May 21, 1968 T. S. HIGGINS 3,383,947

LOOM DRIVING MECHANISM

Filed July 7, 1966 2 Sheets-Sheet 1

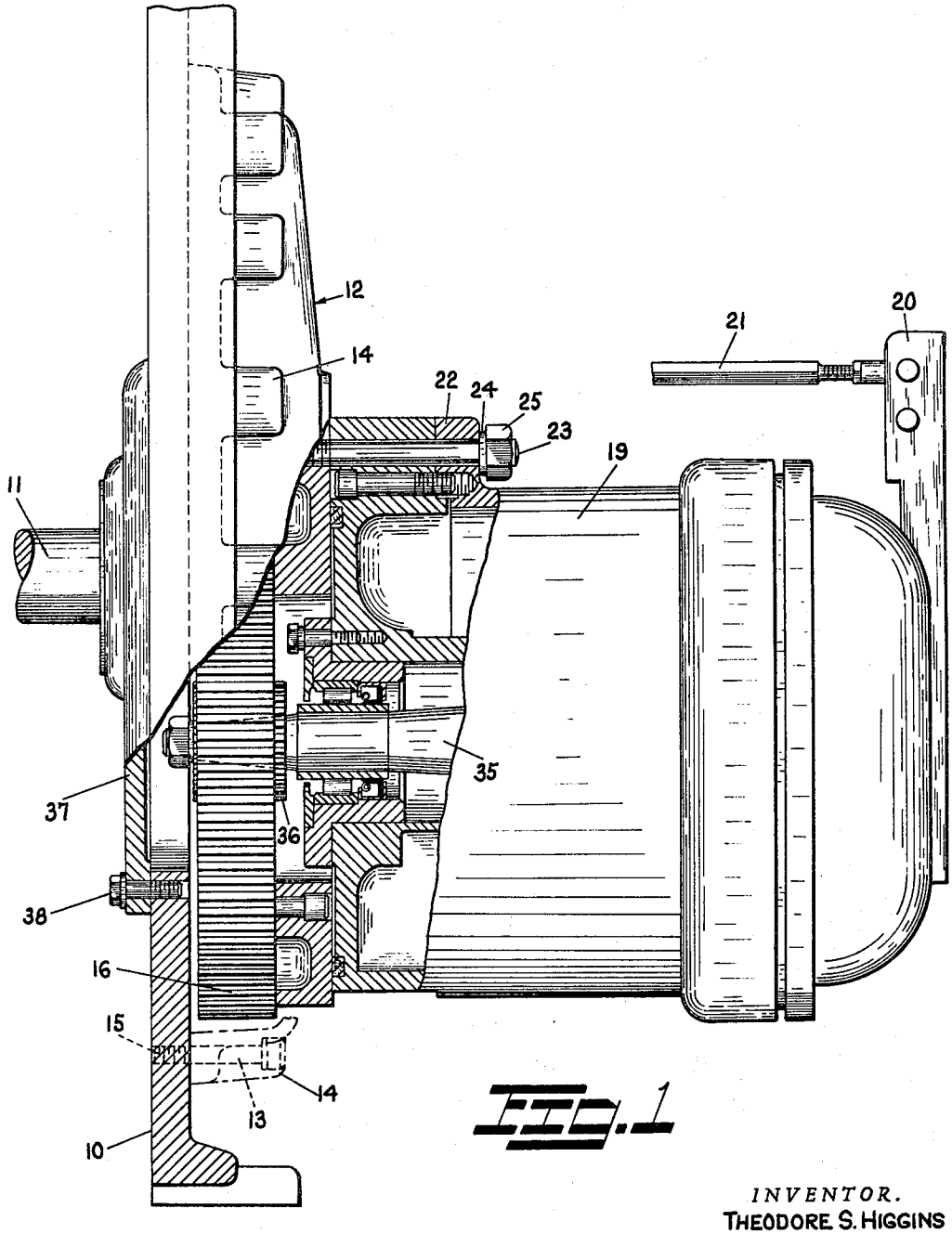


FIG. 1

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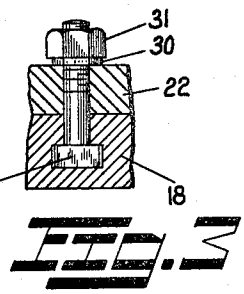


FIG. 3

FIG. 2

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LOOM DRIVING MECHANISM

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ABSTRACT OF THE DISCLOSURE

A housing for adjustably supporting a loom motor drive which totally encloses the driving pinion and drive gear and provides an internal fluid reservoir for automatically lubricating the rotating gears.

