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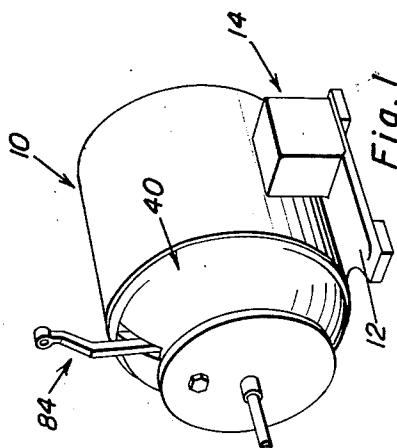
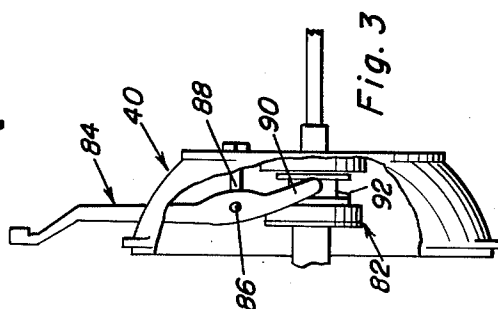
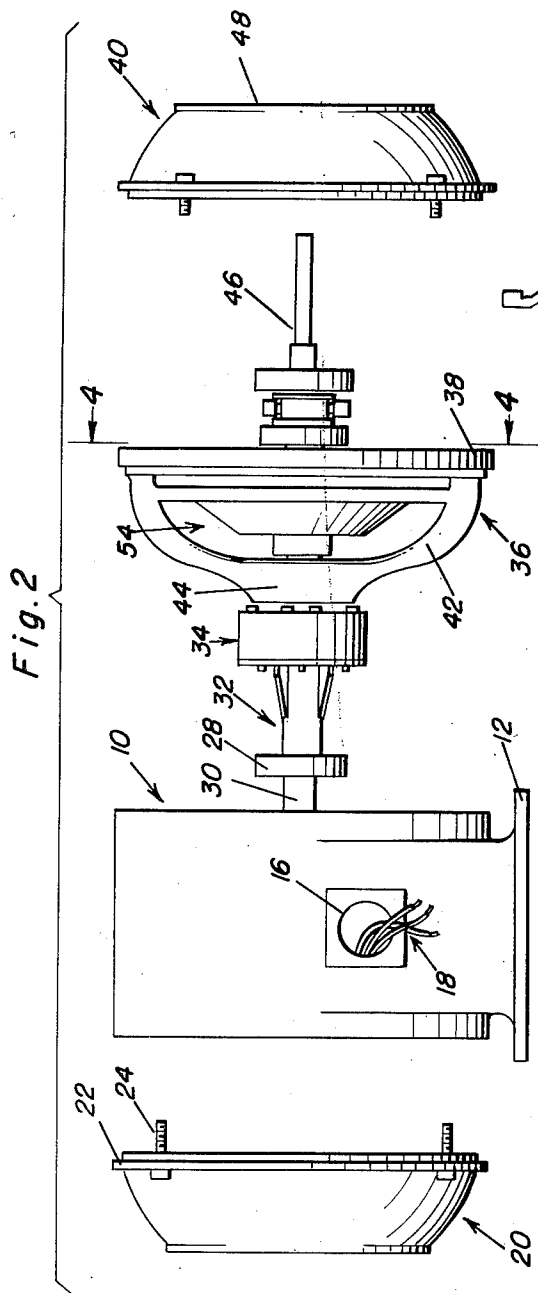
C. F. EARNHARDT ET AL

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SPECIAL CLUTCH AND MOTOR FOR LOOMS

