

(No Model.)

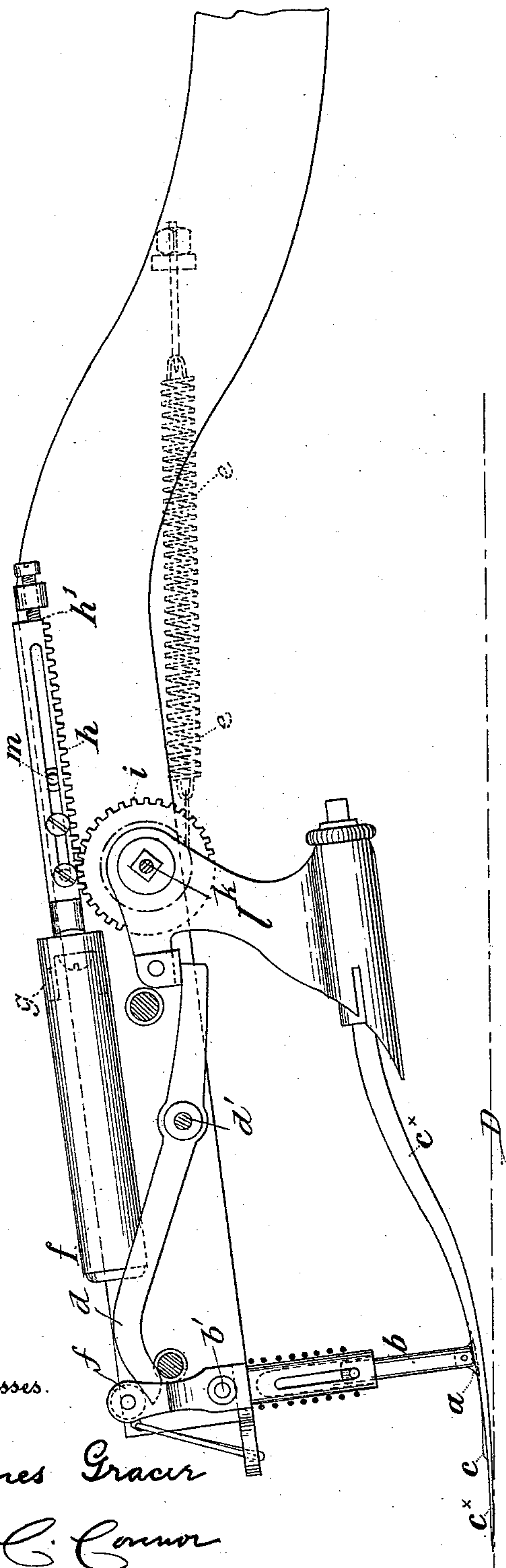
J. H. SMITH.

KNIFE FOR CUTTING THE PILE OF VELVETS, &c.

No. 487,974.

Patented Dec. 13, 1892.

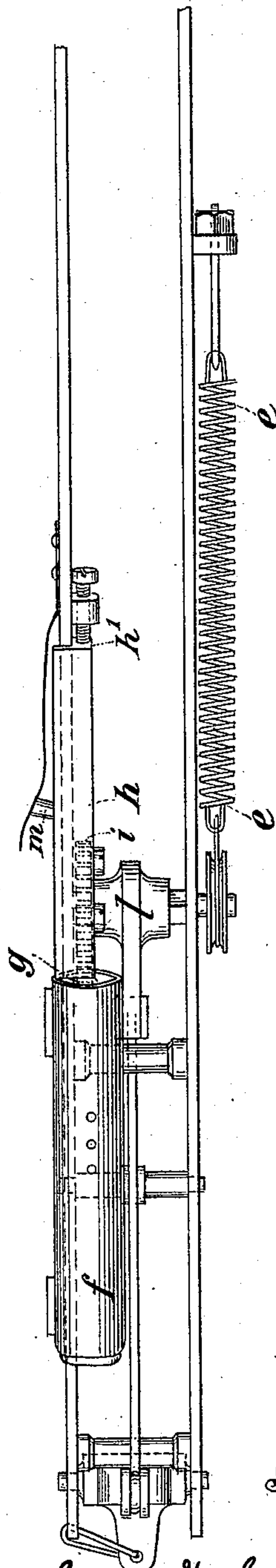
FIG:1.



Witnesses.

James Gracie  
S. C. Connor

FIG:2.



Inventor.

James Hoyle Smith  
By his attorneys  
Horton and Horton



# UNITED STATES PATENT OFFICE.

JAMES HOYLE SMITH, OF ECCLES, ASSIGNOR TO THE FUSTIAN CUTTING MACHINE COMPANY, LIMITED, OF SALFORD, ENGLAND.

