

[54] **SHEDDING MECHANISM FOR LOOMS**

[76] Inventors: **Anatoly Grigorievich Selivanov**,
ulitsa Lobachevskogo, 44, kv. 59;
Nikolai Ivanovich Makachev, ulitsa
Tsjurupy, 12, korpus 1, kv. 27;
Dmitry Vladimirovich Titov, 13
Parkovaya ulitsa, 27, korpus 2, kv.
49; **Alexandr Aronovich Rotenburg**,
ulitsa Krupskoi, 3, kv. 19, all of
Moscow, U.S.S.R.

[22] Filed: Dec. 11, 1972

[21] Appl. No.: 313,749

Related U.S. Application Data

[63] Continuation of Ser. No. 180,621, Sept. 15, 1971,
abandoned.

[52] U.S. Cl. 139/12, 139/55, 139/79

[51] Int. Cl. ... D03d 47/26, D03c 5/00, D03c 13/00

[58] Field of Search 139/55, 57, 33, 78, 79 R,
139/82

[56] **References Cited**

UNITED STATES PATENTS

3,026,911 3/1962 Picanol 139/79

3,263,705	8/1966	Rossmann.....	139/12
3,640,314	2/1972	Strauss.....	139/12
3,739,816	6/1973	Kramenic et al.	139/12

FOREIGN PATENTS OR APPLICATIONS

172,255	7/1965	U.S.S.R.....	139/57
1,282,193	12/1961	France.....	139/78
1,122,112	5/1956	France.....	139/12

OTHER PUBLICATIONS

1,072,569 12-31-1959 German Application (Haber-
hauer).

1,239,637 4-27-1967 German Application (Ross-
man).

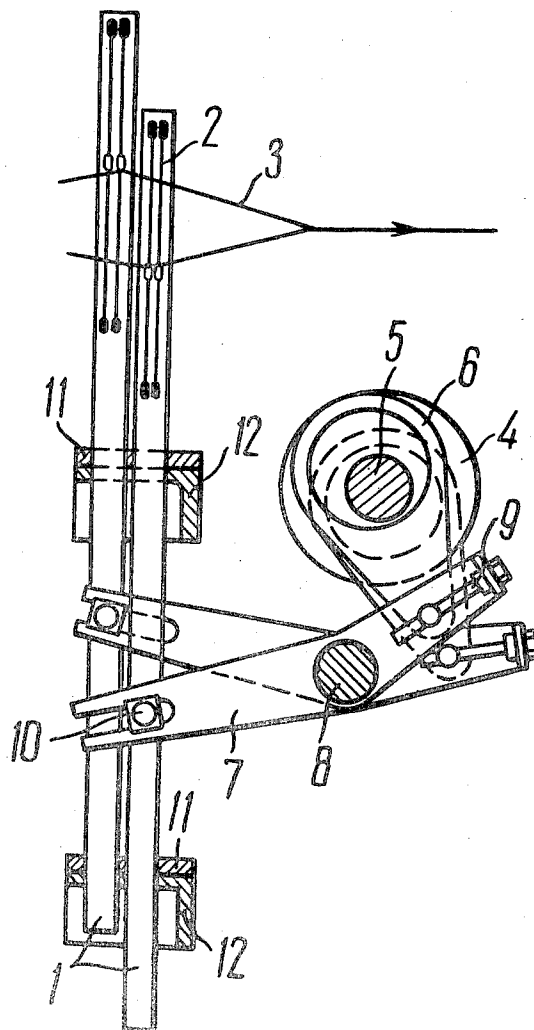
Primary Examiner—James Kee Chi

Attorney, Agent, or Firm—Holman & Stern

[57] **ABSTRACT**

A shedding mechanism in which there is provided a system of shaft rods reciprocated from eccentrics through clips and angle levers, with forked ends. Mounted in the fork of one end is a means to regulate the shed depth, and in the fork of the other end, a link gear which converts the swiveling movement of the lever into reciprocatory movement of the shaft rods.

