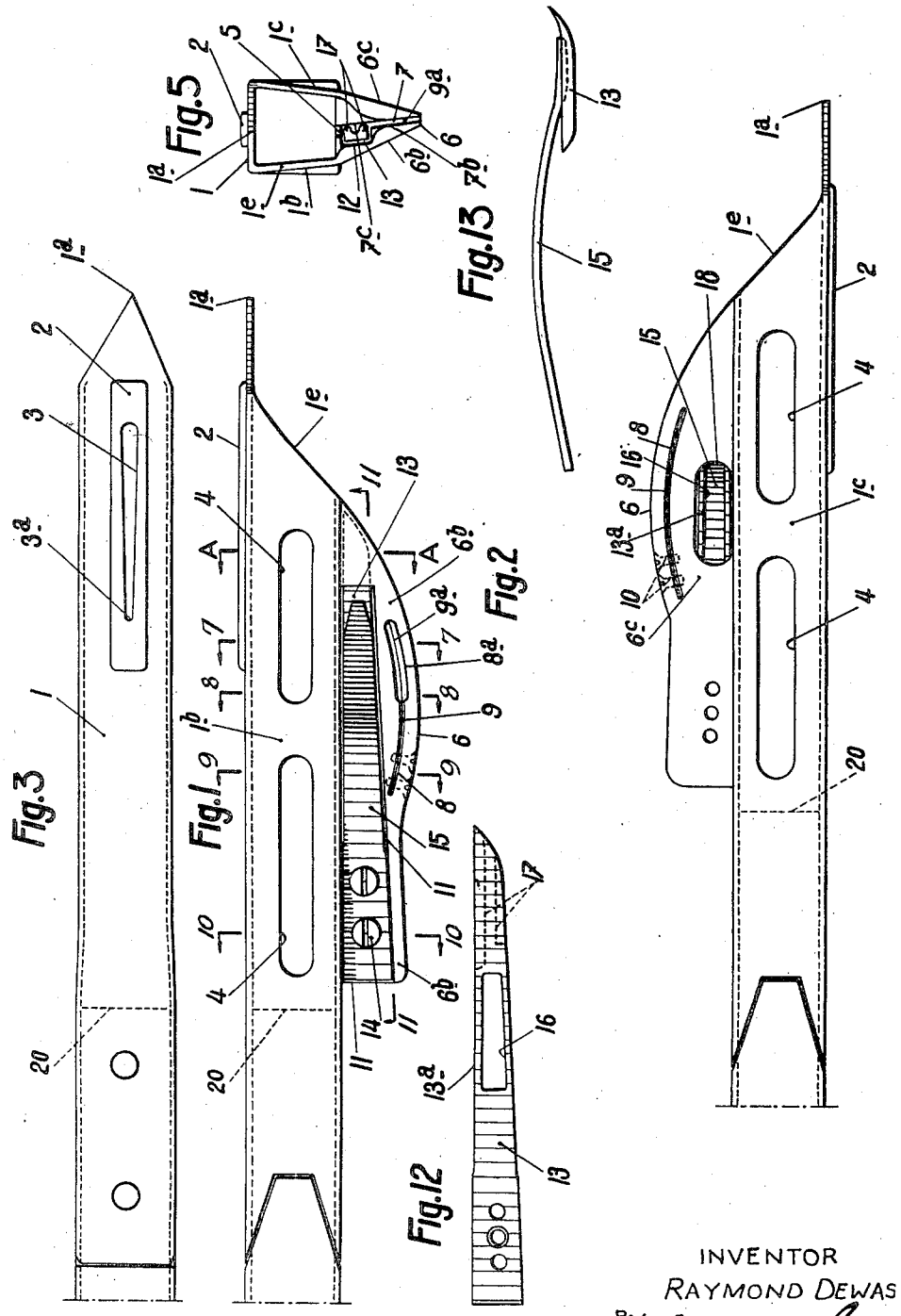
March 5, 1940. R. DEWAS 2,192,728

NEEDLE FOR WEAVING LOOMS

Filed Jan. 13, 1938 2 Sheets-Sheet 1

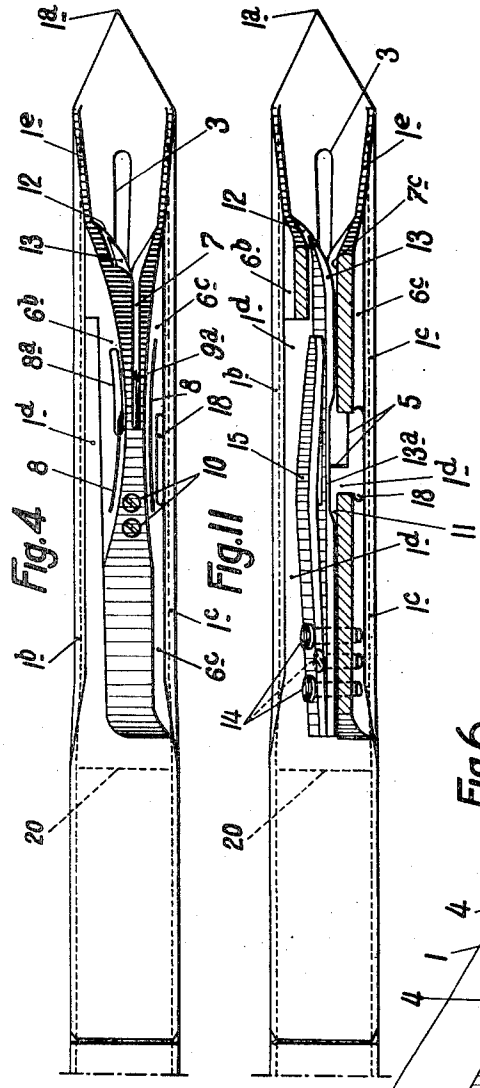


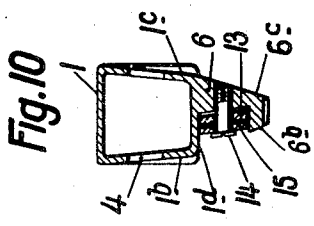
INVENTOR
RAYMOND DEWAS
BY Richards & Geier
ATTORNEYS

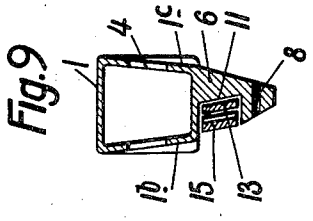
March 5, 1940. R. DEWAS 2,192,728

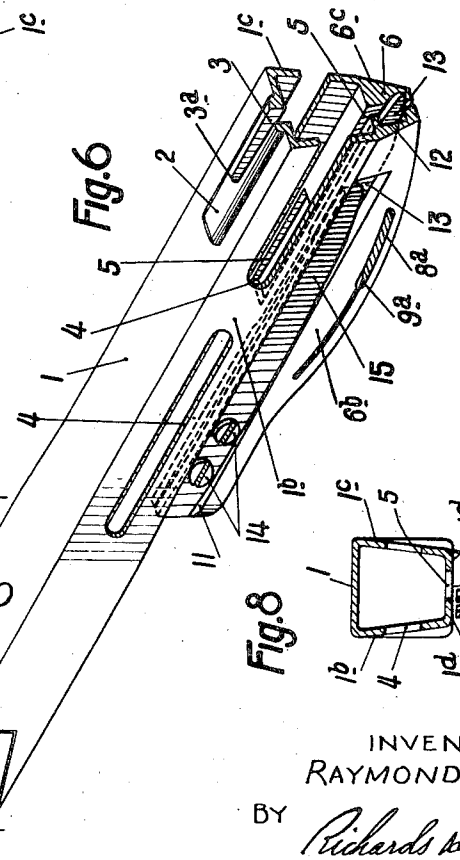
NEEDLE FOR WEAVING LOOMS

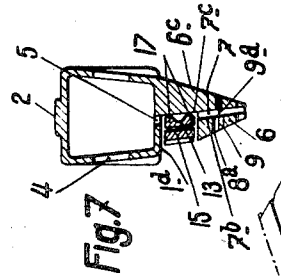
Filed Jan. 13, 1938 2 Sheets-Sheet 2











INVENTOR
RAYMOND DEWAS
BY Richards & Geier
ATTORNEYS

Patented Mar. 5, 1940

2,192,728

UNITED STATES PATENT OFFICE

2,192,728

NEEDLE FOR WEAVING LOOMS

Raymond Dewas, Amiens, France

Application January 13, 1938, Serial No. 184,727
In France January 23, 1937

12 Claims. (Cl. 139—123)

The present invention relates to needle weaving looms in which the weft supply is effected by means of large fixed bobbins, and concerns conveying needles of the kind described in the applicant's U. S. Patents Nos. 2,072,161 and 2,116,620.

