(No Model.) 2 Sheets—Sheet 1.

W. H. HUTCHINSON & H. A. CABLES.

MACHINE FOR MAKING TUFTS OR BUTTONS.

No. 440,709. Patented Nov. 18, 1890.

Fig. 2.

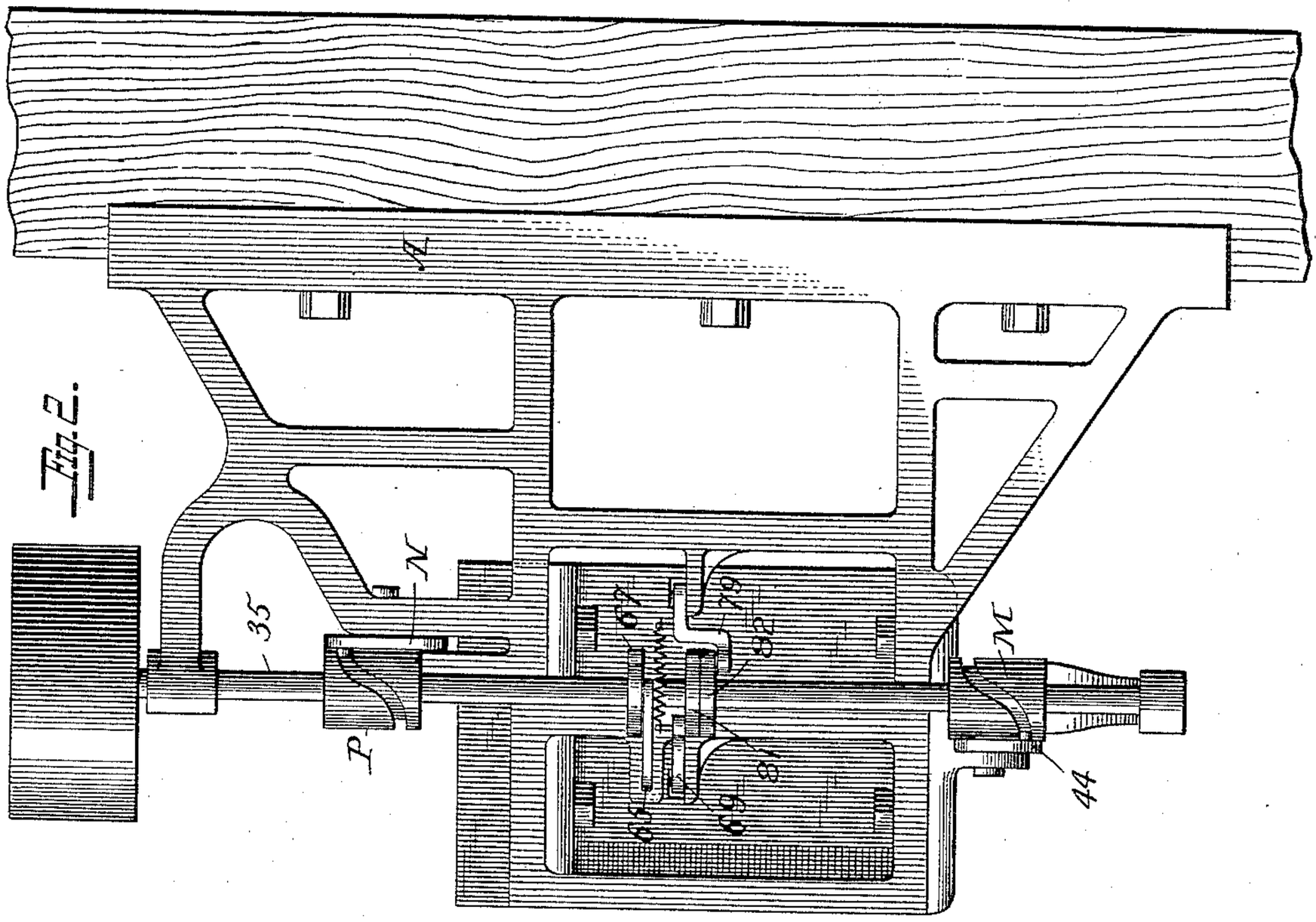
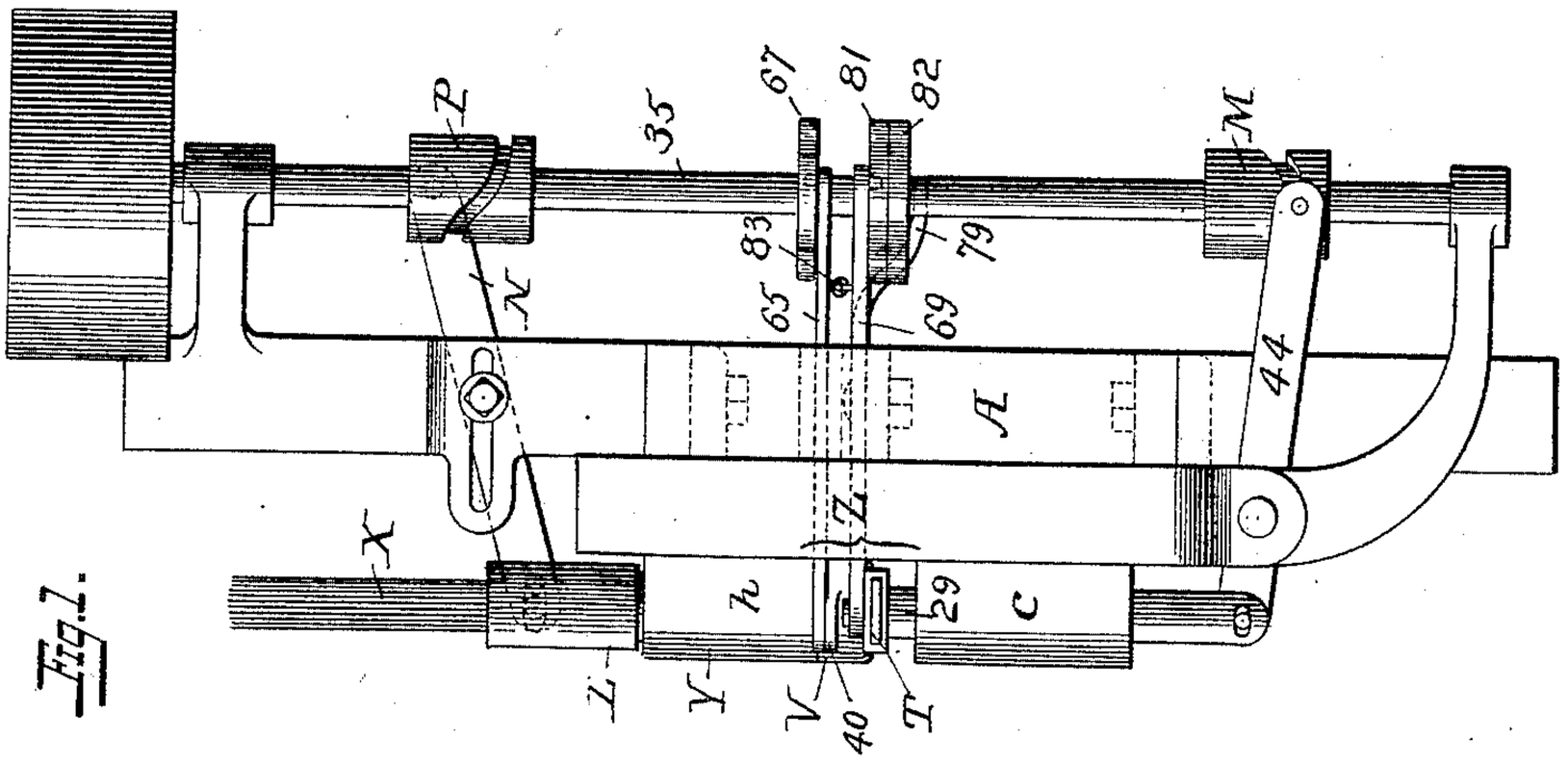