Filed May 22, 1953

2 Sheets-Sheet 1



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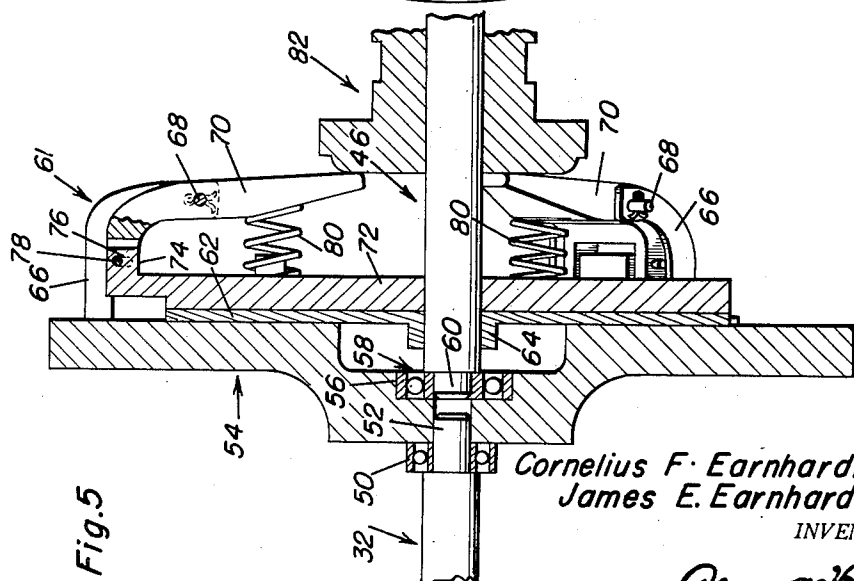
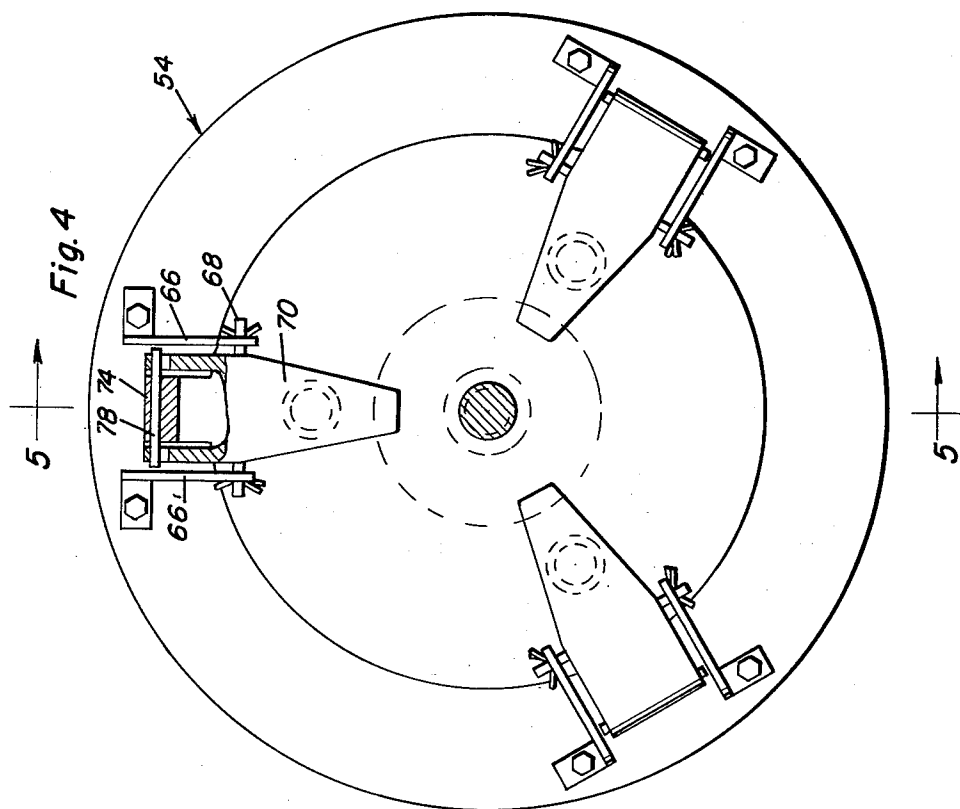
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SPECIAL CLUTCH AND MOTOR FOR LOOMS

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SPECIAL CLUTCH AND MOTOR FOR LOOMS

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Application May 22, 1953, Serial No. 356,840

2 Claims. (Cl. 192—68)

This invention relates specifically to the incorporation of drive mechanisms for looms and pertains particularly to an assembly combining an electric motor drive and clutching means therefor for imparting rotary motion to a loom.