It has for its object to introduce various improvements in the construction and the shape of the head mounted at the end of the rigid or flexible impeller arm, to form the said conveying needle, and also in the accommodation and the arrangement of certain parts, portions or members of said conveying head.

Said improvements, which form the object of the invention, are described hereinafter with reference to the accompanying drawings which show diagrammatically an embodiment which is given by way of example, and in which drawings:

Fig. 1 is a top plan view of the conveying head as it appears in its operative position, going from the left hand selvedge of the cloth to the centre of the shed, its substantially plane longitudinal side facing the reed of the slay, and its opposite bulged side facing the completed cloth or fell;

Fig. 2 is a plan view of same from below;

Fig. 3 is an elevational view of the side of the conveying head facing the reed;

Fig. 4 is an elevational view of the opposite bulged side which faces the fell of the cloth;

Fig. 5 is a front end view;

Fig. 6 is a perspective view assuming the part located to the right of the line 6—6 (Fig. 1) to be removed;

Figs. 7, 8, 9 and 10 are views in transverse section along the lines 7—7, 8—8, 9—9, 10—10, (Fig. 1) respectively;

Fig. 11 is a similar view to Fig. 4, but assuming the bulged part facing the fell of the cloth to be removed, the longitudinal section passing through the line 11—11 (Fig. 1);

Fig. 12 is a top plan view of the blade of the thread clamp; and

Fig. 13 is an elevational view of a modification of said blade.

The conveying head proper, which has to include the thread clamp and the cutting member and also the point of support of the thread located on the side facing the reed so as to offer the tensioned thread to the pulling needle during the exchange of the thread at the centre of the shed (the pulling needle then taking the thread from the conveying needle), can be constructed of metal or of plastic material, either in a single piece or in a plurality of pieces assembled together.

Said conveying head comprises a hollow tubular body, preferably of trapezoidal cross-section, the rear end of which has, over a certain length, a cross-section corresponding to that of the sleeve 20 of the arm of the needle. The large base 1 of said hollow body, which base is intended to be facing the reed of the slay has its beak-shaped front end 1^a and, near said end, a longitudinal thickened portion 2 through which is provided an opening 3 of which the rear edge 3^a forms the point of support of the thread coming from the fixed weft supply bobbin, said rear edge 3^a having, owing to the extra thickness 2, a total thickness which enables any danger of abnormal strain on the weft threaded therein to be avoided.

In the case of the manufacture of cloths having changes of weft, the opening 3 is replaced by a slot opening at the actual end of the beak 1^a, the bottom of said slot still forming the point of support 3^a.

The sides 1^b and 1^c of the hollow tubular body, which have longitudinal apertures therein at 4 and which connect the large base 1 to the small base 1^d, are splayed at 1^e.

The small base 1^d is slit longitudinally over a certain length from the front so as to form a slot 5.

On the outer face of said small base is juxtaposed, by making integral with or securing thereto, a mass of material 6 extending from the front edge of the small base towards or up to the rear of the head.

Said mass of material 6, which forms a projection on the hollow tubular body, has an approximately triangular cross-section the base of which corresponds to the width of the small base 1^d of the tubular body, and of which the apex is located facing the fell of the cloth; the sides 6^b and 6^c of said mass partially merge into the sides 1^b and 1^c of said hollow body, the outline of the outer edge of said mass being a curve which merges at the front into the edges 1^e of the splayed sides 1^b and 1^c, and which terminates towards the rear by a rectilinear portion substantially parallel with the small base 1^d of the hollow body.

