

No. 712,460.

Patented Oct. 28, 1902.

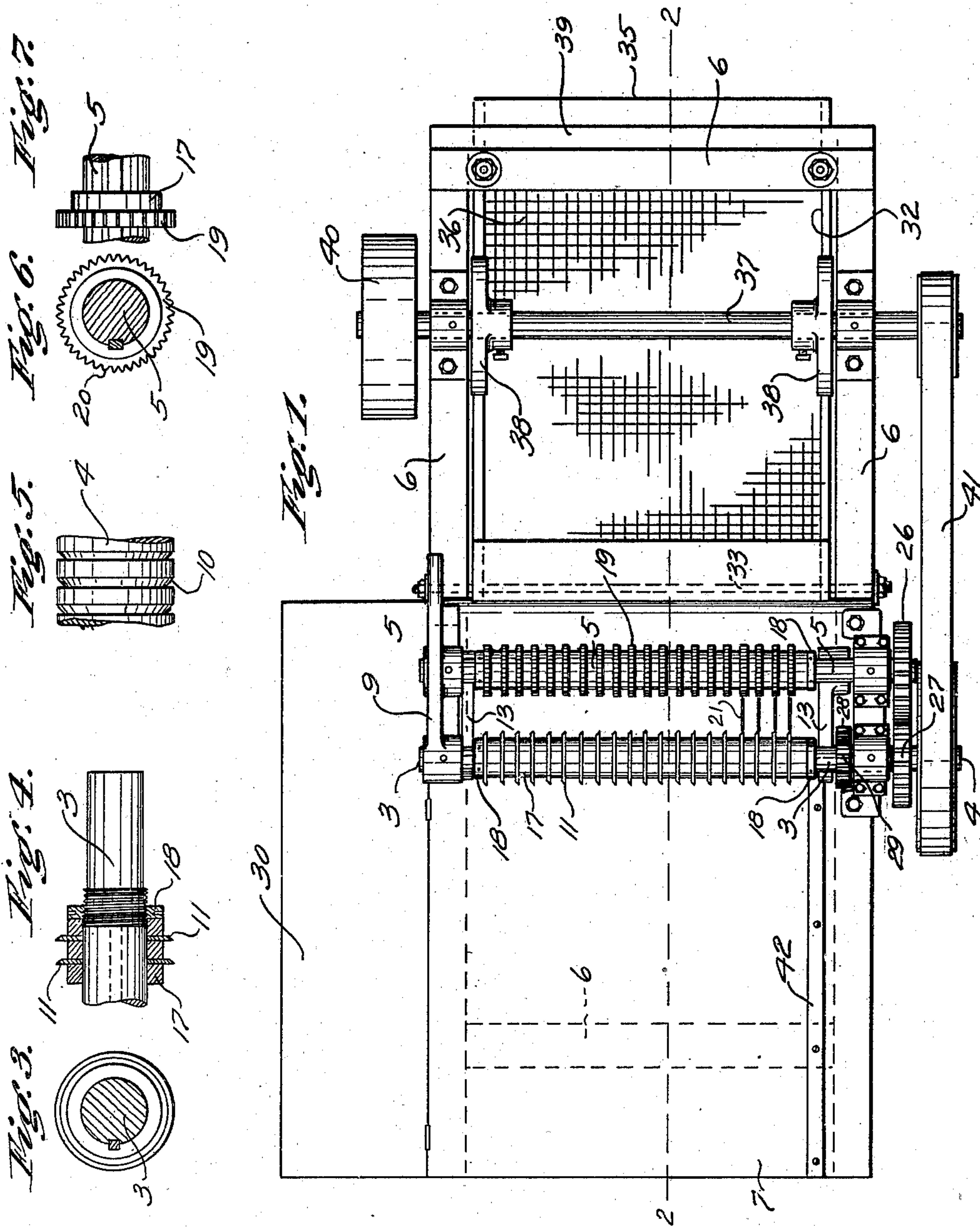
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MACHINE FOR PREPARING STRIPS OF CARPET FOR MAKING RUGS.

(Application filed Mar. 19, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:  
 Blanche Michael  
 Chas. H. Borchers

INVENTOR  
 Herman Liebman  
 BY Rumber & Rumber,  
 HIS ATTORNEYS.

