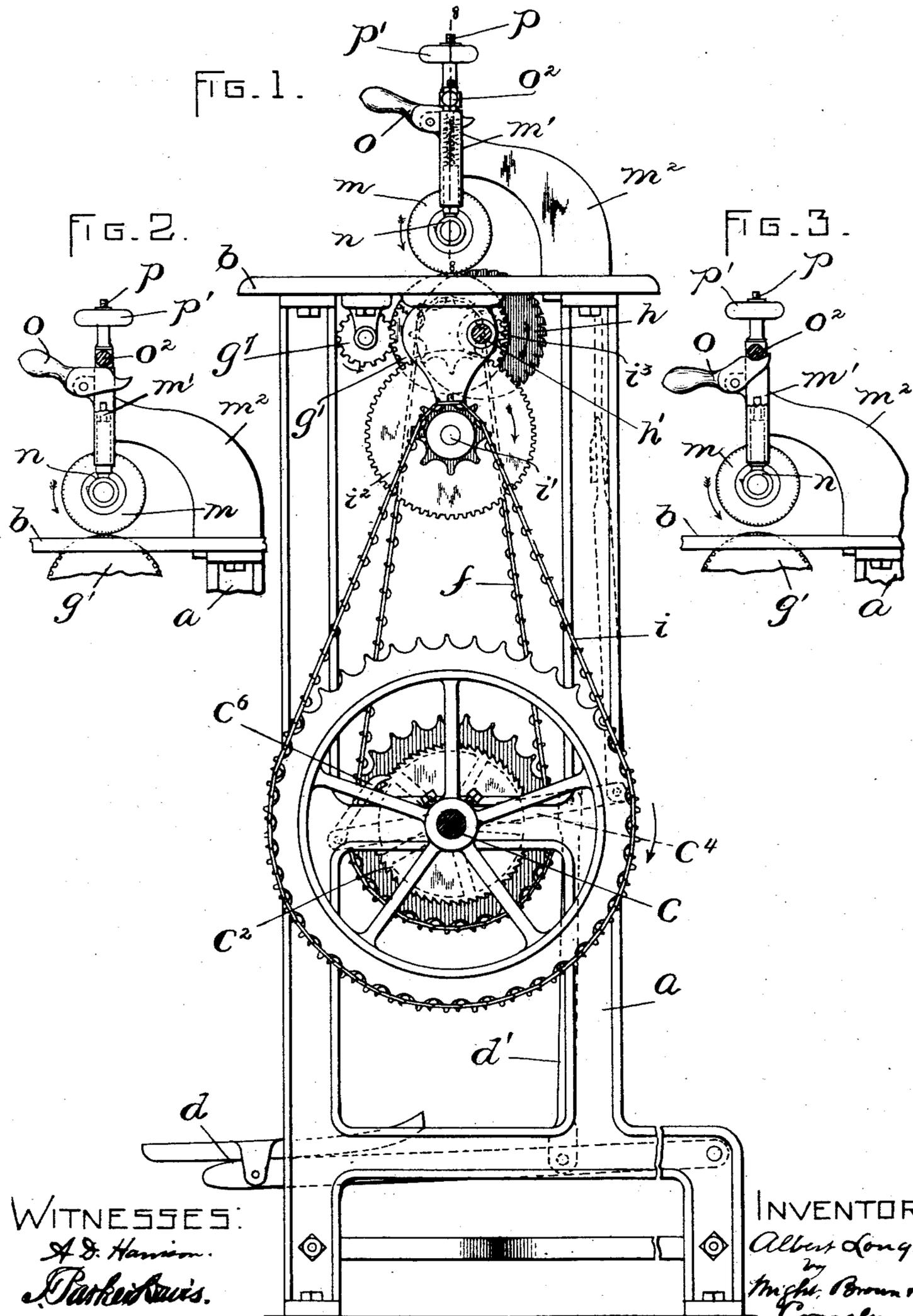


A. LONG.
CLOTH CUTTING MACHINE.

No. 525,502.

Patented Sept. 4, 1894.



