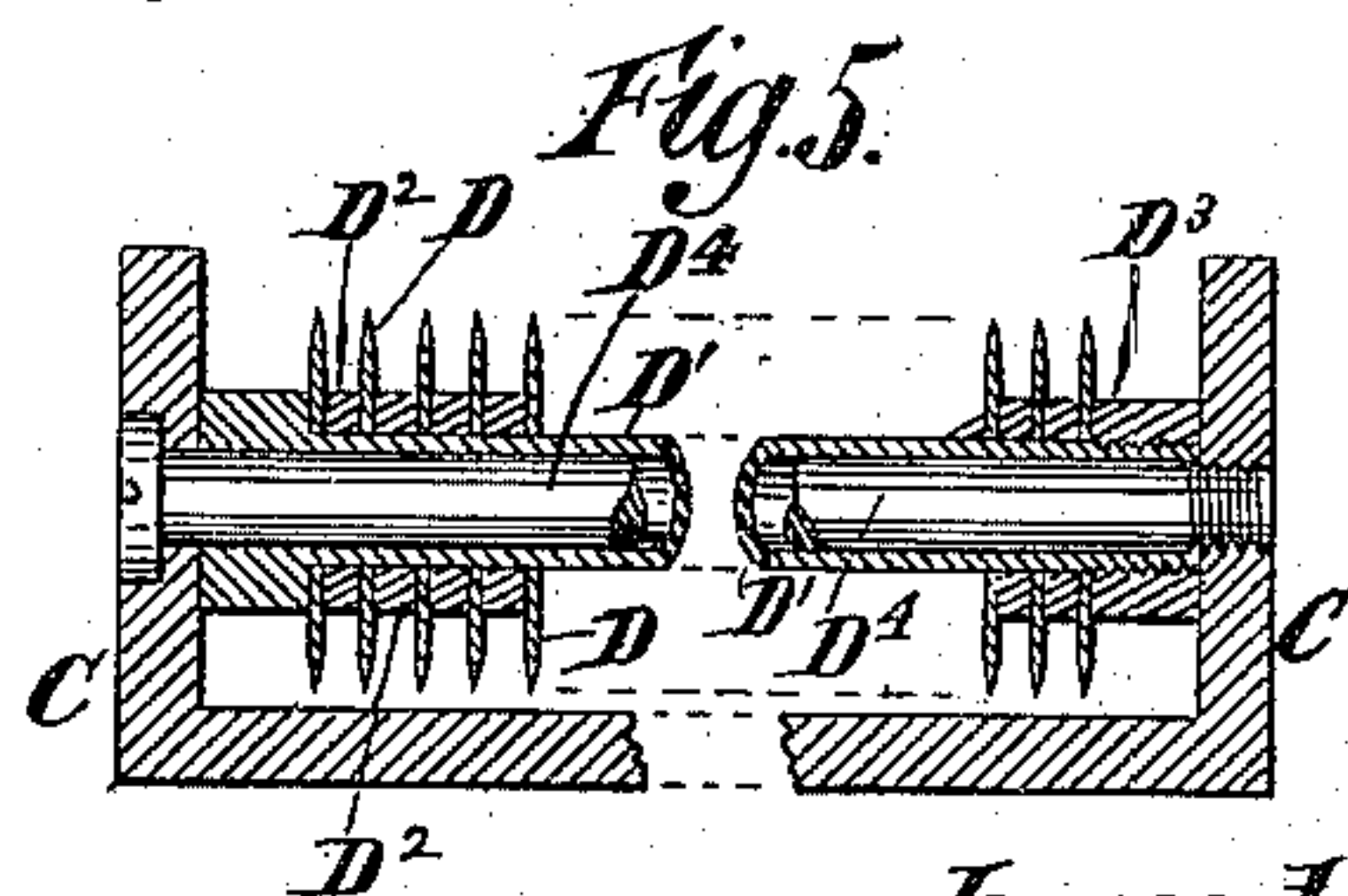
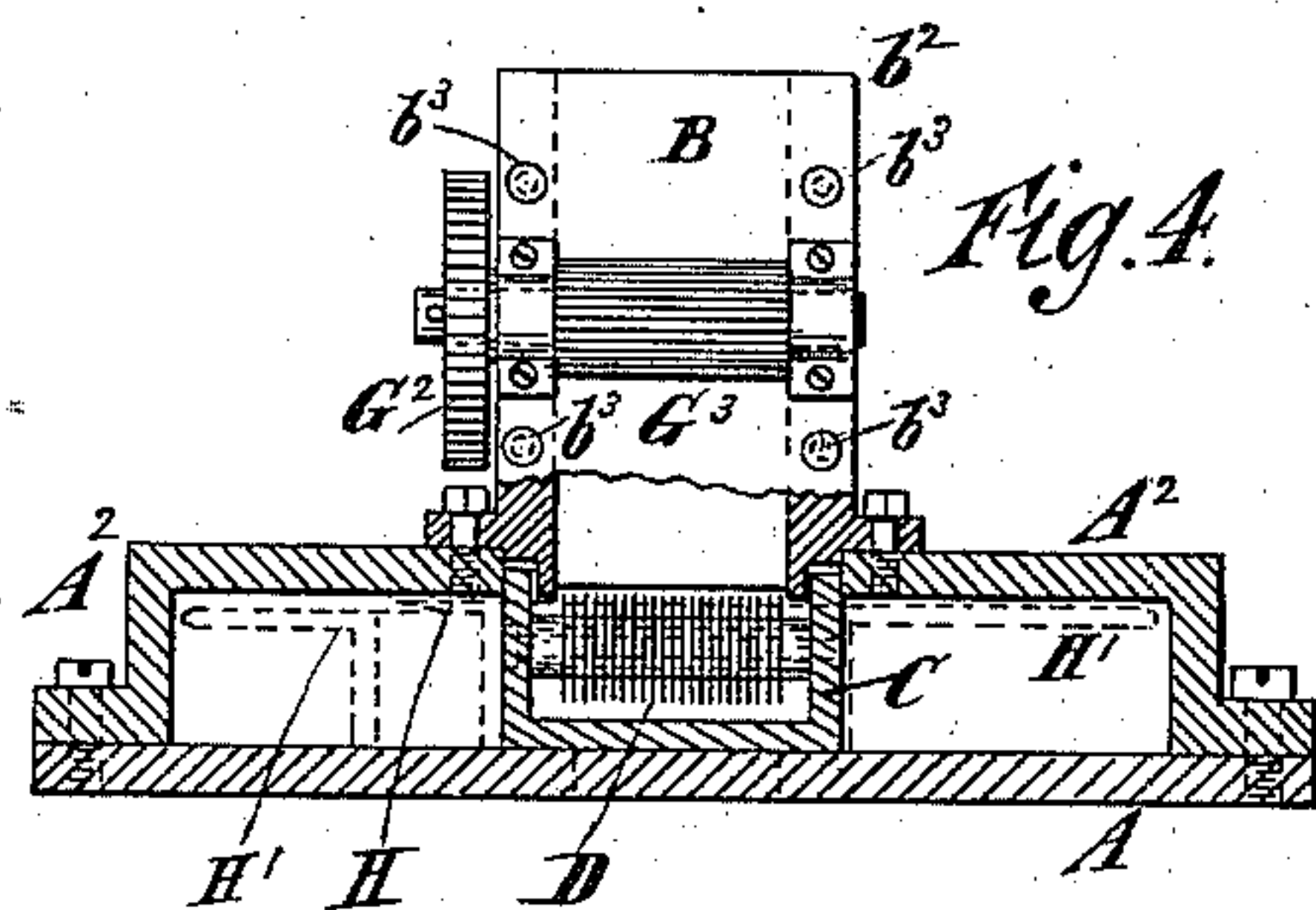
