

(No Model.)

2 Sheets—Sheet 1.

J. W. MILLET.

MACHINE FOR CUTTING FELT AND OTHER MATERIAL.

No. 348,763.

Patented Sept. 7, 1886.

Fig. 2.

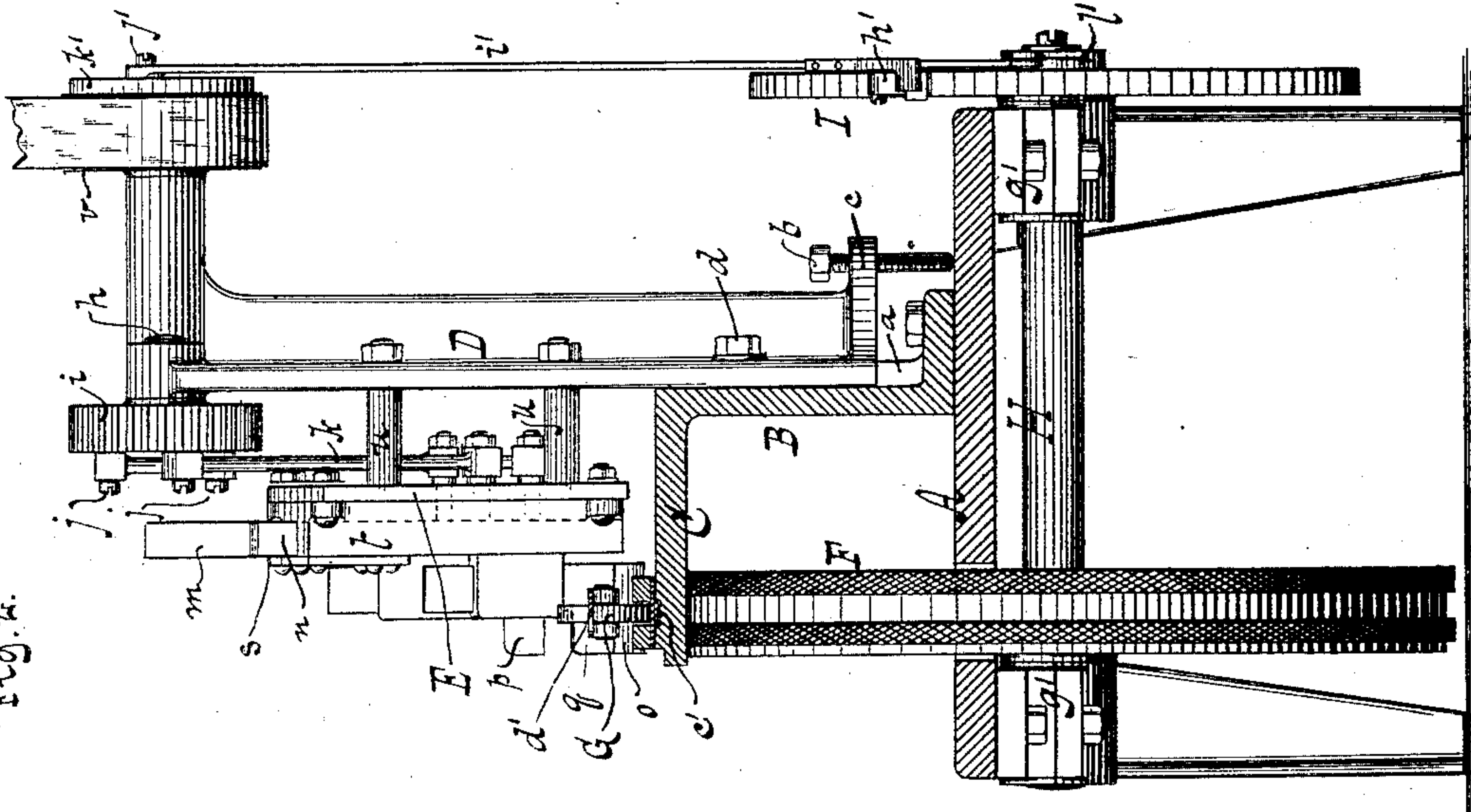


Fig. 4.