The mass 6 is preferably not symmetrical relatively to the longitudinal plane of symmetry of the large and small bases 1 and 1^d; it is somewhat offset towards the axis of oscillation of the slay (that is to say downwards, as shown in the drawings, in the case in which the slay oscillates about a lower axis) in order to be better adapted to the divided sheets of warp threads forming the

shed when the needle penetrates into the said shed.

In an approximately median longitudinal plane of said mass 6 is provided a slot 7 registering with the slot 5 of the small base 1^d.

The mass 6 thus divided into two by the slot 7, of which 7^b and 7^c are the walls, receives the cutting blade and the thread clamp, and the slots 5, 7 enable, at the instant when the conveying head penetrates into the shed, the weft thread which comes from the fixed bobbin and goes towards the fell point of the cloth, passing through the opening 3, to penetrate into said slots 5 and 7.

As regards the arrangement of the cutting blade through the slot 7, a curved slot 8 is provided parallel with the edge of the mass 6 and adjacent said edge, said slot 8 optionally being widened at 8^a. The setting of the cutting blade 9, of which the front edge 9^a is splayed and extends through the slot 7, between the sides 6^b and 6^c, is effected by screws 10. The screws 10 may, however, be eliminated by providing a housing in the curved slot 8, so that the setting of the cutting blade is ensured by the tendency of said blade 9 to straighten itself in said housing.

By means of the rounded shape given the edge of the mass 6, the arrangement of the curved blade 9 near said rounded edge, and the offsetting of said mass a marked advantage is obtained over the conveying heads of the same kind previously constructed by the applicant, inasmuch as a narrow and even selvedge is obtained still more easily than before.

As regards the thread clamp, it is formed in the following manner:

Preferably on the side 6^b, and in the rear and central portion of the mass 6 against the small base 1^d, is provided a cut away portion 11 which, at the spot where is located the slot 7, exposes the wall 7^c and is extended to form a groove 12 in the wall 7^b of the non-cut away front portion of the mass 6, said groove 12 opening at the front.

The groove 12 receives the front portion of a blade 13 which is lodged in the cut away portion 11, said blade portion being in contact with the wall 7^c of the slot 7. The blade 13 is held by screws 14 towards the rear of the cut away portion 11: its front portion forms, with the wall 7^c, the thread clamp which is intended to hold the weft when same is introduced into the slots 5, 7.

Preferably, the pressure necessary for clamping the thread is only effected on the front portion of the blade 13; for this purpose said pressure is obtained, as shown, by means of a spring blade 15 which is more or less tensioned by one of the screws 14, or otherwise, and the free end of which alone presses at any desired spot of the front portion of said blade 13.

In the case in which the spring blade 15 is utilized, it is preferable for the blade 13 by itself not to have any clamping force.

For this purpose, it is reduced in thickness in its central portion at 13^a, this thinner portion being if necessary perforated at 16.

By way of a modification, the blade 13 may be reduced in length and limited simply to its front portion on which bears the end of the spring blade 15, which is alone lodged and held by its rear end in the cut away portion 11 (Fig. 13).

Furthermore, the face of the blade 13 in contact with the wall 7^c preferably has two or more longitudinal ribs 17 which offer the advantage, for an equal pressure of the spring 15, of opposing a considerably increased resistance to the lateral movement of the thread in the thread clamp, without increasing the resistance offered by the thread clamp to the longitudinal movement of the thread, either when it enters the thread clamp, or during the exchange.

Said thread clamp further has the important advantage that when a small amount of material remains under one of the ribs 17, which would tend to decrease the gripping force of the blade 13 against the wall 7^c, the other rib or ribs 17 ensure then the firm holding of the thread for the next pick, said thread during the exchange, sweeping said material which then falls out of the conveying head through an outlet opening 18 provided in the side 6^c. Said opening 18 may optionally be widened up to the side 1^c of the hollow tubular body.

Preferably, the ribs 17 terminate at the rear along a line corresponding approximately with the slope taken up by the thread during the exchange, when it is ready to escape from the thread clamp of the conveying head. Consequently, the rib nearest the cutting blade 9 is shorter at the rear than that nearest the hollow tubular body (Fig. 12).

