

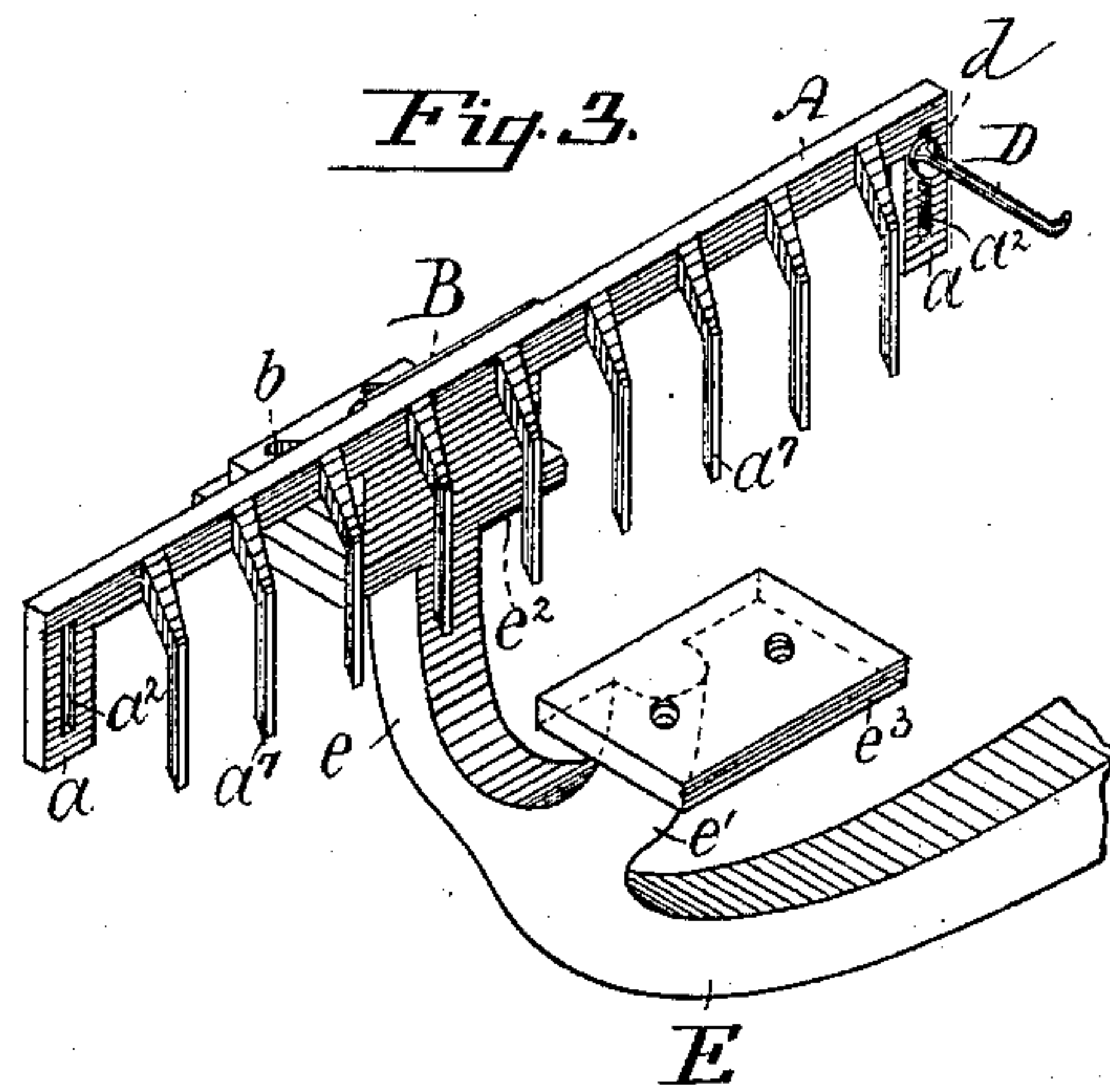
