Feb. 28, 1950 W. H. BAHAN 2,499,050

CRANKSHAFT MOUNTING FOR LOOMS

Filed Nov. 3, 1947 3 Sheets-Sheet 1

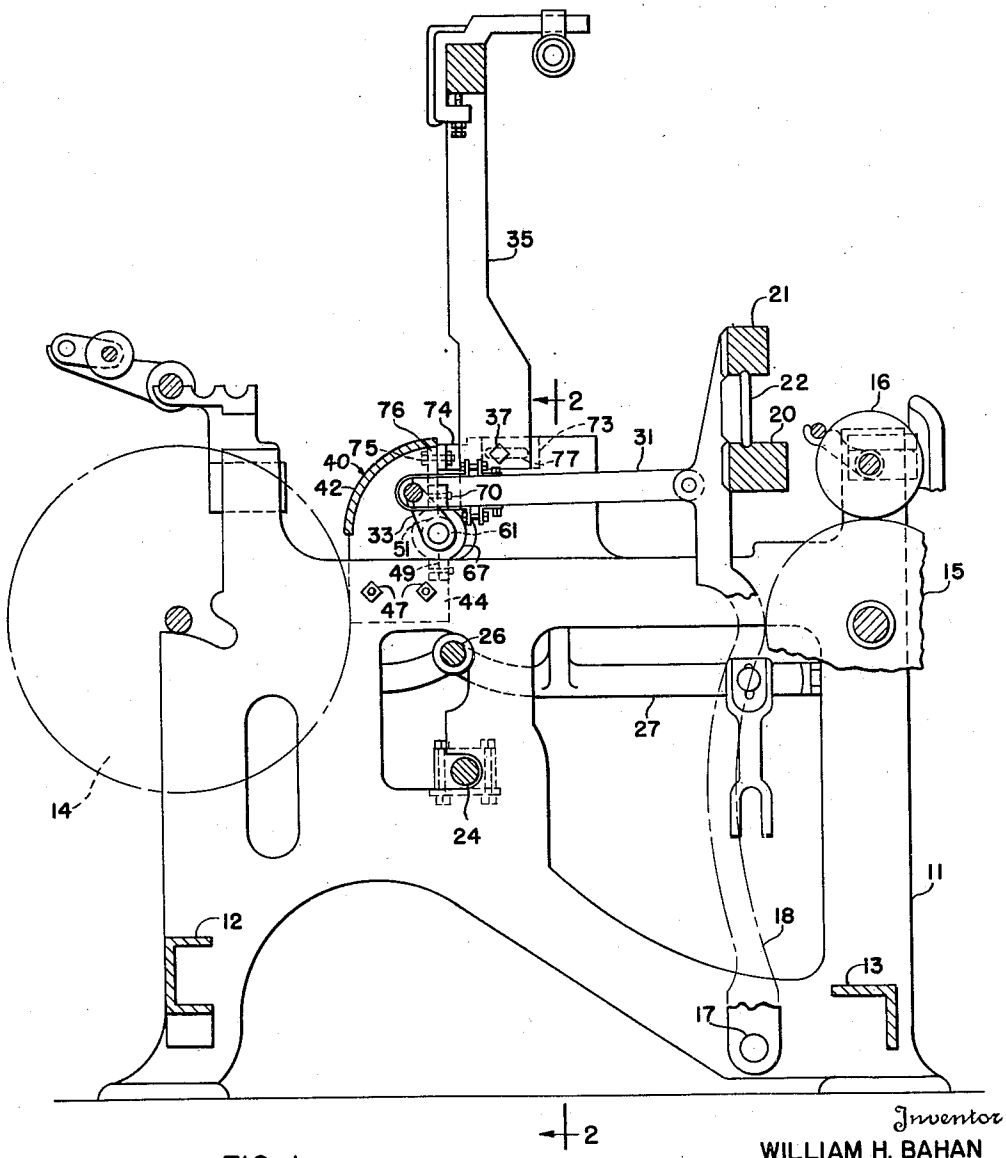


FIG. 1

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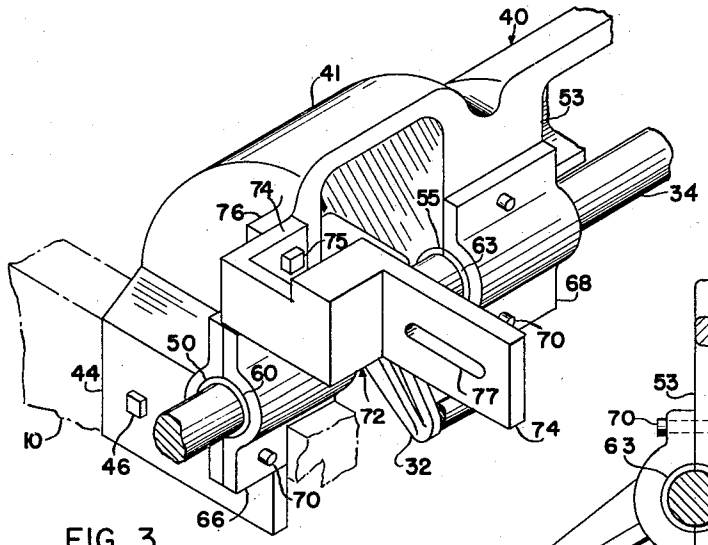


FIG. 3