Fig. 1.



WITNESSES

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Fig. 3.

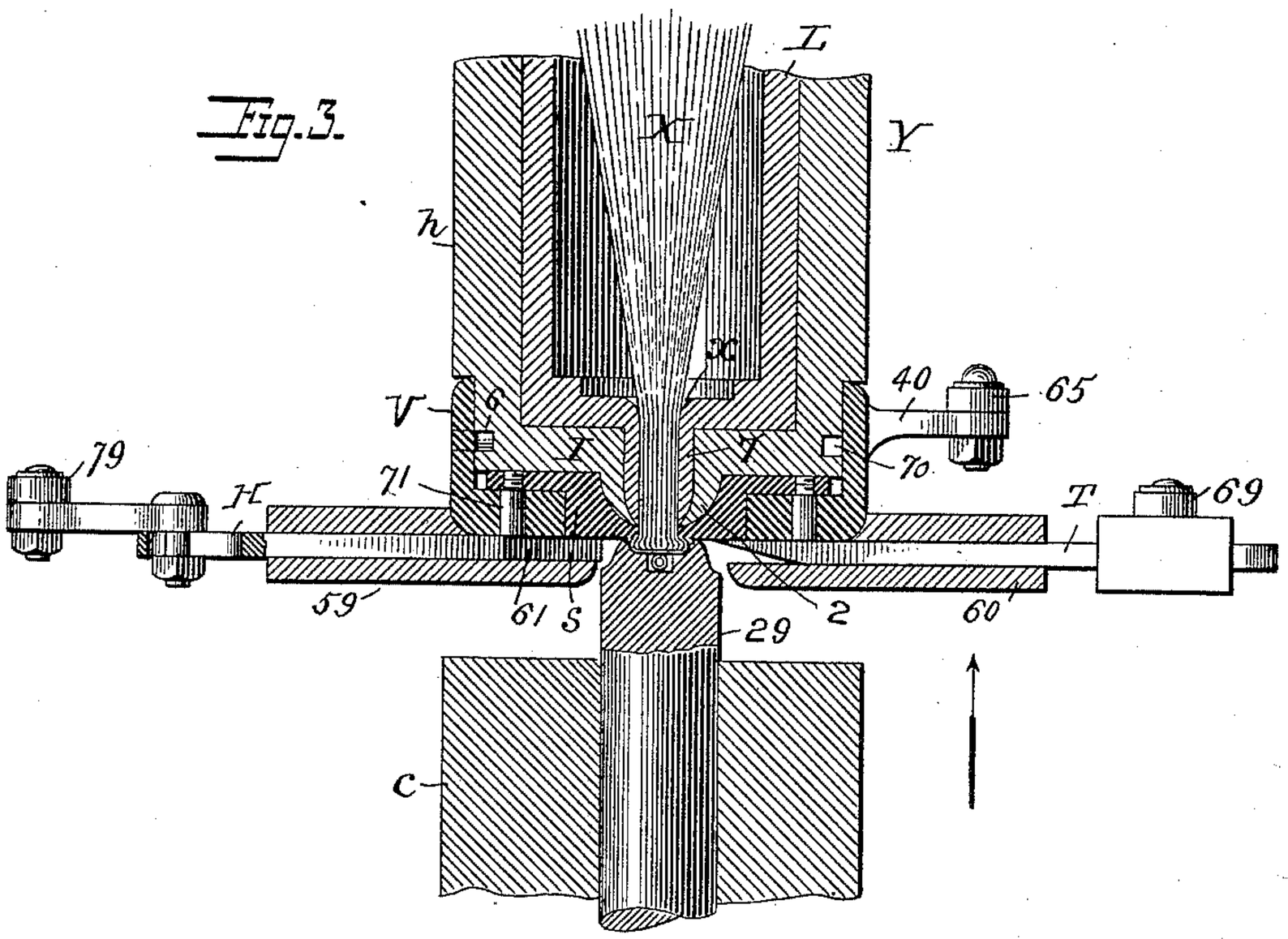
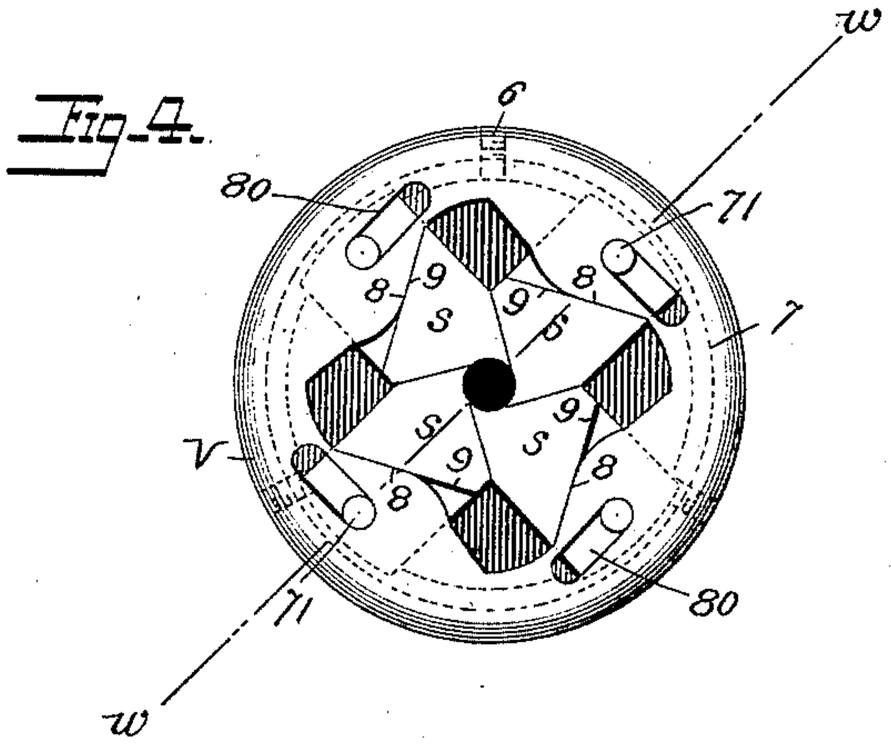