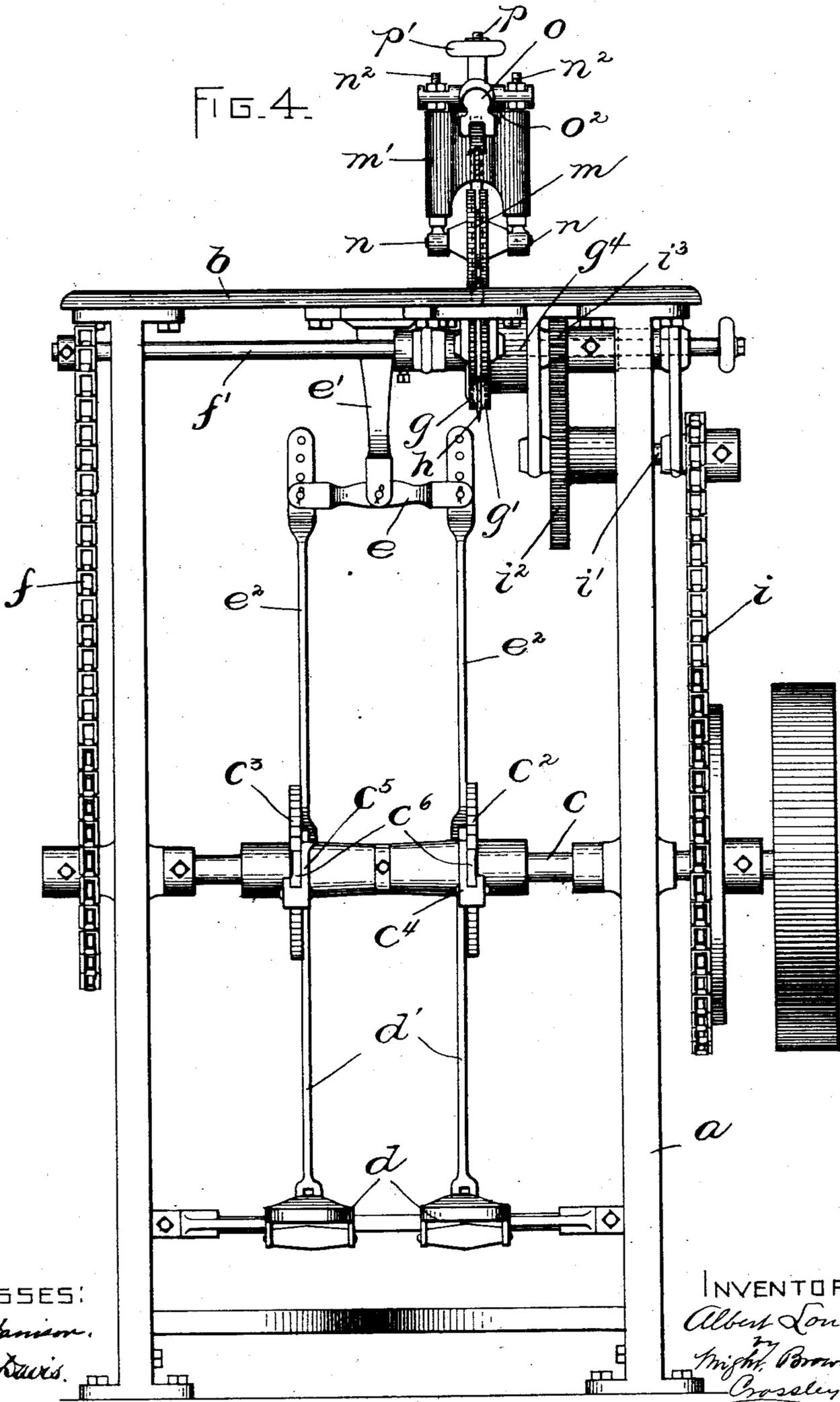
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INVENTOR:
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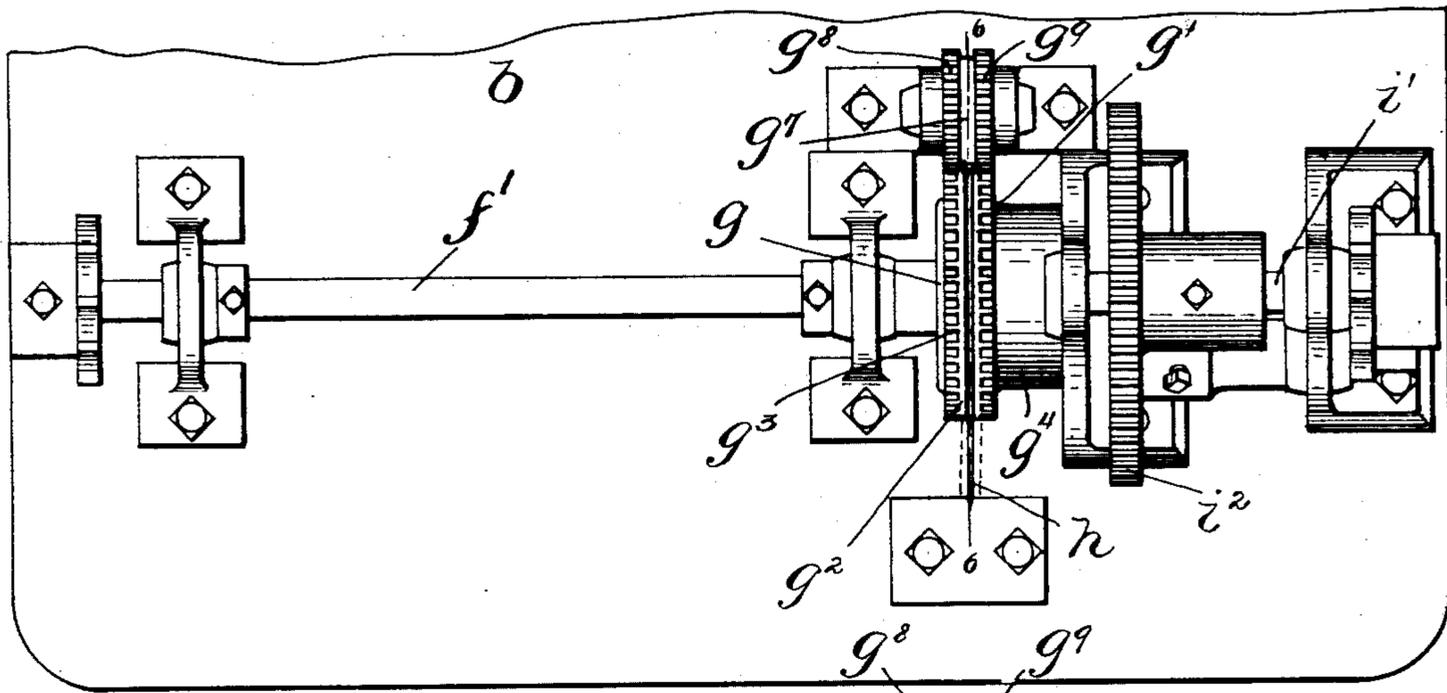