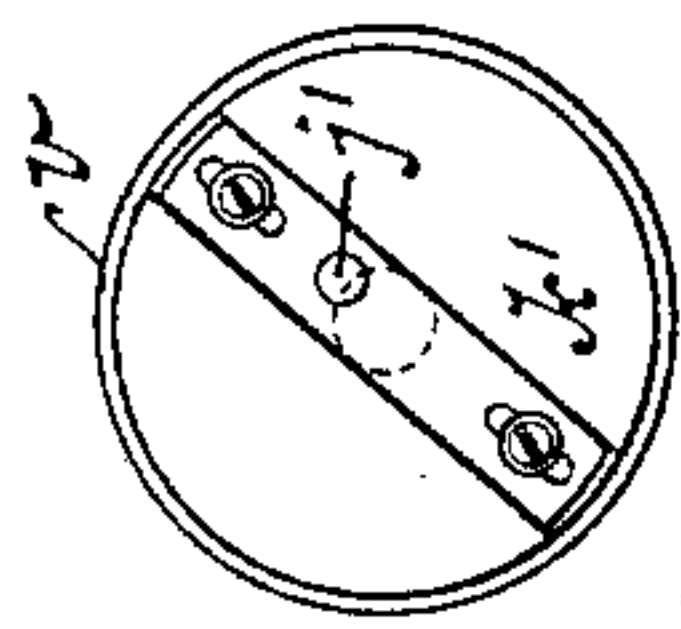
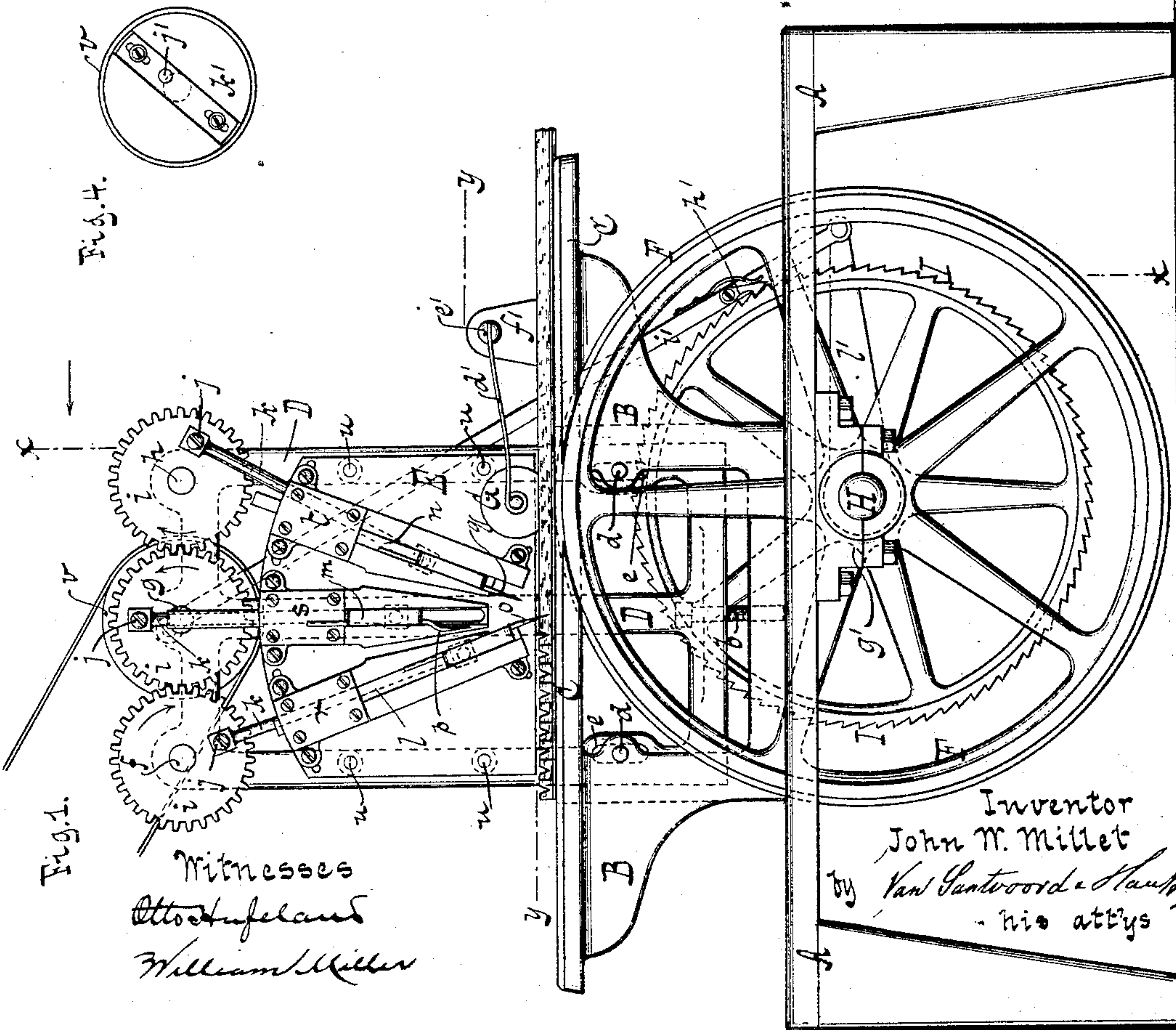