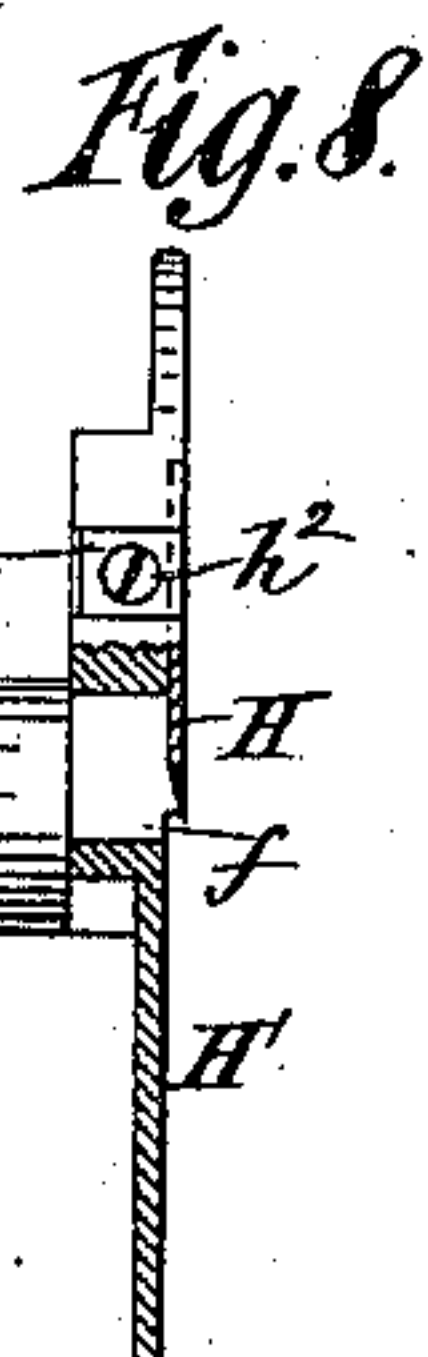
