(No Model.)

G. CROMPTON & H. WYMAN.

LOOM FOR WEAVING TUFTED FABRICS.

No. 343,013. Patented June 1, 1886.

Fig. 1.

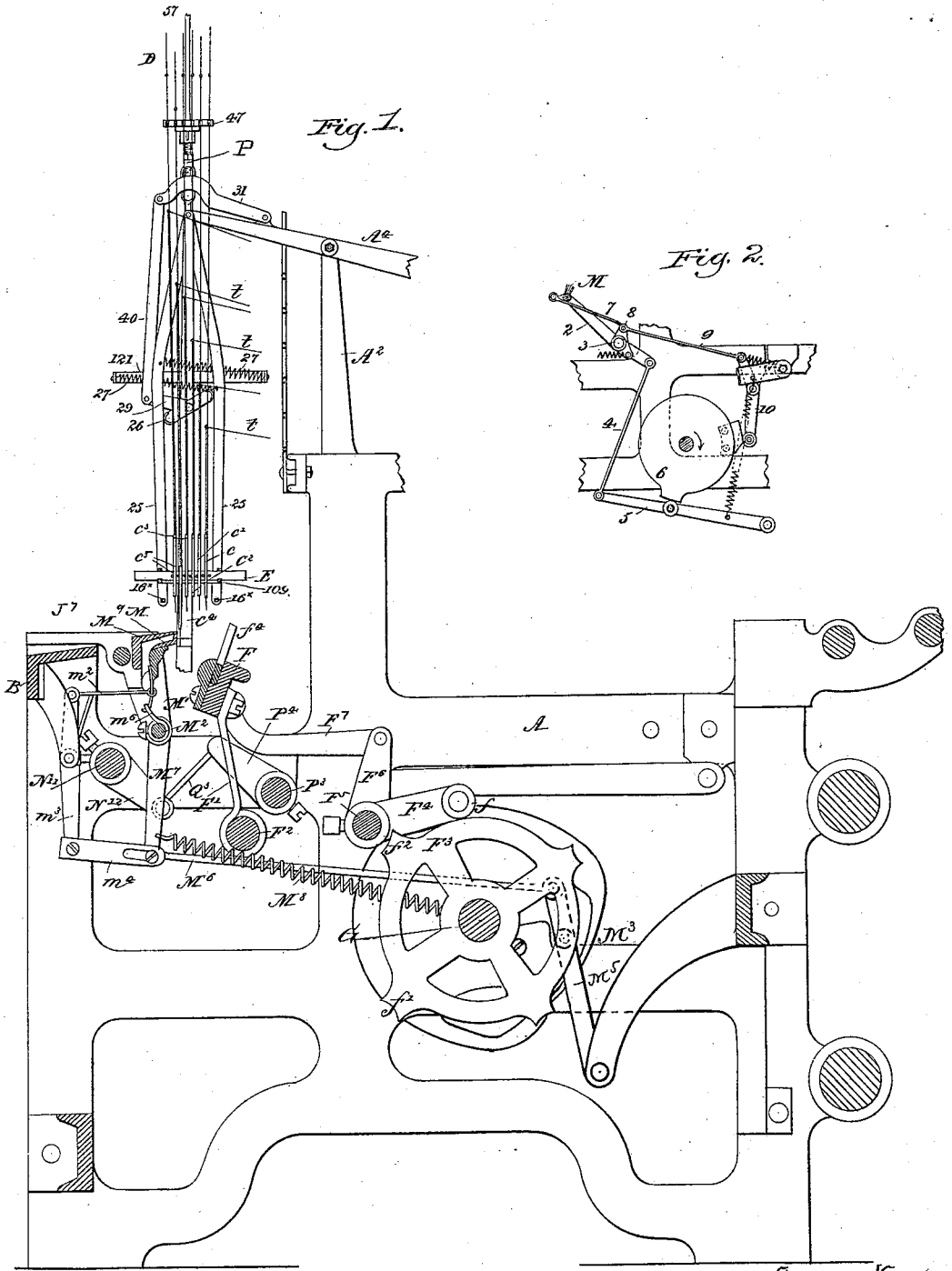

Fig. 2.

Witnesses:
John A. Rennie
Jno. F. C. Brenckert

Inventors.
George Crompton
Horace Wyman
by Cressley & Gregory Attys.

UNITED STATES PATENT OFFICE.

GEORGE CROMPTON AND HORACE WYMAN, OF WORCESTER, MASS.

LOOM FOR WEAVING TUFTED FABRICS.

SPECIFICATION forming part of Letters Patent No. 343,013, dated June 1, 1886.

Application filed February 19, 1886. Serial No. 192,520. (No model.)

To all whom it may concern:

Be it known that we, GEORGE CROMPTON and HORACE WYMAN, of Worcester, county of Worcester, and State of Massachusetts, have invented an Improvement in Looms for Weaving Tufted Fabrics, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a loom by which to weave that class of tufted fabric known as "Moquette carpet," it being an improvement upon a loom described in our application Serial No. 136,604, to which reference may be had.

In the present invention the tuft-warps are supposed to be taken each from its own spool and lead through independent needles arranged in rows, one behind the other, in longitudinally-movable carriages, the said needles being raised and lowered by a single jacquard, and the carriages being moved horizontally by an evener mechanism; and in connection with the said needles we employ a wiper to act upon the tuft-yarns below the warp after the insertion of a shot of filling, the said wiper turning the end of the tuft-yarns up about the shot or filling and between the warp-threads.