Fig. 1.



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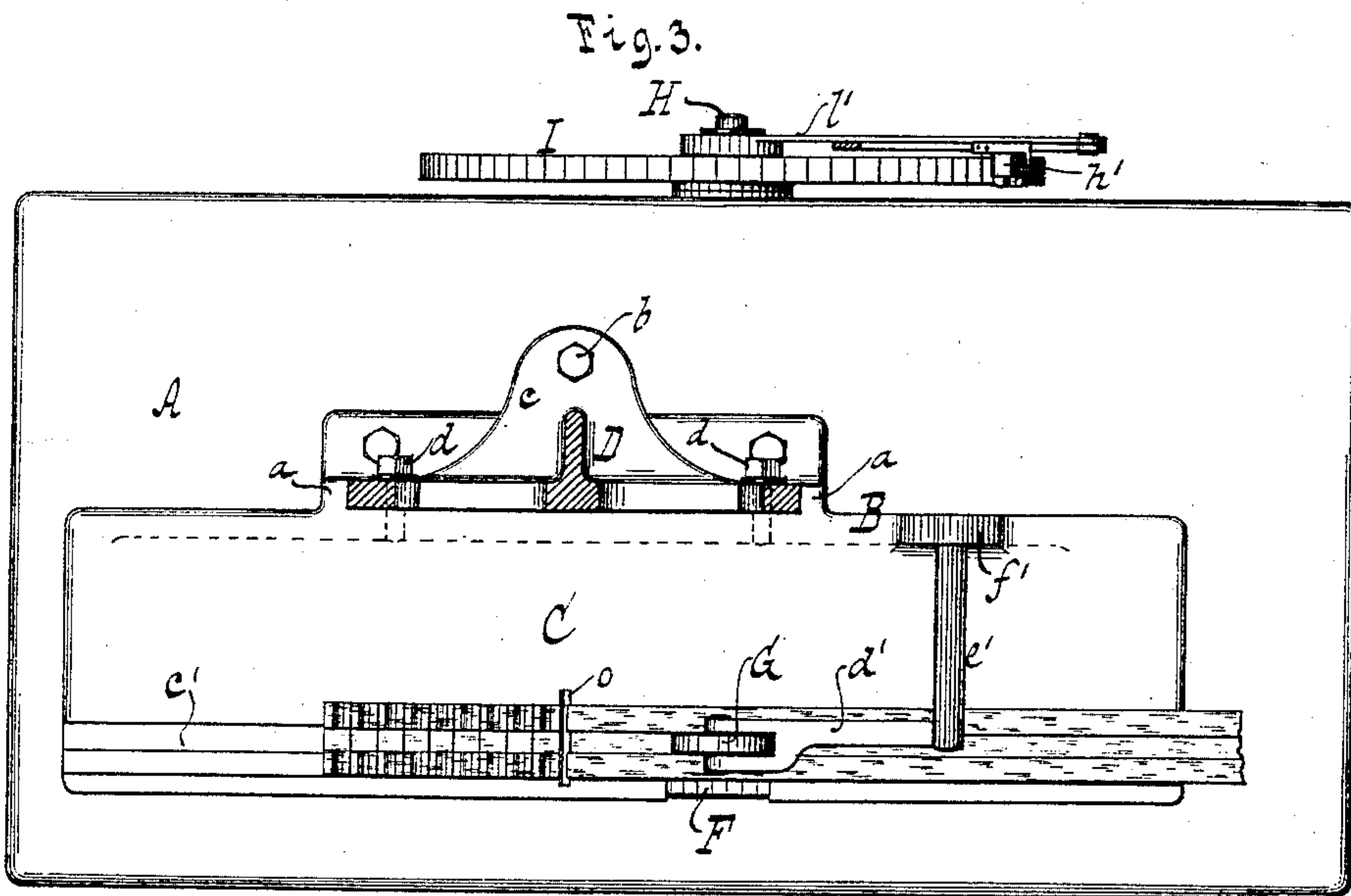