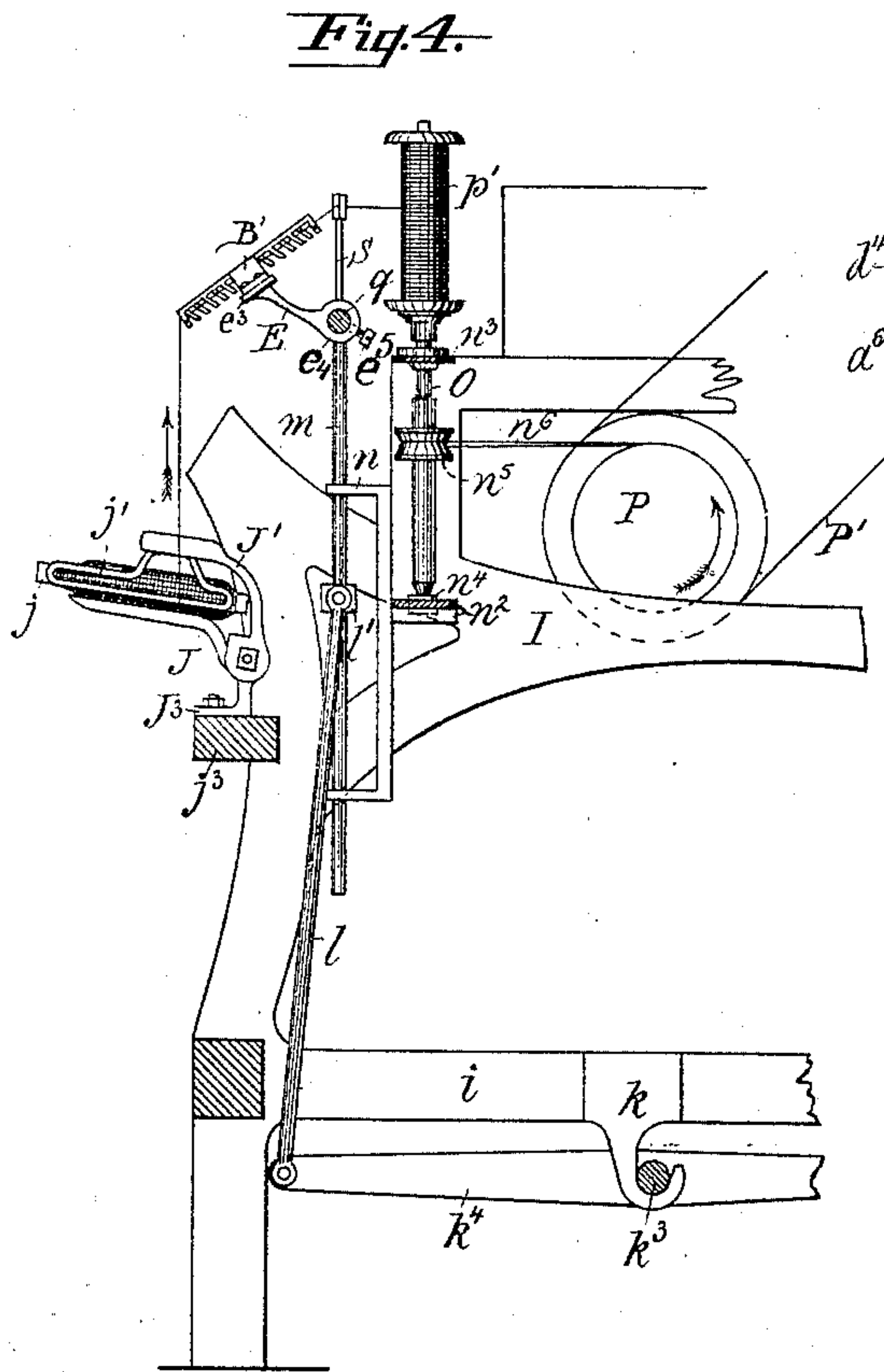