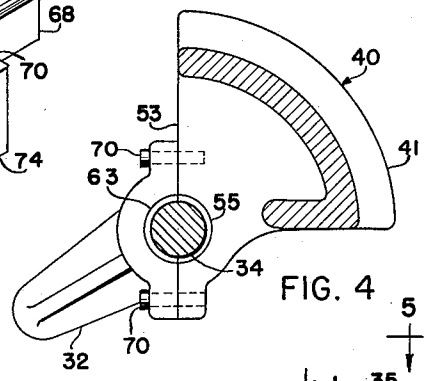


FIG. 4

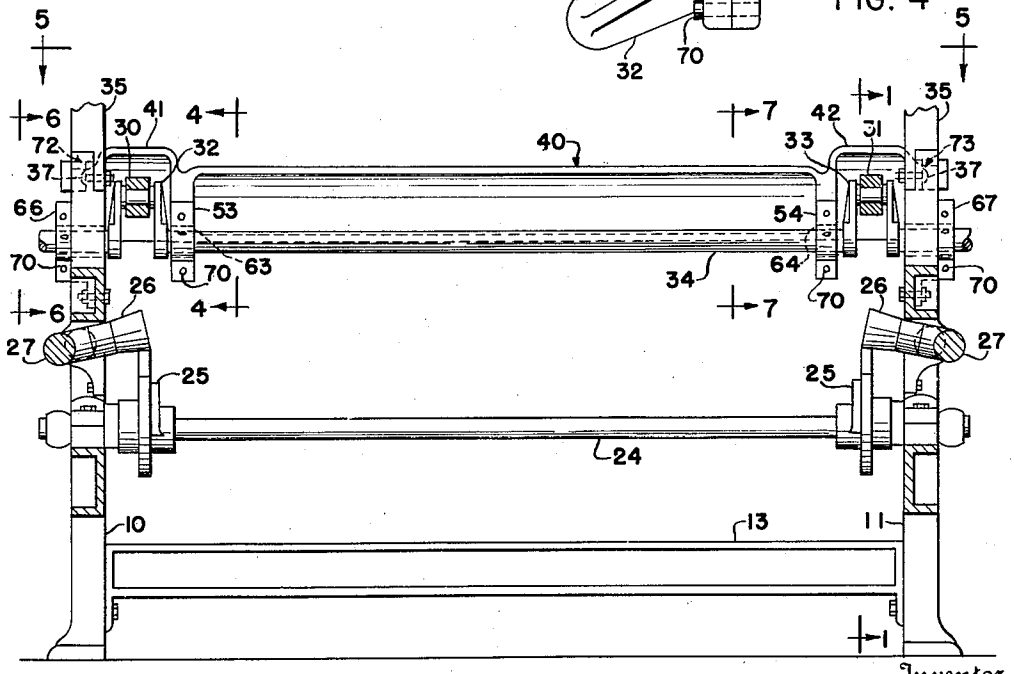


FIG. 2

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CRANKSHAFT MOUNTING FOR LOOMS

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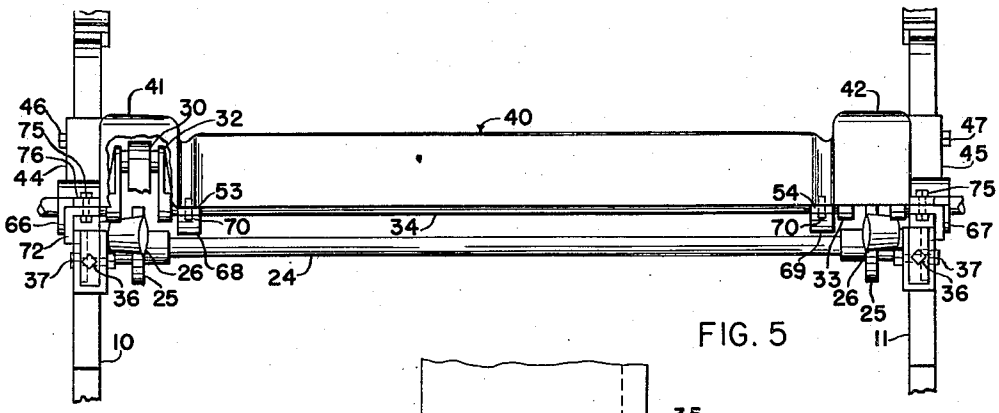


