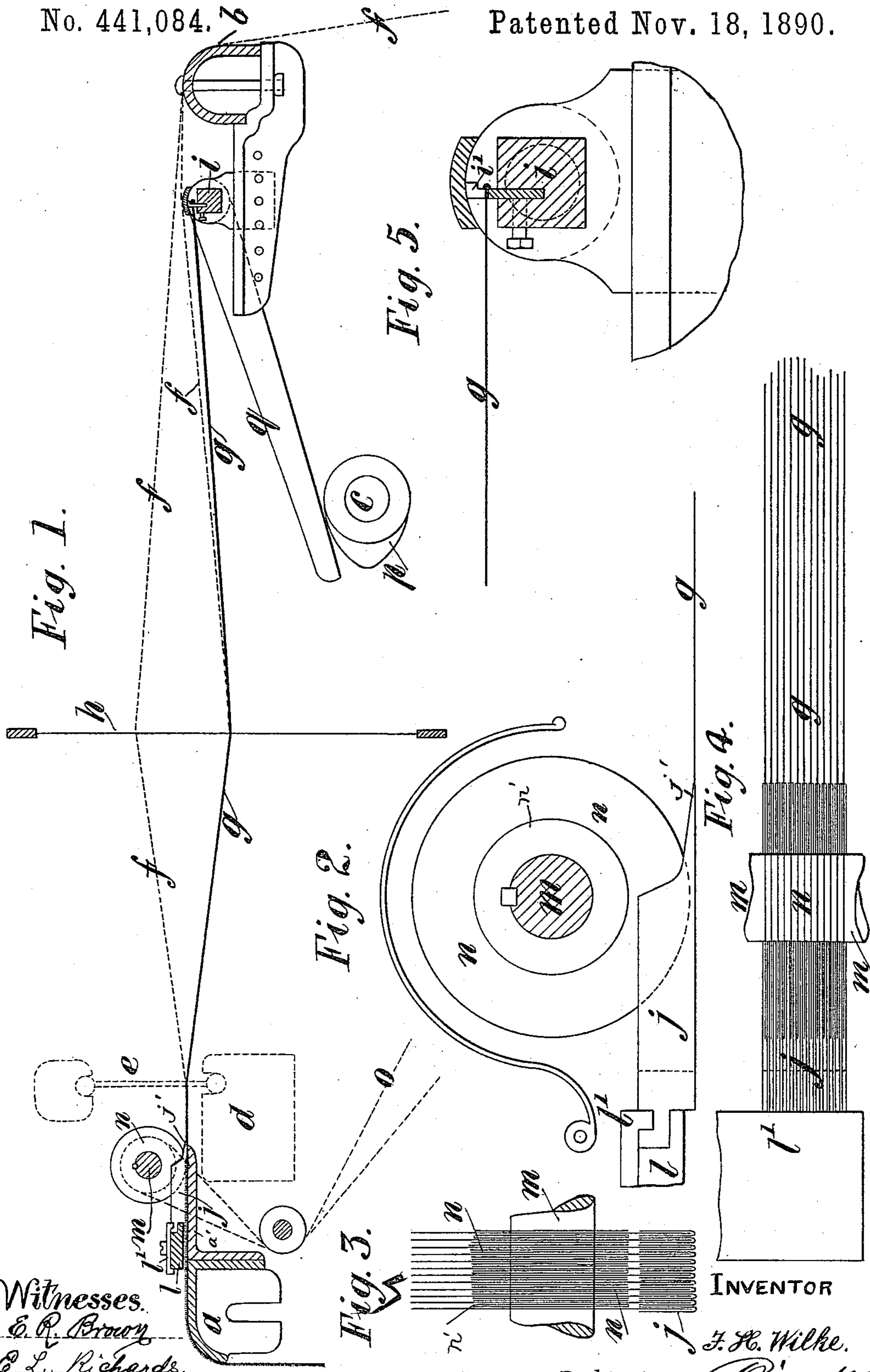


(No Model.)

F. H. WILKE.  
LOOM FOR WEAVING VELVETS, &c.

No. 441,084.

Patented Nov. 18, 1890.



INVENTOR

*F. H. Wilke.*

By his Attys.

# UNITED STATES PATENT OFFICE.

FRIEDRICH HERMANN WILKE, OF BRADFORD, ENGLAND.

## LOOM FOR WEAVING VELVETS, &c.

SPECIFICATION forming part of Letters Patent No. 441,084, dated November 18, 1890.

Application filed September 15, 1888. Serial No. 285,505. (No model.) Patented in England May 29, 1888, No. 7,822.

*To all whom it may concern:*

Be it known that I, FRIEDRICH HERMANN WILKE, a subject of the Emperor of Germany, at present residing at Bradford, county of York, England, have invented certain Improvements in Looms for Weaving Velvets, &c., (for which I, in conjunction with a certain Gustavus Adolphus John Schott, have made application for a patent in Great Britain, No. 7,822, dated May 29, 1888,) of which the following is a specification.

My invention relates to the manufacture of velvets, plushes, and other fabrics having a pile produced by cutting floating weft, as is well understood.

The object of my invention is to cut the weft-floats in the loom during the weaving of the fabric. My invention is particularly suitable to the production of woolen or silk plushes, which would be injured by the dressing and treatment preparatory and subsequent to the ordinary hand cutting operation; but I do not confine the application of my invention in this respect. I employ a cutter to cut each race of weft, and I control the action of the cutters by means of wires which pass through the reed and part of the harness and are woven into the portion of fabric which extends from the line of beat up to the cutters.

