

W. G. M. KEIGHLEY & H. NETHERWOOD.
 STOP MOTION FOR VELVET AND LIKE PILE CUTTING MACHINES.
 APPLICATION FILED MAR. 23, 1909.

946,136.

Patented Jan. 11, 1910.
 2 SHEETS—SHEET 1.

Fig. 1.

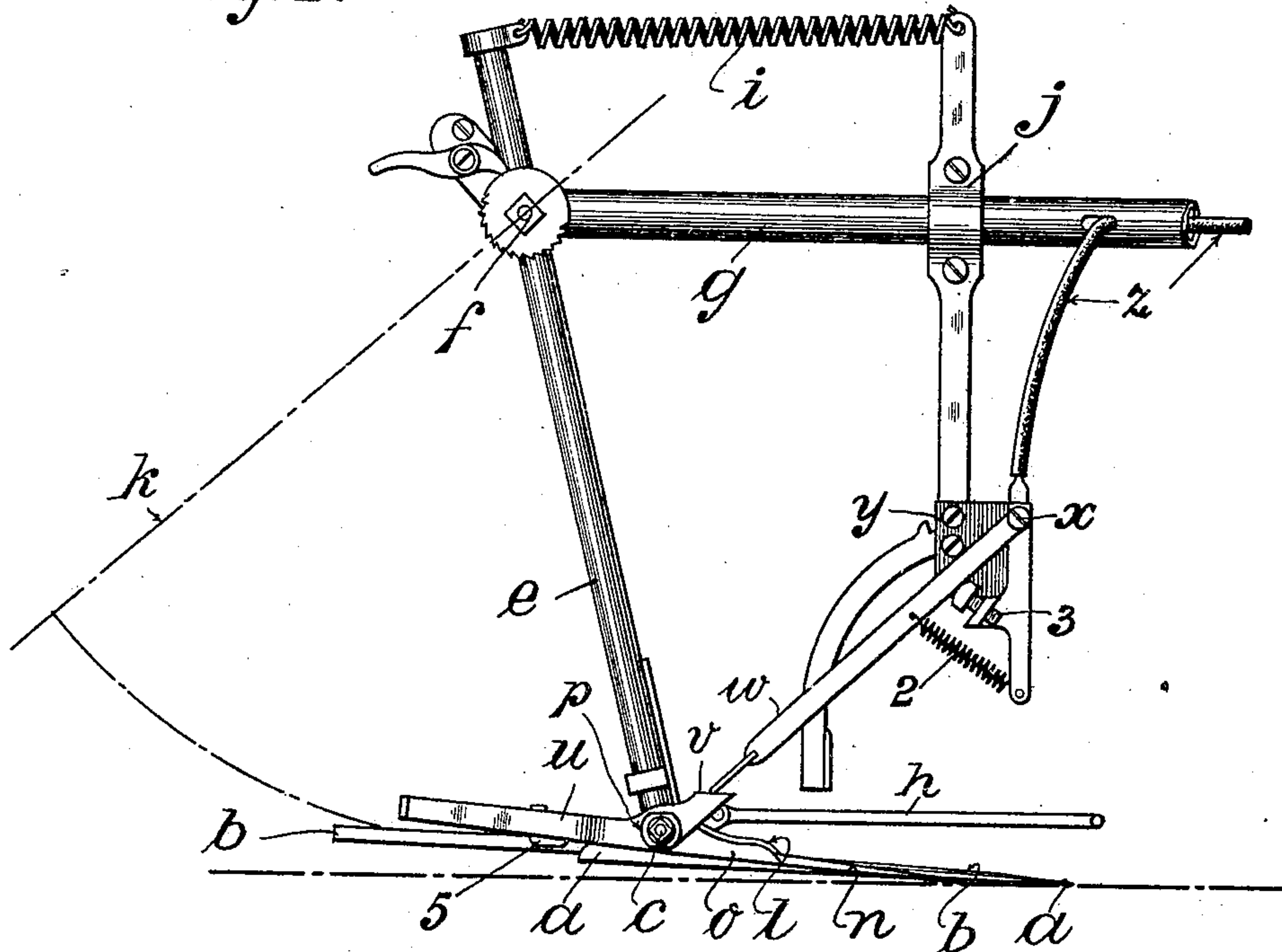


Fig. 2.

