

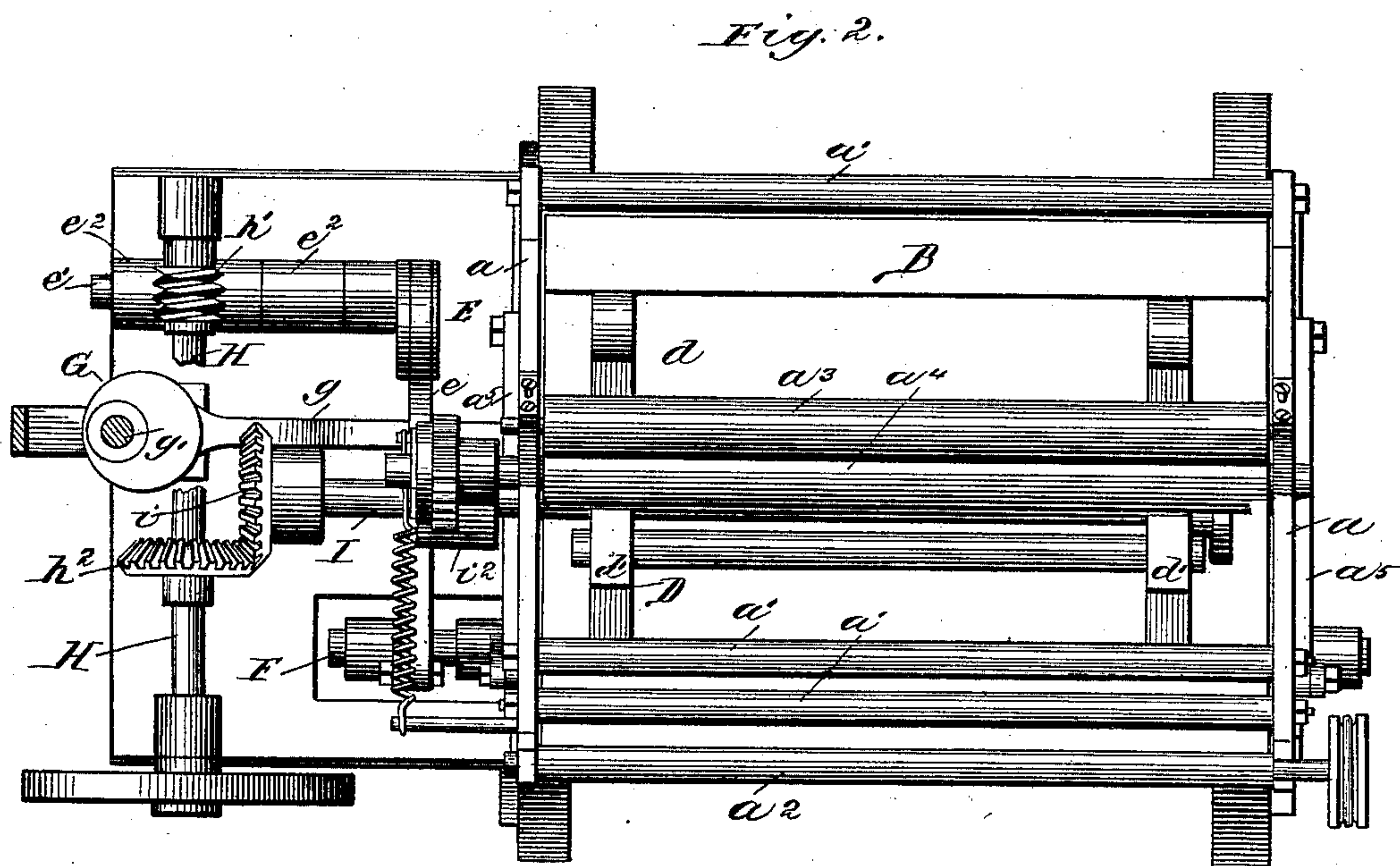