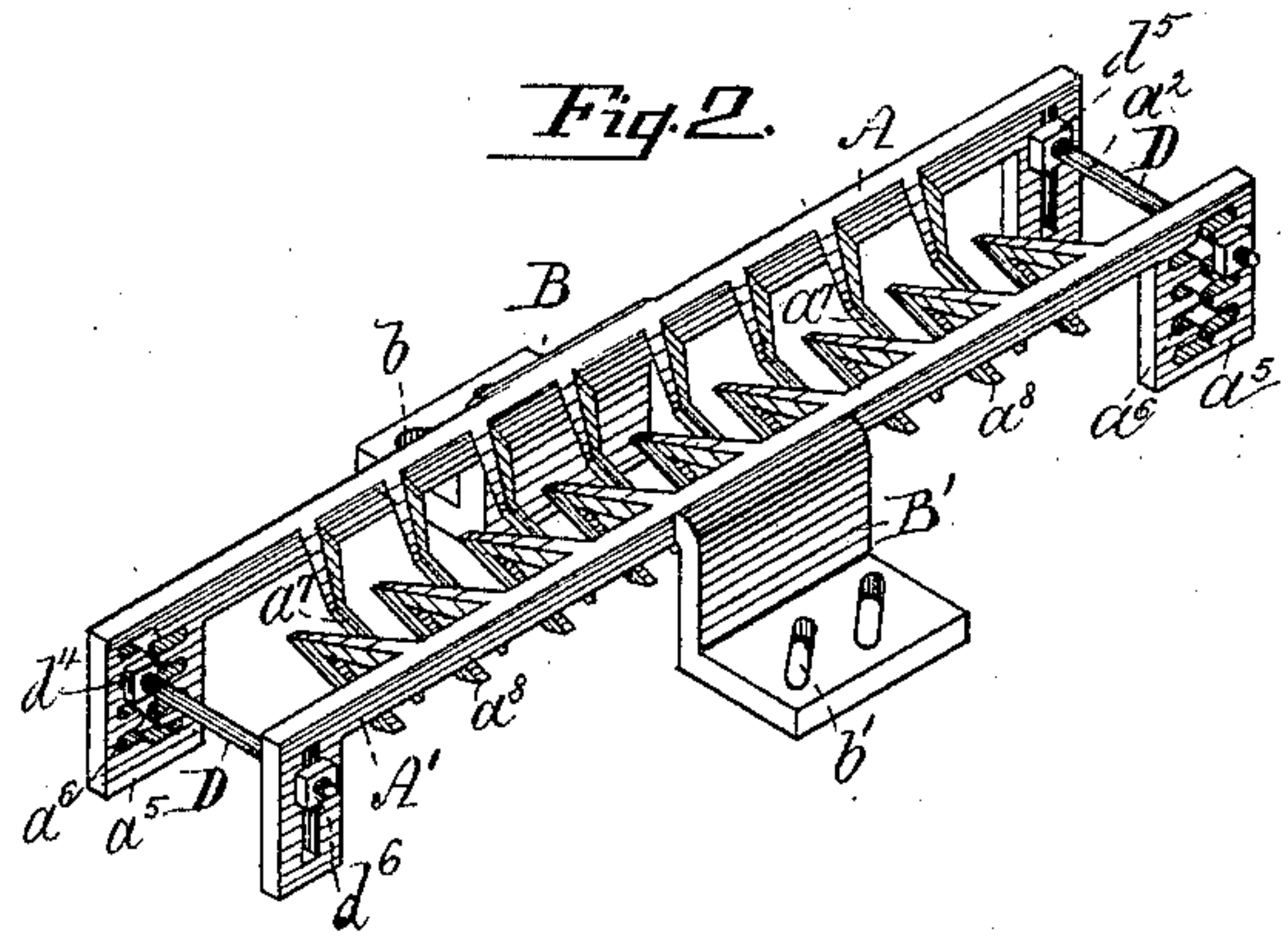