FIG. 5

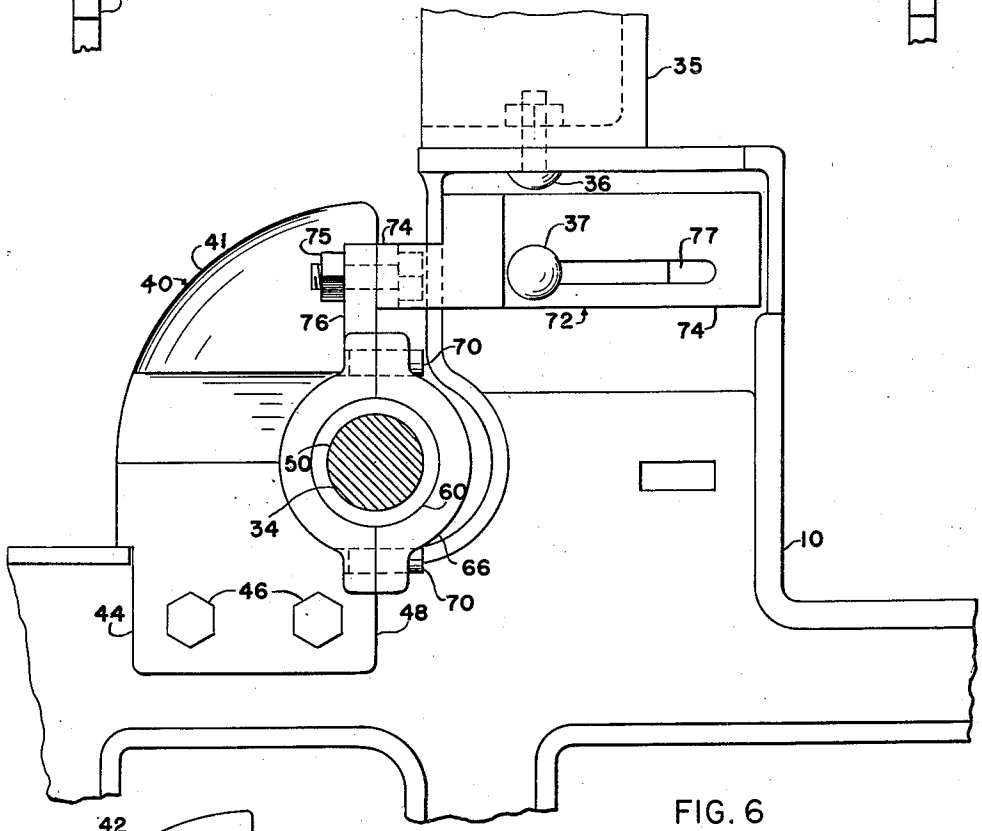


FIG. 6

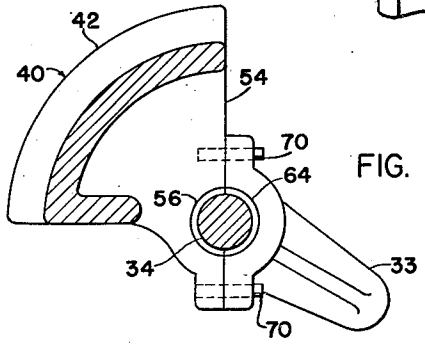


FIG. 7

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2,499,050

CRANKSHAFT MOUNTING FOR LOOMS

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Application November 3, 1947, Serial No. 783,674

5 Claims. (Cl. 139—1)

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This invention relates to an improved means for mounting the crank shaft of a loom. It is a well known fact that the crank shaft which is driven and has a pair of crank arms thereon to which pitman rods are connected and the other ends of the pitman rods being connected to the swords for oscillating the lay, results in a great amount of strain on the crank shaft and thus results in vibration of a major portion of the loom. The other shafts such as the cam shaft which operates the pick shafts do have heavy strains imparted thereto, but the main strain is borne by the crank shaft.