FIG. 5.

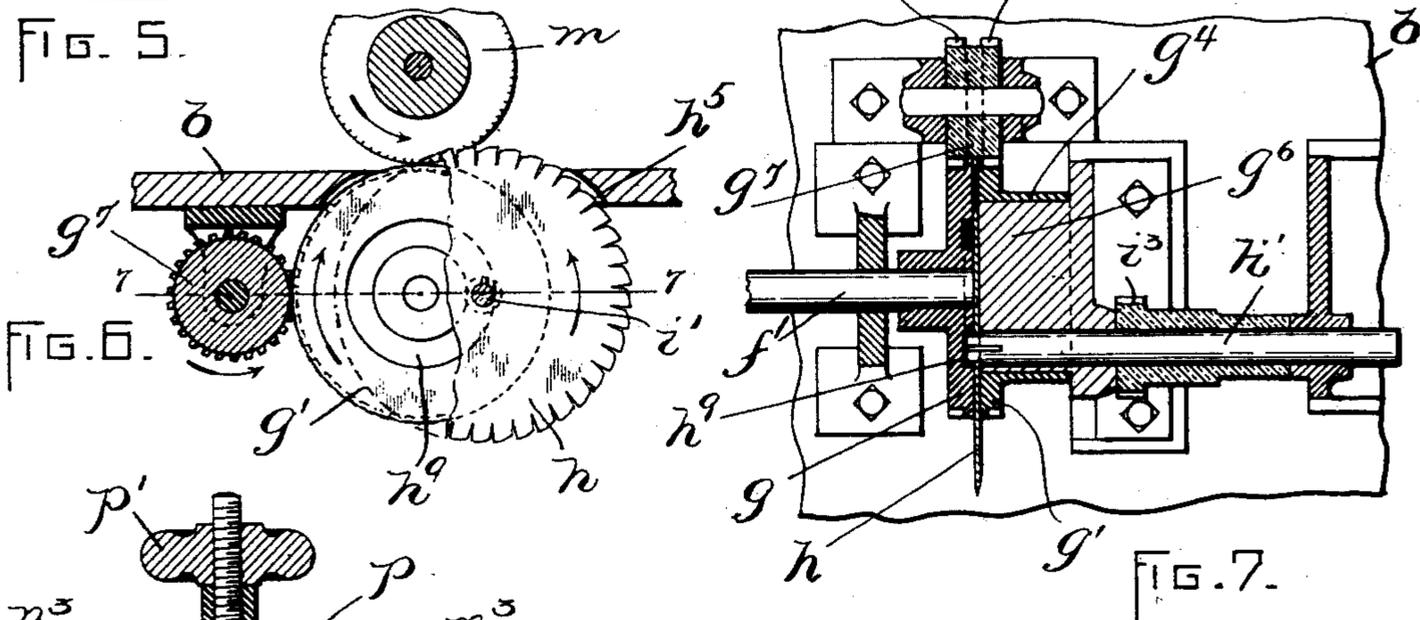


FIG. 6.

FIG. 7.

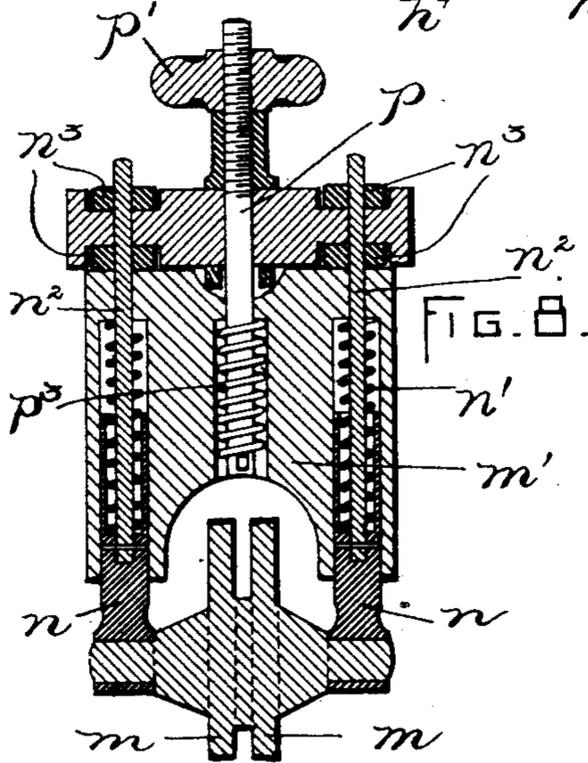


FIG. 8.

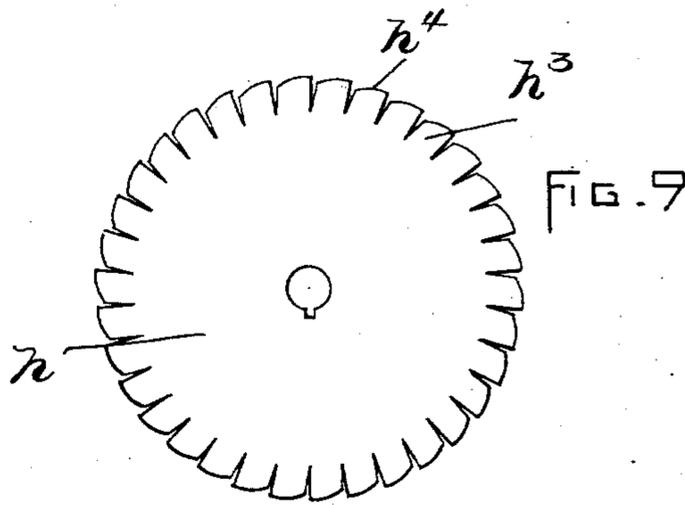


FIG. 9.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT LONG, OF LAWRENCE, MASSACHUSETTS.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 525,502, dated September 4, 1894.