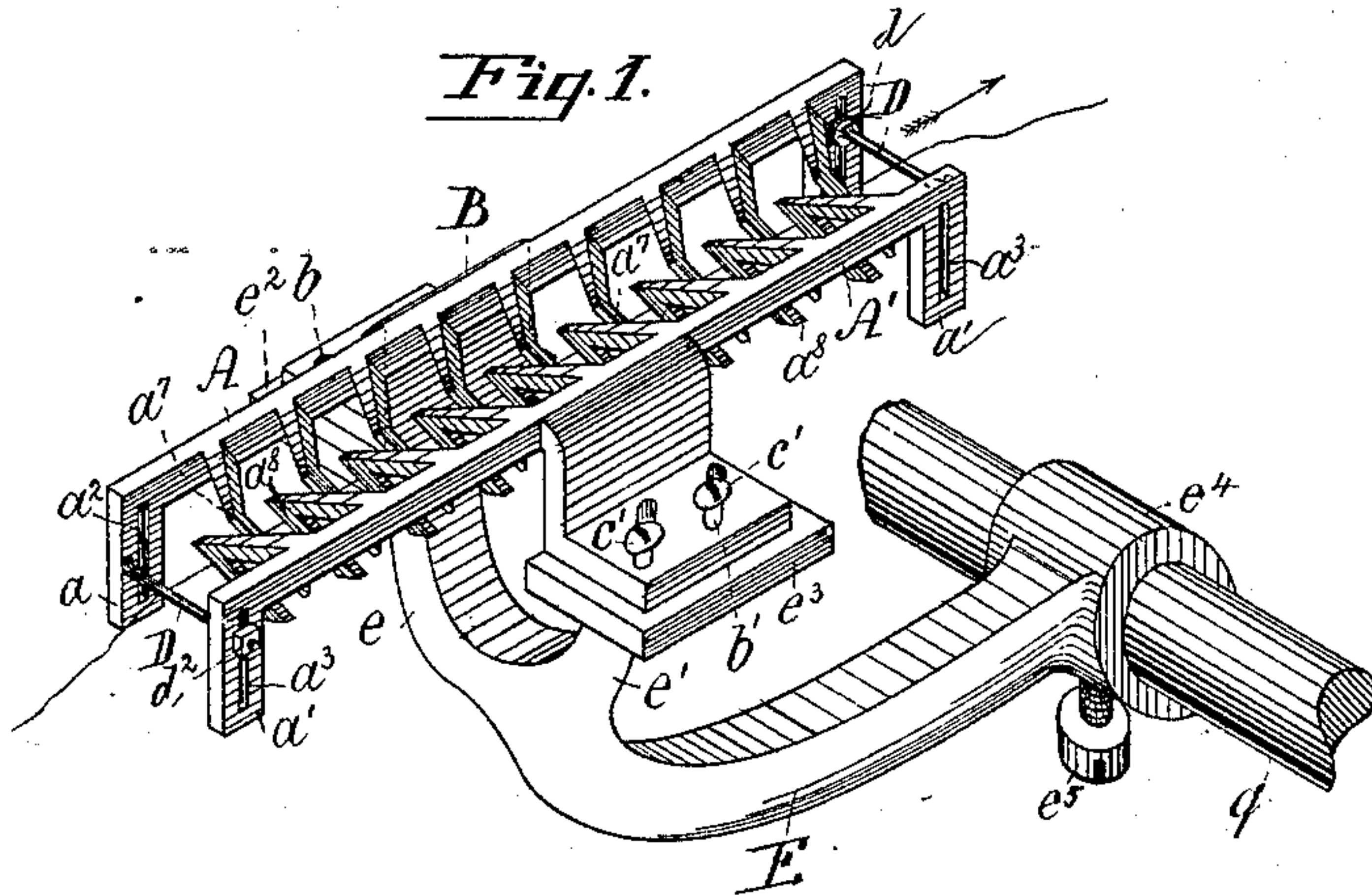
(No Model.)

