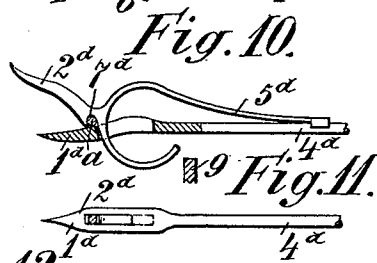
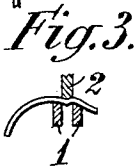
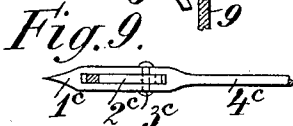
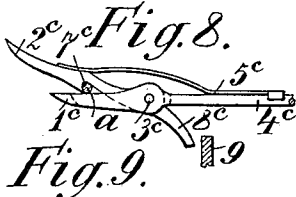
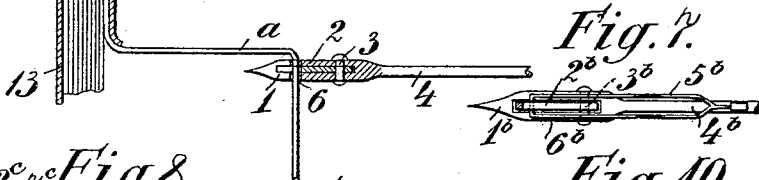
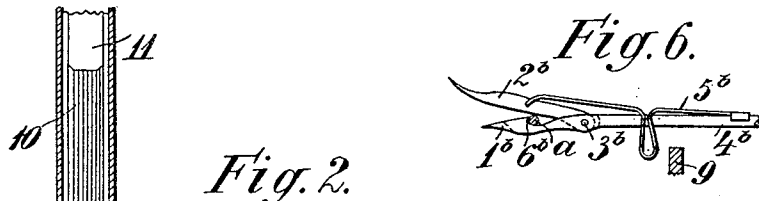
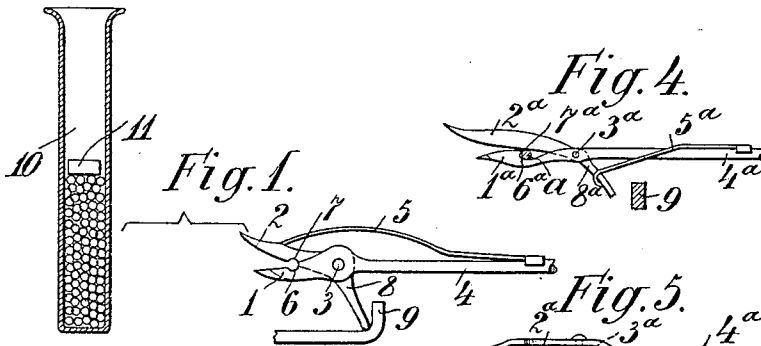


No. 877,270.

PATENTED JAN. 21, 1908.

O. WAHLE.
GRIPPER NEEDLE FOR LOOMS.
APPLICATION FILED MAY 15, 1907.



WITNESSES:

Fred White
René Muine

INVENTOR:

Otto Wahle,
By his Attorneys
Arthur C. Hauptmann

UNITED STATES PATENT OFFICE.

OTTO WAHLE, OF DEUTSCH-BROD, AUSTRIA-HUNGARY, ASSIGNOR TO HEINRICH SCHNEK,
OF VIENNA, AUSTRIA-HUNGARY.

GRIPPER-NEEDLE FOR LOOMS.

No. 877,270.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed May 15, 1907. Serial No. 373,813.

To all whom it may concern:

Be it known that I, OTTO WAHLE, round-house superintendent of the Austrian North-Western Railway, a subject of the Emperor of Austria-Hungary, and a resident of Deutsch-Brod, Bohemia, in the Empire of Austria-Hungary, have invented an Improved Gripper-Needle for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has for its object a gripper needle which permits of withdrawing exactly separate hairs, threads or similar hairy or filamentous bodies from a bundle or supply magazine, with the special object of enabling the same to be supplied to the shuttle for insertion in the shed. The device may, however, also be arranged on the shuttle itself; in particular the device is applicable for withdrawing separate horsehairs in horse-hair looms. At its front end the gripper needle is formed pincers-fashion in such a manner that one arm of the pincers constitutes a stationary support for the hairs which have entered the jaw of the pincers, while the second arm forms an ejector resilient relatively to the first, which forces out all the hairs which have entered the jaws except one which remains held in a notch in one or both of the arms of the pincers.

Such a device is especially adapted for use in connection with looms of the type illustrated in application No. 373,814, filed by me May 15, 1907.

In the accompanying drawing wherein I have illustrated several modifications of my invention, Figure 1 is a view showing a side elevation of the gripper needle, and a vertical section of the hair magazine; Fig. 2 is a sectional plan of Fig. 1; Fig. 3 is a cross-section of the gripper needle of Fig. 1; Figs. 4 and 5 are respectively an elevation and a plan of a modified form of gripper needle; Figs. 6 and 7 are respectively an elevation and a plan of another modification; Figs. 8 and 9 are respectively an elevation and a plan partly in section of a third modification; Fig. 10 is an elevation partly in section of a fourth modification; Fig. 11 is a plan partly in section of Fig. 10; Fig. 12 is an elevation partly in section of a fifth modification; Fig. 13 is a plan partly in section of Fig. 12.