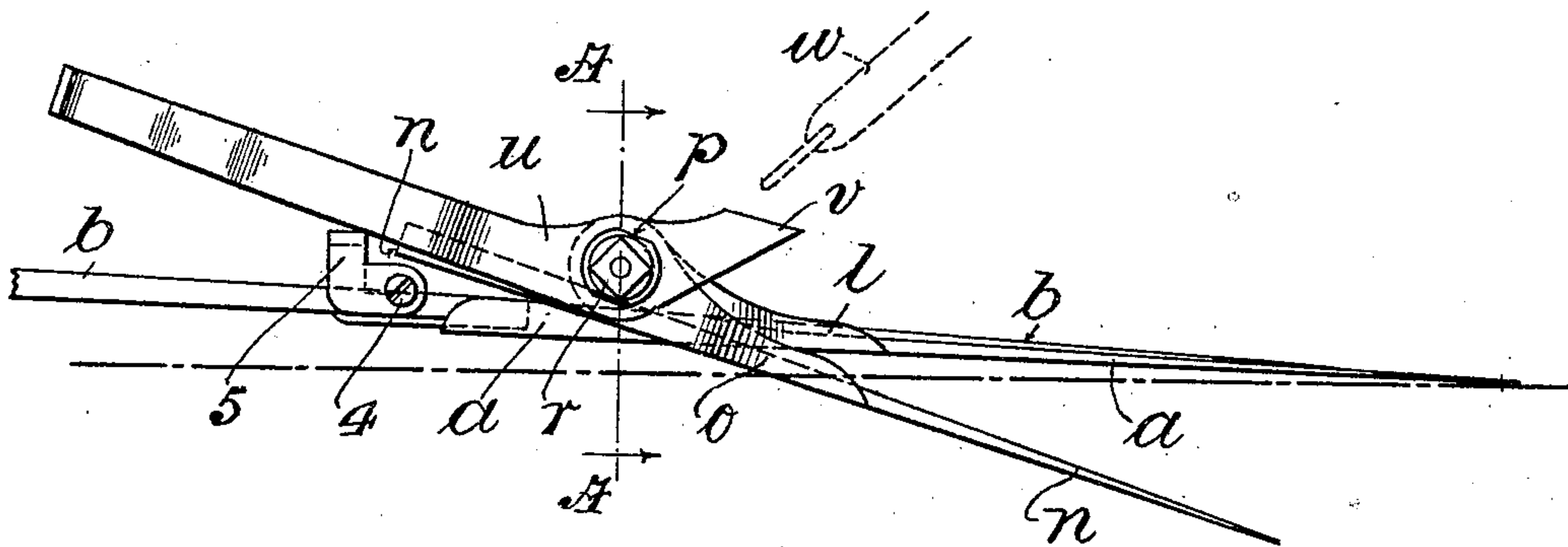