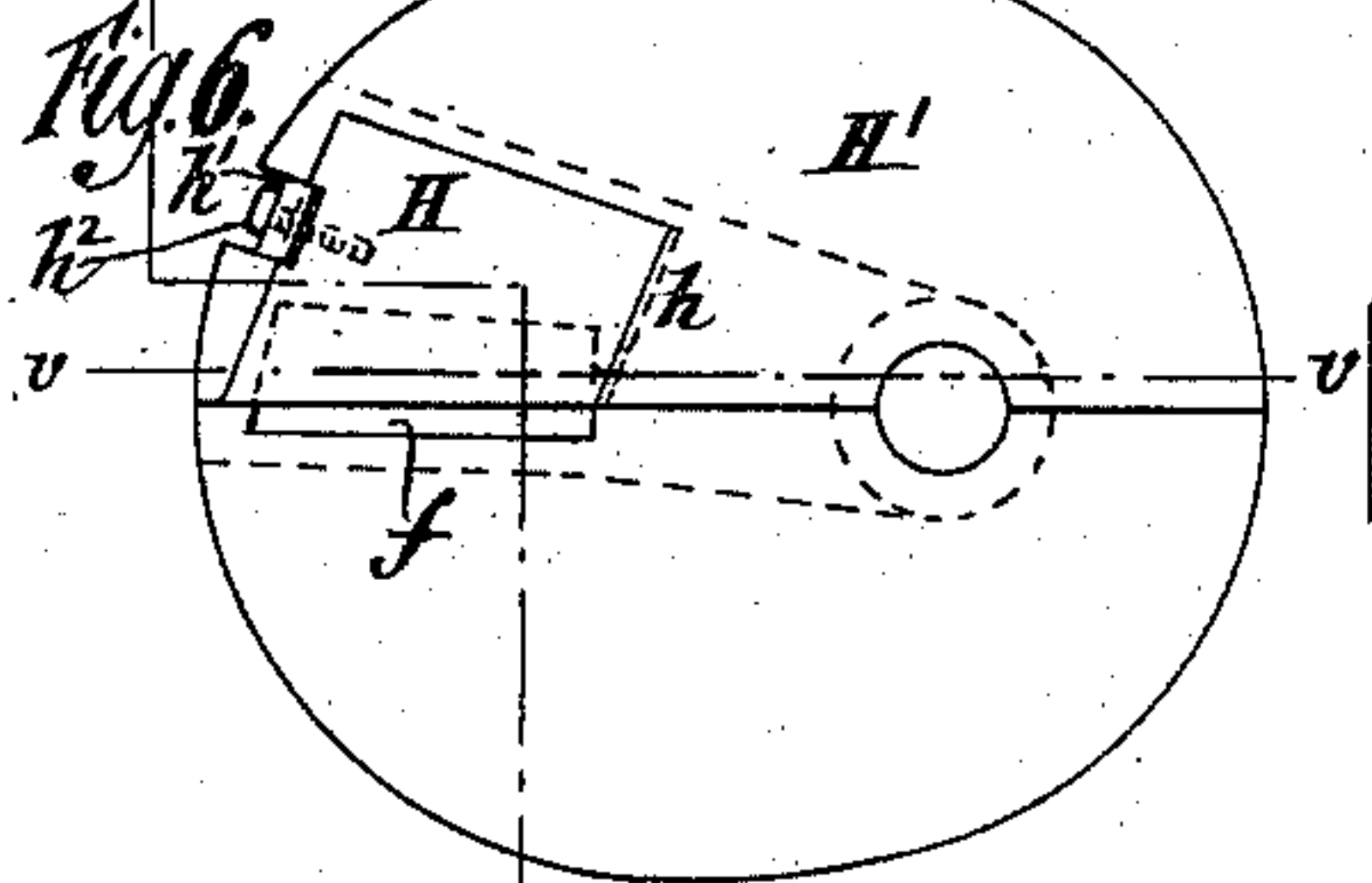
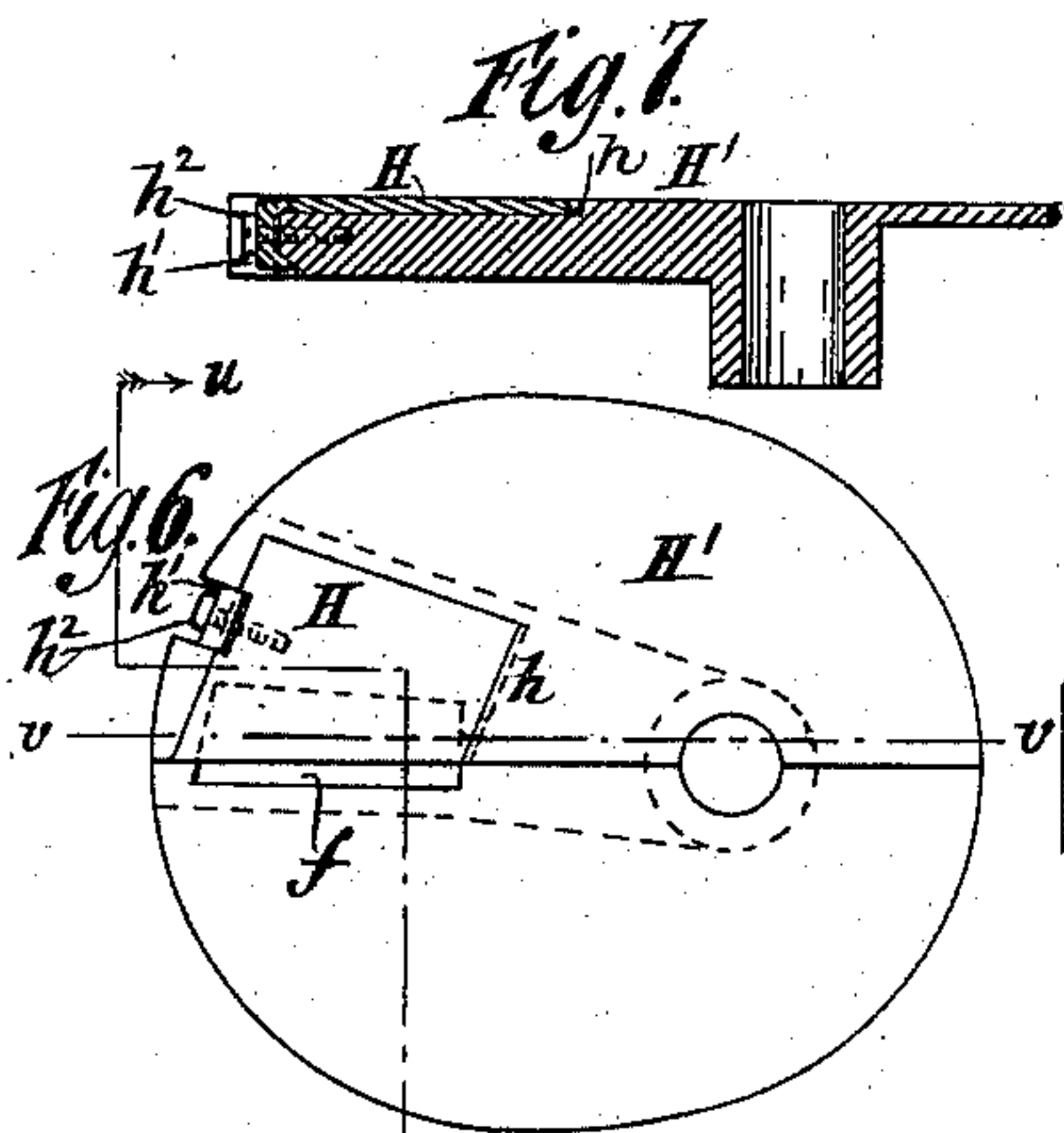