Fig. 5\*

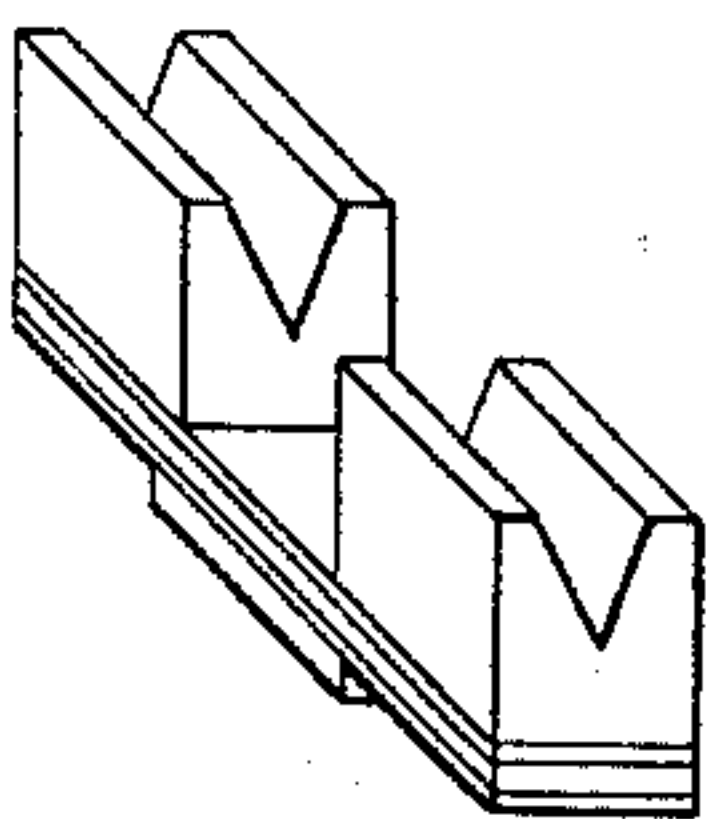


Fig. 5

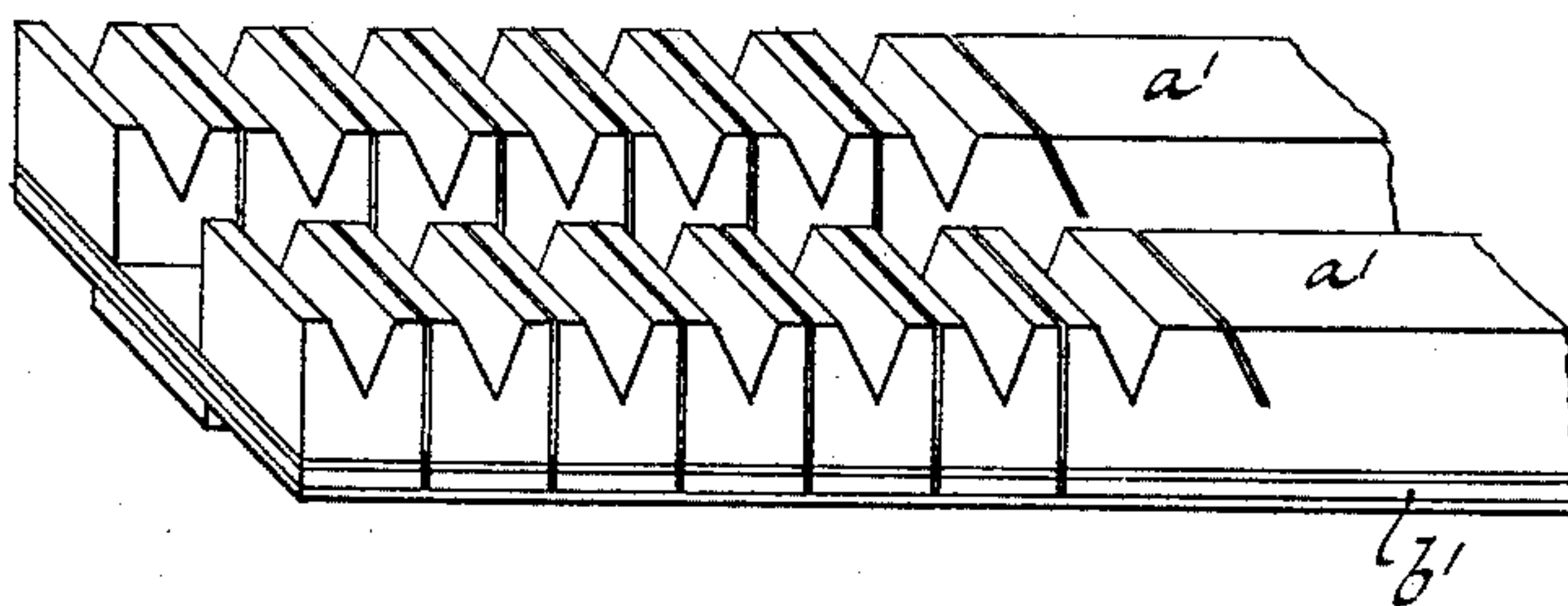


Fig. 6\*

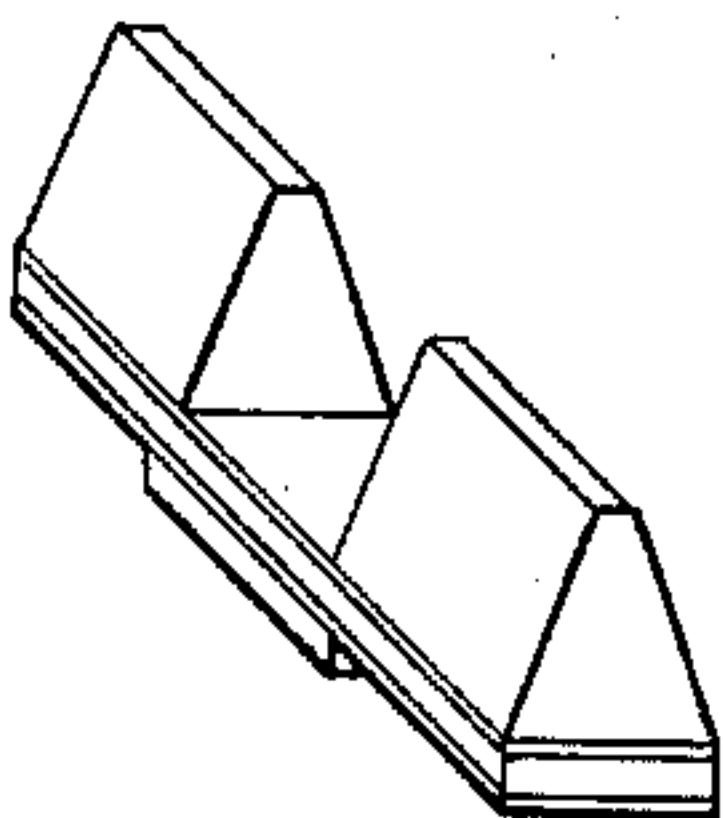
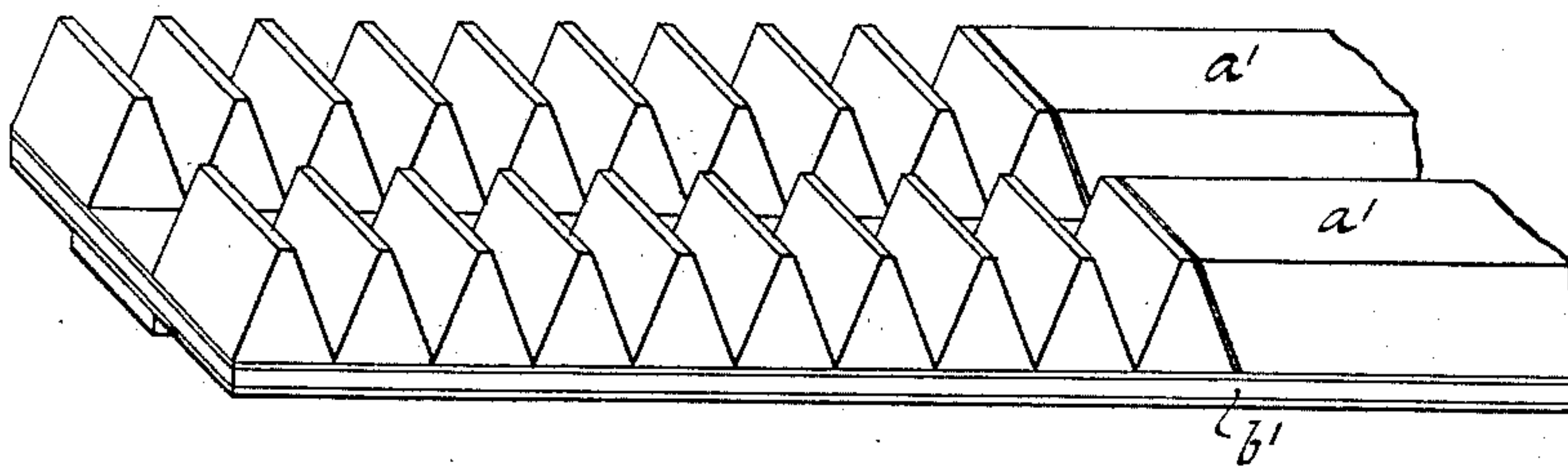


Fig. 6.



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# UNITED STATES PATENT OFFICE.

JOHN W. MILLET, OF DOLGEVILLE, ASSIGNOR TO ALFRED DOLGE, OF NEW YORK, N. Y.

## MACHINE FOR CUTTING FELT AND OTHER MATERIALS.

SPECIFICATION forming part of Letters Patent No. 348,763, dated September 7, 1886.

Application filed June 10, 1886. Serial No. 204,820. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. MILLET, a citizen of the United States, residing at Dolgeville, in the county of Herkimer and State of New York, have invented new and useful Improvements in Machines for Cutting Felt and other Materials, of which the following is a specification.