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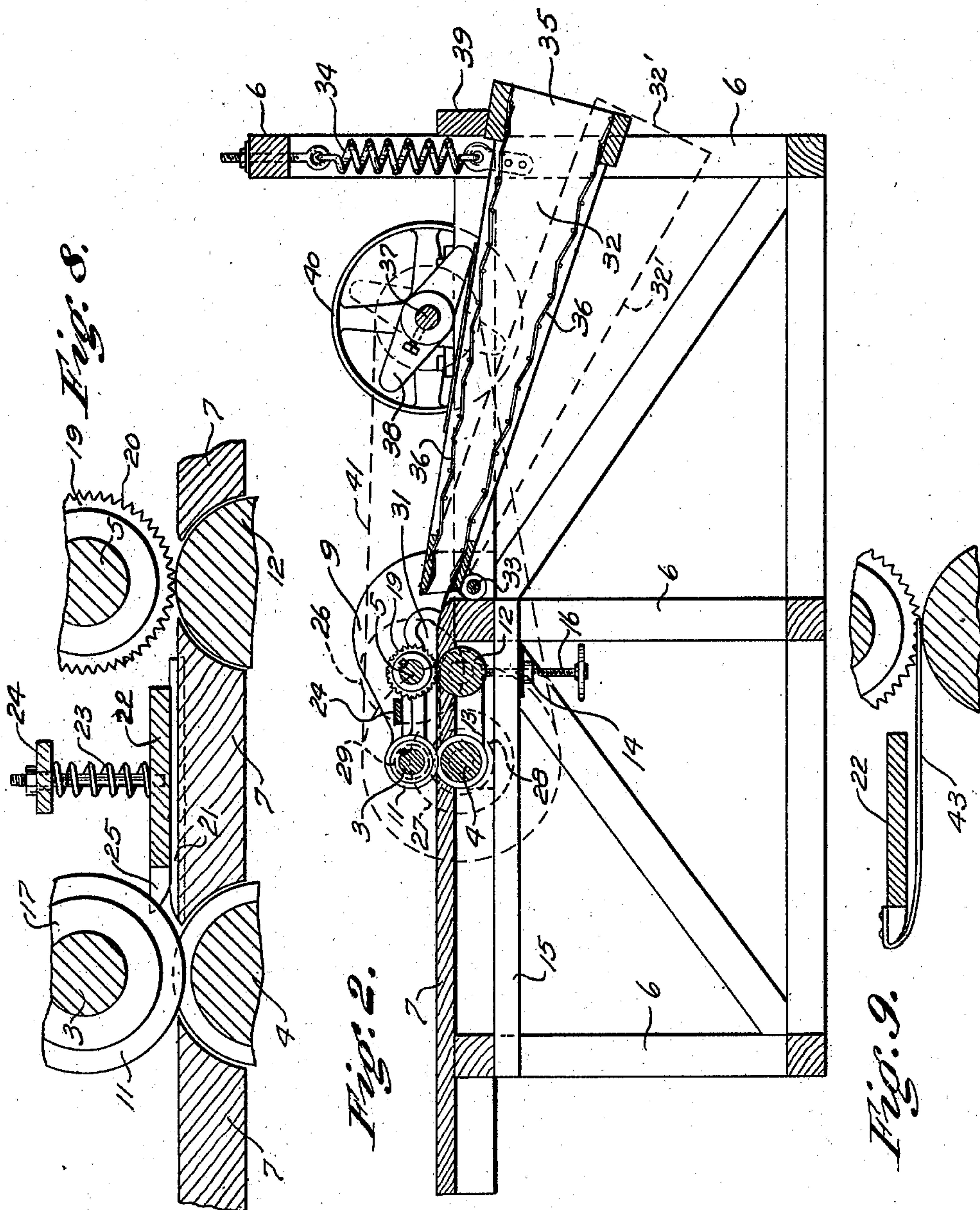
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WITNESSES:  
Blanche Michael.  
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# UNITED STATES PATENT OFFICE.

HERMAN LIEBMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO AUGUSTE E. OLSON, OF CHICAGO, ILLINOIS.

MACHINE FOR PREPARING STRIPS OF CARPET FOR MAKING RUGS.

SPECIFICATION forming part of Letters Patent No. 712,460, dated October 28, 1902.

Application filed March 19, 1902. Serial No. 98,945. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN LIEBMAN, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Preparing Strips of Carpet for Making Rugs, of which the following is a specification.

The main object of my invention is to provide an improved machine by means of which pieces of carpet may be cut into narrow strips and frayed along the edges of said strips. A further object is to provide improved means for thoroughly cleaning said strips, so that same will be ready for use in the manufacture of rugs. I accomplish these objects by the device shown in the accompanying drawings, in which—

Figure 1 is a top plan of a machine constructed according to my invention. Fig. 2 is a longitudinal section of the same along the line 2 2 of Fig. 1. Fig. 3 is an enlarged section of the shaft 3. Fig. 4 is a longitudinal section of the same, partly broken away. Fig. 5 is an elevation, partly broken away, of the roller 4. Fig. 6 is a transverse section of the shaft 5. Fig. 7 is an elevation of the same, partly broken away. Fig. 8 is an enlarged section of the guides seated between the shafts 3 and 5, portions of said shafts and the surrounding frame being shown partly broken away. Fig. 9 is a section of a modified form of the guide shown in Fig. 8.