3 Claims, 7 Drawing Figures



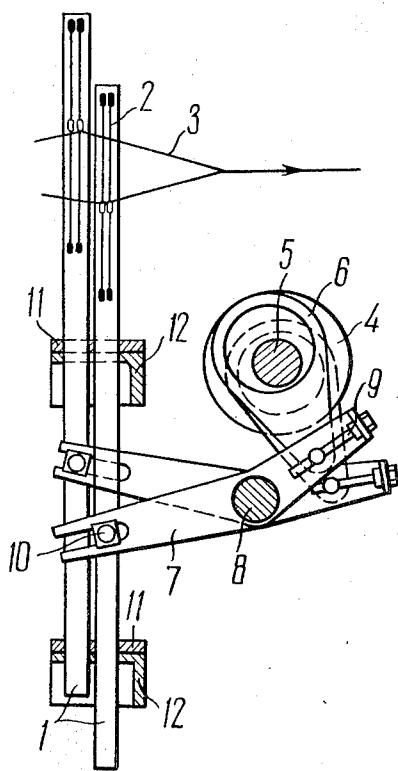


FIG. 1

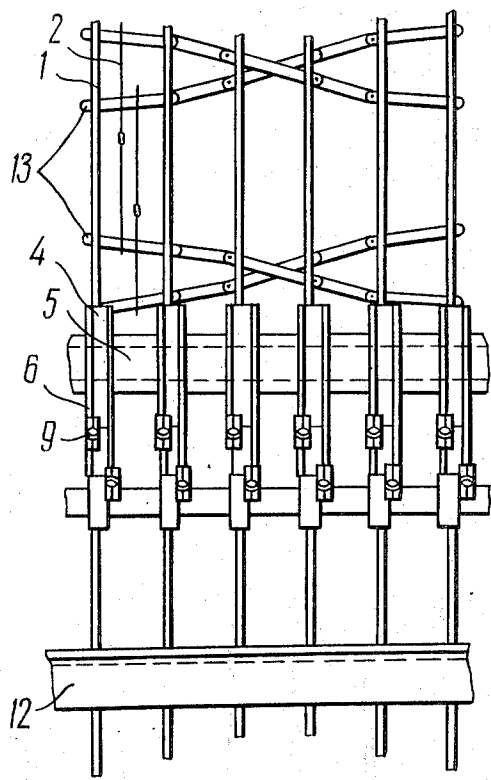


FIG. 2

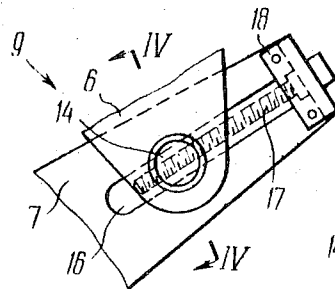


FIG. 3

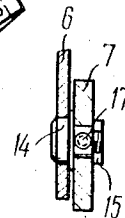


FIG. 4

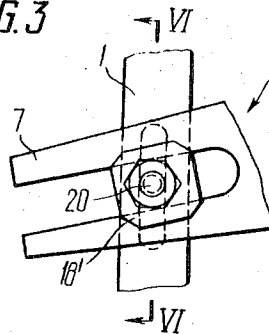


FIG. 5

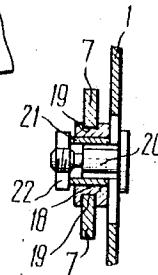


FIG. 6

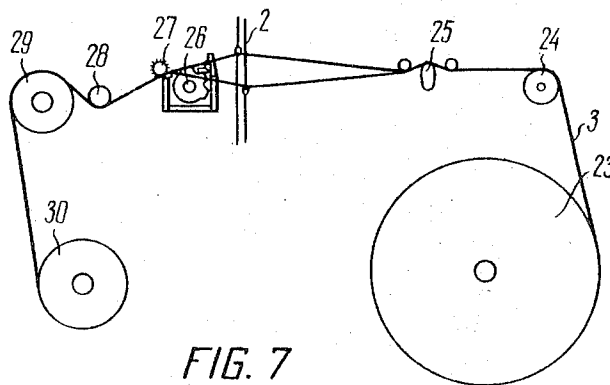


FIG. 7

SHEDDING MECHANISM FOR LOOMS

This is a continuation of application Ser. No. 180,621, filed Sept. 15, 1971, now abandoned.

