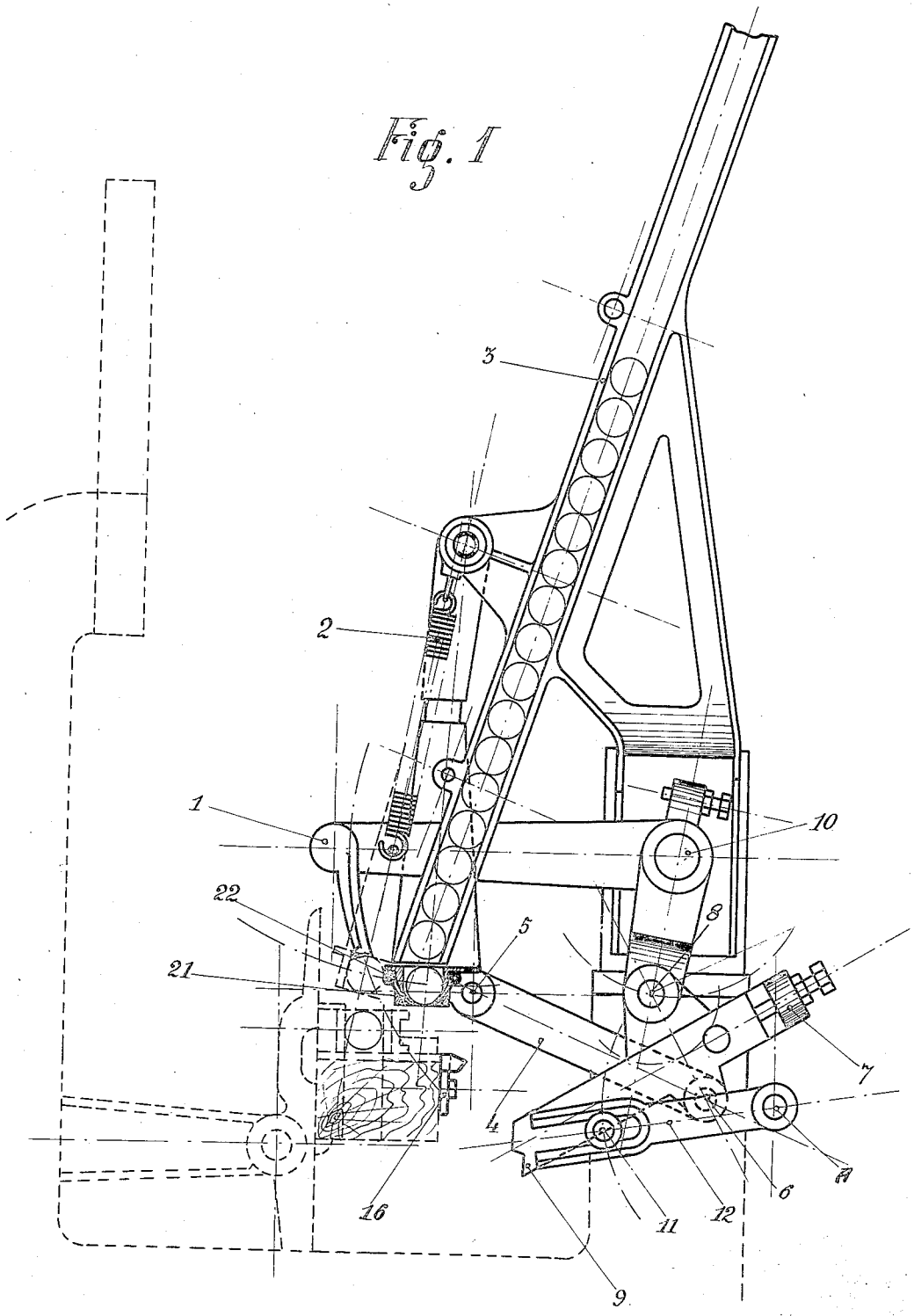
July 4, 1933. J. P. CAMPS 1,916,359

AUTOMATIC WEFT REPLENISHING AND WEFT CUTTING DEVICE FOR LOOMS FOR WEAVING

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Fig. 1