The guides shown in Fig. 8 are omitted from Figs. 1 and 2 for the sake of clearness.

The device shown is constructed as follows: The frame 6 is provided with a horizontal table 7, extending across the top of said frame for about half its length. Mounted above the table 7, in parallel relation and parallel to said table, are two shafts 3 and 5. The shafts 3 and 5 are journaled in the bearing-castings 8 and 9, which are rigidly bolted to the frame 6. A roller 4 is located directly below the shaft 3 and is also journaled in the castings 8 and 9. The periphery of the roller 4 is provided with annular grooves 10, which receive the knives 11 of the shaft 3. A second roller 12 is journaled in the movable arms 13, which in turn are respectively journaled on reduced extensions of the ends of the roller 4. At

each side of the frame and directly beneath each of the arms 13 a screw-threaded socket-piece 14 is screwed to a cross-piece 15 of said frame. Each of the socket-pieces 14 carries a vertical screw 16, which bears upon the corresponding arm 13, thus providing vertical adjustment for the roller 12.

Keyed to the shaft 3 is a series of circular cutting-knives 11, equally spaced and separated by sleeves 17. The knives 11 are held in place longitudinally of the shaft 3 by means of a nut 18 at each end, as indicated in Fig. 4. The shaft 5 is provided with a corresponding series of cutters 19 and secured to the shaft in a similar manner. The periphery of each of the cutters 19 is provided with a series of cutting edges 20, disposed longitudinally of the shaft 5. Each of the cutters 19 on the shaft 5 is so arranged that its central plane is in exact alinement with the plane of the cutting edge of the corresponding knife on the shaft 3. Between the shafts 3 and 5 and extending transversely to said shafts are a series of guides 21, which prevent lateral displacement of strips of fabric while passing between said knives and cutters. Resting lightly above the guides 21 is an upper guide 22, which is vertically movable. The guide 22 is urged downwardly by means of light springs 23, which bear upon the cross-piece 24. The cross-piece 24 is secured at its ends to the castings 8 and 9. Its location is shown in Figs. 2 and 8, but it is omitted in Fig. 1 for the sake of clearness. It is desirable that the guide 22 be as close as possible to the knives 11, and for this reason the edge adjacent to such knives is provided with a series of slots 25, corresponding in location to the knives 11, so that the upward movement of the guide 22 will not be stopped by the knives 11. In the modified form of the guide 22 its lower surface is provided with a plurality of light flat springs 43, one of which extends along each space between the guides 21. These springs are extended sufficiently to keep the strips of carpet in contact with the table 7 until delivered to the cutters 19.

The shaft 5 and the roller 4 are connected by the gears 26 and 27 and rotate with equal velocities. The gears 28 and 29 connect the roller 4 with the shaft 3, the gear 29 being



somewhat smaller than the gear 28, so that the peripheral velocity of the knives 11 is greater than that of the roller 4. The roller 12 is an idler and rotates through contact with the cutters 19. The table 7 is continued on one side of the machine in the form of a flap 30, which is preferably provided with hinges, so that it may be folded down and out of the way. The casting 9 is provided with a slot 31, extending along the table 7 and between the bearings of the shaft 3 and the roller 4. The purpose of this slot will be hereinafter described.

In advance of the table 7 is a chute 32, which is pivoted at one end to the shaft 33 near the end of the table 7. The other end of the chute 32 is suspended from the frame 6 by means of springs 34. The chute 32 gradually enlarges toward its delivery end 35. The top and bottom of the chute 32 are preferably made of wire-netting 36. The shaft 37 is journaled to the frame 6 above the chute 32 and has secured thereto a pair of cams 38, by means of which the chute 32 is driven downwardly, as indicated by the dotted lines 32'. As soon as released by the cam 38 the chute 32 is returned to its uppermost position by the springs 34. Upward movement of the chute 32 is limited by the bar 39 of the supporting-frame 6. Power is supplied to the machine by means of a belt passing over the pulley 40, which is secured to the shaft 37. The shaft 37 and the roller 4 are connected by means of the belt 41. The table 7 is provided with a cleat 42, which serves as a guide to the edge of a piece of carpet while same is being fed to the cutting-knives.

The bearings in the casting 8 are preferably made in halves, so that the shafts 3 and 5 may be readily removed.

