May 30, 1933. G. WIGET 1,911,981

LOOM

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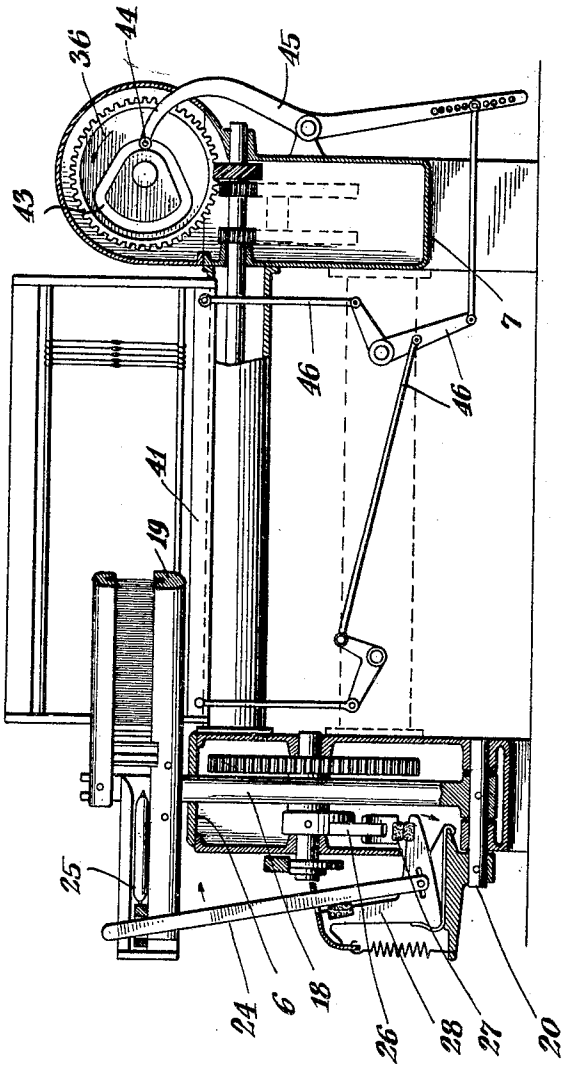


Fig. 1

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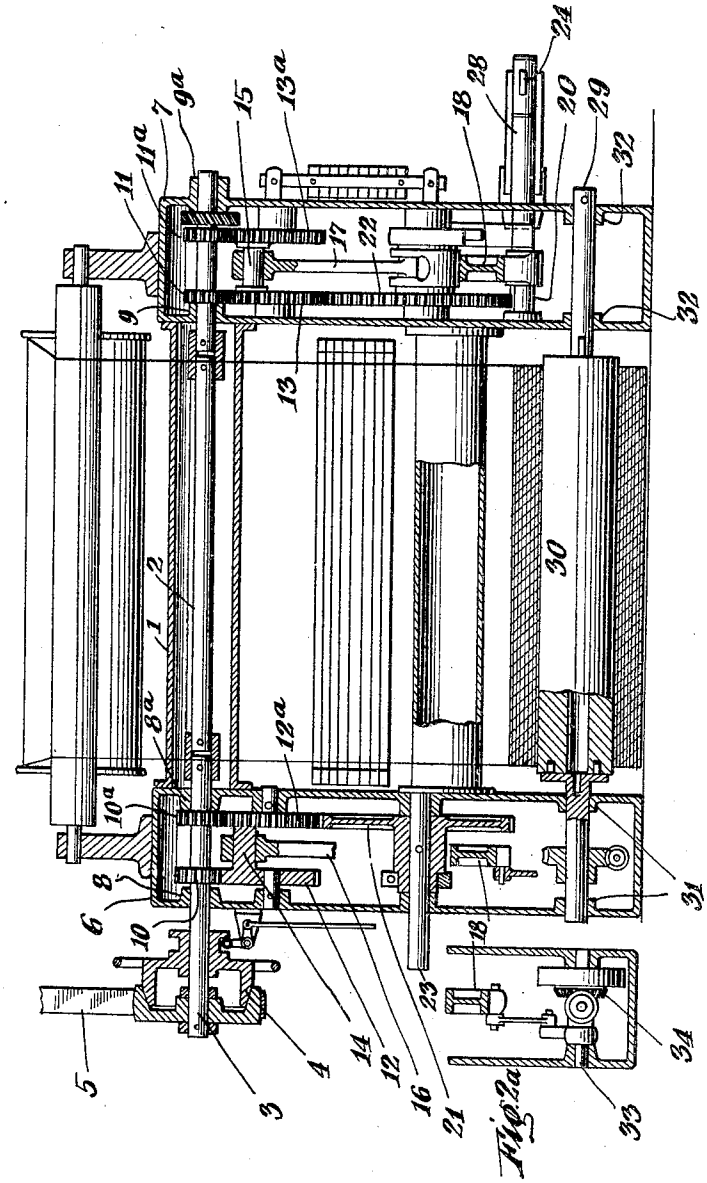