In the ordinary loom, such as the Draper models of looms, the crank shaft is usually mounted in bearings disposed on the remote sides of the cranks and thus the strain imparted to the cranks of the crank shaft, by not having a bearing on both sides of the crank, results in undue strain and vibration being imparted to the crank shaft during operation of the loom.

It is an object of this invention to provide a girder or girt secured to each of the side frames of the loom and having a pair of bearings near each end thereof, there being a bearing on each side of and immediately adjacent the two cranks on the crank shaft and whereby the crank shaft is supported at four different points for rotation and also the rigid girt or bridging member, being secured to the end frames of the loom, imparts rigidity to the loom frame as well as providing a very much better means for rotatably supporting the crank shaft.

Heretofore in looms of the conventional type in which the crank shaft has been mounted in bearings disposed near each end of the crank shaft, the average picks per minute capable of being performed on a loom of this type runs around 150 where as by my improved mounting for the crank shaft 190 picks or more per minute can be performed by the loom without any undue vibration, and thus the productive capacity of looms equipped with my improved mounting for the crank shaft is greatly increased.

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 drawings, in which

Figure 1 is a vertical sectional view taken substantially along the line 1—1 in Figure 2 and showing the crank throw of the crank shaft in a slightly different position;

Figure 2 is a transverse sectional view taken substantially along the line 2—2 in Figure 1;

Figure 3 is an isometric view of the left-hand

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portion of the crank shaft mounting mechanism as shown in Figure 2;

Figure 4 is a vertical sectional view taken substantially along the line 4—4 in Figure 2 and showing the crank throw in a different position from that in Figure 2 and omitting the pitman rod which is connected thereto;

Figure 5 is a top plan view of that portion of the loom where the crank shaft is mounted and showing parts broken away and taken substantially along the line 5—5 in Figure 2;

Figure 6 is an enlarged elevation but taken substantially along the line 6—6 in Figure 2 and showing the crank shaft in section;

Figure 7 is a vertical sectional view taken along the line 7—7 in Figure 2.

Referring more specifically to the drawings, the numerals 10 and 11 indicate the two side frames of a loom which are usually secured together by bottom girts 12 and 13. The loom of course, has a warp beam 14 mounted thereon from whence the warp is drawn to a suitable cloth takeup mechanism indicated at 15 and 16. The loom also has a rocker shaft 17 with a pair of swords 18 oscillatably mounted at their lower ends on the rocker shaft 17 and supporting a lay 20 and a reed cap 21 on the upper end thereof in which a suitable reed 22 is disposed.

The loom also has a cam shaft 24 having pick cams 25 thereon which engage suitable pick arms 26 which are integral with pick shafts 27 which operate the picker stick but which is not shown. The swords 18 have pivotally connected thereto one end of pitman rods 30 and 31 which are mounted on crank throws 32 and 33 of a conventional crank shaft 34. The loom also has a suitable arch bar 35 which is secured at each end thereof to the side frames of the loom by any suitable means such as bolts 36. The ends of the arch bar are also secured to the loom in a conventional manner by means of bolts 37 at each end thereof.

Heretofore, the crank shaft 34 of the loom has been mounted in suitable bearings disposed on the top portions of the side frames 10 and 11. These bearings were on the remote sides of the crank throws 32 and 33 and therefore there was nothing to support the middle portion of the crank shaft and this resulted in vibrations in the crank shaft and thus making it impossible to speed up the picks per minute of the loom.

Instead of having these conventional bearings disposed on top of the end frames 10 and 11, I have provided a girt or bridging member 40 which is arcuate in cross section and has enlarged

arcuate portions 41 and 42 to make room for the cranks 32 and 33. At the remote ends of the girt or bridging member 40 there are downwardly projecting portions 44 and 45 which fit on the exterior surfaces of the loom frames 10 and 11 and are secured to the loom frame by suitable screws 46 and 47. The remote end portions of the member 40 have vertically disposed surfaces 48 and 49 in which semi-circular bearing portions 50 (Figures 3 and 6) are provided. The girt or bridging member 40 also has in spaced relation to the vertically disposed surfaces 48 and 49 other vertically disposed surfaces 53 and 54 (Figure 5) which also have semi-circular bearing cavities 55 and 56 in alignment with the bearing cavities 50 and 51. In the two bearing cavities 50 and 51 are mounted tubular bearing sleeves 60 and 61, but due to the fact that a tubular bearing sleeve cannot be passed over the crank throws 32 and 33, split bearing sleeves 63 and 64 are disposed in the semi-circular bearing cavities 55 and 56.