H. F. WEST.

DEVICE FOR CLEANING YARN, &c.

No. 390,325.

Patented Oct. 2, 1888.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

HENRY F. WEST, OF GLOUCESTER CITY, NEW JERSEY.

## DEVICE FOR CLEANING YARN, &c.

SPECIFICATION forming part of Letters Patent No. 390,325, dated October 2, 1888.

Application filed September 13, 1887. Serial No. 249,513. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. WEST, of Gloucester City, in the county of Camden and State of New Jersey, have invented a certain  
5 new and Improved Device for Cleaning Yarn, &c., of which the following is a specification.

This invention has relation to certain novel features of improvement in a device for cleaning yarn or similar material of the type forming the subject-matter of an application for  
10 Letters Patent filed by me on the 13th day of September, 1887, and serially numbered 249,542.

My present invention consists of a more simple form of a device for cleaning yarn and other material from that shown and described in the aforesaid application for Letters Patent filed by me of even date herewith, while at the same time equally if not more effective  
20 in its action of removing fuzz or other small particles from yarn or other material in its passage from the bobbin to the spool in apparatus designated as a "spooling-machine."

The nature and scope of this invention will be more fully understood by reference to the accompanying drawings, forming part hereof, wherein I have illustrated the same in a form found practically efficient, and in which—

Figure 1 is a perspective view of this improved cleaning device attached to a supporting-bracket. Fig. 2 is a similar view of a modified form of the device, but shown detached from the supporting-bracket. Fig. 3 is a similar view showing a portion of the supporting-bracket, but with one of the bars with its series of knives removed; and Fig. 4 is a side elevation, partly in section, of such portion of an ordinary spooling-machine as will serve to illustrate the application of my invention  
40 thereto.

Referring to the drawings, A and A' are two rectangular-shaped longitudinal bars having depending arms  $a$  and  $a'$ . In these arms are formed slots  $a^2$  and  $a^3$ , for a purpose to be presently more fully explained. Cast with or otherwise secured centrally to the outside of the bars A and A' are right-angular seats B and B', having two or more diagonal slots,  $b$  and  $b'$ , in the bottom thereof, through which  
50 broad-headed screws  $c$  and  $c'$  are inserted for holding the bars with their knives in the desired position for the different kinds of mate-

rial that may from time to time be operated upon.

On the inner side of the two rectangular bars are formed a series of knives,  $a^7$  and  $a^8$ , which are disposed at acute angles to the horizontal and vertical planes of these bars, the sides of which are beveled off or taper from the bars to the outer extremities thereof slightly, while the edges are either beveled off or square. Such a form of knives is clearly shown in Figs. 1 and 2, and these have been found efficient in practice.

The particular advantage of arranging the knives at more or less of an acute angle to the respective bars is that any fuzz or small particles that might be apt to accumulate will be continually discharged therefrom and away from the material under treatment by the device.

E is a curved bracket having a U-shaped extremity, to the arms  $e$  and  $e'$  of which rectangular-shaped seats  $e^2$  and  $e^3$  are suitably secured, or they may be formed integral with the arms  $e$  and  $e'$ , as will be readily understood. The opposite extremity of this bracket E is provided with a hub,  $e^4$ , through which a bar,  $g$ , is inserted, and the bracket held to place thereon by means of a tightening-  
80 screw,  $e^5$ .

D is a guide made of wire or other suitable material, one end of which is crooked, while the opposite end is threaded with a collar formed thereon, or to which may be fitted a nut,  $d$ . This guide D is then inserted through one of the oblong slots  $a^2$  or  $a^3$  in the depending arms  $a$  or  $a'$  of the respective rectangular-shaped longitudinal bars A and A', and a nut,  $d^2$ , fitted thereon and turned by hand until it rests snugly up against the outer side of one of the depending arms  $a$  or  $a'$ . By this arrangement is provided a guide which may be easily adjusted in a vertical direction, thereby rendering it possible to use up the entire cleaning-edges of the knives before there is any occasion to remove the same for the purpose of sharpening or grinding.

In Fig. 2 is shown a modified form of guide adjustable both vertically and horizontally to compensate for whatever adjustment may be found necessary in the position of the knives, in order to adapt the device to the different kinds or sizes of material to be cleaned of mote  
100



or other particles. At one end of each bar A and A', and preferably formed integral therewith, is an enlarged depending arm,  $a^5$ , having a series of slits,  $a^6$ , and the opposite end of each depending arm is preferably provided with but a single oblong slit,  $a^2$ , similar to that shown in Fig. 1. The preferable form of guide for use in this connection is a horizontal bar, D, made of wire or similar material threaded for a portion of its length from both extremities, to which nuts  $d^4$ ,  $d^5$ , and  $d^6$  are secured for holding the same in position in the respective extremities, as shown in Fig. 2, in a manner similar to that already described.