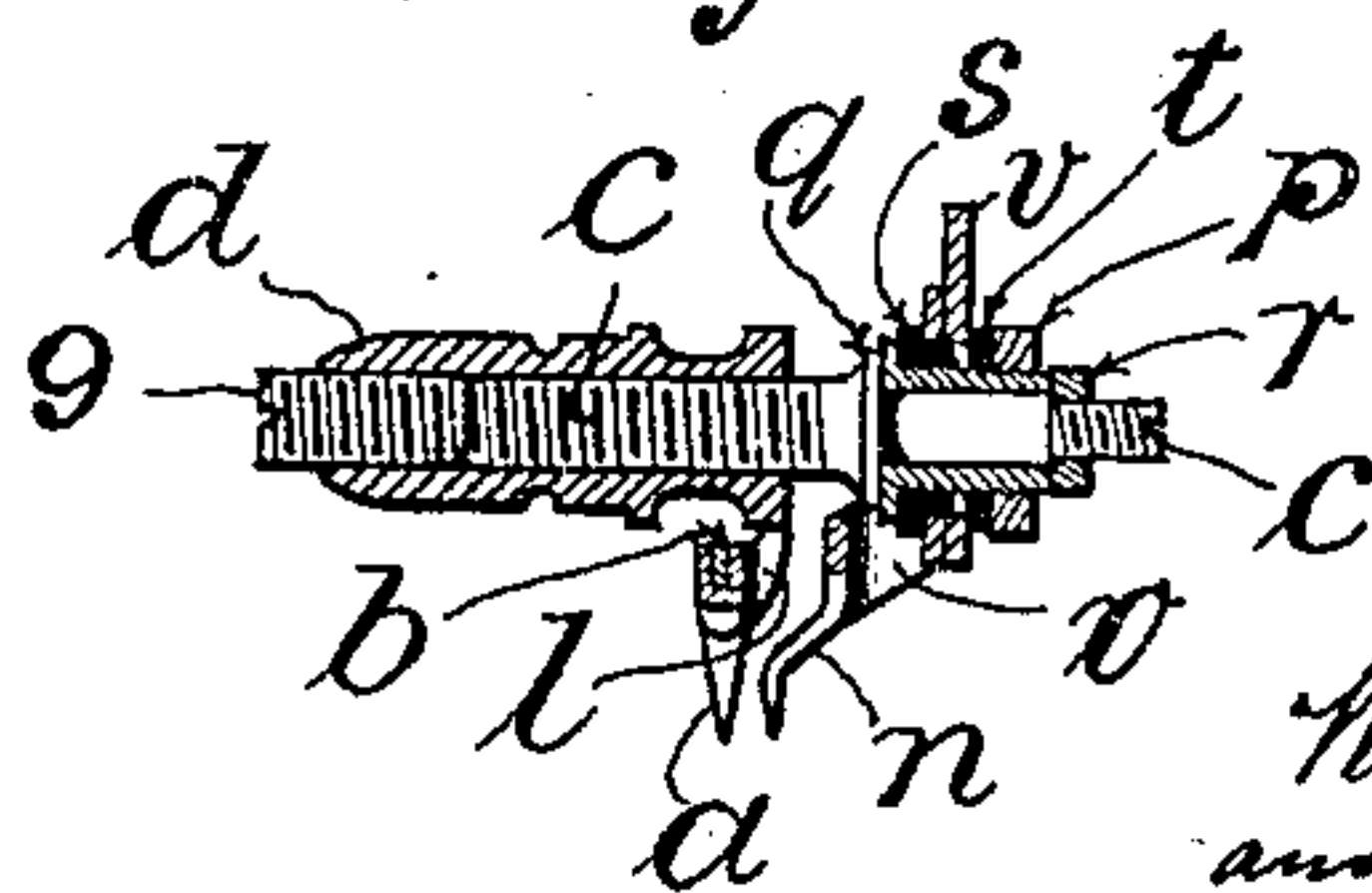