This invention relates to a driving mechanism for looms and, more particularly, to such a mechanism in which the principal components thereof are totally enclosed.

It is a general object of the invention to provide an enclosed loom driving mechanism having a fluid lubricant reservoir for the lubrication of the various components contained therein.

It is a further object to provide an enclosed loom driving mechanism which requires only a minimum amount of attention and maintenance.

A further object is that of providing an enclosed loom driving mechanism in which the position of the motor is adjustable to facilitate changing of the motor's pinion gear as well as to control the latter's meshing relation with the transmitter gear.

A still further object is that of eliminating the required periodic greasing of the drive elements and the collection of lint or other foreign particles thereon by providing a totally enclosed drive mechanism.

Further objects and advantages of the invention will become apparent from the following more detailed disclosure.

Loom drives commonly include individual motors with a pinion gear mounted on the shafts thereof which meshes with the loom's transmitter gear in a manner well known to those conversant with the weaving art.

This form of drive has performed its function satisfactorily and is usually provided with some sort of partial shield as a safety factor and for the prevention of throwing off excessive lubricant in the direction of the warp threads and the newly formed fabric.

Drives of this type being partially exposed and the fact that constant attention is necessary to provide the proper amount of lubrication required, lends itself to the accumulation of excessive amounts of lint to the lubricated surfaces of the drive which is a difficult and time consuming task to remove. Additionally, with portions of the drive being exposed ,foreign matter or particles have been known to have been caught in the drive resulting in damage thereto.

The loom drive mechanism according to the instant invention eliminates the undesirable conditions described by providing a totally enclosed mechanism. This mechanism includes a generally circular housing which is adapted to be fixedly attached to the frame of a loom or so-called loomside. The housing includes an extension at one side thereof with provisions for adjustably attaching the loom motor thereto. The shaft of the motor extends into the housing and is provided with a motor pinion on that portion within said housing which is adapted to mesh with the loom's transmitter gear.

The housing and that portion of the loomside to which it assembles defines a sealed cavity which is adapted

to receive and maintain a fluid lubricant reservoir for lubrication of the transmitter gear, motor pinion and the motor pinion shaft.

The invention will be described hereinafter in greater detail by reference to the accompanying figures of drawing in which:

FIG. 1 is a view in front elevation and partially in section as seen looking in the direction of the indicating arrows of line 1—1 in FIG. 2 showing a portion of a loomside and the loom driving mechanism according to the invention applied thereto and a portion thereof cutaway to illustrate the components within the housing;

FIG. 2 is a view in side elevation of the mechanism shown in FIG. 1 but showing the means for adjusting the position of the loom motor; and

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2 showing the means for pivotable adjustment of the motor.

Now referring to the figures of drawing, there is shown in FIGS. 1 and 2 a portion of the right-hand loomside **10** which supports one end of a cam shaft **11** in a suitable bearing (not shown) assembled thereto. Although the left-hand loomside is not illustrated, it is to be understood that the opposite end of this cam shaft **11** is supported in a similar manner.

A transmitter gear housing of generally circular configuration is identified generally in FIGS. 1 and 2 by numeral **12** and is attached to the loomside **10** by means of a plurality of cap screws **13**. These screws **13** assemble in apertures provided in a plurality of equally spaced and integrally formed bosses **14** disposed about the housing **12** and adjacent the outer periphery thereof. The threaded portion of these screws assemble in aligned threaded holes **15** (FIG. 1) provided in the loomside **10**.

A transmitter gear **16** assembles on cam shaft **11** within the housing **12** by any suitable means such as a key **17** (FIG. 2) and is adapted to effect rotation of said cam shaft during its intended function.

The transmitter gear housing **12** is provided at one side thereof with an integrally formed extension **18** (FIG. 2) which provides a means for adjustably mounting the loom motor **19**.

