

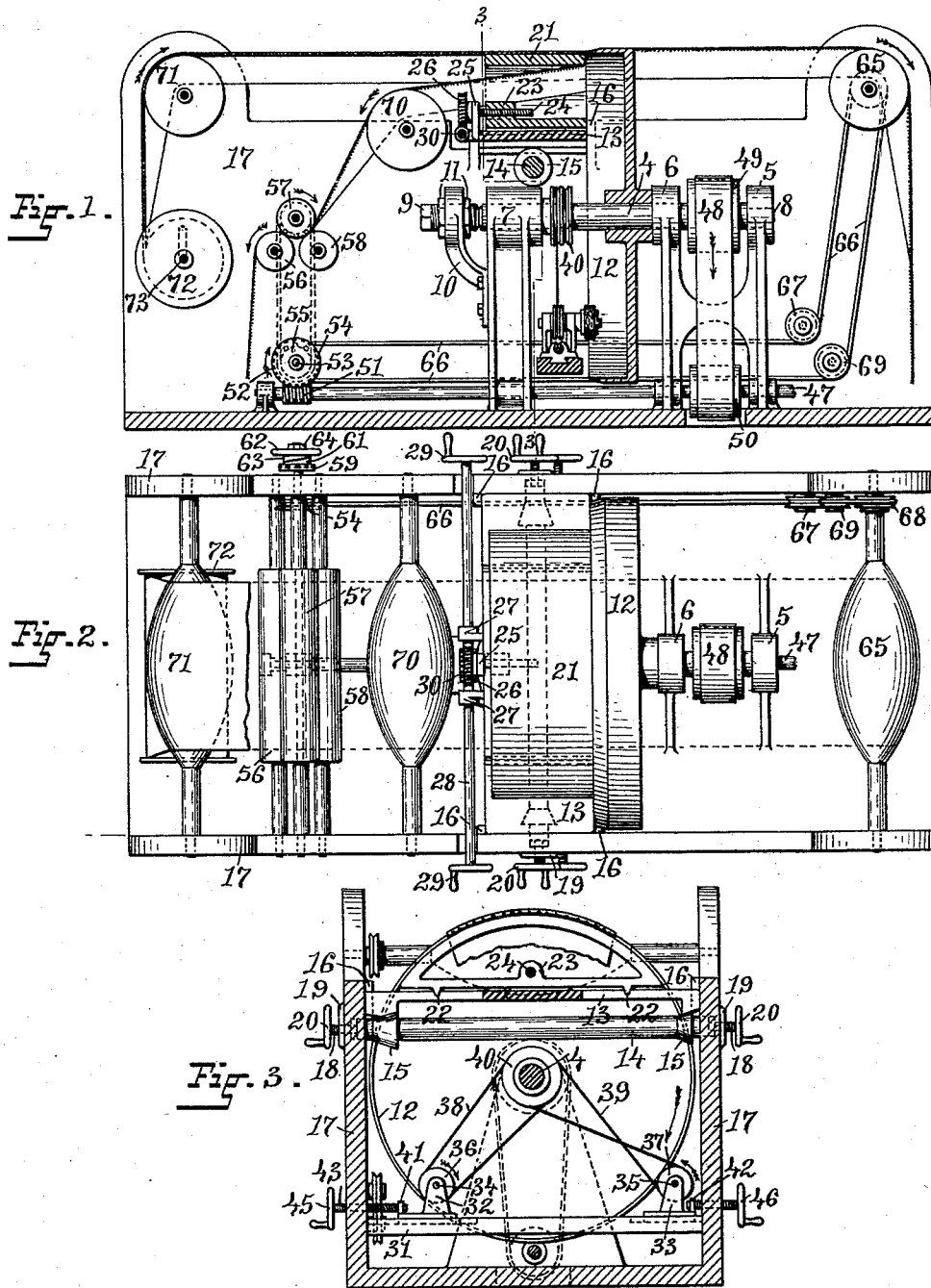
(No Model.)

E. R. & T. H. HANDY.

MACHINE FOR SPLITTING DOUBLE PILED FABRICS.

No. 417,915.

Patented Dec. 24, 1889.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDWIN R. HANDY AND THOMAS H. HANDY, OF MANVILLE, RHODE ISLAND.

## MACHINE FOR SPLITTING DOUBLE PILED FABRICS.

SPECIFICATION forming part of Letters Patent No. 417,915, dated December 24, 1889.

Application filed October 9, 1888. Serial No. 287,641. (No model.)