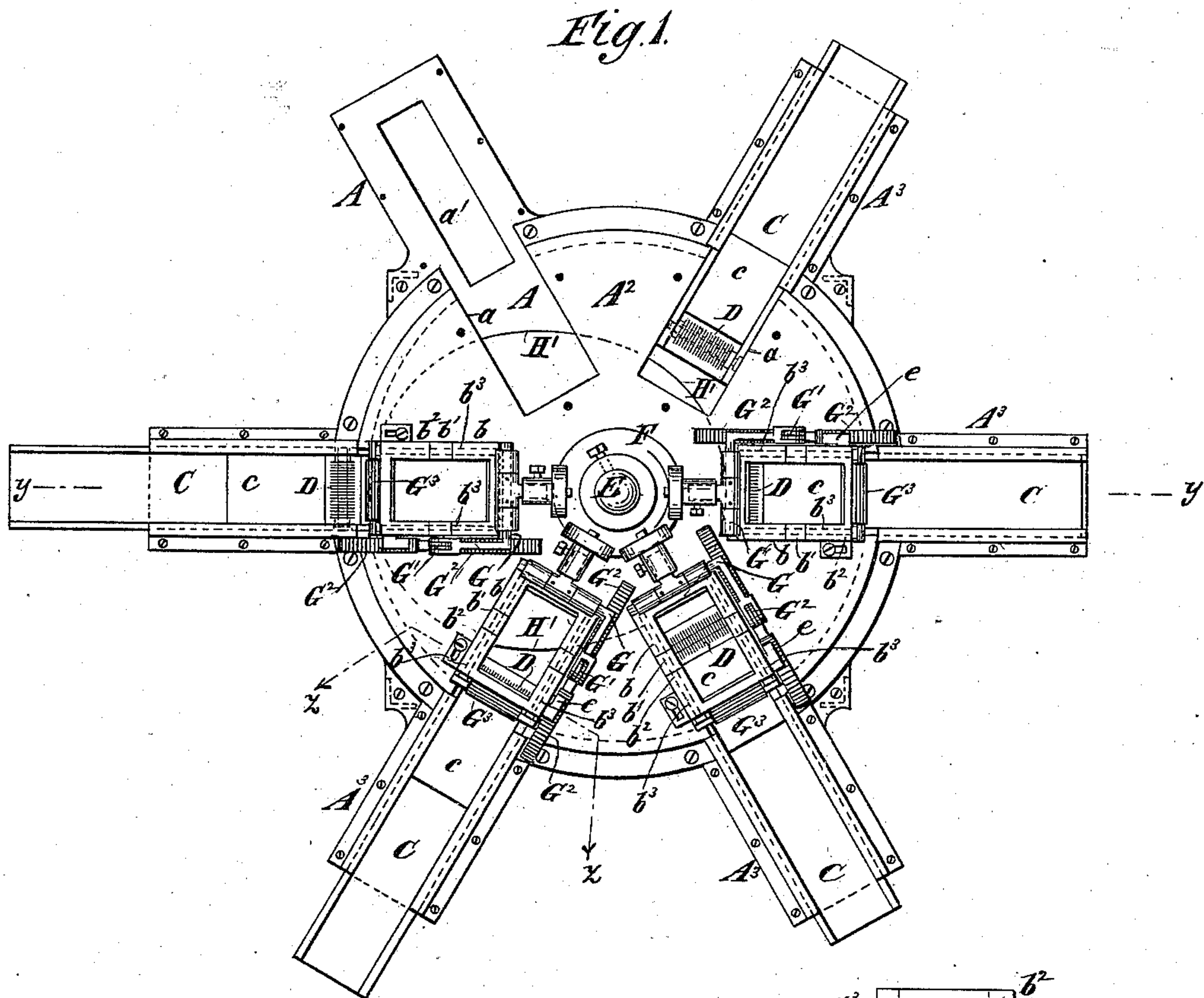