The loom motor shown in FIGS. 1 and 2 is of clutch-brake type having the conventional operating lever **20** and showing a portion of the linkage **21** which links said lever with the loom's shipper handle (not shown). This motor is of the flange mounted type with the flange thereof being formed as three equally spaced and laterally extending ears **22**. Each of these ears has a centrally disposed aperture for receiving the shank portion of a motor mounting member to be further described. The upper member is in the form of a stud **23** which assembles in the extension **18** of the housing **12** and extending outwardly therefrom is adapted to extend through the aperture in the upper ear **22** of the flange. Stud **23** being threaded on its outer end is adapted to receive a washer **24** and nut **25** thereon. Each of the two lower ears **22** of the flange overlie an arcuated T slot identified by numerals **26** and **27** which are formed in the outer surface of the housing **12** and its extension **18**. T head bolts **28** and **29** are adapted to assemble in T slots **26** and **27**, respectively, and each of the shank portions thereof is adapted to extend through one of the centrally disposed apertures provided in the lower ears **22** of the motor flange. The outer threaded portion of the T head bolts is provided with a washer **30** and nut **31**.

It can now be easily seen that before tightening nuts **25** and **31** the motor **19** may be pivoted on stud **23** within the limits of the T slots **26** and **27**.

The position of stud 23 is such that when nuts 25 and 31 are loosened the motor has a natural tendency to pivot in the direction of the T slot 27.

To obtain a fine adjustment of the motor, an adjusting screw 32 is provided which is threadably supported in a lug element 33 that extends laterally from and which forms an integral part of the side of the extension 18. The head portion of the adjusting screw is caused to bear against the flange of the motor as shown in FIG. 2 and by simply turning said screw in one direction or the other, the motor will pivot accordingly. When the desired position of the motor is obtained, nuts 25 and 31 are simply tightened and a lock nut 34 on the adjusting screw 32 is tightened against the lug element 33 for maintaining said screw in position.

The motor shaft is identified in FIG. 1 by numeral 35 and extends into the extension portion 18 of the housing 12.

A pinion gear 36 assembles on that end of the motor shaft within the housing and is disposed in meshing relation with the transmitter gear 16.

The adjustment feature of the motor heretofore described provides a means for controlling the meshing relation of the pinion gear with the transmitter gear and also permits the interchangeability of pinion gears of different sizes.

On the inner side of the loomside or that side opposite the housing 12 there is provided a removable plate member 37 which is disposed in axial alignment with the pinion gear 36 and is attached to the loomside by means of a plurality of cap screws 38. The removable plate member 37 facilitates the removal and assembly of a pinion gear within the housing 12.

The space within the transmitter gear housing 12 and its extension 18 defines a sealed cavity which is adapted to receive and maintain a fluid lubricant reservoir for lubrication of the transmitter gear, pinion gear, the pinion shaft and one of its support bearings as well as the bearing for supporting the cam shaft at the right-hand side of the loom. The level of the fluid lubricant can be easily observed by means of a small inspection window 39 disposed adjacent the lower portion of housing 12 as shown in FIG. 2.

In operation, power to the various parts of a loom is transmitted in a conventional manner by the motor, its pinion gear and the transmitter gear; however, the drive

elements being completely enclosed eliminate the problem of lint accumulation as well as the possibility of foreign matter or particles coming into contact with these various driving elements.

Additionally, the fluid lubricant reservoir contained within the housing eliminates the necessary periodic lubrication of the gear members as well as other parts which are lubricated by this means.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive concept may be carried out in a number of ways. This invention is, therefore, not to be limited to the precise details described, but is intended to embrace all variations and modifications thereof falling within the spirit of the invention and the scope of the claims.

I claim:

1. In a loom the combination of a loomside, an enclosed housing fixedly attached to said loomside, a transmitter gear rotatably borne within said housing, a loom motor pivotally supported by said housing, said loom motor having a pinion shaft extending into the confines of said housing, a pinion gear assembled on said pinion shaft for meshing with said transmitter gear, means for locking said loom motor to said housing for controlling the meshing relationship of said pinion gear with said transmitter gear wherein said housing has at least one arcuated slot for adjustably limiting the pivotal position of said loom motor, and said housing defining a sealed cavity therein which is adapted to receive and maintain a fluid lubricant at a level whereby a lower portion of said transmitter gear will rotate therethrough.

2. The mechanism according to claim 1 wherein said locking means further includes an adjusting screw lockably supported upon said housing and disposed to bear against and provide fine pivotal adjustments to said loom motor.

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