Fig. 2

Fig. 2a

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Fig. 3

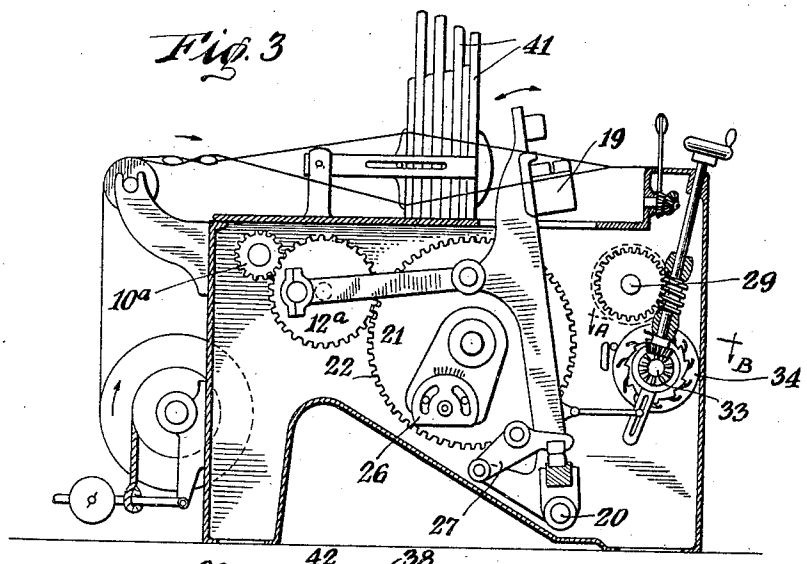


Fig. 4

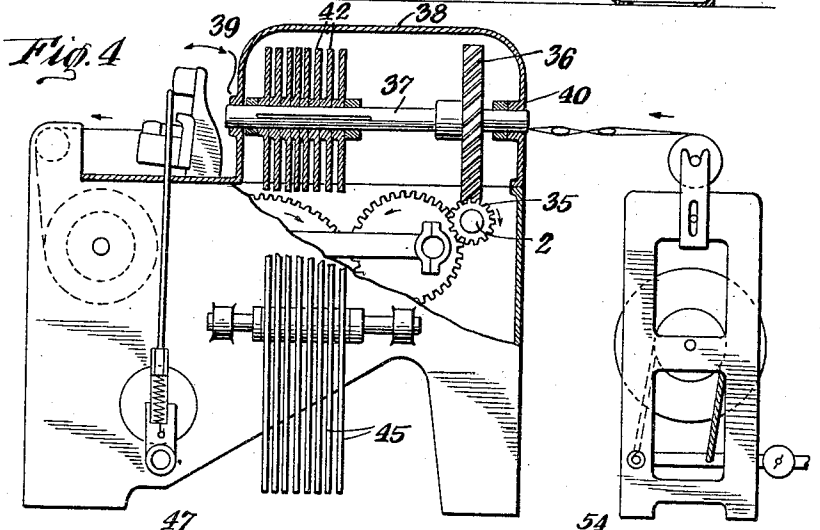
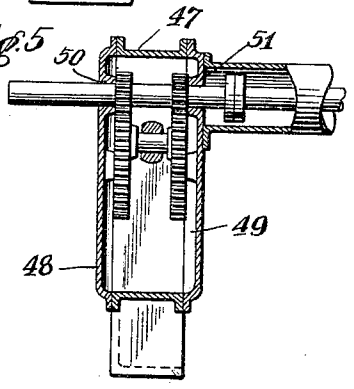