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MACHINE FOR CUTTING MATCH STICKS.

No. 382,442.

Patented May 8, 1888.



Witnesses  
Wm. G. Lipsey.  
Jas. R. Bowen.

Inventor  
W. H. H. Sisum,  
by his attys,  
Gifford & Brown.

(No Model.)

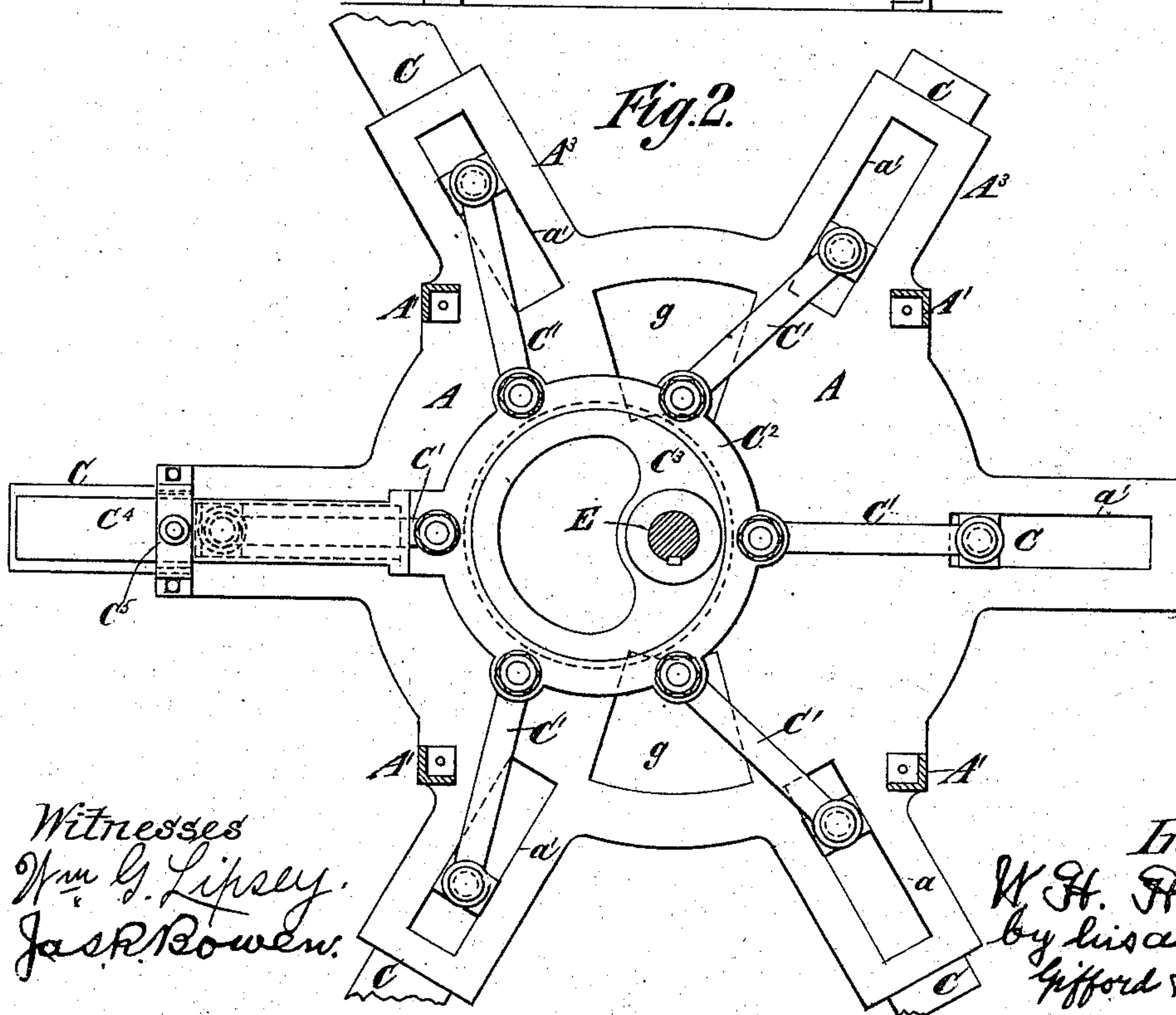
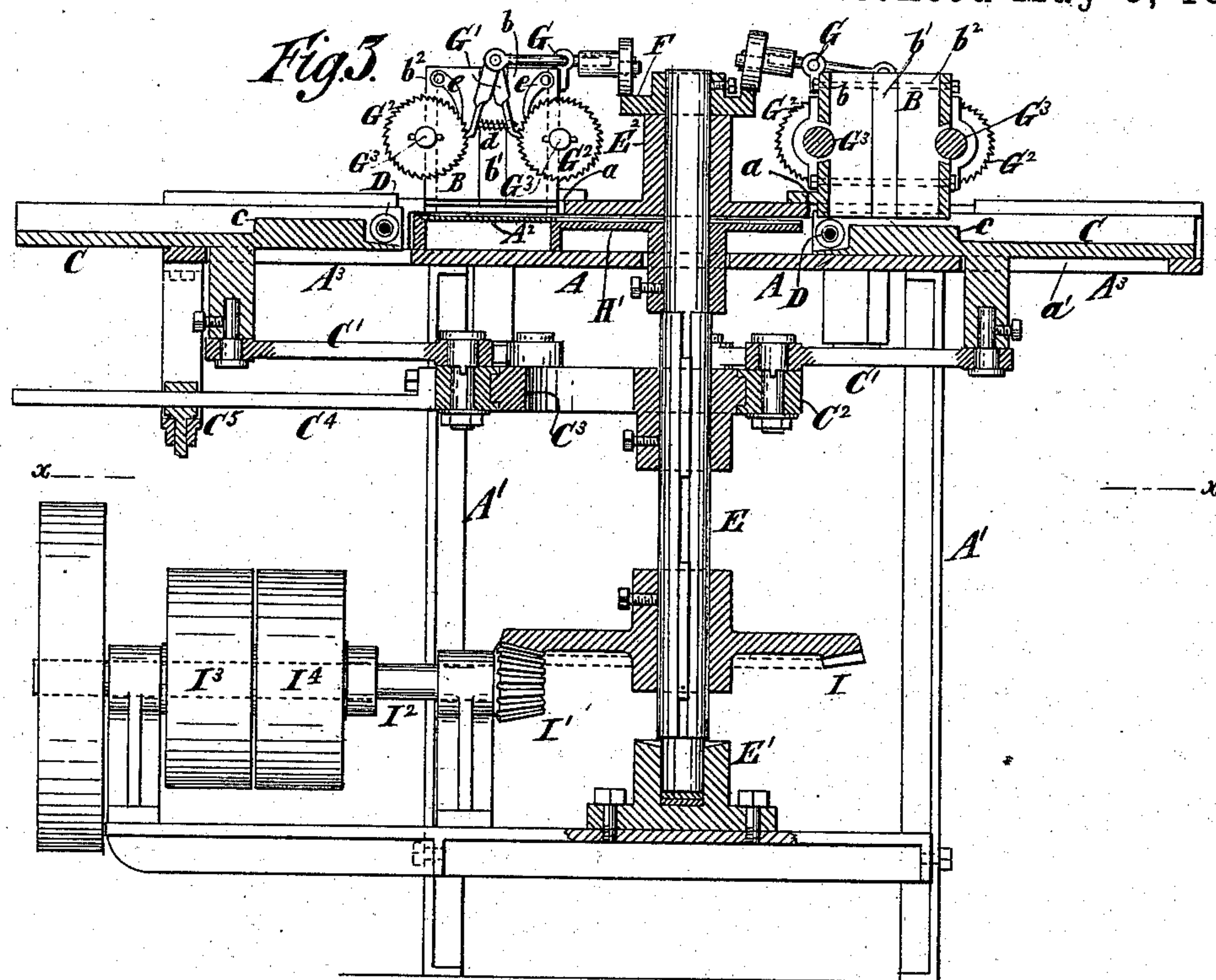
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# UNITED STATES PATENT OFFICE.