This invention relates to machines for cutting felt and other materials; and it consists in certain novel features of construction, which are fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of my machine. Fig. 2 is a vertical section on the line *x x*, Fig. 1. Fig. 3 is a horizontal section on the line *y y*, Fig. 1. Fig. 4 is a detail view of the feed-actuating eccentric. Figs. 5 and 5\* and 6 and 6\* are views of the product of my machine.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the main frame of my machine, to which is securely bolted a standard, B, carrying the work-table C, on which the material to be cut rests while it is being operated on by the machine. From the surface of this standard B project lugs *a a*, Fig. 3, between which is guided the adjustable frame D, on which is mounted the whole cutting mechanism. This frame D can be adjusted in a vertical direction by means of a set-screw, *b*, abutting against the main frame A, and threaded in a flange, *c*, projecting from the lower end of the frame D. When the desired position has been attained, the frame D is securely held in position by two bolts, *d*, which pass through slots *e* in this frame, and are threaded in the standard B.

In the upper end of the adjustable frame D are journaled three shafts, *f g h*, each of which carries a gear-wheel, *i*, which, in the example shown in the drawings, are of equal diameter and of such a size that they mesh with each other, causing them to make an equal number of revolutions when either of them is rotated. From the face of each of these gears projects an eccentrically-placed pin, *j*, each of which is connected by a pitman, *k*, with one of the

knife-slides *l m n*, which carry the knives *o p q*. These knife-slides move in guides *r s t*, which can be radially adjusted on the plate E. This plate is firmly secured to the adjustable frame D by stanchions *u*, and moves with it.

On one end of the shaft *g* is mounted a pulley, *v*, to which power may be communicated by a belt or other means. When this is done, all the gear-wheels *i* are rotated and impart a reciprocating motion to the knife-slides, which, as above described, are connected to them by the pins *j* and the pitmen *k*, the pins *j* being so arranged in relation to each other that the knives shall cut into the material successively, and so as to avoid coming in contact with each other.

In the example shown in the drawings the knives and the cutting mechanism are arranged to cut out the "felts" for damper-heads for piano-fortes. The shape of these felts are shown in Figs. 5\* and 6\*. They are cut from a blank strip consisting of two narrow strips, *a'*, of thick felt glued to a strip of wood, *b'*, as shown in one end of Figs. 5 and 6. This blank strip is placed on the work-table C, which is provided with a groove, *c'*, that will guide the blank strip as it is pushed forward by a feed-wheel, F, which projects through the work-table, and against which the blank strip is held by the presser-wheel G. This presser-wheel is mounted in the free end of a spring, *d'*, the other end of which is secured to a stud, *e'*, which projects from a lug, *f'*, rising from the work-table C. The feed-wheel F is mounted on a shaft, H, which has its bearings in journal-boxes *g'* in the main frame. This shaft also carries the ratchet-wheel I, which is engaged by a pawl, *h'*, pivoted to a rod, *i'*. One end of this rod engages the pin *j'*, eccentrically mounted on a disk, *k'*, which is secured to the pulley *v*, while its other end is connected to an arm, *l'*, mounted loosely on the shaft H. When the pulley *v* is rotated, an oscillating motion is given to the rod *i'*, which carries the pawl *h'*, causing the latter to act on the ratchet-wheel I, thereby imparting a step-by-step motion to the feed-wheel, which is so timed that it will cause the blank strip to move only when all the knives are out of ac-



tion. As the blank strip is fed under the knives, the knife *o* descends first, as shown in Fig. 1, making a slanting cut, when it again recedes, and knife *q* descends, also making a slanting cut, but from the opposite direction, thereby cutting a notch into the felt by cutting out the small wedge which is between the two cuts above described. When only these two knives are employed, the product of my machine is a strip into which uniform notches have been cut at equal distances apart, Fig. 6. The wedges remaining between these notches may then be separated from each other in any manner, and will then form felts for damper-heads, as shown in Fig. 6\*. If desired, the separation of the wedges may also be performed by the knife *p*; but in this form of damper-head I prefer to separate them by hand. In the above-described form of damper-head the notches extend quite through the strips of felt *a'*.