*To all whom it may concern:*

Be it known that we, EDWIN R. HANDY and THOMAS H. HANDY, of Manville, in the county of Providence and State of Rhode Island, have  
5 invented certain new and useful Improvements in Machines for Splitting Double Pile Fabrics, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of  
10 this specification.

This invention has reference to an improvement in machines for cutting or separating such fabrics as have been woven double, with two close surfaces and with an intermediate  
15 pile, as velvet, velveteen, and velvet carpet, and is an improvement on United States Patent No. 368,829, granted August 23, 1887, to Russell Handy.

To the above purpose our invention consists in the certain novel construction and combination of the several different features, as hereinafter fully described and claimed.

In the accompanying drawings illustrating our invention, Figure 1 is a sectional view of  
25 our improved machine. Fig. 2 is a top view of our improved machine. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1.

In the said drawings like numbers of reference designate corresponding parts through-  
30 out.

Referring to the drawings, 4 designates the main driving-shaft, which is supported in the bearings 5, 6, and 7. Any end movement of this shaft is prevented by reason of the reduced portion 8, which has its support in the bearing 5, and by reason of the take-up screw  
35 9, which is supported in the bracket 10, attached to the bearing 7 and provided with the two lock-nuts 11 11, for securely holding the take-up screw 9 in contact with the end of the shaft, thus preventing any movement  
40 in the direction of the axis of the shaft.

The knife or cutter 12 consists of a circular disk provided with a hub by which it is  
45 mounted upon and secured to the shaft 4, and a cylindrical steel knife secured on the periphery, so as to project beyond the disk.

The bed-plate 13 rests at the ends upon the cams 15, secured to the shaft 14, and is supported between the vertical ribs or guides 16

16, formed on or secured to the side frames 17 17. At each end of the shaft 14 is rigidly secured, to turn therewith, the screw 18, which passes through the nut 19, attached to each of the side frames 17, each screw being provided with the hand-wheel 20, so that by turning one of the hand-wheels the cams will be moved to one side or the other, thereby lifting or lowering the bed-plate 13 and securing an accurate vertical adjustment. The arched  
55 piece 21 is movably mounted on the bed-plate 13 in the V-shaped grooves 22, and is provided with the boss 23, which is screw-threaded, and through which the screw 24 passes. This screw 24 is supported in the upright  
60 bearing-piece 25, which forms part of the bed-plate 13, and to the outer or free end of the screw 24 is attached the worm-gear 26.

Supported in the two bearings 27 27, forming part of or attached to the bed-plate 13, is the cross-shaft 28, which is provided at each end with the hand-wheels 29 29, and at the center of this shaft 28 is formed a worm 30, which intermeshes with the worm-gear 26, so that upon one of the hand-wheels 29 being  
75 turned the worm-gear 26 will be revolved and with it the screw 24, thereby moving the arched piece 21 toward or away from the circular knife or cutter 12. The arched piece 21 can be accurately adjusted to the cylindrical  
80 knife 12 to guide the double pile fabric to the knife by which the same is to be split or cut into two sheets. By reason of the horizontal adjustment of the arch-piece 21 toward the knife 12 a cutting contact between the knife  
85 and the pile is at all times insured, and as the edge of the knife wears away, by reason of the action of the grinders on the same and the cutting of the pile, the arch-piece 21 is moved toward the knife, thereby insuring a perfect  
90 division of the fabric.

On the cross-plate 31 are mounted in suitable guides the two bearing-slides 32 and 33, for supporting the shafts 34 and 35, on the ends of which are secured the grinding-  
95 wheels and the pulleys 36 and 37, which receive power through the elastic belts 38 and 39, which pass over the double pulley 40, mounted on the main shaft 4, and by which the shaft and grinding-wheels are revolved. 100

At the outer ends of the bearing-slides 32 and 33 are the bosses or clips 41 and 42, to which one end of each of the screws 43 and 44 is secured. These screws are provided with the hand-wheels 45 and 46, and pass through holes in the side frames, which are screw-threaded to fit them, so that upon one of the hand-wheels being turned the corresponding grinding-wheel will be adjusted to bear against the inner or outer face of the circular knife sufficient to grind the same and maintain an efficient cutting-edge.

The power-shaft 47, provided with the pulley 50, is supported in suitable bearings directly beneath the main shaft 4, which is provided with the pulley 49 and is connected to the power-shaft by the belt 48. At the opposite end of the power-shaft to that carrying the pulley 50 is attached the worm 51, which intermeshes with the worm-gear 52, mounted on the shaft 53. On this shaft 53 are mounted the pulley 54 inside the frame and the sprocket-gear 55 on the outside of the frame.