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HUTCHINSON AND HARTLEY A. CABLES, OF ROCHESTER, NEW YORK.

MACHINE FOR MAKING TUFTS OR BUTTONS.

SPECIFICATION forming part of Letters Patent No. 440,709, dated November 18, 1890.

Application filed May 7, 1890. Serial No. 350,868. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. HUTCHINSON and HARTLEY A. CABLES, citizens of the United States, residing at Rochester, Monroe county, New York, have invented certain new and useful Improvements in Machines for Making Tufts or Buttons, of which the following is a specification.

Our invention relates to apparatus for constructing tufts or buttons; and our invention consists of appliances whereby a binder is applied to a mass of fibers constituting the stock, and the latter is then sheared to separate the bound portion and form the tuft or button, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a tuft-making apparatus embodying our improvements. Fig. 2 is a back elevation of the same. Fig. 3 is an enlarged sectional view illustrating the appliances which act directly upon the stock and binder. Fig. 4 is an end view of the stock holder and feeder, and jaws and operating appliances, looking in the direction of the arrow, Fig. 3.

The apparatus consists, essentially, of a stock holder and feeder Y, a binder device whereby a ring or flange is pressed into the stock or mass of threads, a cutter device Z, which severs so much of the stock as is necessary to make a tuft or button, and a holder for the binder supporting the same until the binder is in position to be pressed upon the stock. All of these parts may be varied in construction more or less as circumstances may require, and are combined, in the construction shown, with a single driving-shaft, and cams whereby the said parts are operated in proper unison. All of the parts are arranged upon and carried by a frame A, which may be horizontal or vertical, being shown in the drawings in a vertical position with the holder and support in line with each other.

The holder and feeder Y is provided with a head-stock *h*, guiding an interior hollow slide L, at the lower end of which is an opening *x*, surrounded by a boss 7, through which the stock X passes.

Axially in line with the opening *x* is the support 29 for the binder, which binder may be an ordinary flanged cup provided with an eye, or it may be in the form of a ring, the end of the support 29 being constructed to hold either or both of said forms of binder. The support 29 is in the form of a sliding bar sliding in a stock *c*, and opposite the said support in the stock *h* is the die I, which has a central recess to receive the boss 7, said recess being surrounded by a hollow boss 2. Two or more jaws *s* moving radially are employed to receive between them the binder when it is raised by the support 29, and to then move inward and compress the binder upon the stock. The said jaws are shown as supported by the head-stock *h*, and different means may be employed for imparting the radial inward and outward movements. Thus, as shown, there are four jaws *s*, each sliding in a groove or between guides on the head-stock *h*, and confined between the end of the head-stock and a cam-ring V, which turns upon said head-stock, and is retained thereon by lugs 6 entering an annular slot 70 in the head-stock.

The jaws are provided with inclined shoulders 9, which engage with similar shoulders 8 on the cam-ring, so that when the latter is turned in one direction the jaws may be carried inward, and pins 71 on the jaws enter inclined slots 80 in the cam-ring, so that the reverse movement of the latter draws the jaws out. The outer faces of the jaws are upon the same plane transverse to the line of the stock, and when the latter is extended in a mass between the jaws it may be sheared by means of a cutter T sliding in the guide 60, with its flat face in contact with the face of the jaws, and its edge shearing across the edge of the jaws to make a clean cut. In a guide 59, opposite the guide 60, reciprocates a slide H, having a block 61 of soft material on its edge, against which the knife shears.