WILLIAM H. H. SISUM, OF BROOKLYN, NEW YORK.

## MACHINE FOR CUTTING MATCH-STICKS.

SPECIFICATION forming part of Letters Patent No. 382,442, dated May 8, 1888.

Application filed June 18, 1886. Serial No. 205,561. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. H. SISUM, of Brooklyn, in Kings county and the State of New York, have invented a certain new and useful Improvement in Machines for Cutting Match-Sticks, of which the following is a specification.

I will describe a machine embodying my improvement, and then point out the improvement in claims.

In the accompanying drawings, Figure 1 is a plan or top view of a machine embodying my improvement, certain parts being removed to enable me to exhibit parts which otherwise would be hidden. Fig. 2 is a horizontal section taken at the plane of the dotted line  $x x$ , Fig. 3, looking upward. Fig. 3 is a vertical section of the same, taken at the plane of the dotted line  $y y$ , Fig. 1. Fig. 4 is an enlarged vertical section taken as indicated by the dotted line  $z z$ , Fig. 1, and looking in the direction to which the arrow-heads at the ends of said dotted line point. Fig. 5 is a still larger vertical section of certain parts, taken close to the plane of the section illustrated by Fig. 4. Fig. 6 is a top view, on the same scale as Figs. 1, 2, and 3, of a cutter comprised in the machine. Fig. 7 is a vertical section of this cutter, taken on the plane of the dotted line  $v v$ , Fig. 6; and Fig. 8 is a vertical section taken as indicated by the dotted line  $u u$ , Fig. 6.

Similar letters of reference designate corresponding parts in all the figures.

A designates a table or platform, which, with legs  $A'$ , whereby it is supported, forms the main frame of the machine. Upon the platform A is a casing,  $A^2$ . Both the platform and this casing are shown as circular in form. The platform is provided with a number of radial extensions,  $A^3$ , and in line with these extensions the casing is provided with radial slots  $a$ .

B designates holders for blocks of wood designed to be cut into match-sticks. These holders are made in the shape of rectangular boxes, but they are entirely open at top and bottom. They are severally made of sections  $b b' b^2$ , the sections  $b'$  being arranged between the sections  $b b^2$ . Bolts or screws  $b^3$  extend through the sections  $b b^2$ , serving to secure them together, and also to secure the sections  $b'$  in place when the latter are used. The sections  $b'$  are used or omitted, according as large or small blocks of wood are to be cut up. In this

way provision is afforded for altering the machine to produce match sticks of different sizes. The sections  $b$ , which are the nearest to the center of the platform A, are secured in fixed positions, by bolts, screws, or analogous means, to the casing  $A^2$  or an appurtenance thereof. The sections  $b^2$  are, however, secured to the casing  $A^2$  by screws or like devices passing through slots in flanges of said sections and entering the casing; hence provision is afforded for moving them toward or from the sections  $b$  to admit of the sections  $b'$  being used or omitted.

The blocks of wood used in the holders B may extend above the holders to any degree.

C designates slides working upon the platform A and its extensions  $A^3$  in directions radial to the platform and along the slots  $a$  of the casing  $A^2$ . These slides are provided with rests  $c$ , which, when the slides are moved inward as far as they will go, come under the holders B. Just forward of the rests  $c$  the slides C are provided with cutters D, whereby during the movements of the slides cuts are produced along the under side of the blocks of wood in the holders B in the direction of radii of the platform A. These cutters will penetrate the blocks of wood a distance equal to the thickness of the match-sticks to be produced. Preferably these cutters D will consist of disks arranged upon a hollow shaft,  $D'$ , and are kept equidistant by collars, washers, or spacing-pieces  $D^2$ , interposed between them, as shown best in Fig. 5. The hollow shaft  $D'$  has a shoulder at one end and a nut,  $D^3$ , at the other engaging with a screw-threaded portion. The cutters and interposed collars will be held tightly together between the shoulder and nut of the shaft. The shaft is supported upon a bolt or screw,  $D^4$ , secured to flanges extending from the slides C. The cutters rotate as they perform their work.

From the slides C tail-pieces extend into and through slots  $a'$  in the extensions  $A^3$  of the platform A. Links or rods  $C'$  are pivotally connected at one end to the tail-pieces of the slides C, below the platform A, and at the other end to the hoop or band  $C^2$  of an eccentric,  $C^3$ . The eccentric  $C^3$  is affixed to an upright rotary shaft, E, which is arranged so as to be coincident with the center of the platform A. This shaft is supported in bearings  $E'$   $E^2$  and extends up through the platform A. The



hoop or band  $C^2$  of the eccentric  $C^3$  is provided with a tail-piece,  $C^4$ , which works in a guide,  $C^5$ , attached to one of the extensions  $A^3$ , in order to keep the hoop or band from revolving with the eccentric. From the movement of the eccentric the slides  $C$  derive their motion. On the upper portion of the shaft  $E$  a cam,  $F$ , is affixed. The operating-surface of this cam is upon its top.