Fig. 5



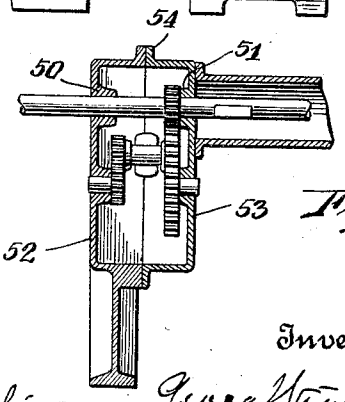


Fig. 6

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UNITED STATES PATENT OFFICE

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LOOM

Application filed May 12, 1931, Serial No. 536,761, and in Germany May 27, 1930.

The driving elements of power looms, particularly the driving means for the lathe, the shuttle, and the heddles as well as the clothbeam regulator usually have their bearings in the standards of the machine frame, in such wise, that at each side of the loom only a single frame or standard serves for the bearing of the shafts of the driving gears of the loom. This single, one sided bearing of the driving shafts at each side of the loom frame, has the disadvantage that the bearing pressures are sustained in a single bearing in a single standard only and the driving gears in consequence have an insufficient support. As a result, the driving mechanism is subjected to disrupting strains, and in a short time sure control of the driving mechanism will be lost. The bearings will be worn and there will occur an appreciable play between the shafts on the one hand and their bearings on the other, seriously affecting the accurate operation of the loom.

According to the present invention these disadvantages are avoided by forming the supporting frames or standards with multiple, spaced walls and the shafts of the driving gears have multiple bearings in the walls of the standards. In this way is assured a stable and vibrationless support of the driving mechanism, and furthermore the bearing pressures are transmitted uniformly to the standards or frames at each side of the machine.

In prior arrangements there is the further disadvantage that the driving means, having bearings in open standards of the machine frame, are exposed to dust, lint and the like which will penetrate the bearings and may cause interruptions in operation. There is the further disadvantage of unprotected driving means that the material produced by the loom may be spattered by machine oil, etc. Moreover, unprotected driving means are naturally an ever present danger to the persons operating the loom. All of these disadvantages are also avoided in the present invention by making the standards boxlike or with multiple, spaced walls, which provide a dust-proof cover for the driving mechanism of the loom.

In the drawings, in which are illustrated embodiments of the invention:

Figure 1 is a transverse, sectional elevation of a loom constructed in accordance with the invention.

Figure 2 is a sectional plan view of the same.

Figure 2*a* is a detail view in section on the line A—B of Figure 3.

Figure 3 is a view in sectional elevation as seen from the left hand in Figure 1.

Figure 4 is a view in sectional elevation as seen from the right hand in Figure 1.

Figures 5 and 6 are detail views in sectional elevation illustrating modifications.

The elements of the loom mechanism are driven from a loom shaft 2 within a tubular frame member 1 which is secured to the box like, supporting standards 6 and 7 and reinforces the loom frame. An extension 3 of the shaft 2 may be actuated through a coupling 4 by a belt and pulley, as at 5. The extensions of the shaft 2 are mounted in bearings 8, 8*a* and 9, 9*a* in the box like, supporting standards 6 and 7. Upon each of the extensions of the shaft 2 are fixedly mounted within the boxlike supporting standards 6 and 7 with spaced walls, respectively two gear wheels 10, 10*a* and 11, 11*a*, which mesh with corresponding wheels 12, 12*a* and 13, 13*a* also mounted within the boxlike standards 6 and 7. Each of the wheels 12, 12*a* and 13, 13*a* is rotatably mounted on a separate aligned bearing stud fixed to the corresponding side wall of the standards 6 and 7 respectively, so that there is assured a quiet running of these wheels. The two wheels 12 and 12*a* as well as the wheels 13 and 13*a* are connected with each other through an accentric pin 14 and 15, with each of which is engaged a connecting rod 16, 17 respectively. The free ends of these rods are flexibly connected with the oscillating lathe arms 18 mounted at the two sides of the loom within the boxlike standards 6 and 7 respectively. Through the crank gears formed by the wheels 12, 12*a*, 13, 13*a* and the connecting rods 16 and 17,

there may be imparted to the lathe arms 18 as well as to the lathe 19 supported thereby the movement necessary to permit the passage of the shuttle. The axes 20 (Figure 1) of the lathe arms 18 are also mounted in the standards 6, 7, respectively, with two bearings, that is, in both side walls of the standards.