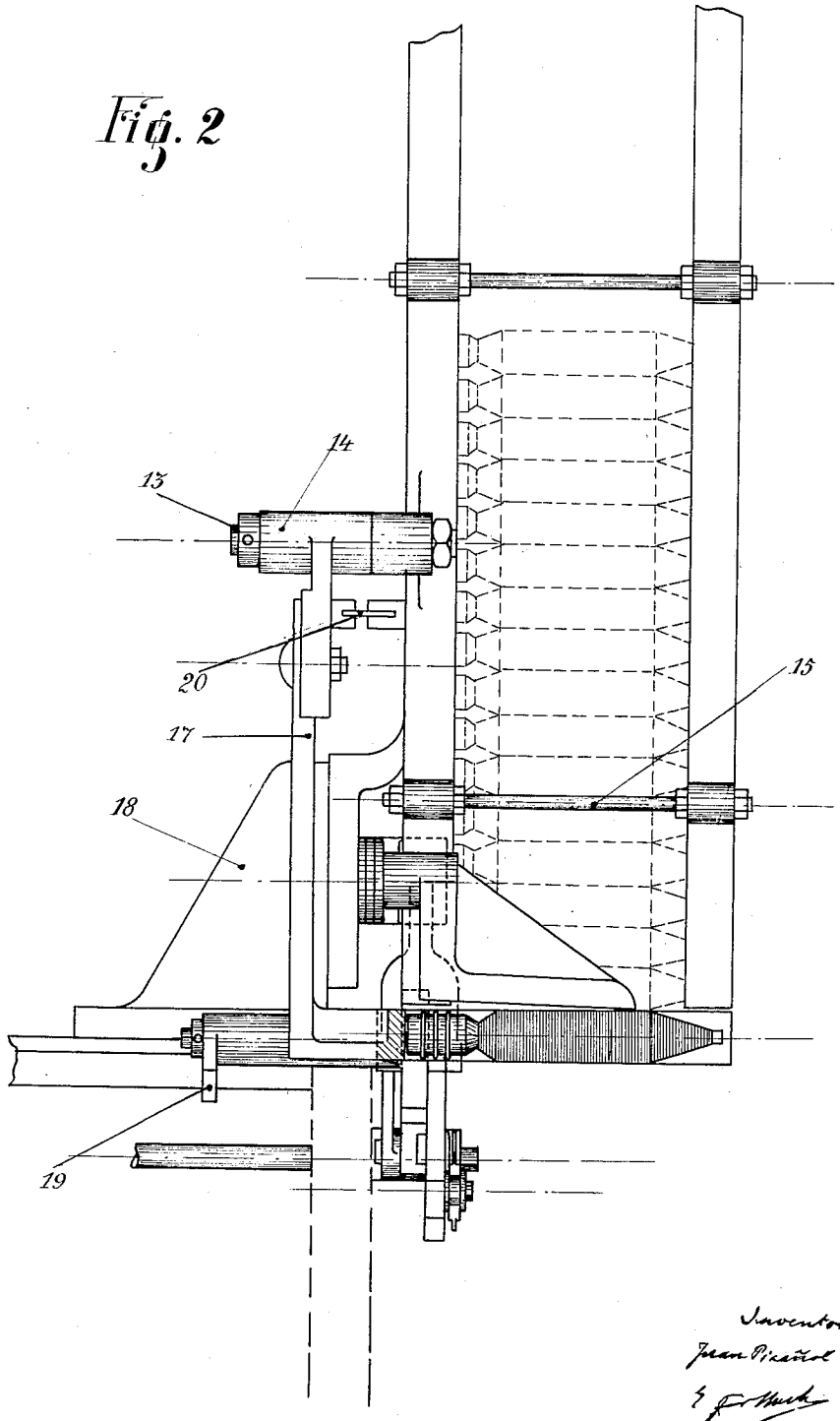
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AUTOMATIC WEFT REPLENISHING AND WEFT CUTTING DEVICE FOR LOOMS FOR WEAVING