It should be understood that the series of knives preferably formed integral with each of the rectangular-shaped longitudinal bars, while arranged as hereinbefore described for operation, so that a series of knives of one bar will occupy a position between a series of knives of the opposite bar, must nevertheless not be so arranged or adjusted to the bracket as to produce friction between them and the material undergoing the cleaning operation, because if a tensional friction should be present the material would be instantly severed or cut and the device thereby rendered incapable of performing the function designed—that of removing mote, fuzz, or small particles from the fibrous material in its passage between the series of angular knives formed with each of the longitudinal bars. It should, however, be borne in mind that it may become necessary to so adjust the knives of one bar that they will occupy a position nearer to the knives of the opposite bar than is illustrated in Figs. 1 and 2, but not close enough to produce friction, which would defeat the object to be accomplished.

The object of such an adjustment as above alluded to is to adapt the device to the different kinds and sizes of yarn or other fibrous material to be cleaned, and to move the knives closer together it will be necessary first to slightly loosen the nuts  $d^4$  and  $d^5$ , which will enable the guides D in the respective depending arms  $a^5$  to be readily moved by hand across into slits  $a^6$  opposite to those shown in Fig. 2, or the reverse movement of the guides will be necessary when the knives are moved farther apart. These guides may be moved by hand into upper or lower slits, as may be desired, or when any one portion of the cleaning-edges of the series of knives becomes dull from use the guides in the same manner may be raised or lowered by simply loosening the nuts  $d^4$  and  $d^5$ , which hold them in position in the depending arms, thereby rendering it possible to utilize the entire cleaning-edges of the knives before there is any occasion for their removal for sharpening and grinding.

In Fig. 3 is shown a modified form of knives,  $a^7$  and  $a^8$ , cast preferably with the two rectangular-shaped bars A and A' at a right angle to the respective bars, and which form of knives I have designated as "right-angular" ones to distinguish them from those shown in

Fig. 1, which are disposed at acute angles to said bars, as hereinbefore fully described. These knives, as shown in Fig. 3, have been found to satisfactorily accomplish the object in the cleaning of yarn in its passage from the bobbin to the spool.

In Fig. 4 is shown a sectional side elevation of so much of an ordinary spooling-machine as will serve to illustrate the manner of applying my improved cleaning device thereto. I is a portion of one of the standards of the machine. J is the bobbin-holder. J' is a curved arm having hinged thereto a light depending wire guide,  $j'$ , of any suitable construction, and which supports the bobbin  $j$ , and guides the yarn or other material from the bobbin and regulates the tension of the same therefrom. The bobbin-holder J and the wire guide  $j'$  are suitably hinged to a right angular bracket,  $J^3$ , attached to a frame,  $j^3$ , running along the front of the machine.  $k$  is a hook secured to the lower cross frame,  $i$ , of the machine, in which is mounted a shaft,  $k^3$ , carrying a rocker-arm,  $k^4$ , which is actuated by a heart-cam movement not shown, but fully understood without further explanation. One extremity of the rocker-arm  $k^4$  is pivoted to a vertical connecting-rod,  $l$ , having a slight oscillating movement, and this rod is pivoted at its upper extremity to a collar,  $l'$ , secured to a vertical rod,  $m$ , moving freely up and down through the horizontal arms of a bracket,  $n$ , suitably attached to the machine, when motion has been communicated to the rocker-arm  $k^4$  in any well-understood manner.

The brackets  $n$  and  $n'$  at the respective ends of the machine have formed therewith a horizontal frame,  $n^2$ , extending the width of the machine, and a frame,  $n^3$ , is preferably secured at each end to the standards. At suitable distances apart in these frames  $n^2$  and  $n^3$  are formed journal-bearings  $n^4$  for the reception of the spindles O, and to each of these spindles is secured a grooved wheel,  $n^5$ , actuated through a belt,  $n^6$ , passing around a frictional drum, P, suitably journaled in the standards of the machine. Motion is imparted to this drum P through a belt,  $P'$ , passing around a pulley secured to a main driving-shaft.