Fig. 3.



Witnesses
 W. Allen
 W. E. Allen.

Inventors:
 William G. M. Keighley
 and Harry Netherwood
 by Herbert W. Penner
 Attorney.

W. G. M. KEIGHLEY & H. NETHERWOOD.
 STOP MOTION FOR VELVET AND LIKE PILE CUTTING MACHINES.
 APPLICATION FILED MAR. 23, 1909.

946,136.

Patented Jan. 11, 1910.
 2 SHEETS—SHEET 2.

Fig. 4.

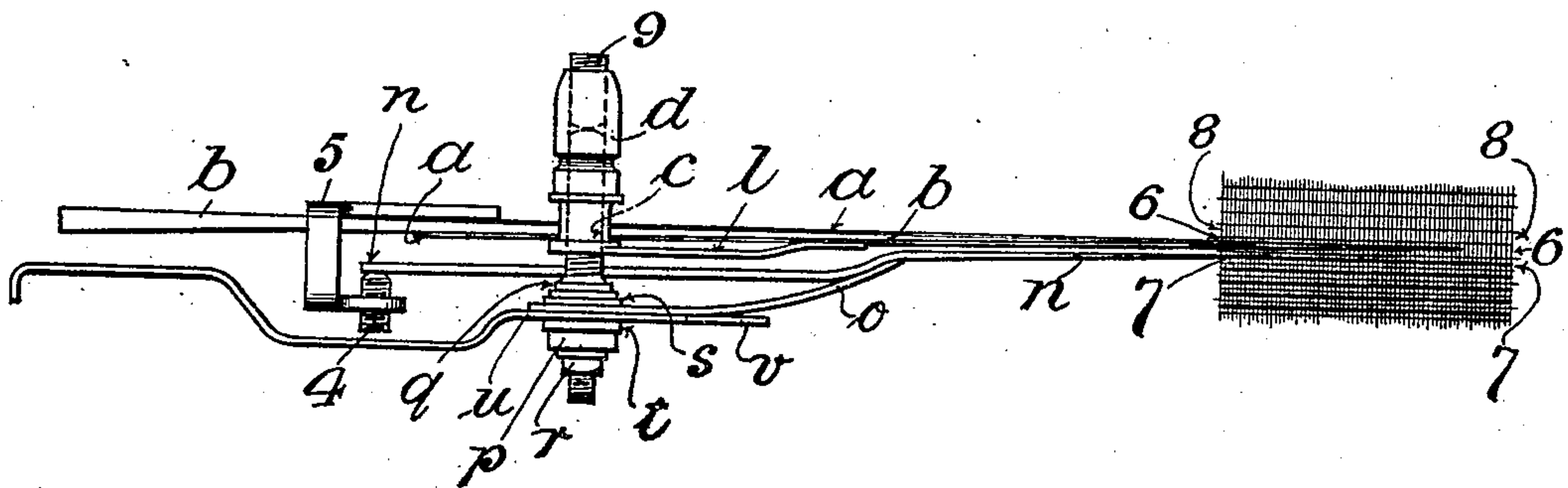


Fig. 5.