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Fig. 2



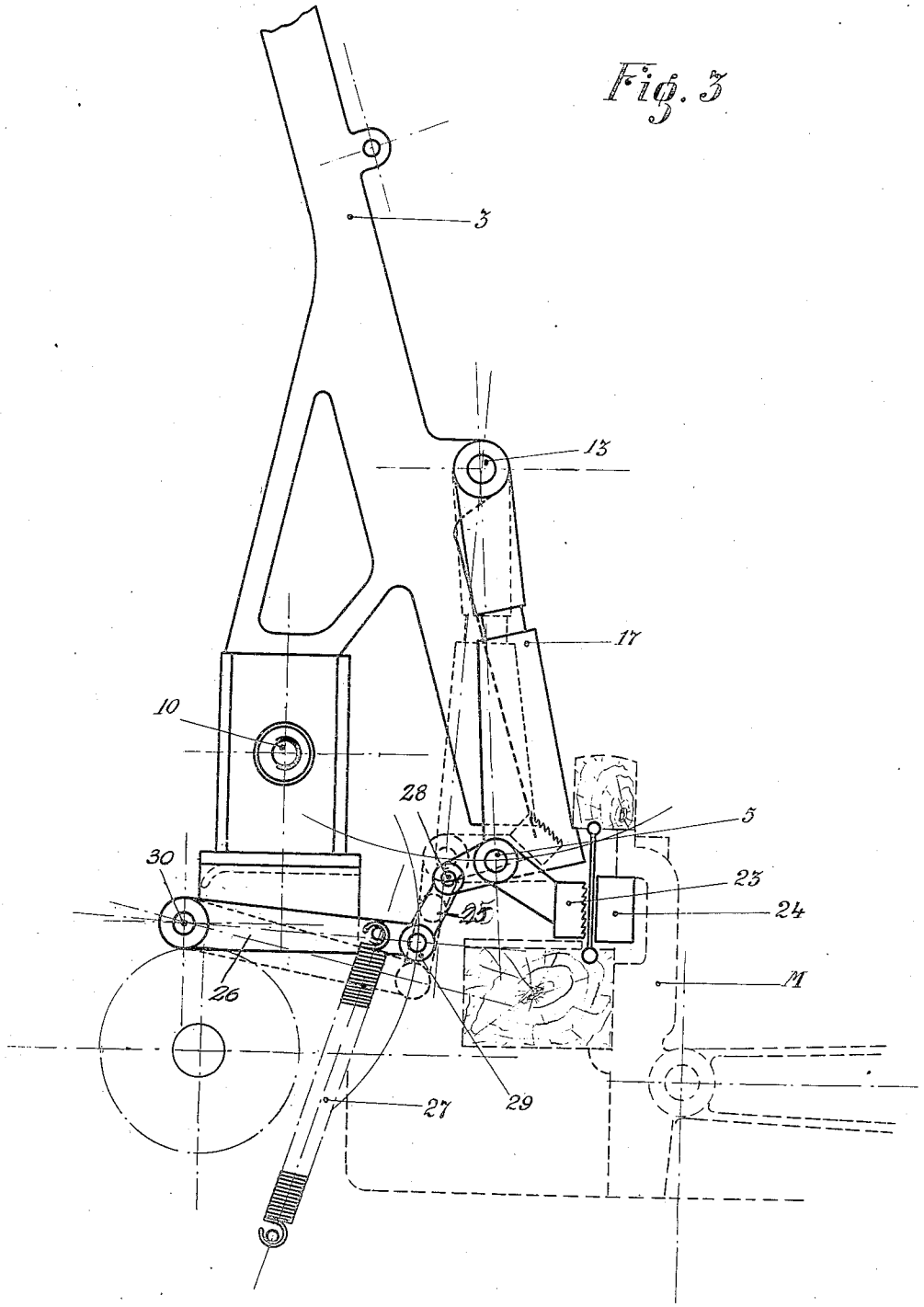
Inventor:
Jean Pierre Camps

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AUTOMATIC WEFT REPLENISHING AND WEFT CUTTING DEVICE FOR LOOMS FOR WEAVING