The take-up rolls 56, 57, and 58 are supported in suitable bearings formed in or attached to the side frames 17 17, the shaft of the roll 57 passing through the frame and being supplied with the sprocket-gear 59, for receiving power through the chain 60, which passes over the sprocket-gear 55. The sprocket-gear 59 has the beveled hub 61, and is loosely mounted on the reduced end of the shaft of the roll 57; also loosely mounted on the reduced end of the same shaft is the hand-wheel 62, which has a hub 63 to correspond to the hub 61. The end of the shaft is provided with the nut 64, for securely holding the hand-wheel and sprocket in position. As the sprocket-gear is continuously driven, carrying with it the hand-wheel, upon the hand-wheel being held the two beveled hubs will act to force the hand-wheel against the nut 64 and away from the sprocket-gear, which will be forced against the shoulder formed by reducing the shaft, and the shaft, carrying with it the roll, will be caused to revolve and take up the lower split fabric. The take-up for the upper split fabric on the opposite end of the machine consists of but a single roll 65, and as there is no pull necessary to this part of the fabric this roll 65 receives its power through the belt 66, which passes over the pulley 54, attached to and revolving with the shaft 53, thence under the pulley 67, up over the pulley 68, down under the pulley 69, and back to the pulley 54.

The rolls 65, 70, and 71 are formed on the same circle as the circular knife or cutter 12, thereby keeping the fabric in approximately the same arc of the circle as the knife and facilitating the guiding of the fabric to and from the cutting-knife.

72 is the beam upon which the double pile fabric is wound as it is woven in the loom. This beam is supported on a shaft 73, journaled in grooves formed in the side frames.

The operation of the machine is as follows: A strip of plain cloth, of sufficient length to reach from the arch 21 to beyond the grip-rolls 56, 57, and 58, is first secured to the end of the under half of the double pile fabric. The beam is then placed in position, the cloth being passed up over the roll 71, then over and through the arch, then over roll 70 and through the grip or take-up rolls 56, 57, and 58. When now power is supplied, the circular knife will be caused to revolve at a high rate of speed, and the arch having been properly adjusted the fabric will be split. The upper half being held by hand until sufficient length to overlap the roll 65 has been cut, which roll will thereafter take up the slack, the lower half will pass under the arch over the roll 70 to the grip or take-up rolls 56, 57, and 58, which will grip and pull the cloth up against the cutting-edge of the circular knife at a uniform rate of speed and tension. As the cutting-edge of the knife becomes dull, either one or both of the grinding-wheels can be brought to bear on the same by turning the hand-wheel 45 or 46, or the grinders may be kept continuously in contact with the knife, thereby at all times insuring a sharp edge during the running of the machine.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a machine for splitting pile fabric, the combination, with the cylindrical knife and actuating means therefor, of an arched guide provided with an adjusting-screw for moving the said arched guide toward and from the knife, a support on which the arched guide rests and on which it can be moved to adjust the same horizontally, and the cams mounted on a horizontal shaft provided with adjusting-screws for adjusting said support vertically, as described.

2. The combination, as herein set forth, in a machine for splitting pile fabric, with a cylindrical knife and actuating means therefor, of the arched piece 21 for guiding the cloth to the knife, the bed-plate 13, the vertical guides 16, the shaft 14, and cams 15, the hand-wheels 20, screws 18, and nuts 19, constructed to adjust the arched piece 21 vertically by moving the cams 15 laterally, as and for the purpose described.

3. The combination, as herein set forth, with a cylindrical knife and actuating means therefor, of an arched feed-table provided with means for adjusting the table relatively to the knife, guide-rollers, the central portions of which are of larger diameter than the ends, drawing-rollers, and driving mechanism, substantially as described.

4. The combination, in a machine for splitting double-woven pile fabric, as herein set forth, with a cylindrical knife and actuating means therefor, of an arched feed-table provided with means for adjusting the table relatively to the knife, and the guide-rollers 70,

71, and 65, the longitudinal section of which corresponds to the curve of the cylindrical knife, substantially as described.

5 The combination, with the cylindrical knife 12, of the arched guide-piece 21, the bed-plate 13, the adjusting-screw 24, worm-gear 26, the shaft 28, the worm 30, the shaft 14, conical cams 15, and hand-wheels 20 and 29, constructed to adjust the arched piece 21, as  
10 and for the purpose described.

In witness whereof we have hereunto set our hands.

EDWIN R. HANDY.  
THOMAS H. HANDY.

Witnesses:

I. W. HANDY,  
AMOS BENN.