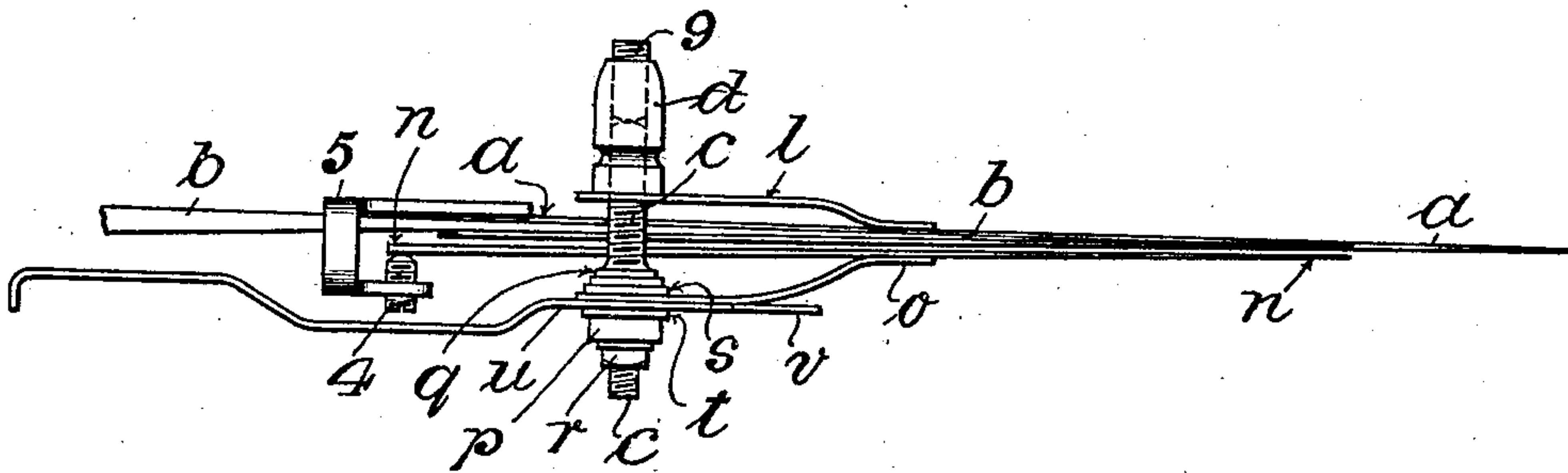
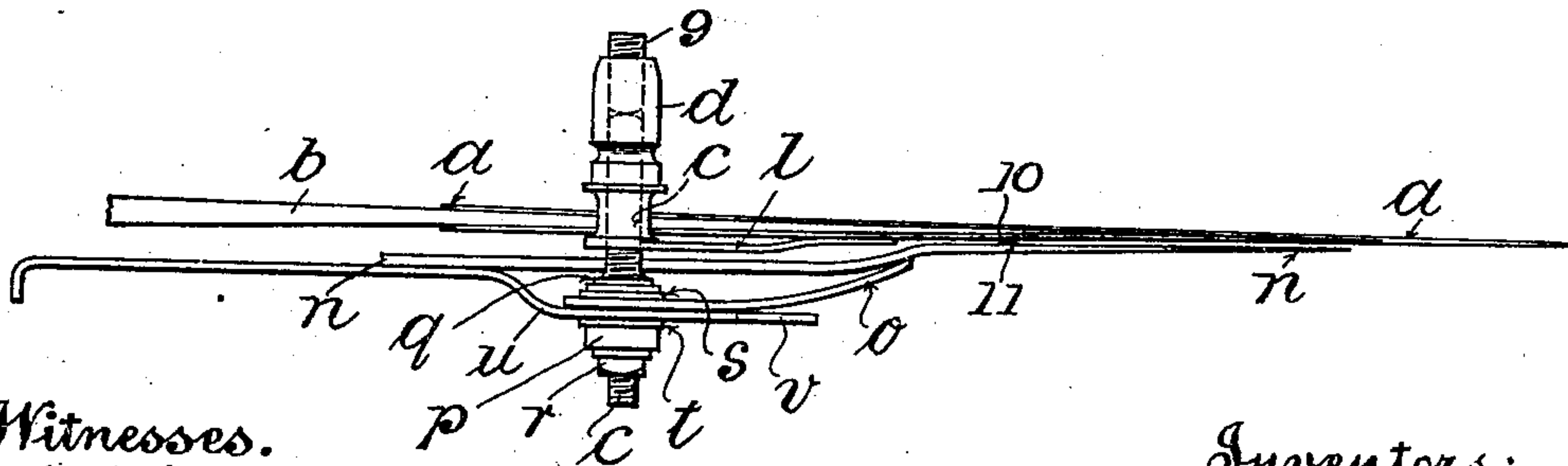


Fig. 6.



Witnesses.
 W. Allen
 H. E. Allen.

Inventors:
 William G. M. Keighley
 and Harry Netherwood.
 by Herbert H. Jenner.
 Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM GEORGE MACGREGOR KEIGHLEY AND HARRY NETHERWOOD, OF HUDDERSFIELD, ENGLAND.

STOP-MOTION FOR VELVET AND LIKE PILE CUTTING MACHINES.

946,136.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed March 23, 1909. Serial No. 485,324.

To all whom it may concern:

Be it known that we, WILLIAM GEORGE MACGREGOR KEIGHLEY and HARRY NETHERWOOD, subjects of King Edward VII of Great Britain, and residing at Huddersfield, in the county of York, England, have invented certain new and useful Improvements in Stop-Motions for Velvet and Like Pile Cutting Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to velvet and like pile cutting machines in which the fabric is made endless and caused to travel around guide rollers through the machine and over a bed where the knife or cutter operates to cut the race or pile hose from end to end of the fabric.

The object of the invention is to provide novel means primarily intended for stopping the machine when the cutting knife or cutter blade is deflected from its true course and enters the "slip race", but which will also serve to stop the machine in the event of the cutter blade passing under the pile weft without cutting it, or of the guide or supplemental means penetrating through the fabric.

