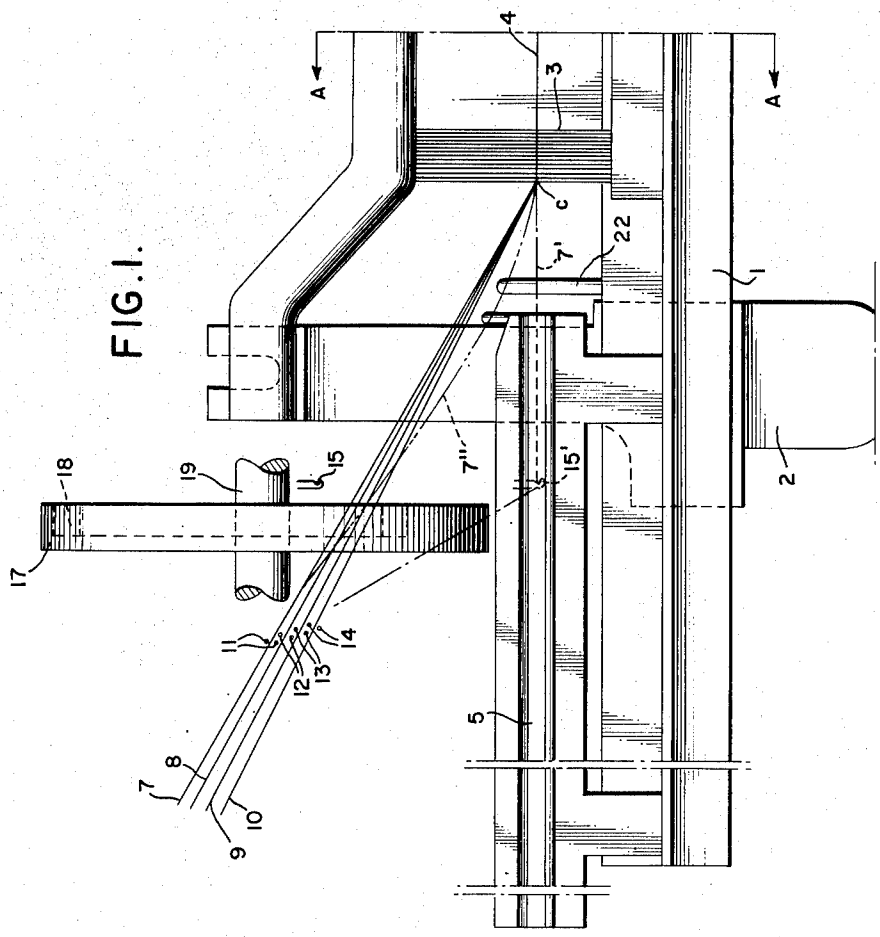
Sept. 9, 1952 R. DEWAS 2,609,842

DEVICE FOR THE INSERTION OF DIFFERENT WEFTS IN WEFT FEEDER LOOMS WITHOUT PIRN

Filed Aug. 14, 1950 2 SHEETS—SHEET 1

FIG. 1.



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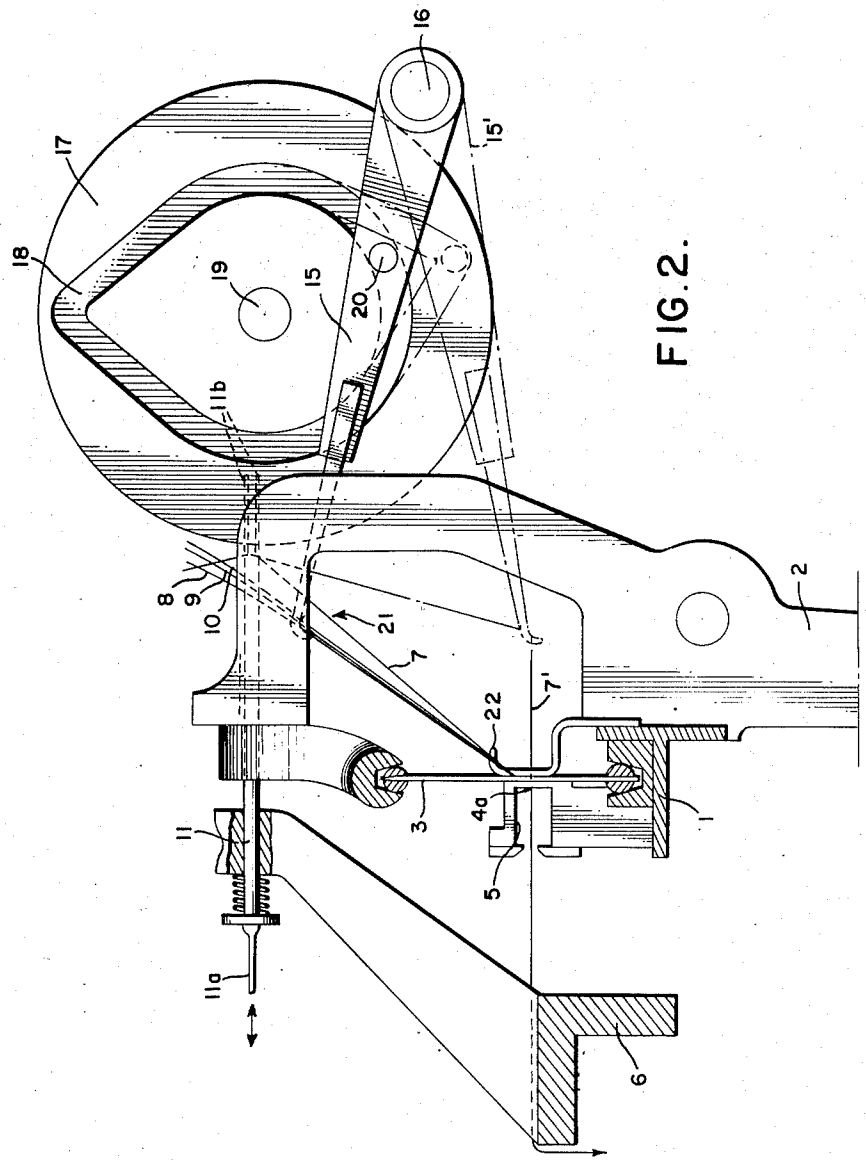