## KNIFE FOR CUTTING THE PILE OF VELVETS, &c.

SPECIFICATION forming part of Letters Patent No. 487,974, dated December 13, 1892.

Application filed August 29, 1892. Serial No. 444,463. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HOYLE SMITH, a subject of the Queen of Great Britain and Ireland, and residing at Eccles, in the county of Lancaster, England, have invented Improvements in Knives for Cutting the Pile of Velvets and other Pile Fabrics, of which the following is a specification.

This invention relates especially to the knives for cutting the pile of velvets and other pile fabrics, for which Letters Patent were granted to the Fustian Cutting Machine Company, Limited, dated May 24, 1892, No. 475,709.

My invention is also applicable to other fustian-cutting knives of similar construction. The same will be readily understood from the following explanation on reference to the accompanying sheet of drawings, on which—

Figure 1 is a sectional elevation, and Fig. 2 a plan view, of so much of a knife of the above description as is necessary to illustrate my invention as applied thereto.

In the first place, I mount a small tail-piece *a* at the end of the trigger or pusher *b*, by which the knife *c* is released in case the point passes through the back of the cloth, (indicated by the dotted line *D*.) This tail-piece *a* is pivoted to the trigger or pusher *b* and projects both in front and behind its pivot, preferably more at the front than behind, as shown, and it is so formed that it fits in or on the guide *c*<sup>x</sup> and is pointed so that the cloth (if the point of the said guide *c*<sup>x</sup> goes through it) cannot get between the trigger and the guide, but will run up the tail-piece *a* and move with it as it is pushed backward to release the trigger or pusher *b* and not move, as is at present the case, upon the surface of the guide *c*<sup>x</sup>. As the tail-piece *a* is continued below and beyond its pivot there is no tendency for its point to rise from the guide *c*<sup>x</sup>.

I do not wish to restrict myself to any specific form of knife-releasing device; but in the drawings I have shown a modification of the constructions described in the above-mentioned patent, No. 475,709, and in the patent of John J. Mann, No. 486,050, dated November 8, 1892. As shown in the drawings, the trigger or pusher *b* is pivoted at *b'* to the

knife handle or frame, and when the parts are in the positions shown it engages at its upper end over the outer end of a lever *d*, pivoted at *d'* to the handle or frame, and nips the end of the lever *d* against a stop-pin *f* on the handle. The inner end of the pivoted lever *d* engages with a finger on the pivoted knife-holder *l*, so that when the lower end of the trigger or pusher *b* is pushed back by the cloth its upper end releases the lever *d*, which in turn releases the knife-holder with its knife *c*.

When the trigger or pusher *b* has released the knife *c*, a spring *e* causes the latter to be withdrawn from the cloth, as usual. This spring *e* is required to work instantaneously; but in so doing it is found that the end of the knife *c* is withdrawn upward more quickly than the cloth travels, and so enlarges the hole or slit in the back or bends its point. I therefore provide a buffer which will retard the action of the spring *e* at this moment. I prefer to apply this buffer in the form of a small air-cushion contained in a cylinder *f*, the plunger *g* of which is provided with a rack *h* in gear with a pinion *i*, mounted upon the pivot *k*, on which the knife-holder *l* turns. Thus although the knife commences to be withdrawn very rapidly and instantly at a "fault" this action is gradually retarded by the air-cushion, and consequently the end of the knife is drawn upward more slowly and does not increase the slit or bend its point.

*m* is a small spring-bolt for locking the knife out of action by moving behind the end *h'* of the rack *h* when the plunger *g* has been pushed to the end of the cylinder *f* by the revolution of the pinion *i*.

I claim—

1. The combination, with an automatically-released knife for cutting the pile of pile fabrics, of its trigger or pusher, with a tail-piece pivoted thereto and formed substantially as and for the purpose hereinbefore described.

2. In an automatically-released knife for cutting the pile of pile fabrics, the combination, with the knife-holder and spring for actuating the same, of a buffer for gradually retarding the withdrawal of the knife, substantially as and for the purpose hereinbefore described.

3. In an automatically-released knife for  
cutting the pile of pile fabrics, the combina-  
tion of the pivoted knife-holder having a pin-  
ion, with a rack geared to the pinion, a plun-  
5 ger connected to the rack, a cylinder in which  
the plunger works, and a spring to turn the  
knife-holder when released, substantially as  
described.

In testimony whereof I have signed my  
name to this specification in the presence of two  
subscribing witnesses.

JAS. HOYLE SMITH.

Witnesses:

GEORGE DAVIES,  
JNO. HUGHES.