Our invention consists in providing a supplementary guide, finger or arm arranged parallel to the ordinary guide running in the race to be cut, and at a suitable distance therefrom so as to travel truly in an adjacent cut race, the said supplementary guide being suitably carried by the cutter head or holder and provided with a contact plate or extension which is normally in engagement or in electric contact with the ordinary guide and establishes an electric connection to complete and maintain an electric circuit. In the event of a knot or other obstruction in the race being cut causing the guide and cutter to be deflected from a true path and to enter what is technically known as the "slip race", or such deflection of the guide and cutter results from any other cause, the slight deviation thus made by the guide removes it from engagement with the contact piece on the supplementary guide whereby the contact is broken and through the electrical connections and magnet, the machine is brought to a standstill, or the cutter head may be moved over into abnormal position to withdraw the guide and cutter from their operative position

and the machine be brought to a standstill, the said electrical connection preferably being combined with the ordinary electric stop motion. In the same way, should either the ordinary guide, or the supplementary guide, while traveling in a true path, penetrate the fabric, the movement of the guide, which has thus penetrated, into an angular position with respect to the other of the guides causes the electric circuit to be broken and permits the electric stop motion to act to stop the machine, or in the case of the ordinary guide penetrating the fabric, stoppage may be brought about in the usual manner by contact of the said guide with a plate or series of wires under the traveling fabric.

In the accompanying drawings illustrating our invention and to which in more particularly describing our improvements, reference will be made:—Figure 1 is a side elevation of the cutting mechanism of a velvet or like pile cutting machine, embodying our improvements, and showing such parts co-operating with the cutter head or holder as are necessary for the purpose of making our invention clearly understood; Fig. 2 is a side elevation of the cutting mechanism detached from the cutter head, and shows the supplementary guide in the abnormal position it might occupy on penetrating the fabric; Fig. 3 is a section taken as on the line A. A. of Fig. 2, the supplementary guide being however in this instance shown in normal position; Fig. 4 is a plan view of the cutting mechanism showing the preferred arrangement of the supplementary guide, and Figs. 5 and 6 are plan views of cutter mechanism embodying slightly modified arrangements of the supplementary guide, and which will be hereinafter referred to.

Referring to the drawings, letter *a* represents the ordinary guide, *b* the cutting knife carried therein, *c* the spindle on which the said ordinary guide *a* is mounted, *d* a boss on the said spindle adapted to enter and be pivotally secured in the lower end of the tilting cutter holder *e* pivoted at *f* to the outer end of a radial arm *g* whose opposite end is pivoted in the usual manner on a nut block mounted on a feed screw extending transversely across the machine and operated at the required times to traverse the said radial arm *g* to present the cutting knife successively opposite the uncut races.

A rod or wire *h* is connected to the lower end of the tilting cutter holder *e* and operated in the usual manner. This rod *h* normally holds the said cutter holder in the angular position shown at Fig. 1 against the action of the spring *i* one end of which is connected to the upper end of said cutter holder and the other end to a fixed bracket *j* on the radial arm *g*. Release of the rod or wire *h* by the stop motion permits the spring *i* to tilt the cutter holder *e* to the position indicated by the broken line *h* Fig. 1, and thus move the cutting mechanism clear of the fabric.

In the embodiment of our improvements shown at Figs. 2, 3 and 4, and which is the preferred form, the ordinary knife guide *a* is carried by a spring *l* formed on or attached to the boss *d*.

Parallel and adjacent to the ordinary guide *a* we arrange a supplementary guide *n* carried by a spring *o* confined on a bush *p* (see Fig. 3) loosely mounted on the plain portion of the spindle *c* and confined thereon by a collar *q* and a nut *r*. Washers *s*, *t* of insulating material are employed to insulate the spring *o* from the bush *p* and spindle *c*. Also mounted on the insulating washers *s*, *t* is a contact plate *u* in electric contact with and fast to the spring *o* and having a projection *v* adapted, when the supplementary guide is in normal position, to be engaged by the lower end of a contact maker *w* (Fig. 1) pivoted at *x* to a block of insulating material carried by the bracket *j*. The pivot *x* of the contact maker *w* is connected by insulated wire *z* to one pole of the magnet of an ordinary electric stop motion. A spring 2 (Fig. 1) holds the contact maker *w* normally in contact with the projection *v* of the contact plate *u* and an adjusting screw 3 serves to support the said contact maker when by reason of abnormal movement of the supplementary guide the contact plate leaves the contact maker, as shown at Fig. 2. The rear end of the supplementary guide *n* is normally arranged to contact with an adjustable contact screw 4 carried by the bridge piece 5 attached to the ordinary guide *a*.