FIG. 2.

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Patented Sept. 9, 1952

2,609,842

UNITED STATES PATENT OFFICE

2,609,842

DEVICE FOR THE INSERTION OF DIFFERENT WEFTS IN WEFT FEEDER LOOMS WITHOUT PIRN

Raymond Dewas, Amiens, France

Application August 14, 1950, Serial No. 179,285
In France September 8, 1949

1 Claim. (Cl. 139—122)

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The invention refers to the insertion of different wefts in weft feeder looms without pirn and is concerned with the type of device which forms the object of applicant's U. S. Patent No. 2,187,344 and which can be used especially in shuttle looms without pirn or with needles, functioning according to the weaving process of the applicant and described in particular in his U. S. Patents Nos. 2,053,657, 2,072,159, 2,072,161 and 2,116,620, it being remembered that, according to the above mentioned process, the weft thread coming from the bobbin, in order to be caught by the inserting member, in passing, as the weft inserting member enters the shed, is stretched in front of the shed from the point of weaving to which it is still attached and is located at about the middle of the height of the shed.

The device which is the object of the above mentioned Patent No. 2,187,344, consists of a series of presenting members for the selection of the threads which are located above the plane of the cloth and at some distance outside the selvedge and beyond the point where the weft inserting member comes into contact with the weft to be caught and also in a plane which corresponds approximately to that in which the sley passes when it is at about two thirds of its rearward travel, said presenting members co-operating with a fixed or movable positioning member (preferably a finger or hook) which is mounted on the sley, and the function of which is, in particular, to control and perfect the correct positioning of the weft thread on the path of the weft inserting member which has to catch it, and also, in spite of the rearward movement of the sley, to compel the thread to pass between the reed and the weft inserting member when the latter consists of a needle.

Experience has shown that, at great speeds, it is advisable to use as a positioning member a fixed hook mounted on the sley and consequently to give to the oscillating levers which form the presenting members for the selected threads, the required additional travel. However, the rapidity with which the presenting members must then work, owing to the high speed at which the loom is operated and to the relatively considerable travel of the levers in use, introduces difficulties when different weft threads have to be presented in any particular order. In fact in such case, the mechanisms of a kind such as shuttling, or equivalent devices, arranged to impart the desired movement to the presenting members, for example, similarly to the movement which is imparted to such members by a cam as described

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in the Patent 2,187,344 above mentioned, do not operate smoothly at the high speed and/or with the long travel.

The object of this invention is to overcome this disadvantage, and for this purpose the invention has for its object a weft feeding device of the type specified that is characterised in the combination of a plurality of selecting members the function of each of which is to conduct a selected thread into a position, situated outside the selvedge and above the plane of the cloth, where it can be caught; a single presenting member, to conduct the selected thread to the front of the shed, approximately at the middle of the height of the latter into the path of the weft inserting member on leaving the needle guiding box; and a fixed positioning hook, mounted on the sley and which owing to the backward movement of the sley, catches hold of the selected thread between the point where the weft inserting member comes into contact with the weft to be caught and the single presenting member.

In this combination of means the work will therefore be divided into two phases, a first phase for the selection of the thread by the selecting members which do not require more than a slight displacement and an insignificant working force, and a second phase for the catching and presentation of the selected thread to the weft inserting member by a single lever.

It will easily be realised that, as the result of such a combination, it is possible without difficulty to present any number of different wefts in any order, on a high speed loom.