The pulley and shaft above alluded to have not been shown. Still the operation of the drum will readily be understood without illustration or further more particular description.

$p'$  is a spool mounted on the upper extremity of the spindle O. To the upper extremities of the vertical rods  $m$  is attached a horizontal rod,  $q$ . One or more curved brackets, E, having formed integral therewith at each extremity a hub,  $e^4$ , are fitted onto the horizontal rod  $q$ , and held in proper position thereon by means of a tightening-screw,  $e^5$ . To the seats  $e^2$  and  $e^3$  of each bracket are attached the supporting-seats B and B' of the longitudinal bars A and A', each provided with a series of knives,  $a^7$  and  $a^8$ , by means of screws  $c$  and  $c'$ .

To the horizontal rod  $q$ , or to the bracket E, is attached a short vertical rod, S, having a



slotted upper extremity, through which the yarn or other material is guided in its passage from the bobbin *j* through the cleaning device to the spool *p'*.

5 The vertical connecting-rod *l*, actuated by the rocker-arm *k'*, imparts an up-and-down movement to the horizontal rod *q*, and moving therewith the cleaning device and vertical guide *S*, thereby automatically laying up the  
10 thread or yarn evenly onto the spool when revolved by means of the belt *n'*, passing around the grooved wheel *n* of the spindle *O*, when the frictional drum *P* has had motion imparted to it from any suitable source.

15 The manner of applying my improved cleaning device to a spooling-machine of the type illustrated in the drawings having been described, I will now explain, briefly, the operation thereof.

20 The yarn or other material to be cleaned is passed in an upward direction from the bobbin *j*, held in the holder *J*, around the lower portion of the wire guide *j'*, over the adjustable guides *D* in each end of the depending arms  
25 of the longitudinal bars and between the two series of knives of the cleaning device, thence through the slotted guide *S*, and onto the spool *p'*, whereon it is evenly wound when the mechanism of the machine hereinbefore described  
30 has been actuated, all fuzz or other fine particles, by means of the knives of the cleaning device in the passage of the material between them, being readily and effectually removed away from the device.

35 Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a device consisting of two longitudinal bars each provided  
40 with a series of knives arranged at an angle thereto, and with a supporting-seat, of a curved bracket, and means, as described, for securing each seat to said bracket, substantially as and for the purposes set forth.

45 2. The combination, with a device consisting of two longitudinal bars each provided with a series of knives arranged at an angle thereto, and with a right-angular seat having diagonal slots therein, of a U-shaped bracket  
50 having a hub with a tightening-screw, a horizontal rod on which the hub of said bracket

is secured, and means for securing each seat to said bracket, substantially as and for the purposes set forth.

3. The combination, with a device consisting of two bars each provided with knives, and a supporting-seat having slots in the lower portion thereof, of a curved bracket having a hub with a tightening-screw therein, a rod on which the hub of said bracket is mounted and  
60 held to place thereon by means of said screw, and means for attaching each seat to said bracket, substantially as and for the purposes set forth.

4. The combination, with a device consisting of two longitudinal bars each provided with angular knives, and with a supporting-seat having slots in the lower portion thereof, of a curved bracket having a hub with a tightening-screw, a horizontal rod on which the hub  
70 of said bracket is mounted and held by said screw, and means for adjustably securing each supporting-seat to said bracket, substantially as and for the purposes set forth.

5. The combination, with a device consisting of two bars having depending arms with slots formed therein, and each bar provided with a series of knives, and a supporting-seat, guides, and means for retaining said guides in adjustable positions vertically in said depending  
80 arms, of a curved bracket, and means for attaching each supporting-seat to said bracket, substantially as and for the purposes set forth.

6. The combination, with a device consisting of two longitudinal bars having depending  
85 arms with slots therein, and each bar provided with a series of angular knives, and a supporting-seat with diagonal slots, horizontal guides, and means for retaining said guides in adjusted positions in said depending arms, of a curved  
90 bracket, and means, as described, for adjustably securing each of said supporting-seats to said bracket, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my  
95 hand in the presence of two subscribing witnesses.

HENRY F. WEST.

Witnesses:

GEO. W. REED,  
THOMAS M. SMITH.