Our invention consists, essentially, in the combination, substantially as hereinafter described, of a series of tuft-yarn carriers or needles controlled by jacquard-cords, a series of carriages in which the said tuft-yarn carriers or needles are arranged one behind the other, supports for the said carriages, means to move the said carriages horizontally for different distances to place the tuft-yarn carriers or needles operative for each transverse row of tufts in the same line, and a comb or wiper, and actuating mechanism therefor to act upon the ends of the tuft-yarns inserted between the warp and turn or wipe the ends of the said tuft-yarns upward to occupy a position at the opposite face of the fabric.

Figure 1 is a vertical section of a sufficient portion of a loom for weaving tufted fabrics, which, taken in connection with the application referred to and United States Patent No. 186,374, dated January 16, 1877, will enable our invention to be understood; and Fig. 2 is a detail showing a modified form of comb or wiper.

Referring to the drawings, A represents the frame-work of the loom, and G the main shaft thereof; F, the lay; f', the reed; F′, arms of the lay; F^7, the connecting-rods; F^5, the lay rock-shaft; F^4 and F^6, arms secured to the said rock-shaft; F^3, a cam for moving the lay; m^3, a lever; m^2, a link; M^2, a rock-shaft; M′ and M^7, arms connected therewith; M^6, a rod connected to the arm M^7; M^8, a spring; M^5, a lever; M^3, a cam to move lever M^5; M, a wiper or comb; M^9, a guide-plate; B, a breast-beam, and m^6 a spring, all substantially the same in construction and operation as are like parts designated by like letters in United States Patent No. 186,374, dated January 16, 1877, to which reference may be had.

The wiper or comb M, referred to, acts upon the ends of the tuft-yarns after they have been inserted between the warp-threads by the weft carriers or needles, to be described, after the insertion of a shot of filling, and turns the ends of the said tuft-yarns backward or away from the breast-beam, and upward through and between the warp-threads previous to the introduction of the next shot of filling.

The tuft-yarn carriers or needles c c' c^2 c^3 c^4 c^5, the jacquard-cords D, to which they are attached, each of the said needles receiving a tuft-yarn, t, the levers 25, the eveners $16^\times$, carried by them, the link 121, the lever 29, having rounded ends 26 to operate the said levers 25, the guide-board 47, the lever A^4, mounted upon the upright a^2, and moving the needles or carriers vertically, the carriages E, the rests or bars 109, the depending frame p, and springs 27, are all substantially as described in our application Serial No. 136,604, hereinbefore referred to, where the same parts are designated by like letters, and being herein operated as therein described, need not be specifically and minutely described in this present specification.

The tuft-yarn carriers or needles are placed in rows, one behind the other, in the direction of the length of the warp, and each such row of needles is guided by a single carriage, E—such as designated by like letter in the said application—the carriages being sustained upon guide-bars 109, there being as many carriages as there are tufts in a row of tufts from selvage to selvage of the loom.

Herein we have considered it unnecessary

to show the knot-board and the devices for raising and lowering the jacquard-cords D, to which are attached the tuft-yarn carriers or needles, for all the said parts are fully described in detail in our application Serial No. 136,604, referred to.

In the operation of weaving a single carrier or needle of each series of needles, or one carrier or needle, from each carriage, each carrier or needle being under the control of a jacquard-cord, will be selected or dropped below the remaining needles of the carriage with which it co-operates, and the needles so selected will be brought all to the same horizontal line across the warp by the action of the eveners or other well-known equivalent mechanism, and all the selected needles being placed in a row and having tuft-yarns of the color required for the transverse row of tufts next to be made, the said carriers or needles are lowered by lowering the depending frame *p*, and the tuft-yarns protruding from the ends of the carriers or needles are passed through and below the warps, a shot of filling is inserted, the carriers or needles are raised sufficiently to leave enough yarn below the shot to form one half of the tuft, and after beating in the weft, all as provided for in our said application, the wiper is moved and operated to act upon the tuft-yarn below the warp, as described in the said patent, and wipe the ends of the said tuft-yarns upward about the weft and between the warp, when another shot of filling is inserted and beat in, and the weft-yarns are cut off, substantially as in our said application.

Instead of the particular comb or wiper shown in Fig. 1, and so far described to turn backward the tuft-yarns, we may employ any other well-known equivalent form of comb or wiper commonly used to act upon and turn the ends of the tuft-yarns up through and between the adjacent warp-threads—such, for instance, as a brush like that employed in United States Patent No. 233,290—or the wiper may be made substantially as the so-called "bending bar," described in United States Patent No. 288,267.

In Fig. 2 we have shown the comb or wiper made as a brush, the said brush forming part of a rock-shaft mounted at the ends of levers 2, pivoted at 3, and moved by links 4 and levers 5, acted upon by cams 6, the rock-shaft being rocked by links 7 and 9, and a lever, 10, acted upon by a cam projection, the said parts being all shown in Fig. 10 of United States Patent No. 233,290, wherein the operation of the parts is fully described.

We have shown a metal comb, M, and as an equivalent for it we consider within the scope of our invention a comb such as marked by like letter, M, in Fig. 24 of United States Patent No. 285,767.

We have shown in the drawings, but without fully describing them, some parts common to Patent No. 186,374, referred to, the letters used being those employed in the said patent.

We claim—

The combination, substantially as described, of a series of tuft-yarn carriers or needles controlled by jacquard-cords, a series of carriages in which the said tuft-yarn carriers or needles are arranged one behind the other, supports for the said carriages, means to move the said carriages horizontally for different distances, to place the tuft-yarn carriers or needles operative for each transverse row of tufts in the same line, and a comb or wiper, and actuating mechanism therefor, to act upon the ends of the tuft-yarns inserted between the warp and turn or wipe the ends of the said tuft-yarns upward to occupy a position at the opposite face of the fabric.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEO. CROMPTON.
HORACE WYMAN.

Witnesses:
J. B. SYME,
JUSTIN A. WARE.