

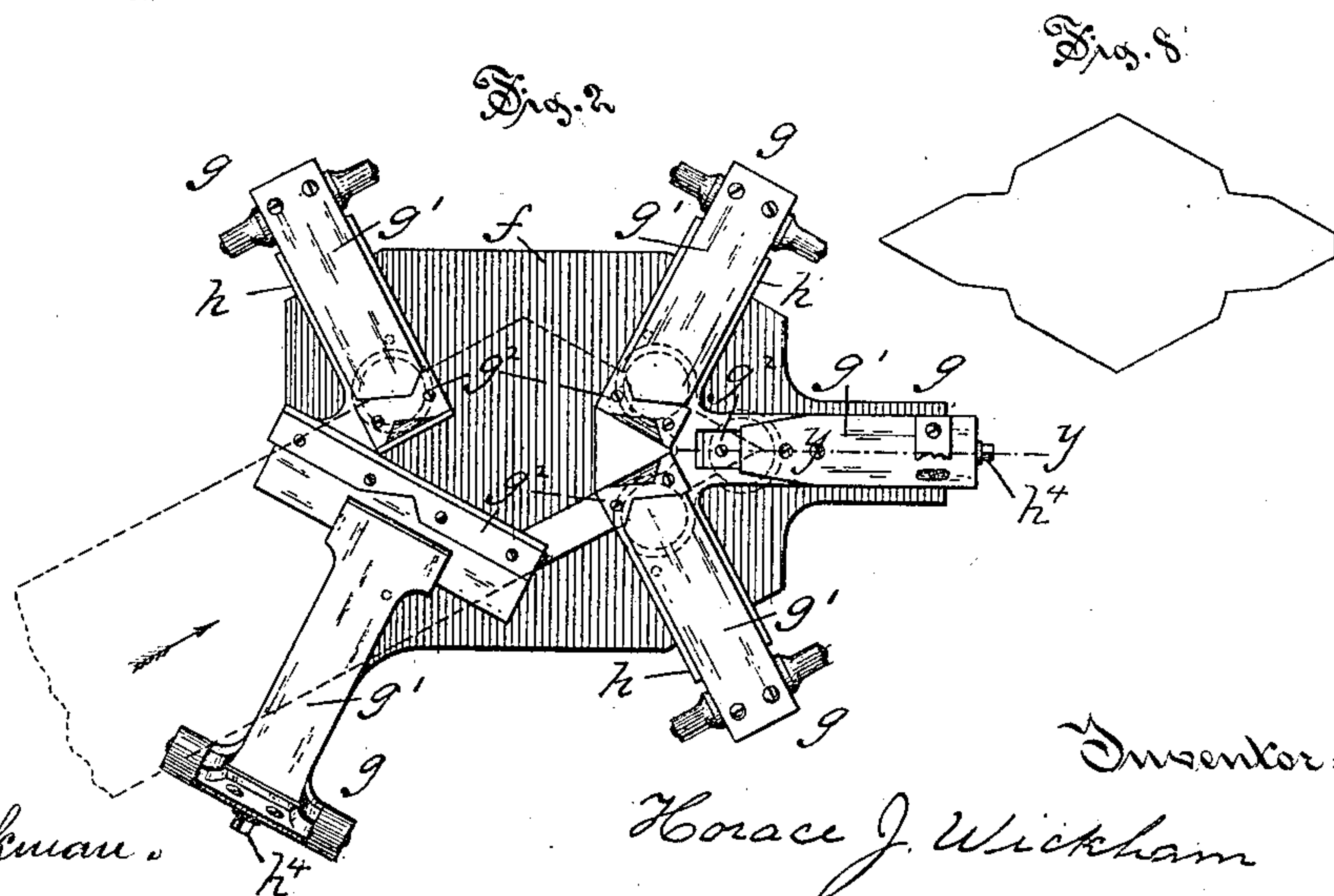
