial movement of the picking shell and sleeves in a direction parallel to the axis of the cylindrical bearing shell.

3. In picking mechanism for a loom having a picking cam and a picking shaft provided with an arm, a cylindrical gudgeon on said arm, a roller bearing on said gudgeon having a cylindrical shell having an outer surface concentric with the gudgeon, a picking shell spaced from and surrounding the bearing shell and having an inner surface which at the longitudinal center thereof is of less diameter than at the ends thereof, inherently resilient soft elastic sleeve means located between said shells having inner surfaces engaging said outer cylindrical surface of said bearing shell and having outer surfaces conforming to and engaging said inner surface of the picking shell, and spaced disks on the arm preventing substantial endwise movement of the picking shell and sleeve means in a direction parallel to the gudgeon.

4. In picking mechanism for a loom having a picking arm and gudgeon thereon, a cylindrical bearing shell supported by and rotatable around said gudgeon, a picking shell surrounding and spaced from the bearing shell, said picking shell having an inner surface facing the bearing shell and convex toward the latter in cross section parallel to the length of the gudgeon, inherently resilient soft elastic sleeves between said shells fitting the bearing shell and having outer surfaces conforming to and fitting said inner surface of said picking shell, and means supported by said arm limiting endwise movement of said sleeves in a direction away from each other and parallel to said gudgeon.

5. In picking mechanism for a loom having a picking arm and a gudgeon thereon, a cylindrical bearing shell supported by and rotatable around said gudgeon, a picking shell surrounding and spaced from the bearing shell, one of said shells having a surface facing the other shell convex toward the latter in cross section parallel to said gudgeon and formed with two oppositely inclined conical surfaces, a pair of inherently resilient soft elastic sleeves between the shells, each sleeve having a conical outer surface to engage one of said conical surfaces of said one shell, said sleeves fitting the other shell, and means supported by the arm restricting endwise movement of said sleeves away from each other and parallel to the gudgeon.

6. In picking mechanism for a loom having a picking arm and a gudgeon thereon, a cylindrical bearing shell supported by and rotatable around said gudgeon, a picking shell surrounding and spaced from the bearing shell, the adjacent surfaces of said shells which extend generally in the direction of the length of the gudgeon being separated by a space, said shells being so formed that said adjacent surfaces are relatively close to each other near the longitudinal center of the shells and are relatively farther from each other at the ends of the shells, and inherently soft elastic sleeve means between said shells substantially filling said space and frictionally contacting said adjacent surfaces.

GABRIEL C. BEATRICE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,851,561	Baninger	Mar. 29, 1932
2,141,122	Boden	Dec. 20, 1938

FOREIGN PATENTS

Number	Country	Date
452,048	Great Britain	Aug. 17, 1936