Secured to the vertically disposed surfaces 48, 49, 53, and 54 are semi-circular bearing blocks 66, 67, 68 and 69. These semi-circular bearing blocks are secured to the vertically disposed surfaces 48, 49, 53 and 54 by any suitable means such as screws 70 to thus complete the mounting of the crank shaft 34 for rotation.

In addition to the downwardly projecting portions 44 and 45 which lie against the exterior faces of the side frames 10 and 11, additional means for securing the ends of the member 40 to the loom frame are provided in the form of brackets 72 and 73 which have leg portions 74 (Figure 6) penetrated by bolts 75 which penetrate suitable holes in vertical rib portions 76 on the upper end portion of the girt 40. These brackets 72 and 73 each have an elongated slot 77 therein which are penetrated by the bolts 37 which also secure the arch 35 to the two side frames of the loom.

This lends rigidity to the mounting and securing of the girt or mounting for the crank shaft and thus tends to lessen vibration and to thus anchor the ends of the member 40 at two different points to the side frames of the loom.

In the drawings and specification there has been set forth a preferred embodiment of the 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 defined in the claims.

I claim:

1. In a loom having side frames and a crank shaft, a girt member having means for securing the ends thereof to the two side frames and bridging the gap between the two side frames, said girt member being arcuate in cross section and having an enlarged arcuate portion near each end thereof, one side of the girt member having vertically disposed faces on each side of the enlarged arcuate portion, the vertical faces having semi-circular bearing portions cut therein, the four bearing portions for the girt being in alignment with each other, the four bearing portions being adapted to receive the crank shaft, said crank shaft having a pair of crank throws each of which is adapted to rotate in the enlarged arcuate portions of the girt, and a plurality of semi-circular bearing caps adapted to be secured over the semi-circular bearings for providing four bearings in the girt for the crank shaft, there being a bearing disposed on each side of the crank throws of the crank shaft.

2. In a loom having side frames and a crank shaft provided with a pair of crank throws thereon to which one end of pitman rods are adapted to be connected, the other ends of the pitman rods being adapted to be connected to the swords of the loom, a girt member provided with means for securing the same to each of the side frames of the loom, the girt member having two pairs of semi-circular bearing portions cut in one face thereof for receiving the crank shaft portions disposed on each side of the crank throws and semi-circular bearing caps securable over the semi-circular bearing portions in the girt member for providing bearings on each side of the crank throws in the girt, all in alignment with each other.

3. In a loom having a pair of side frames and means connecting the lower portion of the side frames at the front and back, said loom also having a crank shaft and a crank near each end thereof lying inward and adjacent to the side frames of the loom, pitman rods mounted on the cranks for connecting the cranks to the lay, a girt member having means for securing the ends thereof to the two side frames of the loom and lying between the two side frames of the loom, said girt member having a pair of spaced semi-circular bearings adjacent each end thereof into which the crank shaft is adapted to be disposed, there being a bearing disposed on each side of each crank throw, each of the semi-circular bearings being provided with semi-circular bearings caps securable over the semi-circular bearings in the girt and whereby four aligned bearings will be provided on the girt member for rotatably supporting the crank shaft on each side of its crank throws.

4. In a loom having a pair of side frames and a crank shaft, the crank shaft being provided with crank throws adjacent each end thereof and disposed adjacent the inside surface of the side frames of the loom, means for rotatably mounting the crank shaft comprising a girt member provided with means for securing the ends thereof to the side frames of the loom, said girt member being substantially arcuate in cross section and having enlarged arcuate portions adjacent each end thereof in which the crank throws are adapted to rotate, the girt member having semi-circular bearings cut thereinto on each side of the enlarged arcuate portion and semi-circular bearing cap members secured over the semi-circular bearings cut in the girt member to thus provide a bearing on each side of the crank throws of the crank shaft.

5. In a loom having a pair of side frames connected at their upper ends by an arch connection and near their lower ends by front and back girts, a girt member having its ends secured to the top portions of the side frame members and bridging the gap between the side frame members, said last girt member having a pair of pockets therein in which the throws of the crank shaft of the loom are adapted to operate, said last girt having vertically disposed faces on each side of the pockets, each provided with a semi-circular bearing portion, all semi-circular bearing portion being in perfect alignment each with the other, the crank shaft being adapted to be rotatably mounted in the semi-circular bearing portions disposed on each side of the crank throws, and semi-circular bearing caps securable over the semi-circular bearings to confine the crank shaft and thus pro-

viding a bearing portion on each side of the crank throws of the crank shaft.

WILLIAM H. BAHAN.

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