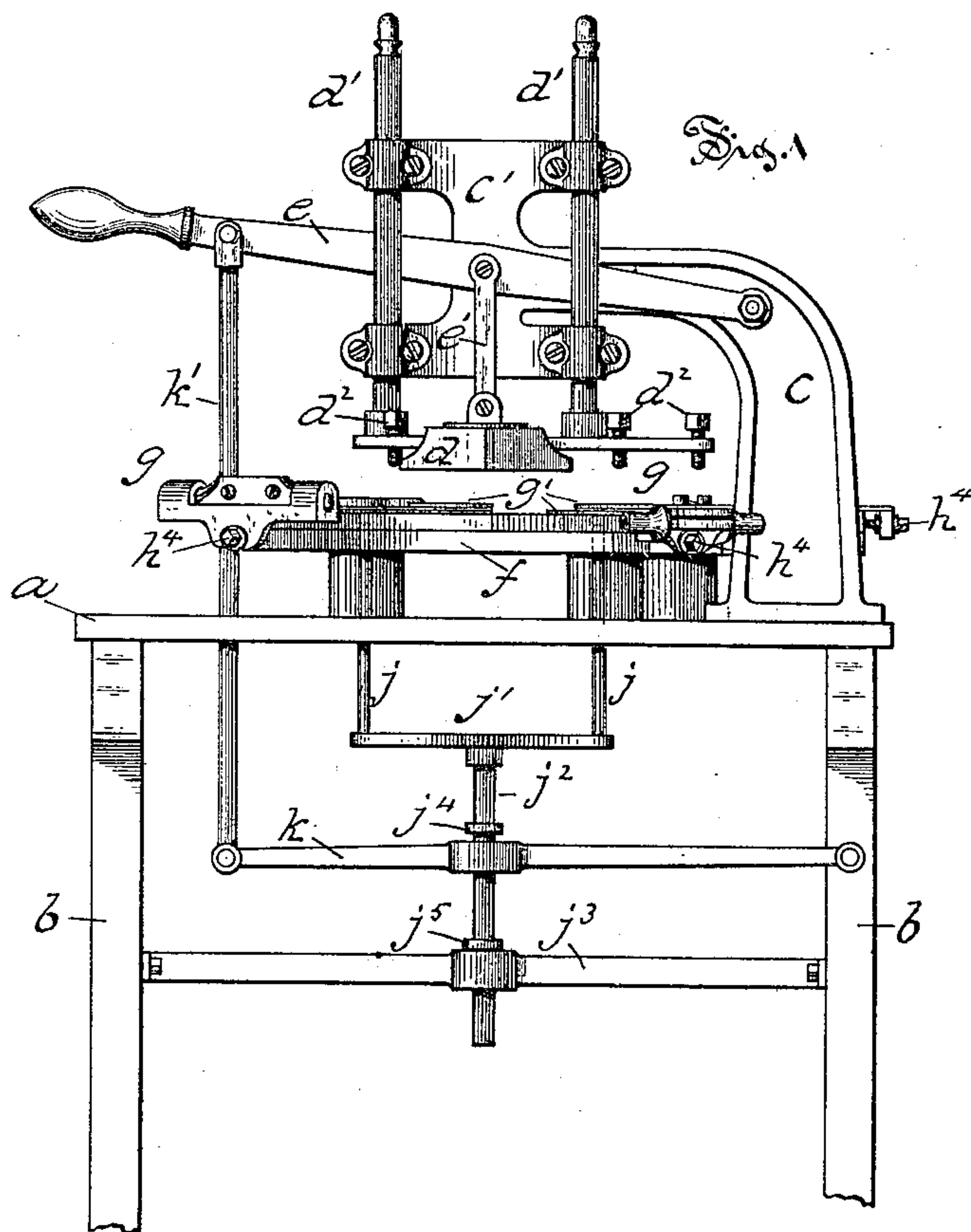
(No Model.)