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Fig. 3



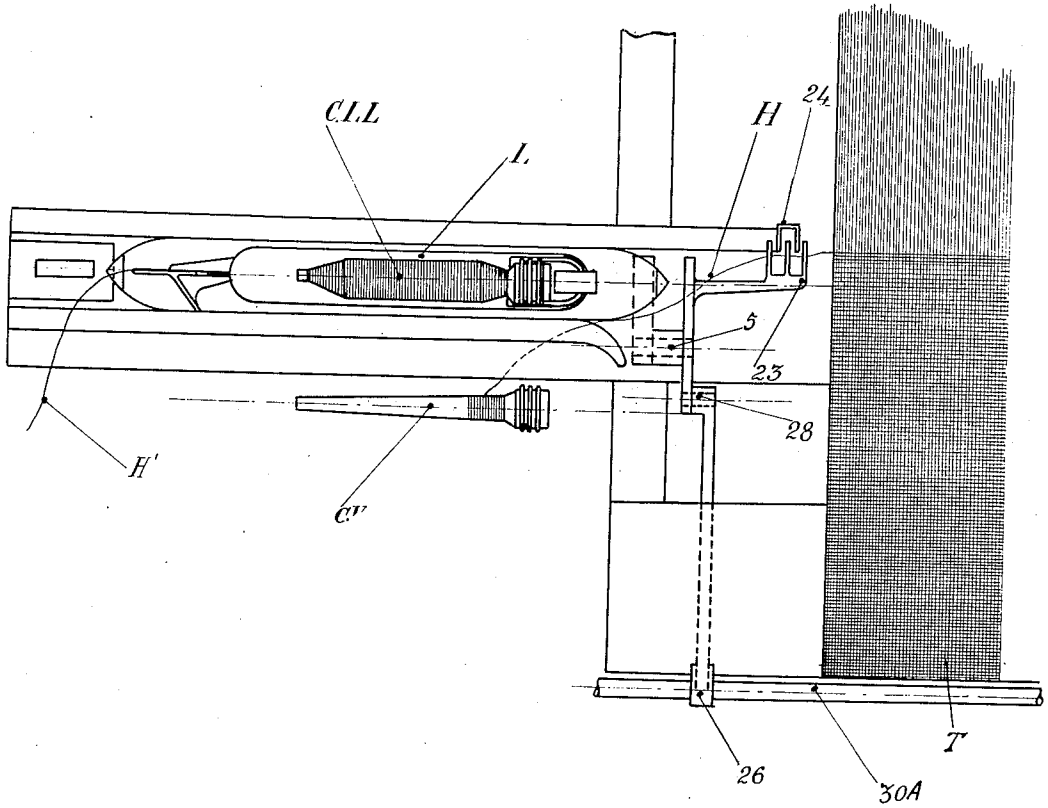
Inventor:
Juan Pichot Camps
by
Attorney

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AUTOMATIC WEFT REPLENISHING AND WEFT CUTTING DEVICE FOR LOOMS FOR WEAVING

Filed Jan. 24, 1931 4 Sheets-Sheet 4

Fig. 4



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Attorney

Patented July 4, 1933 1,916,359

UNITED STATES PATENT OFFICE

JUAN PICAÑOL CAMPS, OF SABADELL, SPAIN

AUTOMATIC WEFT REPLENISHING AND WEFT CUTTING DEVICE FOR LOOMS FOR WEAVING

Application filed January 24, 1931, Serial No. 510,991, and in France March 7, 1930.

This invention relates to an automatic weft replenishing device for looms for weaving of the type comprising a bobbin or like magazine and a striker or hammer for forcing a new bobbin into the shuttle and at the same time forcing the used bobbin out, the striker being actuated by the beat up movement of the sley, and weft cutting mechanism being operated through the medium of a rocking shaft which is actuated when the replenishing mechanism is required to be brought into action.