These features, and also others not yet referred to, will appear more clearly from the following description of an embodiment of the invention applied to a needle loom, that is given merely by way of a non-limitative example, and is diagrammatically shown in the attached drawing, in which:

Fig. 1 is a front elevation of a loom as seen from the breast beam, showing one of the ends of the sley and the device associated with it for the insertion of the different weft;

Fig. 2 is a side elevation of Figure 1 partly in section and taken on the line 2—2 of Figure 1.

In these figures, 1 is the sley, 2 is one of the swords and 3 the reed, the sley 1 being shown in the position of forward movement of the weft towards the fell 4 of the cloth, the end point of weaving being designated as 4a; 5 is the needle guiding box for the needle conducting the selected weft thread and 6 is the breast beam.

The device according to the invention includes:

Firstly, a plurality of selecting members to be operated in the course of the weaving, the number of the selecting members being the same as that of the threads 7, 8, 9 and 10 that may be of different nature, colour or kind.

As shown in the example each of these selecting members consists of a rod 11, 12, 13, or 14, one end of each rod, for example the end 11*a* of the rod 11, being operated, for instance by a card or by a mechanism of the kind employed for shuttling, whilst the other end, e. g. 11*b*, is formed as a fork by which the thread 7 can be engaged and which it is intended to control. The ends of the rods 11, 12, 13 and 14 are similar and the whole assembly of the selecting members preferably is supported by the breast beam 6.

In operation when the selecting member 11, for instance, is pushed back by the mechanism, as shown in Figure 2, the thread 7, selected thereby, is drawn apart from the other threads, into a position where it can be caught by the presenting member, situated outside the selvedge and above the plane of the cloth.

Secondly, a single presenting member 15, rotatably mounted on a fixed shaft 16 and operated in the desired way by means of the groove 18 in the face-cam 17, that is keyed on the rotating shaft 19, the shafts 16 and 19 being supported by the frame of the loom.

The presenting member 15, under the action of the cam groove 18 co-operating with the roller 20 carried on the member 15, at the correct moment engages the selected thread 7, at the point shown by the arrow 21, to depress the thread 7 to a position 7′ in front of the shed, at about half the height of the latter and cause the thread 7 to be held by the member 15 at 15′.

Thirdly, a fixed positioning hook 22, integral with the sley and the point of which is directed in the direction of the backward travel of the latter.

The device being thus constituted, it operates as follows:

Before or during the forward movement of the weft, the selecting member 11 has conducted the selected thread 7 into catching position. Preferably during the movement of the weft, the presenting member 15 commences to go down and comes into contact with the selected thread 7 at the point 21 as shown in Figure 2. The speed of lowering of the presenting member 15 increases while the weft inserting member, acting as the conducting needle, comes out of the guiding box 5, and the thread 7 being conducted, at the end of the travel of the lever 7, to the point 7′, at approximately half the height of the shed, is caught by the needle thrown towards the shed.

After this step is completed the member 15 is raised very quickly to start with and then more slowly until it becomes stationary in its initial starting position before being lowered.

The thread 7 on rising again, due to the backward movement of the sley 1, comes into contact with the underside of the upper part of the fixed

hook 22 mounted on the sley 1 and remains engaged by this hook, as shown in Figure 1 at 7″, during the whole backward travel of the sley, thus constraining the thread 7 to continue to pass between the reed 3 and the arm of the needle.

The member 15 continuing its movement, releases the thread which it has just presented, and then becomes motionless in the upper position. The thread, when the sley moves backwardly, is free to move in the fork 11*b* of the selecting member 11 thus avoiding the stoppage which a simple eyelet would involve.

This movement in the fork 11*b* is more or less important according to whether the selecting member has more or less returned towards its position of rest or already occupies it. Instead of a fork such as 11*b*, the selecting members could have, for example, an opening or an elongated pig's tail to enable the threads to run in the end.

After the exchange of the caught weft thread, in the centre of the shed, from the drawing needle to the conducting needle, the sley advances again towards the fell of the cloth 4 and, as the result of this advance, the hook 22 loses contact with the thread which, on the forward movement of the weft, is directly stretched between the point of weaving *c* and the selecting member 11 that has returned to the starting position.

It is to be understood that the invention is by no means limited to a particular form of execution and that variants, improvements in detail and the use of equivalent means can be adopted without departing from the scope of the invention.

I claim:

Device, of the type specified, for the insertion of different wefts in weft feeder looms without pirn, characterised in the combination of a plurality of selecting members, the function of each of which is to conduct a selected thread into a position situated outside the selvedge and above the plane of the cloth, where the thread can be caught; a single presenting member to conduct the selected thread to the front of the shed, approximately at the middle of the height of the latter, into the path of the weft inserting member on leaving the needle guiding box, and a fixed positioning hook, mounted on the sley, and which, owing to the backward movement of the sley catches hold of the selected thread between the point where the weft inserting member comes in contact with the weft to be caught and the single presenting member.

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REFERENCES CITED

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Number	Name	Date
2,187,344	Dewas	Jan. 16, 1940