2 Sheets—Sheet 1.

H. J. WICKHAM.  
ENVELOPE CUTTING MECHANISM.

No. 371,400.

Patented Oct. 11, 1887.



Witnesses:  
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L. R. Williams.

Inventor:  
Horace J. Wickham  
by Simonds & Burdett,  
attys.

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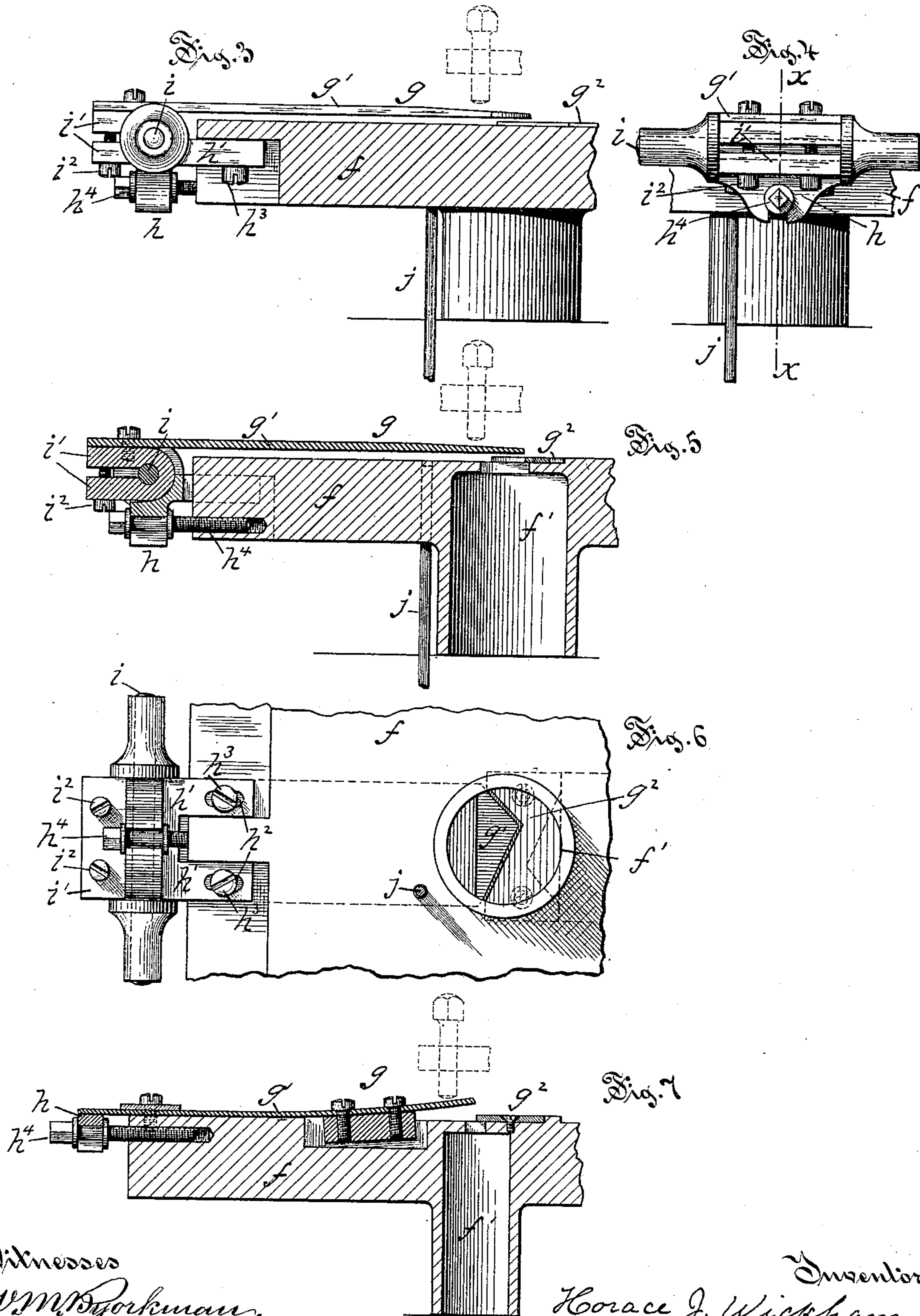
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# UNITED STATES PATENT OFFICE.

HORACE J. WICKHAM, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE  
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## ENVELOPE-CUTTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 371,400, dated October 11, 1887.

Application filed January 28, 1886. Serial No. 190,010. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE J. WICKHAM, of Hartford, in the county of Hartford and State of Connecticut, have invented certain  
5 new and useful Improvements in Envelope-Cutting Mechanism, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

10 My improvement relates to the class of machines adapted to cut from a sheet or continuous web of paper or other suitable material blanks of any desired outline, usually that of an envelope or wrapper; and my object is to  
15 produce a device that may be operated singly or in groups to effect this purpose, and to avoid in its construction the rapid dulling of the cutters and other faults and imperfections in the arrangement and operation of prior devices.