The operation of the device shown is as follows: A piece of carpet is laid upon the table 7, with one edge in contact with the guide 42, and is moved toward the knives 11, where it is cut into strips by the combined action of the knives 11 and the roller 4. The strips thus formed pass between the guides 21 and are prevented from leaving such guides by the guide 22 and are delivered between the roller 12 and the cutters 19. Each of the cutters 19 is centrally located with respect to the cut made by the corresponding knife 11, and therefore each strip of carpet after leaving the cutters 19 will have a series of transverse cuts along each of its edges. The strips continue to move along the table 7 and enter the chute 32, where they are violently agitated by the reciprocation of the chute 32. This agitation serves to fray the edges of said strips, and any dirt that is contained in the carpet is shaken out and falls through the wire-netting 36. The carpet is delivered at the end 35 of the chute, the same being cut, frayed, and cleaned ready for use in the manufacture of rugs. When it is desired to cut strips from a piece of carpet in the direction of the width of the same or in cases where

pieces of carpet are of greater length than the length of the cutting-rollers, one edge of the carpet is placed against the guide 42 and the piece is fed along the table 7, as before. It will be seen that the part of the carpet which has been cut into strips will continue along the table and into the chute 32, as before, while the uncut part will extend into the slot 31 of the casting 9 and will pass along the extension 30 at the left of the cutting mechanism. By this arrangement the necessity of cutting the carpet into widths equal to the length of the cutting-rollers before feeding same to the machine is avoided. When strips are cut crosswise from a roll of carpet, the roll is fed along the extension 30, a portion of the carpet equal in length to the length of the cutting-rollers having been previously unwound. This operation is repeated until the entire roll has been cut up.

It will be seen that numerous details of the device shown may be altered without departing from the spirit of my invention. I therefore do not confine myself to such details except as hereinafter limited in the claims.

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

1. The combination of a frame having a suitable platform for supporting pieces of carpet, a series of rotating knives journaled in said frame and adapted to cut said carpet into strips, a corresponding series of rotating cutters journaled in said frame on axes disposed in parallel relation to the axes of said knives, each of said cutters being opposed to one of said knives and adapted to make a series of short cuts extending transversely of the cut made by its respective knife, a series of guides secured to said platform between said knives and cutters, each of said guides being in alinement with one of said knives and being adapted to engage the adjacent side edges of the strip of carpet and prevent the lateral displacement of said strips in passing between said knives and cutters; yielding means for preventing said strips from leaving said guides; and suitable mechanism for driving said knives and cutters and feeding said carpet.

2. In a carpet-cutting machine, the combination of a frame, having a suitable platform for supporting a piece of carpet, a series of rotating knives journaled in said frame and adapted to cut said carpet into strips, a series of rotating cutters journaled in said frame and adapted to fray the edges of said strips, said platform being extended at one side beyond said knives and cutters and said frame being open at that side so that pieces of carpet, of greater width than said series of knives and cutters, may be fed to same, substantially as described.

3. In a carpet-cutting machine, the combination of a frame, having a suitable platform for supporting a piece of carpet, a series of rotating knives journaled in said frame and adapted to cut said carpet into strips, a se-



ries of rotating cutters journaled in said frame and adapted to fray the edges of said strips, a reciprocating chute mounted in said frame adapted to receive said strips and cause  
5 same to beat against opposite walls of said chute during their passage through said chute, thereby loosening any adhering dirt from same, and suitable mechanism for simultaneously operating said knives and cutters, and  
10 reciprocating said chute.

4. In a carpet-cutting machine, the combination of a frame, having a suitable platform for supporting a piece of carpet, a series of rotating knives journaled in said frame and  
15 adapted to cut said carpet into strips, a series of rotating cutters journaled in said frame and adapted to fray the edges of said strips, a chute rectangular in cross-section and open at its ends and suitably disposed to  
20 receive said strips and permit same to pass longitudinally through same; a screen forming the bottom of said chute; suitable means for agitating said chute and causing said strips to beat against the top and bottom of  
25 the chute, thereby loosening and removing

any adhering dirt or cuttings from said strips; and suitable mechanism for operating said knives and cutters.

5. In a carpet-cutting machine, the combination of a frame, having a suitable platform  
30 for supporting a piece of carpet, a series of rotating knives journaled in said frame and adapted to cut said carpet into strips, a series of rotating cutters journaled in said frame and adapted to fray the edges of said  
35 strips, a pair of screens secured together to form a chute open at its ends, said screens being suitably disposed to receive said strips between them; suitable means for agitating  
40 said chute and causing the strips to beat between said screens, thereby loosening and removing the adhering dirt or cuttings from said strips; and suitable mechanism for operating said knives and cutters.

Signed at Chicago this 12th day of March, 45  
1902.

HERMAN LIEBMAN.

Witnesses:

WM. R. RUMMLER,  
EUGENE A. RUMMLER.