The device consists (Figs. 1-3) of a rigid

needle 1 arranged at the front end of the gripper needle 4 on which an arm 2 is pivoted at 3; this arm preferably extends beyond the needle 1 and by means of a spring 5 is pressed against the needle in such a manner that in the closed position both parts form a small jaw. (In the drawing the needle is shown slightly open). The needle and the arm are provided on their inner side with a recess or notch 6 and 7 respectively, corresponding in size to the thickness of the hairs or the like in question. The needle and arm are formed with diverging faces in front of the recess or notch, and are preferably pointed as shown. The front end of the gripper needle thus forms a pincers 1, 2, the stationary arm 1 of which constitutes a stationary, needle-like support, while the movable arm 2 forms an ejecting device acting against the former. It is preferable to make the needle two-armed or U-shaped behind the point and to mount the arm 2 in the longitudinal slot or recess thus formed.

In the case of horsehairs, for example, the operation of the device is as follows: The pincers or gripper 1-2 is closed when inserted into the hair magazine. This magazine is preferably a narrow vertical chamber generally not more than one centimeter wide, in which the hairs are arranged loosely without being fixed except that a small weight 11 may be placed above them in order to facilitate the closing up of the mass after a withdrawal and to prevent the hairs from being scattered. If the needle 1-2 be inserted into the hair magazine, the arm 2 is opened on encountering the fixed part 13 (Fig. 2) so that a number of hairs are able to enter the jaws which are now open. In this way it is possible to withdraw single hairs from loose portions of hair without further pressure of the hairs against the needle. On drawing back the needle the hairs are again forced out by the pressure of the arm 2 against the needle 1 and only a single hair remaining in the notches 6-7 is retained. If the arm 2 does not extend beyond the needle 1, then its jaw is opened by the hairs entering it. Owing to the fact that this hair lies between three points between the parts 1, 2, it is securely clamped without any risk of severing or even injuring it. The hair held in the device is best removed therefrom by opening the pincers. This is effected most simply by providing on the

arm 2 an arm 8 which when the needle moves back strikes against a stop 9 and thus opens the pincers.

In the constructional form of the device illustrated in Figs. 4 and 5 the needle 1 only is provided with a notch 6^a which is given approximately the form of a crochet hook. The spring 5^a acts upon the other arm 8^a in this case.

In the constructional form illustrated in Figs. 6 and 7 no arm 8 is provided and the spring 5^b acting upon the arm 2^b is bent downwards laterally of the handle 4^b and thus constitutes the stop for the automatic opening of the device.

In Figs. 8 and 9 there is a notch 7^c in the arm 2^c, and there are similar notches 7^d in Figs. 10 and 11 and 7^e in Figs. 12 and 13. In Figs. 12 and 13 the pivot 3^e of the arm 2^e is also displaced rearwardly so that the displacement of the notch on the rotatable arm is more vertical upwards and downwards relatively to the needle. In Figs. 10 and 11 the arm 2^d constitutes a spring so that no separate spring is required the spring permitting the movement of the arm 2^d, which is thus in effect pivoted to the handle 4^d. In these figures also the same effect is obtained as in Figs. 12 and 13, the arm 2^d moving more or less vertically. In Figs. 10, 11 the spring serves as a stop on the opening of the device and in Figs. 12, 13 the arm 2^e with an inclined lower face serves the same purpose.

What I claim as my invention and desire to secure by Letters Patent is:

1. A gripper needle for weaving looms adapted to withdraw a single hair or the like, said needle being formed with two relatively movable pincers-like jaws having a recess between them for engaging the hair, said jaws being formed with diverging faces in front of said recess.

2. A gripper needle for weaving looms adapted to withdraw a single hair or the like, said needle being formed with two pincers-like jaws having a recess between them, adapted to engage a hair, said jaws being

formed with diverging faces in front of said recess, and a spring for normally holding such jaws in their closed position.

3. A gripper needle for weaving looms, adapted to withdraw a single hair or the like, said needle having two relatively movable jaws having a recess formed between them adapted to engage a hair, said jaws having pointed diverging ends in front of said recess adapted to enter into a bundle of hairs.

4. A gripper needle for weaving looms adapted to withdraw a single hair or the like, said needle having two jaws having a recess formed between them adapted to engage a hair, one of said jaws having a curved face in front of said recess which diverges from the other of said jaws.

5. A gripper needle for weaving looms adapted to withdraw a single hair or the like, said needle having two jaws having a recess formed between them adapted to engage a hair, one of said jaws having a curved face in front of said recess which diverges from the other of said jaws and extends materially beyond the other.

6. A gripper needle for weaving looms adapted to withdraw a single horsehair from a bundle, said needle having its front end formed with pincers-like jaws having a notch formed between them, one of which jaws constitutes a stationary support in front of said notch for the horsehairs that have entered the jaws of the pincers, and the other of which is adapted to act resiliently against the first, and is formed with a face projecting forwardly from said notch, which face diverges from the first jaw, whereby to force out all the hairs that have entered the jaws except one contained in the notch, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO WAHLE.

Witnesses:

ADOLPH FISCHER,
ARTHUR SCHWERZ.