For certain kind of threads, it may be advantageous to use two blades 13 placed side by side, each of said blades having, for example, two ribs 17. In this case there preferably exist two spring blades 15, the clamping force of which is adjusted separately by means of separate screws. The blades 13 may be connected together at their rear ends as well as the blades 15.

Finally, in certain cases, for example when the conveying needle operates with a pulling needle which is adapted to effect the exchange of the thread in the middle of the shed, only at the instant when the needles begin to separate, that is to say when they begin to return towards their respective selvedge, it may be useful to clean the thread clamp of the conveying needle.

For this purpose, the rear ends of the blade 13 and of the spring blade 15 are no longer screwed in the housing 11, but on a projection forming a bracket which is secured to the small base 1^d, thereby enabling a cleaning blade to be passed which is fixed, for example, towards the entrance of the channel. Said cleaning blade arrives perpendicular to the thread clamp, and is then bent at about 90° and penetrates into said thread clamp to clean same. A space is provided in the mass 6, against the edge of the blade 13 opposite the small base 1^d, and it is into said space that the perpendicular part of the blade penetrates; said space may or may not open at the front of the head.

It is understood that without departing from the spirit of the invention, changes, improvements and additions may be made, as well as the use of equivalent means may be considered.

For example, the slot 5 may have the same height as the groove 12 and the end of the blade 13 may, at the front, emerge slightly from the groove 12.

For example again, the cutting device may be formed by two blades, similar to blade 9, placed one against the other and of which the bevels 9^a are in opposition, so that the weft thread is cut in the V-shaped cutting edge thus formed.

I claim:

1. In conveying needles, an improved head formed by a hollow tubular body which is preferably of trapezoidal cross-section, and having a small base and a splayed front part, a mass of

material connected with said small base, said mass of material forming a projection and having approximately a triangular cross-section the base of which corresponds to the small base of the hollow body, the outer edge of said mass being curved and merging into the splayed front part of the hollow body, and the rear part of said edge after the curve being substantially parallel with the small base of the hollow body.

2. An improved head as in claim 1, wherein the front portion of the mass of material forming a projection, and also that of the small base of the hollow body, are slit longitudinally over a certain length.

3. An improved head as in claim 1, having a slot formed therein parallel with the outer curved edge of the projecting mass and adjacent said edge, and intended to receive a cutting blade which is arranged transversely in it.

4. An improved head as in claim 1, wherein for the mounting and the formation of a thread clamp in the mass, one of the sides of said mass is hollowed out in its rear and central portions, at the edge of the hollow body, so as to form a cut-away portion which exposes, at the place where a slot is located, the opposite wall of said slot, and which is extended by a groove opening at the front provided in the wall of the slot consecutive to the hollowed-out side of the mass.

5. An improved head as in claim 1, wherein the projecting mass is offset towards the axis of oscillation of the slay relatively to the longitudinal plane of symmetry of the large and small bases of the hollow tubular body.

6. An improved head as in claim 1, a thread clamp comprising a blade fixed in a recess of the mass and having a free front portion which is lodged in a groove provided in the wall of a slot formed in the head.

7. In an improved head as in claim 1, a thread clamp having a blade and a spring blade having an end engaging the front portion of the first-mentioned blade, and screws holding said blades in a recess of the head by their rear portion, the resilient pressure of the blades being adjustable by means of said screws.

8. In an improved head as in claim 1, a thread clamp carried by said head and having a blade which is reduced in thickness in its central portion.

9. In an improved head as in claim 1, a thread clamp carried by said head and having a blade which is reduced in length only at its front portion, and a spring blade bearing against said front portion.

10. In an improved head as in claim 1, a thread clamp carried by said head and having a blade which is in contact with a wall of a slot formed in said head, said blade having longitudinal ribs.

11. In an improved head as in claim 1, a thread clamp carried by said head and having a blade, said blade having ribs which stop at the rear along a line corresponding approximately to the slope taken up by the thread during the exchange.

12. An improved head as in claim 1, a thread clamp carried by said head and having a blade, wherein the part of the mass which is consecutive to the wall of a slot formed in the head and cooperating with the blade to form the thread clamp has an outlet opening formed in said part of the mass.

RAYMOND DEWAS.