With the gears 12*a* and 13 mesh respectively other gears 21 and 22, the axes 23 of which, as may be seen at the left hand in Figure 2, are also mounted with two bearings in the two standards 6 and 7 respectively. The gears 21, 22 serve to actuate the picker sticks 24 for the shuttle 25. For this purpose there is fixed to each of the two gears 21, 22, respectively, a cam 26 (Figure 3) which through the lever 27 actuates the shoe 28 (Figure 1) of the picker stick 24.

In the standards 6 and 7 there is also rotatably mounted the axis 29 of the clothbeam 30 in two bearings 31 and 32, respectively. In addition there is mounted in two bearings in the standard 6, as may be seen in Figures 2*a* and 3, the cross shaft 33 of the clothbeam regulator.

The standard 7 further serves to support the heddle operating elements. These consist, as shown in Figure 4, of two worm gears 35 and 36, the first of which is fixed to the end of the shaft 2 extending into the standard 7, while the axis 37 of the worm gear 36 is rotatably mounted in two bearings 39 and 40 provided in a portion 38 of the standard 7. Upon the axis 37 are fixed several cam disks 42, corresponding to the number of the heddles 41 (Figure 3), each of the disks being provided with a cam groove 43 (Figure 1). In the cam groove of each disk 42 is engaged the roller 44 of a double lever 45 mounted in the loom frame, which lever, during operation of the loom, transmits the motion determined by the cam groove 43 through intermediate connections 46 to the proper heddle. In this manner there is imparted to the heddles 41 the movement necessary for the formation of the shed.

In Figures 5 and 6 are shown two modifications of the standards 6 and 7.

In the construction shown in Figure 5 the standard is formed of a frame-like center part, which at both sides is closed by walls 48 and 49, respectively, provided with bearing bosses 50, 51 necessary for supporting the several shafts of the driving elements.

The standard of Figure 6 is formed of two parts 52 and 53, which are joined by means of the flanges 54 and are provided with bearing bosses 50 and 51.

Because the standards 6 and 7, receiving the driving mechanism, that is, their axes and shafts, are made with double, spaced walls a stable bearing for the driving mechanism and a uniform sustaining of the bearing pressures are assured, so that the operation of the loom is free from shocks or vibrations. The boxlike formation of the standards prevents the entrance of dust to the driving elements and the spotting of the material through spattering of oil, etc. Moreover, the danger that persons who operate the loom may come in contact with the driving parts of the loom is avoided.

The fact that the shaft 2 is received in a hollow frame piece 1 connecting the two standards has the advantage that the frame of the loom is reinforced and that threads drawn off over the loom will not be caught on the shaft.

I claim as my invention:

1. In a loom, the combination of end standards, a tubular frame piece secured at its ends to the standards, a loom shaft extended through the tubular frame piece, bearings for the loom shaft supported by the standards, and gearing supported by the standards in operative relation with the loom shaft.

2. In a loom, the combination of boxlike, supporting end standards, spaced bearings supported by the spaced walls of the standards, a loom shaft mounted at each end in the spaced bearings, and gearing supported by the standards in operative relation with the loom shaft, the boxlike, supporting end standards completely enclosing the gearing.

3. In a loom, the combination of a boxlike, supporting end standard, alined studs supported on the inner sides of the opposite walls of the standard, gears mounted on the studs, an eccentric pin connecting the gears, a lathe arm, and a connecting rod connecting the eccentric pin with the lathe arm, the boxlike, supporting end standards completely enclosing the standards, gears and pin.

This specification signed this 1st day of May A. D. 1931.

GEORG WIGET.