A primary object of this invention is to provide a combined clutch and motor assembly for looms which is of compact form so as to be radially adaptable to any type of loom providing for ease of installation thereon.

Another object of this invention is to provide an assembly in conformity with the foregoing object which includes a fly wheel member on the drive shaft of the assembly which will impart a substantially continuous drive motion to a loom with which the mechanism is associated.

This invention has for another object the elimination of the conventional clutch incorporated in the structure of the loom itself, the separate loom motor and clutch assembly allowing this unit to be positioned when desired for ease of maintenance and adjustment, the provision of the separate unit also rendering the loom structure proper, less cumbersome and difficult to adjust, repair and generally maintain.

This invention has a still further object in the elimination of the many operational and structural difficulties inherent in looms having their drive and clutch units formed as parts of the loom itself.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the assembly;

Figure 2 is an exploded view of the assembly shown in Figure 1;

Figure 3 is an elevational view showing one end cover of the device;

Figure 4 is an enlarged plan view of the clutch assembly; and

Figure 5 is a vertical section taken substantially along the plane of section line 5—5 showing details of the internal construction of the clutch assembly.

Referring now more particularly to Figures 1 and 2, reference numeral 10 indicates generally the main body portion of the sectional housing assembly for the motor and clutch and this main body portion includes the base plate portion 12 forming a support for the assembly and upon which a suitable control box 14 is secured adjacent the opening 16 in the main body portion through which the conductor 18 pass for supplying current to the stator (not shown) formed on the inner surface of the main body portion. The end cover 20 is provided with the peripheral flange 22 through which the fastening element 24 extends for securing this end cover to a corresponding face of the main body portion and it will be appreciated that this end cover member is provided with the frame plate 26 secured at the free end thereof which

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receives the bearing 28 secured to the free end 30 of the rotor shaft indicated generally by the reference character 32. The rotor 34 is also secured to the shaft 32 and in conjunction with the previously mentioned stator assembly provides a rotary drive motion to the shaft 32.

Spider assembly 36 includes the main flange portion 38 interposed between the right hand face of the main body portion and the end cover member 40 and also includes the inwardly directed finger members 42 terminating at their inner ends in the bearing boss 44 within which the rotor shaft 32 is journaled. The loom drive shaft 46 is journaled in the outer frame plate 48 of the end cover member 40.

Referring now more particularly to Figures 4 and 5, it will be seen that the rotor shaft 32 is provided with a bearing member 50 received within the boss 44 and has a reduced end portion 52 suitably secured to the fly wheel member 54 which, in turn, is provided with a central recess 56 receiving the pilot bearing 58 by means of which the inner end 60 of the loom drive shaft 46 is rotatably received. A pressure plate assembly 61 is suitably secured to one face of the fly wheel and the clutch disk 62 associated therewith is provided with a central hub 64 splined to a portion of the drive shaft 46. The clutch assembly includes the bracket member 66 suitably secured to the fly wheel and which carry at their free ends the pivot shaft member 68 upon which throw-out fingers 70 are rotatably received.

Pressure plate 72 is provided with the outstanding ear members 74 provided with the elongated slot 76 through which the actuating pins 78 project, these pins being carried by the free ends of the throw-out fingers 70. Springs 80 are interposed between the pressure plate and the throw-out fingers to normally urge the free ends of the latter outwardly to engage the clutch mechanism and it will be seen in this respect that movement of the throw-out bearing assembly 82 to the left in Figure 5 will effect inward motion of the throw-out fingers 70 against the action of the spring 80 which will effect a lifting of the pressure plate 72 away from the fly wheel 54 thus disengaging the clutch plate 62 and drive to the shaft 46, such lifting being effected by the pivotal motion of the fingers in conjunction with the pin connection between such fingers and the pressure plate.