My invention will be most clearly understood when described more fully with reference to the drawings, of which a description follows.

Figure 1 of the drawings is a diagram illustrative of the means employed by me for weaving and cutting the pile fabric. In this figure the breast-beam and back rail of an ordinary loom are represented in cross-section. The remaining parts of the loom may be of any suitable construction, the representation of such parts not being necessary to the proper understanding of my invention. Fig. 2 is a side view of the cutting apparatus and is an enlargement of part of Fig. 1. Fig. 3 is an edge view of some of the cutters, the cutter-guards and race-guides being represented in section in the lower part of the figure. Fig. 4 is a plan view of the parts which appear in Fig. 2. Fig. 5 is an enlarged view of part of Fig. 1.

In Fig. 1, *a* is the breast-beam of a loom. *b*

is the back rail, and *c* is the crank-shaft. The lay is represented by the dotted lines at *d* and the reed at *e*. The warps are indicated by the dotted lines at *f*. Through the reed are passed wires *g*, which correspond in number with the number of races which are to be formed and cut. In Fig. 4 the front ends of thirteen of these wires appear; but it will be understood that the number which would be used in practice would depend upon the width of the fabric and the fineness of the pile. In the cases of striped goods the wires would be arranged in clusters according to the pattern. Each wire extends through a set of healds *h* and through the reed *e*, and is held at the back end by a rock-shaft *i*, and at the front end is secured to a race-guide and cutter-guard *j*. One of these guides appears in Fig. 2. The guide is made of thin sheet metal bent into a trough form. The front end of the guide is brought to a point and is soldered, brazed, or secured to the end of the wire. The rear end of the guide is filled up solid and cut into a hooked form, so that it can be held by means of a cross-bar *l*, which is secured to the loom and extends across the same from side to side. Cap-plates *l'*, secured to the bar *l*, enter the hooks in the guides and keep the latter in position. The means for securing the guides may be varied. The woven fabric passes forward in contact with a rail *a'*, which is secured to the ordinary breast-beam *a*, and as the guides rest upon the fabric they are sustained in position. A shaft *m* extends across the loom from side to side, and is mounted to revolve in bearings. Upon this shaft are threaded circular cutters *n*, which are made of thin sheet-steel. A fast key upon the shaft enters a notch in the eye of each cutter, so that the cutters are prevented from revolving upon the shaft. The cutters correspond in number with the guides, a cutter entering the trough-like part of each guide, as seen in Fig. 3. The cutters are not rigidly fixed upon the shaft, but are free to follow any slight lateral movements which the guides may have. To keep the cutters upright and approximately in position, washers *n'*, of paper, cloth, or other suitable material, may be interposed between the cutters. As these cutters are very thin, we have not as yet found it necessary to sharpen them. Dur-

ing the working of the loom the shaft *m* receives a revolving motion.

The dotted lines *o* indicate a band which connects a small pulley upon one end of the shaft *m* with a larger pulley upon the tappet-shaft. The shaft *m* may be driven by an overhead shaft or otherwise revolved, as the means whereby it is actuated are not important. The end of each wire which is held by the rock-shaft *i* is formed with a small head, button, or enlargement, and the wire is dropped into a slit in a comb *i'*, the head upon the wire preventing the wire from being drawn out of the comb. The said comb is attached to the rock-shaft, and the latter is rocked by means of a wiper *p*, which is fixed upon the crank-shaft and acts upon a lever *q* upon the rock-shaft. The rocking movement imparted to the shaft *i* is calculated to be just sufficient to compensate for the action of the healds *h*. The action of the parts is as follows: During the weaving the wires are raised and lowered by the healds *h* in a similar manner to the warps, so that the shuttle at times passes below the wires and at other times above the wires. At the times when the picks of pile weft are made the wires, or some of them, are drawn down as in Fig. 1, so that the weft floats over the wires which are thus woven into the races. As the reed beats up the successive picks, the floats of weft are pushed along the wires which are held by the comb *i'*, so as to be prevented from moving forward with the cloth. The floats of weft are thus guided by the wires until they pass on to the

points *j'* of the guides *j*, and are cut by coming into contact with the revolving cutters *n*. It will thus be seen that the wires act as guides to guide the races exactly to the cutters, and to insure that each race shall be cut in the center line of its length. These wires passing through the harness and reed and raised and lowered for the passage of the shuttle constitute the most important feature in my invention.

Having thus fully described my invention, I would state that what I claim is—

1. In a loom, the wires *g*, a rock-shaft to which said wires are attached, cutter-guides *j*, attached to the other ends of said wires, and means for rocking said shaft, in combination with a revoluble shaft *m* and cutters *n*, mounted thereon, substantially as set forth.
2. In a loom, the wires *g*, the comb *i'*, engaging said wires, the reed *e*, a rock-shaft carrying the comb, guides *j*, attached to the other ends of the wires, the revoluble shaft *m* and cutters *n* thereon, in combination with a set of healds *h* for raising and lowering the wires, substantially as set forth.

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

FRIEDRICH HERMANN WILKE.

Witnesses:

J. W. THORNTON,

A. WARKINSON,

Clerks to Messrs. Killick, Hutton & Vint, Solicitors, Bradford.