The ordinary guide *a* runs in the race 6 of the fabric (Fig. 4) to be cut, and the supplementary guide *n* is arranged to run in the next adjoining cut race 7, or it may be in any adjacent cut race. So long as the cutting is proceeding satisfactorily an electric circuit is maintained through the two guides and through the magnet controlling the stop motion. In the event of a knot or other obstruction in the race 6 being cut causing the guide *a* and knife *b* to be deflected from a true path and to enter the race 8, technically known as the "slip" race, or if such deflection of the guide *a* and knife *b* results from any other cause, the slight

deviation thus made by the guide increases the distance between the front ends of the ordinary and supplementary guides. This, by means of the springs *l* and *o* by which the said guides are respectively carried, causes the contact to be destroyed between the rear end of the supplementary guide *n* and the contact screw 4 whereby the electric circuit is broken and the stop motion permitted to operate to stop the machine. If either the supplementary guide *n* (as shown in Fig. 2) or the ordinary guide *a* should penetrate the fabric, the angular position to which the penetrating guide is moved causes the contact to be broken and the machine stopped in the same manner.

The distance between the ordinary guide and supplementary guide can be adjusted by rotating the spindle *c* in the boss *d* to cause it to enter farther into same or to move outwardly and thus adjust the supplementary guide laterally. When adjusted, the said spindle can be locked by means of the lock screw 9 which is screwed into the outer end of the boss *d*.

In the embodiment shown at Fig. 5, the spring *l* carrying the ordinary guide *a* is placed on the opposite or outer side of the said guide. The action is exactly the same as in the previously described embodiment.

In both Figs. 4 and 5 the contact between the ordinary and supplementary guides is made at the rear ends of same.

Fig. 6 shows an arrangement in which contacts 10 and 11 respectively on the ordinary and supplementary guides are placed toward the front ends of the said guides and act directly to make and break contact, thus dispensing with the use of contact screw 4 and bridge piece 5.

By means of our improvements, we may employ a plurality of cutters operating simultaneously on different portions of the fabric.

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

1. In velvet or like pile cutting machines, in combination, a cutter guide and a supplementary guide arranged alongside the ordinary cutter guide and adapted normally to be in electric contact or connection with the ordinary cutter guide so that on the deflection of the cutter guide from its true path, or on the said cutter guide or the supplementary guide penetrating the fabric, the electric connection or contact will be broken and, through connections and a magnet, the machine brought to a standstill.

2. In velvet or like pile cutting machines, the combination with the ordinary cutter guide, of a supplementary guide carried by a spring or spring arm mounted on the spindle carrying the ordinary cutting guide and insulated therefrom, a contact plate fast

to the spring or spring arm and provided at its front end with a projection adapted when the parts are in normal position to engage a contact maker and an adjustable
5 contact screw carried by the ordinary cutter guide and with which the supplementary guide is held in contact, and an electric circuit maintained so long as the cutter guide or supplementary guide remain in
10 a true operative position.

3. In velvet and like pile cutting machines, the combination with the ordinary pile hose cutter and guide, of the supplementary guide supported and carried by the
15 spindle on which the ordinary cutter guide is mounted, and means for establishing and maintaining contact between the said ordinary cutter guide and the supplementary guide during the normal action of the parts,
20 disconnection of the said guides by the assumption of an abnormal position by either

of them breaking the electric circuit and stopping the machine.

4. In a pile cutting machine, the combination, with a movable cutter guide, and a
25 movable supplementary guide, said guides being operatively connected together and adapted to run in separate races of the fabric; of an electric switch controlled by one of the said guides, an electric circuit in-
30 cluding the said guides and switch, and means for stopping the machine controlled by the said switch and placed in action when the switch is operated.

In testimony whereof we affix our signatures in the presence of two witnesses. 35

WILLIAM GEORGE MACGREGOR KEIGHLEY.
HARRY NETHERWOOD.

Witnesses:

EDWARD ERNEST WOOD,
THOMAS H. BARRON.