According to the present invention, a bobbin or like conveyor is utilized for conveying a bobbin to co-act with a hammer pivotally mounted on the frame of the machine, and not the sley, and is characterized in that during the act of replenishing the transfer hammer and the bobbin conveyor are individually moved in synchronism so that each are given a movement, the horizontal component of which synchronizes with the horizontal component of the movement of the sley. The bobbin conveyor and the striker are in the hereinafter described embodiment both connected to a link which is operated by the sley, on the beat up movement, to effect the transfer. The horizontal component of movement of the bobbin to be fed is thus also accompanied from start to finish of the action by a corresponding horizontal component of movement of the replenishing device. The bobbin conveyor is a box-like structure which during the replenishing action moves immediately over the shuttle and therefore the bobbin is guided to have a straight movement from the conveyor to the shuttle. With the aforedescribed action the striker or hammer can move at a comparatively slow speed and the operating mechanism may be of a simple character.

A cutter is mounted on the sley of the loom and a co-acting cutter is movable with the weft carrier or bobbin conveyor or part operating the conveyor, so that such co-acting cutter advances towards the cutter on the sley during the beat up movement of the sley, whereby the cutting is effected before the spent weft carrier or bobbin is removed from the shuttle. By this invention also a weft cutter is pivotally mounted on the end of a rocking member or a rocking weft carrier or bobbin conveyor, so that the cutter may be pivoted on the rocking member or conveyor and also carried forward on such rocking member or conveyor towards another cutting member on the sley and during the beat up movement of the sley.

It has previously been proposed to construct automatic weft replenishing devices in which the hammer or striker and bobbin or like magazine are given a movement the horizontal component of which synchronize with the horizontal component of the movement of the sley during the action of transfer, but the movement of the bobbin magazine is actuated by its engagement with the hammer or striker.

In order that the invention may be clearly understood and readily carried into effect, reference may be had to the accompanying drawings on which:—

Fig. 1 is a side view of the weft replenishing device constructed according to this invention.

Fig. 2 is a front view of Fig. 1.

Fig 3 is a side view of the cutting mechanism, and

Fig. 4 is a plan view of the same, taken from above the loom sley.

Referring to the drawings, the various parts of the mechanism are indicated as follows:—

—1— transfer hammer; —2— spring for hammer recoil motion; —3— bobbin magazine; —4— connecting rod for advance and return of the bobbin conveyor; —5— pin on the bobbin conveyor to which the rod —4— is connected; —6— pin on connecting link —7—; —7— connecting link; —8— spindle; —9— a latch on the end of the connecting link; —10— fulcrum of hammer; —11— pin carried by connecting link; —12— slotted lever; —13— spindle mounted on bobbin magazine and forming pivotal support for the conveyor; —14— bracket on the bobbin magazine in which the spindle —13— is mounted; —15— threaded stay rods for fastening to the two sides of bobbin magazine —3—; —16— a bunter for engaging

latch —9—; —17— bobbin conveyor; —20— stop for limiting the forward movement of the member —17—; —21— bobbin retaining spring guides on the bobbin conveyor; —22— pivot pins for pieces —21—; —23— weft cutter; —24— weft cutter fastened on the loom sley; —25— connecting link; —26— lever fastened upon the spindle —30—; —27— recoiling spring connected to lever —26—; —28— pivot pin at one end of link —25—; —29— pivot pin on the other end; —30— propelling motion spindle; —M— loom sley; —H— weft connected to the substantially empty weft bobbin; —H'— weft of the full bobbin; —CLL— full bobbin; —CV— exhausted bobbin; —T— woven piece.