As shown most clearly in Figure 3, the throw-out lever 84 projects outwardly of the cover member 40 and is pivoted intermediate its ends by the pin 86 carried by the fastener 88 secured to the end plate on this cover member. The lower end of the throw-out lever is formed as a yoke 90 engaging within the annular groove 92 in the throw-out bearing to reciprocate the same back and forth on the shaft 46 in response to suitable motion of the throw-out lever.

It will be noted that the spider assembly 36 is of sufficiently large dimension that the fly wheel member associated therewith may be formed in any convenient shape and size so as to provide the proper weight. In this respect, it will be appreciated that the power demands of a loom are periodic in nature so that the over-all effect of the fly wheel assembly will be to smooth out the rotational motion of the loom drive shaft so that the same is rotated at a substantially constant rate and imparts the least strain on the entire mechanism. It will be further noted that the fly wheel assembly is connected directly to the motor shaft so that when the clutch is disengaged the loom drive shaft may immediately be brought to a halt inasmuch as the fly wheel will be disconnected therefrom.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to

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those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A combined motor and clutch assembly for looms, comprising a sectional housing including a cylindrical main body portion, end covermembers and a spider assembly, said spider assembly constituting an annular flange abutting one end of said cylindrical body, a bearing boss disposed concentrically within said cylindrical body and a plurality of radially disposed, arcuate fingers interconnecting said annular flange and said bearing boss, one of said cover members being engaged against that face of said flange opposite to the face abutting said cylindrical body, a plurality of fasteners removably securing said one cover member to the body and clampingly positioning the flange therebetween, the other end cover member being removably secured to the other end of said cylindrical body, an armature shaft journaled in said other cover member and said bearing boss, a fly wheel disposed within the confines of said spider assembly and secured to one end of said armature shaft, said fly wheel having a centrally disposed bearing recess therein, a loom drive shaft projecting outwardly of the housing having one end journaled within said bearing recess and an intermediate portion journaled in the first mentioned cover member, a pressure plate carried by said fly wheel, a clutch plate splined to said loom shaft and disposed between the fly wheel and pressure plate, a spring interposed between each of said fingers and the pressure plate constantly biasing said pressure plate against said clutch plate so that said pressure plate and clutch plate are normally engaged, and means for selectively clamping the clutch disk between the fly wheel and pressure plate to drivingly connect and disconnect the loom shaft to the armature shaft.

2. A combined motor and clutch assembly for looms, comprising a sectional housing including a cylindrical main body portion, end cover members and a spider assembly, said spider assembly constituting an annular

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flange abutting one end of said cylindrical body, a bearing boss disposed concentrically within said cylindrical body and a plurality of radially disposed, arcuate fingers interconnecting said annular flange and said bearing boss, one of said cover members being engaged against that face of said flange opposite to the face abutting said cylindrical body, a plurality of fasteners removably securing said one cover member to the body and clampingly positioning the flange therebetween, the other end cover member being removably secured to the other end of said cylindrical body, an armature shaft journaled in said other cover member and said bearing boss, a fly wheel disposed within the confines of said spider assembly and secured to one end of said armature shaft, said fly wheel having a centrally disposed bearing recess therein, a loom drive shaft projecting outwardly of the housing having one end journaled within said bearing recess and an intermediate portion journaled in the first mentioned cover member, a pressure plate carried by said fly wheel, a clutch plate splined to said loom shaft and disposed between the fly wheel and pressure plate, and means for selectively clamping the clutch disk between the fly wheel and pressure plate to drivingly connect and disconnect the loom shaft to the armature shaft, said means including a throw-out bearing journaled on said loom shaft, a clutch throw-out lever pivotally carried by said one end cover member, a spring interposed between each of said fingers and pressure plate constantly biasing said pressure plate against said clutch plate so that said pressure plate, clutch plate and fly wheel are normally engaged, said one end cover member having an aperture through which one end of the throw-out lever projects, and the other end of said lever terminating in a yoke engaged with said throw-out bearing.

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