Application filed April 7, 1893. Serial No. 469,420. (No model.)

To all whom it may concern:

Be it known that I, ALBERT LONG, of Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Cloth-Cutting Machines, of which the following is a specification.

This invention relates to an improvement in cloth-cutting machines, and it is particularly designed for cutting out seams in garments, preliminary to converting such garments into shoddy.

The object of the invention is to produce a machine in which the cutter will act at the most effective place, that is, where the feed-rolls nip the material; and to provide for a shear-cut at this point.

A further object is to provide improved driving mechanism, whereby a steady motion is obtained in the operation of the machine. These points are of especial advantage in a machine of this character, as the article under treatment requires a very effective application of the cutter and the machine must be driven with considerable power.

With the above-mentioned objects in view, the invention consists in certain novel features of construction and arrangements of parts which will be fully described hereinafter and pointed out in the claims.

Reference is to be had to the annexed drawings and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features as the case may be, wherever they occur.

Figure 1 shows a side elevation of the complete machine. Figs. 2 and 3 show details illustrating a construction whereby the upper feed-rolls may be raised out of operative position for the insertion or removal of work. Fig. 4 shows a front elevation of the machine. Fig. 5 shows a bottom plan view of a table and parts supported thereby. Fig. 6 shows a section taken on the line 6—6 of Fig. 5, a portion of the cutter being broken away. Fig. 7 shows a section taken on the line 7—7, Fig. 6. Fig. 8 shows a detail sectional view of the head supporting the upper feed-rolls. Fig. 9 shows a detail view of the cutter.

In the drawings: The letter *a* designates the frame of the machine, and *b* the work-

supporting table which is mounted on said frame. A driving-shaft *c* is supported in suitable bearings in the frame *a*, and carries a pair of ratchets *c*² *c*³ fixed upon it. A pair of levers *c*⁴ *c*⁵ are pivoted on said driving-shaft, and each carries a pawl *c*⁶ engaging one of the ratchets. A pair of treadles *d* are pivoted to the rear portion of the frame *a*, and are connected respectively with the levers *c*⁴ *c*⁵ by rods *d*'. A walking-beam *e* is supported in the lower end of a hanger *e*' depending from the table *b*, and the opposite ends of this walking-beam are connected by rods *e*² with the levers *c*⁴ *c*⁵.

Motion is imparted to the machine, through the mechanism described, by alternate depressions of the treadles *d*, one of the pawls *c*⁶ driving its ratchet the length of a tooth, while the other pawl is receding to take the next tooth of its ratchet. In this manner a steady motion is imparted to the driving-shaft *c*, and may be stopped instantly, and started without having to overcome a dead center.

Power is transmitted from the shaft *c* by a chain *f* to the shaft *f*' in bearings beneath the table *b*. Said shaft *f*' carries one of a pair of feed-rollers *g* *g*', the periphery of each of which comprises a plain annular section *g*² and a toothed section *g*³. The feed-roll *g*' is provided with a sleeve *g*⁴, which fits loosely upon a stationary stud *g*⁵, which is formed on a bracket secured to the under side of the table *b*. The said feed-rolls *g* and *g*' confront each other in axial alignment, and with a space between them sufficient for the cutting-wheel *h* to work in. The plain peripheral sections of the two feed-rolls both adjoin the space between said rolls. Motion is transmitted to the feed-roller *g*' from the feed-roller *g*, by a double-faced pinion *g*⁷, mounted in bearings on the under side of the table, and having two sets of gear-teeth *g*⁸ and *g*⁹ engaging the toothed sections of the feed-rolls *g* and *g*' respectively. The journal *h*' of the circular cutter *h* is eccentric with respect to the shaft *f*', and has a bearing in the stud *g*⁵, and its end which projects beyond the cutter is accommodated in a circular groove *h*⁹ in the feed-roller *g*. The rotary cutter is in the form of a wheel, having a series of knives *h*³

around its periphery, and formed with cutting edges h^4 , which recede one behind the other, as best illustrated in Fig. 9, whereby an effective action on the cloth is obtained.