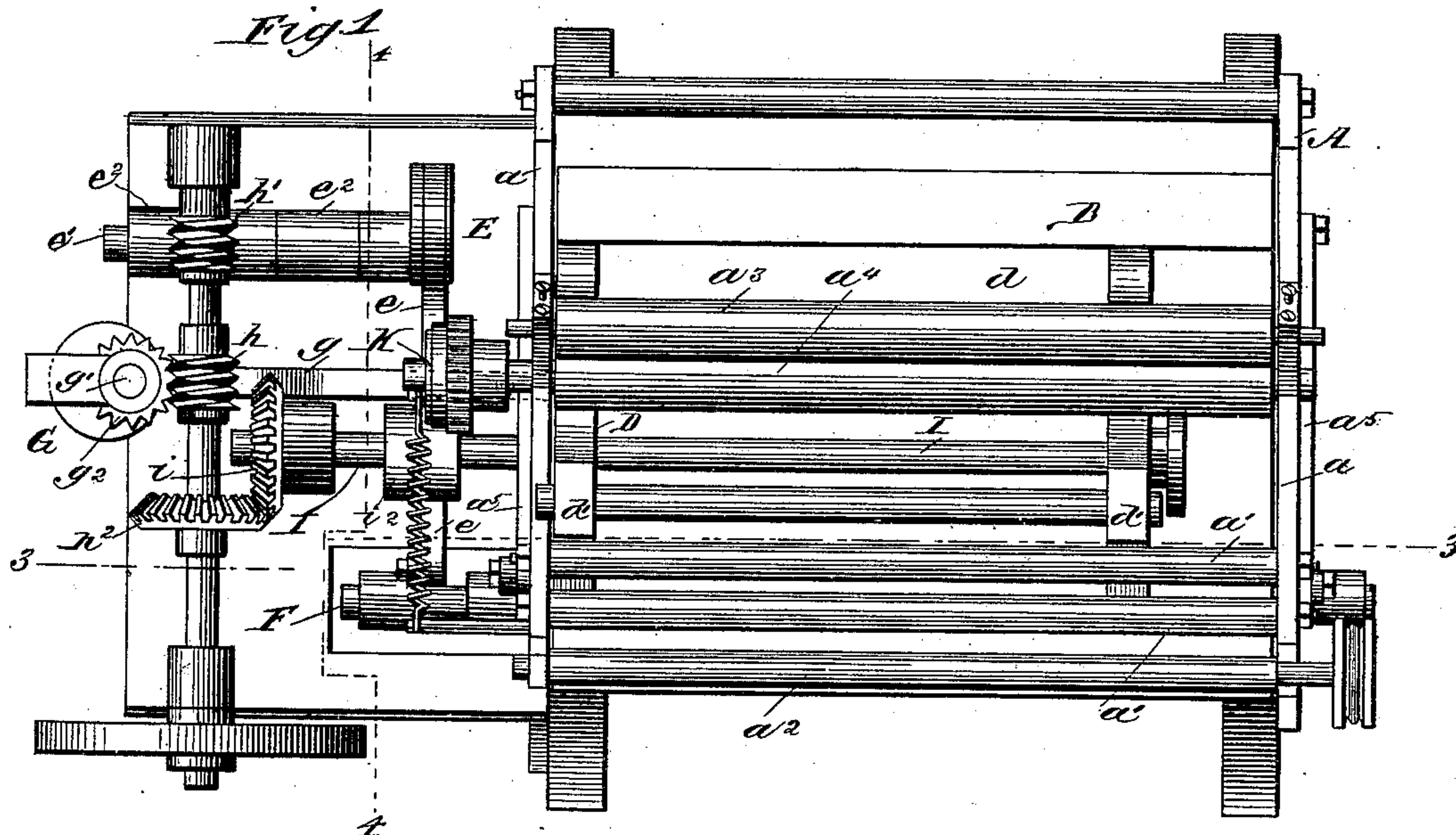
(No Model.)