BACKGROUND OF THE INVENTION

The present invention relates to weaving looms, and more specifically to shedding mechanisms used in said looms.

This invention can most advantageously be employed in traveling wave shedding looms for manufacturing various articles of cloth of plain (standard) weaves from different types of fibers.

BRIEF ART

Known at present are shedding mechanisms comprising systems of shaft rods with healds for the passage of warp threads, and eccentrics rigidly mounted on a drive shaft and phase-shifted relative to each other at a certain angle for imparting swinging motion in the vertical plane to the shaft rods. Such motion is transmitted by the eccentrics to the shaft rods through clips and angle levers mounted on a fixed axle.

In said mechanism, the angle levers are hingedly connected with the shaft rods and the clips (see, for example, an Federal Republic of Germany Pat. No. 1072569, dated 1956).

In said mechanisms, the hinge joints of the angle levers with the shaft rods and the clips do not allow for regulating the depth of the shed, which is necessary when changing to another article of cloth; in the latter case, the set of eccentrics must be replaced. In addition, the swinging motion of the shaft rods tends to increase the shed depth and the abrasive effect of the healds on the warp thread, and also causes oscillations of the upper ends of the shaft rods in the horizontal plane, which is undesirable for the machine servicing.

OBJECTS AND SUMMARY OF THE INVENTION

It is an object of the present invention to eliminate the aforementioned disadvantages.

Another object of the present invention is to provide a shedding mechanism which makes possible the manufacture of a wide variety of cloths with plain (standard) weaves through regulating the shed depth.

Another object of the invention is to provide a mechanism realizing reciprocatory movement of the shaft rods in the vertical plane.

An additional object of the invention is to provide a mechanism which reduces the threading length of the traveling wave loom.

With these and other objects in view, in a shedding mechanism comprising systems of shaft rods with healds for the passage of warp threads, and eccentrics rigidly seated on a drive shaft and imparting to the shaft rods phase-shifted movements, to form the shed, through clips and angle levers mounted on a fixed axle, according to the invention, the ends of each angle lever being forked, with the fork of one end accommodating a means for regulating the shed depth which is connected with the clip, and the other fork mounting a link gear which converts the swinging motion of the angle lever into reciprocatory movement of the shaft rod, the forked arm of the lever serving as the link to said gear. Such a design provides for the regulation of the shed depth owing to the shed depth regulating means being

placed in the fork at one end of the lever, and also secures reciprocatory movement of the shaft rods due to the use of the link gear.

It is expedient that the means for regulating the shed depth should comprise a slide defined as a pin, at one end of which there is freely seated the clip, and mounted at the other end is a nut to fix this slide in the slot of the forked end of the lever, with the slide having a hole with an internal thread for a screw interacting with a stop which prevents longitudinal displacement of the screw as the slide moves along the slot to regulate the shed depth. Such a design permits rapidly refeeding the loom for another type of cloth with minimum labor consumption.

In said link gear, the link block is freely mounted on a pin secured in the shaft rod, and has two side slots accommodating the forked end of the double-arm lever.

For a better appreciation of the invention, considered below is a particular exemplary embodiment thereof with reference to the appended drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-sectional view of the shedding mechanism according to the invention;

FIG. 2 is a front view of the mechanism shown in FIG. 1;

FIG. 3 is an enlarged view of the means for regulating the shed depth;

FIG. 4 is a section along line IV—IV in FIG. 3;

FIG. 5 is an enlarged view of the link gear;

FIG. 6 is a section along line VI—VI in FIG. 5;

FIG. 7 is a threading diagram of the loom.