The working of the device is as follows:—

When the weft exhaustion is indicated by mechanism not shown, the spindle 8 is rocked and the lever 12 thereon is raised, this motion being communicated to the latch 9 by means of the pin 11, which turns the lever 7 about the spindle 8, until it lies in a horizontal position, in front of the bunter 16. The bobbin conveyor 17 is pivoted into the position shown by dotted lines Fig. 1, by the connecting rod 4 which is connected by the pins 5 and 6 to the conveyor 17 and the lever 7. By the foregoing, it will be seen that the lever 7, once moved, translates, by means of the rod 4 an advancing movement to the bobbin conveyor 17 which comes to rest under the face of the hammer 1 at the same time as the bunter 16 moves against the latch 9. The sley of the loom is then a distance of 18 millimeters from the end of the beat up movement, at which point the bunter 16 by its pressure on the latch 9 moves the lever 7 on the axle 8 located at the end of the small arm of the hammer 1 and all the parts connected to the lever 7 move "en bloc" and convey a swinging motion to the hammer 1 about the fulcrum 10. The hammer 1 thus descends and whilst advancing describes an arcuate movement about the fulcrum 10, the horizontal component of which is equal to the 18 millimeters movement of the sley, the swinging bobbin conveyor and bunter 16 also having the same motion. Therefore whilst the hammer is descending, its outer end advances in the same way and manner as the sley, and also the bobbin conveyor and the bobbin therein. It is clear therefore, that the full bobbin, the empty bobbin and the hammer are advancing horizontally together from their first contact, until the bobbin change is fully effected; the change is a perfect one, and is performed with a greater accuracy than by any other known device. When the conveyor is in the forward position the bottom bobbin or cop is supported by the ledge 17*a* on the conveyor.

At the commencement of the movement of the lever 26 driven from the spindle 30 which is rocked when the weft replenishing mechanism is required to be brought into action there is imparted by means of the link 25 a swinging motion to the cutter 23. Synchronously with this motion, the bobbin conveyor advances and, as it carries the cutter 23 on the spindle 5, both a swinging and advancing motion is imparted to the cutter 23. The shuttle is now in the position shown by Fig. 4, therefore the member 23 can freely advance without any impediment in the direction towards the loom sley, and enters the grooves of the piece 24, fastened on the loom sley and the cutting of the weft is accomplished. When the weft has been cut, the conveyor on its forward course, and the transfer hammer, perform the weft transfer, the empty bobbin with the weft thereon being driven out of the shuttle together, and the full bobbin placed in the shuttle at the same time, as is shown in Fig. 4, this action being effected as aforedescribed. The bobbin conveyor has the cutting mechanism on one side and is connected at the other side to the weft replenishing mechanism.

I claim:

1. An automatic weft replenishing device for looms for weaving, comprising in combination with the machine frame and the sley, a hammer pivotally mounted on said frame, a bobbin conveyor coacting with said hammer, and means for moving said hammer and said conveyor in synchronism and imparting to said hammer and said conveyor an individual movement having a horizontal component synchronizing with the horizontal component of the movement of the sley, a weft cutting device, a cutter of said device on said sley, a cutter of said device movable with said conveyor adapted to coact with the cutter on said sley to effect the cut before the spent weft carrier is removed from the shuttle.

2. An automatic weft replenishing device for looms for weaving, comprising in combination with the machine frame and the sley, a hammer pivotally mounted on said frame, a bobbin conveyor coacting with said hammer, and means for moving said hammer and said conveyor in synchronism and imparting to said hammer and said conveyor an individual movement having a horizontal component synchronizing with the horizontal component of the movement of the sley, a cutter on said sley, a rocking member serving as weft carrier conveyor on said sley, and a second cutter pivoted on said rocking member adapted to be carried forward on said rocking member toward said first mentioned cutter during the beat up movement of said sley.

3. An automatic weft replenishing device for looms for weaving, comprising in combination with the machine frame and the sley, a hammer pivotally mounted on said frame,

a bobbin conveyor coacting with said hammer, and means for moving said hammer and said conveyor in synchronism and imparting to said hammer and said conveyor an individual movement having a horizontal component synchronizing with the horizontal component of the movement of the sley, a cutter on said sley, a rocking member serving as weft carrier conveyor on said sley, a second cutter pivoted on said rocking member adapted to be carried forward on said rocking member toward said first mentioned cutter during the beat up movement of said sley, means for accomplishing the weft replenishment connected to one end of said rocking weft carrier conveyor, the weft of the exhaust bobbin being cut at the commencement of the weft replenishment.

In testimony whereof I affix my signature.

JUAN PICAÑOL CAMPS.