$G$  designates levers, consisting of rock-shafts mounted in bearings provided upon the sections  $b$  of the holders  $B$ , arms extending from the rock-shafts and provided with rollers bearing upon the cam  $F$ , and other arms extending from the rock-shafts and provided with pawls  $G'$ , serving to impart motion to ratchet-wheels  $G^2$ . The ratchet-wheels are secured to journals of rollers  $G^3$ , supported in the sections  $b$   $b^2$  of the holders  $B$ , and protruding through these sections of the holders into contact with the blocks of wood to be cut up. Preferably these rollers are roughened, so as to engage securely with the blocks of wood. The pawls  $G'$  are held in contact with the ratchet-wheels  $G^2$  by springs  $d$ . Stop-pawls  $e$  are employed to prevent the ratchet-wheels, and consequently their rollers, from rotating in the wrong direction.

The cam  $F$  operates the levers  $G$ , so that their pawls  $G'$  will impart motion to the ratchet-wheels  $G^2$  and rollers  $G^3$ , for the purpose of causing the latter to move the blocks of wood downward. The blocks of wood will be fed downward a distance equal to the thickness of match-sticks to be cut each time the levers  $G$  are operated by the cam  $F$ . This will happen when the rests  $c$  of the slides  $C$  are under the holders  $B$ . It must be understood that the slides  $C$  and the levers  $G$  are not operated in unison, but successively, by the eccentric  $C^3$  and cam  $F$ . The levers  $G$  may be kept under the influence of the cam  $F$  by the gravity of the arms which extend over the cam, or by springs. The cutters  $D$  extend above the rests  $c$  of the slides  $C$  a distance equal to the depth of the cuts they are desired to cut. The rests  $c$  of the slides form gages whereby the proper adjustment or feeding of the blocks of wood to be cut will be insured. After each adjustment or feed of the blocks of wood the cutters  $D$  cut the same in moving outward.

$H$  designates a cutter or knife having its operating-edge arranged approximately in the position of a radius of the shaft  $E$ . It is arranged upon a shouldered plate-like holder,  $H'$ , which is affixed to the shaft  $E$ , and shown as being elliptical in shape. The shouldering of the holder is to an extent equal to about the thickness of the match-sticks to be cut. The knife operates upon the under side of the blocks of wood in the holders  $B$  after the cutters  $D$  have performed their work and severs the portion previously cut by the cutters  $D$ ; hence when the knife does its work the match-sticks are completed and fall off. Adjacent to the cutting-edge of the knife is an opening,  $f$ , through which the match-sticks fall onto

the platform  $A$ . The holder  $H'$  moves in close proximity to the platform  $A$ , and hence it sweeps the match-sticks around on the platform until they arrive at openings  $g$  in the platform, whereupon they fall through onto the floor or any receptacle placed to catch them.

The knife  $H$  at the inner end is chamfered off, so as to extend under a lip,  $h$ , on the holder  $H'$ , and at the other end it is secured to the holder  $H$  by a clip,  $h'$ , fastened by a screw,  $h^2$ .

The shaft  $E$  is provided with a bevel-wheel,  $I$ , deriving and transmitting to the shaft motion from a bevel-pinion,  $I'$ , affixed to a driving-shaft,  $I^2$ . This shaft  $I^2$  is provided with ordinary fast and loose pulleys,  $I^3$   $I^4$ , whereby motion may be imparted to it.

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

1. In a machine for cutting match-sticks, the combination of a number of radially-reciprocating cutters operating to make cuts in one direction, mechanism, substantially such as described, for reciprocating the cutters successively beneath pieces of wood, and a revolving knife operating to make cuts in the pieces of wood at right angles to the other cuts, substantially as specified.

2. In a machine for cutting match-sticks, the combination of a platform, a number of radially-arranged slideways, slides carrying cutters arranged in said slideways and operating successively to make cuts in pieces of wood in one direction, and a revolving cutter operating to make cuts in the pieces of wood at right angles to the other cuts, substantially as specified.

3. In a machine for cutting match sticks, the combination, with a platform, of a number of radially-arranged slideways, open-bottom holders for blocks of wood, mounted on the platform above the slideways, mechanism for periodically feeding down the blocks of wood, slides sliding in said slideways, provided with rests onto which said blocks of wood are fed, and with cutters, said cutters operating successively to make cuts in the blocks of wood in one direction, and a revolving cutter operating to make cuts in the pieces of wood in a direction at right angles to the other cuts, substantially as specified.

4. In a machine for cutting match-sticks, the combination of a platform, open-bottom holders for blocks of wood, rollers arranged upon the holders for feeding the blocks of wood, mechanism comprising levers for operating the rollers, a cam for actuating the said levers, slides carrying cutters, an eccentric for actuating the slides, and a revolving knife, substantially as specified.

5. The holder  $B$ , comprising the sections  $b$   $b'$  and the adjustable section  $b^2$ , combined for use substantially as specified.

WM. H. H. SISUM.

Witnesses:

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