Other forms of damper-heads—such, for instance, as that shown in Figs. 5 and 5\*—may also be cut on my machine. This is accomplished by decreasing the depth of the cut of the knives by raising the adjustable frame D by means of the set-screw *b*, as above described, and by bringing the third knife, *p*, into action. To obtain this shape of damper-head, the knives *o* and *q* cut the notches just as in the other form of damper-head, and after they have receded the knife *p* descends and cuts a slit between the notches formed by the two other knives.

It is obvious that by the methods of adjustment described, or by increasing the number of knives, various other forms may be cut by this machine without departing from the spirit of my invention, and I do not desire to confine its use to the cutting of damper-heads; but it may be used for the cutting of any material or shape where such a machine is applicable.

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

1. The combination of the work-table and feed mechanism with a cutting mechanism consisting of two knives movable in planes at oblique angles toward the table, means for operating the knives, the frame supporting the cutting mechanism, and means for adjusting the supporting-frame in a vertical plane for increasing and decreasing the cutting depth of knives, substantially as described.

2. The combination of the work-table, the rotating feed-wheel, means for imparting a step-by-step movement to the feed-wheel, the two knives movable in planes at oblique angles toward the table, and mechanism for operating the knives, substantially as described.

3. The combination of the work-table, the rotating feed-wheel, means for imparting a step-by-step movement to the feed-wheel, a cutting mechanism comprising two knives movable in planes at oblique angles toward the table, mechanism for operating the knives, a frame

supporting the cutting mechanism, and devices for adjusting the frame in a vertical plane to increase and decrease the cutting depth of the knives, substantially as described.

4. The combination, with the table C and a feed mechanism, substantially as described, of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles to the table, and mechanism for operating the knives, substantially as described.

5. The combination, with the table C and a feed mechanism, substantially as described, of a cutting mechanism consisting of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles to the table, and mechanism for operating the knives, the frame D, supporting said cutting mechanism, and means for adjusting said frame in a vertical direction, substantially as described.

6. The combination, with the table C, of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles toward the table, and mechanism for operating said knives, substantially as described.

7. The combination of the work-table, a frame, D, above the table, a series of geared wheels, *i*, having eccentric pins *j*, and journaled on the frame, pitmen *k*, connected with the said pins, knives connected with the pitmen and moving in planes at oblique angles toward the table, and mechanism for rotating the geared wheels, substantially as described.

8. The combination of the work-table, a frame, D, above the table, a series of geared wheels, *i*, having eccentric-pins *j*, and journaled on the frame, pitmen *k*, connected with said pins, knives connected with the pitmen and movable in planes at oblique angles toward the table, means for rotating the geared wheels, and a feed mechanism operating through the work-table, substantially as described.

9. The combination, with the table C and a cutting mechanism consisting of two knives, *o* *q*, moving in planes at oblique angles toward the table, and of an intermediate knife, *p*, moving in a plane at right angles toward the table, of the feed-wheel F, mechanism for imparting to said feed-wheel a step-by-step motion, and the presser-wheel G, substantially as described.

10. The combination, with the table C, the groove *c'* in said table, the cutting mechanism consisting of two knives, *o* *q*, moving in planes at an oblique angle toward the table, and of an intermediate knife, *p*, moving in a plane at right angles toward the table, of the feed-wheel F, mechanism for imparting to said feed-wheel a step-by-step motion, and the presser-wheel G, substantially as described.

11. The combination, with the table C and the cutting mechanism consisting of two knives *o* *q*, moving in planes at oblique angles toward the table, and of an intermediate knife,



*p*, moving in a plane at right angles to the table, of the feed-wheel *F*, the ratchet-wheel *I*, the shaft *H*, carrying both the feed-wheel and the ratchet-wheel, the pawl *k'*, the rod *l'*, the  
5 disk *k'*, carrying the pin *j'*, and means for rotating said disk, substantially as described.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing witnesses.

JOHN W. MILLET.

Witnesses:

CHARLES CRAMER,  
ALFRED DOLGE.