The jaws being separated, and a ring or flanged cup binder being placed in the support 29, which is in its lowest position, the operation of the parts will be as follows: The support 29 will first rise in position. (Shown in Fig. 3.) The slide L will then descend so as to push the end of the condensed stock through the binder-ring. The jaws will then be brought together so as to compress the binder into the mass of material forming the

stock, so that the end of the stock is confined firmly while the slide L moves upward to a certain extent. The jaws now separate, the support 29 descends, then the slide L moves downward a part of its movement so as to carry sufficient of the stock beyond the jaws to form a tuft, and the jaws again come together to hold the stock, and the knife then shears across the face of the jaws, cutting off the tuft or button, the slide H carrying the block 61 toward the knife to present a bearing against which a clean cut can be made.

The means by which the above-described movements are imparted to the various parts from a single driving-shaft are as follows: To the slide L is connected a lever N, pivoted to the frame of the machine and carrying a bowl or lug which enters the groove of the cam P, secured to the shaft 35. The groove of the cam is so constructed that a single revolution of the cam imparts to the slide L, in proper time and relation, the movements above described. The support 29 is connected with a lever 44, pivoted to the frame, and operated by a cam M to move the lever up and down in the manner set forth. The oscillation of the cam-ring V is effected from a cam 67 on the shaft 35, through the medium of a slide 65, sliding in bearings in the frame, connected at one end to an arm 40 of the ring B, and having at the other a projection entering the groove of the cam. The cutter T is connected to a lever 69, pivoted to the frame, and provided with a lug bearing upon a cam 81, while the slide H is connected to a lever 79, pivoted to the frame, and provided with a lug bearing upon the cam 82, and the rear ends of the levers 69 79 are connected by a spring 83, which tends to draw them together and move the cutter and slide outward. The shaft 35 is provided with a belt-wheel or band-wheel or gear, whereby it is rotated at the requisite speed, and each revolution imparts to the parts above set forth movements in proper time to feed and bind the stock and cut off a section thereof sufficient to make a button or tuft. The cams may of course be on different shafts, all geared to be driven by one driving-shaft. The whole or greater part of the operating-edge of each jaw is preferably at one side of the central line *w w* of said jaws, so that it acts on the flange tangentially or with a side pressure that prevents the material from being folded into the slots between the jaws.

We do not here claim, broadly, the construction of the holder and feeder shown, nor, broadly, the combination, with such holder and feeder, of jaws to compress the stock and the support and cutters. The construction and combination of these parts are more broadly claimed in our application, Serial No. 338,360.

Without limiting ourselves to the precise construction and arrangement of parts shown and described, we claim—

1. The combination, with the shaft, of a head-stock, a slide moving therein, the support 29 and connections between the slide and support, and the shaft whereby the slide and support are reciprocated on the rotation of the shaft, substantially as described.

2. The combination, with the stock holder and feeder, of jaws with the operating-faces at one side of a central line, and means for operating the jaws, substantially as set forth.

3. The combination, with the support 29, of a head-stock, a slide moving therein, shaft 35, with cams and connections between the latter and the slide, whereby the slide is reciprocated on the rotation of the shaft, substantially as described.

4. The combination, with the head-stock, the slide, binder device, and cutter of a tuft-making machine, of a shaft and cams and connections between the cams and said slide, binder device, and cutter, whereby said parts are operated by the rotation of the shaft, substantially as described.

5. The combination of the stock holder and feeder consisting of a perforated slide L, and guide for supporting the same, a shaft 35, cam P, and lever N, substantially as set forth.

6. The combination of the stock holder and feeder, cutter T, shaft 35, and cam and lever, whereby the cutter is reciprocated on the rotation of said shaft, substantially as set forth.

7. The combination of the head-stock, the slide, binding-jaws, means for operating the jaws, and the independent reciprocating support 29, substantially as described.

8. The combination, with the stock holder and feeder, of two or more radially-moving jaws supported in bearings in the stock-holder, and means for reciprocating said jaws, substantially as set forth.

9. The combination of the stock holder and feeder, radially-moving jaws and operating-cam ring V, substantially as set forth.

10. The combination, with the stock holder and feeder, jaws, and cam-ring, of a shaft provided with a cam and operating connections between the latter and the ring, substantially as set forth.

11. The combination, with the stock holder and feeder and reciprocating jaws, of a cutter shearing across the faces of said jaws, and means to operate the cutter and jaws, substantially as described.

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

WILLIAM H. HUTCHINSON.
HARTLEY A. CABLES.

Witnesses:
W. I. BURRITT,
JOHN A. NIVEN.