5 Said cutter projects through a slot h^5 in the table b , and its circumference intersects the circumference of the feed-rollers g and g' , so that in action a shear cut is produced by the co-operation of the cutting edges h^4 and the

10 inside edges of the feed-rollers g and g' as indicated in Fig. 6. The cutter is driven from the shaft c through the medium of a chain i , engaging a sprocket-wheel on a shaft i' , which carries a gear i^2 , meshing with a pinion i^3 on the journal of the cutter. This cutter will be revolved at a much higher rate of speed than the feed-rolls. A pair of upper feed-rolls m are supported above the table, and in juxtaposition to the rolls g and g' , by a head

20 m' on the end of an arm m^2 rising from the table. These upper rolls are here shown as formed in one piece, with a space between them sufficient for the passage of the cutter h . Their trunnions are journaled in bearings n ,

25 fitted to slide in the head m' . Springs n' hold the feed-rolls in a downward position, and in operative relation with the lower feed-rolls g and g' . The tension of the upper feed-rolls may be regulated by means of rods n^2 ,

30 fastened to the bearings n , and extending through the head m' , at the upper part of which they are provided with lock-nuts n^3 .

The presser feed-rolls m may be raised out of operative relation with the lower feed-rolls,

35 as illustrated in Fig. 3, to allow the removal of the cloth under treatment, and this may be accomplished by the construction shown in the drawings, in which a lever o is shown, pivoted to a portion of the head m' , and has one end

40 formed to engage a cross-bar o^2 in which the rods n^2 are fastened. By depressing the lever o , it will be caused to lift against the cross-bar o^2 , and raise the same, thereby elevating the feed-rolls m out of operative relation with

45 the lower rolls. A further connection between the bar o^2 and the head m' is effected by means of a screw-threaded rod p , extending through the head and cross-bar, and having a knob p' on its end, which projects above

50 the cross-bar, said knob bearing against a boss on the bar o^2 ; and a spring p^3 , in a recess of the head m' and surrounding the rod p , said spring bearing at one end against the end of said recess, and at the other against a

55 pin in the rod. By turning the knob p' , the tension of the spring p^3 may be varied. The springs n' are only of such strength as to give the necessary pressure of the rolls m on the

cloth, and when adjusted for light pressure, may not act with all the force desirable to

60 keep the bar o^2 to its seat on the head m' . The spring p^3 gives the additional pressure necessary for this purpose, and has no effect upon the pressure of the rolls as it acts solely

65 to draw the bar o^2 to its seat.

The operation of the machine, briefly stated, is as follows: The cloth is started in between the upper and lower rolls, and the edge of the cutter h intersects the point of nipping of the upper and lower rolls, and hence, as the

70 cloth is drawn through the machine by the rolls, the cutter acts upon that portion of the cloth which is being nipped by the rolls. In this manner the most effective action of the cutter is obtained.

It is evident the invention may be embodied in other constructions than that here shown, therefore I am not limited to the details of such construction, but consider myself entitled to all the variations which come within

80 the spirit and scope of the invention.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which

85 it may be made or all of the modes of its use, it is declared that what is claimed is—

1. A cloth-cutting machine, comprising in its construction a feed-roll having a plain annular section and a toothed annular section,

90 a rotary cutter mounted eccentrically with respect to the said roll and co-acting with the plain peripheral section thereof to produce a shear cut, and driving-gear in mesh with the toothed section of said roll.

2. A cloth-cutting machine, comprising in its construction a driven feed-roll having a part of its periphery plain and part toothed, a feed-roll of similar peripheral construction and in axial line with and adjacent to the

100 first-mentioned roll, said latter feed-roll having a sleeve which fits loose on a stationary stud of the machine, a rotary cutter on a journal whose bearing is in said stud and eccentric with respect to the feed-rolls, and a

105 double-faced gear meshing with the two feed-rolls.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 21st day of

110 March, A. D. 1893.

ALBERT LONG.

Witnesses:

F. PARKER DAVIS,
ARTHUR W. CROSSLEY.