DETAILED DESCRIPTION OF THE INVENTION

General Design of the Shedding Mechanism

The mechanism comprises systems of shaft rods 1 (FIGS. 1, 2) with healds 2 for the passage of warp threads 3, and eccentrics 4 rigidly seated on a drive shaft 5 and paired at an angle of 180°, with the pairs being phase-shifted relative to each other, to impart reciprocatory movement to the shaft rods 1. Such movement is transmitted to the shaft rods 1 by the eccentrics 4 through clips 6 mounted on eccentric lugs of the eccentrics 4, and through angle levers 7 placed on a fixed axle 8 and capable of swiveling thereabout. Each end of the levers 7 is forked, with the fork at one end of the lever accommodating a means 9 for regulating the depth of the shed formed by the warp threads 3, and the other fork mounting a link gear 10 which converts the swiveling motion of the lever 7 into a reciprocatory movement of the shaft rods 1. The shaft rods 1 move guides 11 mounted on angles 12 which are attached to the loom frame. The shaft rods 1 have cross bars 13 for healds 2.

Detailed Description of the Mechanism Units

Means 9 comprises a slide 14 (FIGS. 3, 4) defined as a pin, at one end of which there is freely seated the clip 6, and at the other end a nut 15 serving to fix the slide 14 in a slot 16 of the forked end of the lever 7. Slide 14 has a hole with an internal thread for a screw 17 interacting with a stop 18 fixed on the forked end of the lever. Stop 18 serves to prevent the longitudinal displacement of screw 17 as slide 14 moves in the slot 16.

The link gear 10 comprises a link block 18' (FIGS. 5, 6) of a square shape having two side slots 19 to accommodate the forked end of the lever 7, with this end acting as the link.

A pin 20 secured in the shaft rod 1 mounts the link block 18 by means of a bushing 21 which is fastened by a nut 22 placed on the pin 20.

Operating of the Shedding Mechanism

Before starting the mechanism, the traveling wave loom should be threaded. The warp threads 3 wound off a beam 23 (FIG. 7) pass about a back rest 24 and through a compensating mechanism 25, and are taken through healds 2 of the shedding mechanism. Next, the warp threads meet the elements of a beating up mechanism 26, wherein formed is the cloth which is held by temples 27, and after passing about a guide roll 28 and roller 29 is wound on a cloth roll 30. An appropriate shed depth is set according to the required article of cloth by rotating screw 17 in the slot 16 of the forked end of the lever 7, thus changing the arm of this lever, and hence, the amplitude of reciprocation of the shaft rods, and the shed depth.

With rotation of the shaft 5, the eccentrics 4 mounted thereon to follow a helical line and paired at an angle of 180°, with the pairs being phase-shifted relative to each other, are set into rotation, thus bringing the clips 6 into reciprocating and swiveling movement. The clips connected through the slides 14 and screws 17 with the levers 7 cause them to swivel about the axle 8. The link blocks 18' connected through the pins 20 with the shaft rods 1 bring the rods into a wave-like reciprocation, bars with the 13 transmitting the wave-like movement to the warp threads 3. Thus simulated is the

shed wave of the warp threads in the direction of the shuttles movement.

What we claim is:

1. A shedding mechanism for travelling wave looms, comprising: systems of shaft rods provided with healds for the passage of warp threads; a drive shaft; eccentrics rigidly fixed on said drive shaft and paired at an angle of 180°, with the pairs being phase-shifted relative to each other, the eccentrics having eccentric lugs; clips mounted on said eccentric lugs; a fixed axle; angle levers placed on said fixed axle and each having forked ends, one of said forked ends interacting with said clip to reciprocate said shaft rods, and the other forked end mounting a link gear to convert the swiveling movement of the angle lever into said movement of said shaft rods; and a means for regulating the shed depth secured in the fork of one of said ends of the double-arm levers, and being connected with said clip.

2. The mechanism as claimed in claim 1, in which the means for regulating the shed depth comprises a slide defined by a pin, at one end of which there is freely seated the clip, and mounted at the other end is a nut to fix said slide in the slot of the forked end of the lever, the slide having a hole with an internal thread for receiving a screw interacting with a stop which prevents longitudinal displacement of the screw as the slide moves along the slot to regulate the shed depth.

3. The mechanism as claimed in claim 1, in which the link gear is provided with a block freely mounted on a pin secured in the shaft rod, and is provided with two side slots to accommodate the forked end of the double-arm lever.

* * * * *