20 My improvement consists in a vibratory cutter having its cutting-edge arranged across a line drawn from the free to the fixed end of the cutter; in the feature of adjustability of such cutter and the combination of devices  
25 for that purpose; in the attachment of the several parts or blades of the cutter to the base and their combination with a platen, and in details of the combination and arrangement of the several parts, as more particularly herein-  
30 after described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a detail view, in front elevation, of one form of machine embodying my improvements. Fig. 2  
35 is a detail plan view, on enlarged scale, of the cutter-bed and a group of cutters arranged upon it. Fig. 3 is a detail view, on enlarged scale in vertical section, of the bed, and showing one of the cutters attached to the bed. Fig. 4 is a detail end view of this cutter, and  
40 in edge view of the cutter-bed. Fig. 5 is a detail view, in central longitudinal section, of the cutter and bed on plane denoted by line *x x* of Fig. 4. Fig. 6 is a detail view of the under side of the cutter-bed and cutter. Fig. 7 is a  
45 detail view, in central longitudinal section, of one of the modified forms of cutters on plane denoted by line *y y* of Fig. 2. Fig. 8 is a detail plan view of the form of blank cut by the machine.

In the accompanying drawings, the letter *a* 50 denotes a table of any convenient form or material, with standards or legs *b* and supporting on the table the arm *c*, which, rising from one side, overhangs the table and supports in suitable bearings in the head *c'* the vertically-sliding rods *d'*, attached to the lower ends of which 55 is the platen *d*. The lever *e* is pivotally attached to the arm *c* in such position that it will swing vertically, and by means of the connecting-rod *e'* it is connected to the platen *d*, and 60 the lever serves as a means for raising and lowering the platen.

The cutter-bed *f* is secured to the table underneath the platen, and it bears a group of cutters, *g*. These cutters are each composed 65 of a swinging or vibratory blade, *g'*, that are each, when in position to cut, held against longitudinal play at one end on a cutter-support, leaving the other end free to move back and forth past a fixed blade that forms a comple- 70 mentary part of each cutter. This blade in one of the forms herein shown is held on a cutter-support, *h*, that is connected to the bed by means of the arms *h'*, having slots *h<sup>2</sup>*, through which the screws *h<sup>3</sup>* pass to secure the support 75 to the bed, and in a projecting part of the support a feed-screw, *h<sup>4</sup>*, is held by collars or the like against longitudinal play, while the threaded end of the screw takes into a threaded socket in the cutter-bed and forms a means 80 for adjusting the cutter block or support and the attached cutter longitudinally. A pivot, *i*, extends through the block or support *h*, and a strap, *i'*, is wrapped about the pivot, and is held on it with a frictional grasp 85 by means of screws *i<sup>2</sup>*, that pass through the ends of the strap that extends away from the cutter-bed, the cutter-blade *g'* being securely fastened to the upper side of the strap. The  
90 free end of this cutter-blade lies directly over an opening, *f'*, extending downward through the bed and table, and the complementary part of the cutter is secured to the upper side of the bed on the other side of the opening, the adjacent edges of the blade *g'* and its com- 95plementary part *g<sup>2</sup>* conforming to each other in outline, and being so arranged as to position that as the free end of the blade *g'* is



swung or forced past the fixed part  $g^2$  a sheet of material—as paper or the like—will be cut through on a line conforming to the outline and extent of the cutting end of the blade.

5 In the form of cutter illustrated in detail in Figs. 3, 4, 5, and 6 the blade  $g'$  is depressed by means of the adjustable pins  $d^2$ , that are borne in threaded sockets in the platen in such position that when the latter is forced downward, as by means of the lever  $e$ , the lower ends of the pins  $d^2$  press upon the upper surface of the cutter-blade  $g'$  and force it downward upon the cutter-bed.

Each blade  $g'$  is raised by a lifter-rod,  $j$ , that projects upward through the table and cutter-bed from the lifter-arm  $j'$ , that is borne on a vertically-movable rod,  $j^2$ , supported in the cross-bar  $j^3$ , arranged across between the standards or legs  $b$  of the frame. This rod  $j^2$  passes through an opening in the lever  $k$ , that is pivoted to one of the standards of the frame, and is connected by means of the rod  $k'$  to the lever  $e$ , and this lever  $k$  serves to raise and depress the rod  $j^2$  by contact with the collars  $j^4$  and  $j^5$ , which are fast to the rod on the upper and lower sides, respectively, of the lever  $k$ , the collars being arranged at a sufficient distance apart to allow a certain play of the lever before it comes into contact with the lower collar or shoulder, for reasons which will be hereinafter stated.

A modified form of cutter-blade, in which the lifting is due to the resiliency of the blade, is shown in Fig. 7 in vertical section. The means for longitudinal adjustment of the blade and the method of its operation in cutting are substantially the same as in the forms already described, the lifting mechanism alone being unnecessary.

10 In the operation of the machine, the cutting-blades  $g'$  being all in a raised position, a sheet of paper or like material is fed upon the cutter-bed below the cutters in the line indicated by the arrow in Fig. 2, where the material is shown in dotted outline, and by pressing down upon the handle of the lever  $e$  the platen is forced downward and the cutting-blades  $g'$  made to cut by the means above described. One of the cutters is long enough to sever the blank completely from the sheet or web, and the others are arranged with their cutting-edges in proper position and outline to make in the machine herein shown and described a blank for an envelope.

5 The waste pieces of material that are cut from the blank in forming it are pushed down through the outlet  $f'$  and fall into a trough or way that leads them into a receptacle away from the machine, where they cannot interfere with its operation. As soon as a blank has been cut it is removed from the machine by hand or automatically before the several cutters are lifted into position to operate upon the sheet to cut another blank.

5 If the blades were raised before the blank was removed, they would interfere with its removal, and the arrangement of the collars on

the lifter-rod is such that they allow some play of the lever between them and permit the platen to be lifted off the blank before the blades are lifted.

It will be observed that in the within described machine for cutting blanks all parts of the cutting mechanism proper—that is, each blade and its complement—are attached to the bed and that no part is borne on the platen; and by this arrangement of the cutter parts either one of them may be removed and sharpened, replaced, and adjusted without interfering with or changing the position of anything but the one special part removed, and by providing duplicate parts the machine can be kept in working operation almost constantly.

The function of the outlet-opening through the cutter-support and bed is to provide for the easy and rapid removal of the waste in a manner that prevents it from interfering with the working parts of the machine, each cutter having its cutting-edge on the extreme end of the blade and overlying the outlet where scraps or waste pieces are to be removed by the cutter.

It will be observed that each of the blades is made adjustable lengthwise thereof and crosswise of the cutting-edge, so that at all times a clean, sharp cut will be made by the cutter.

I do not limit myself to the peculiar combination and arrangement of my improvements to the machine as within described, as they are applicable to other forms of machines, and other means of adjustment and action may be provided for putting into practice the improvements herein described without substantial change therefrom.

I claim as my invention—

1. In a cutting device, in combination with a cutter-support, a fixed cutter or blade and a movable blade attached to the support flatwise of the blade, and having on the free end an outward-facing and transverse cutting-edge adapted to move past and co-operate with the fixed blade in cutting, all substantially as described.

2. In a cutting device, in combination, a swinging blade with one end secured to an adjustable support and the other end bearing a cutting-edge lying across a line drawn from the fixed to the free end of the blade, and a complementary part bearing a cutting-edge, all substantially as described.

3. In a cutting device, in combination with a supporting-frame, a cutter-bed bearing the cutter parts, and a reciprocating platen, whereby the cutters are operated, all substantially as described.

4. In combination with the supporting-frame, a reciprocating platen,  $d$ , bearing adjustable pins  $d^2$ , and a cutter-bed bearing all the cutter parts, and having an outlet,  $f'$ , for the delivery of waste and scraps, all substantially as described.

5. In combination with a supporting-frame, a reciprocating platen,  $d$ , a cutter-bed,  $f$ , bearing the cutter parts  $g' g^2$ , and the lifter-rods  $j$ , whereby the swinging cutter part  $g'$  is lifted by



means of the connected mechanism of levers and rods, all substantially as described.

6. In combination with a supporting-frame having arms *c*, the reciprocating platen *d*, with  
5 pins *d*<sup>2</sup>, levers *e* and *k*, connecting-rods *e*' and *k*', cutter-bed *f*, bearing the cutters *g*, and the lifter-rods *j*, borne on the rod *j*<sup>2</sup>, all substantially as described.

7. In combination with the supporting-  
10 frame bearing an arm, *c*, and a cutter-bed, *f*, a

reciprocating platen, *d*, swinging cutter-blades *g*', lifter-rods *j*, and mechanism, substantially as described, whereby the platen is lifted from the material cut before the lifter-rods raise the blades, all substantially as described.

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