4 Sheets—Sheet 1.

A. BECK.  
QUILTING MACHINE.

No. 429,002.

Patented May 27, 1890.



Witnesses  
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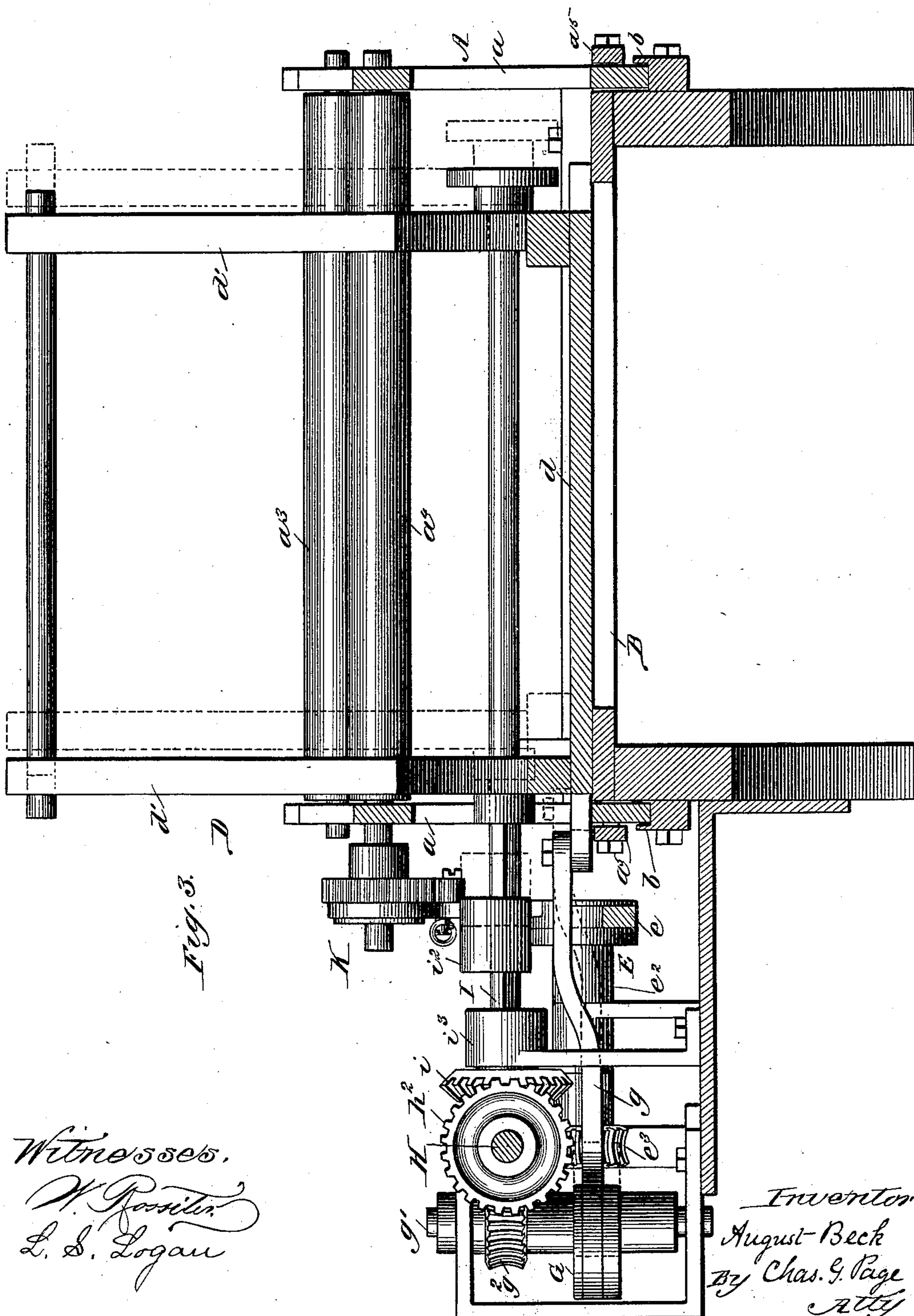
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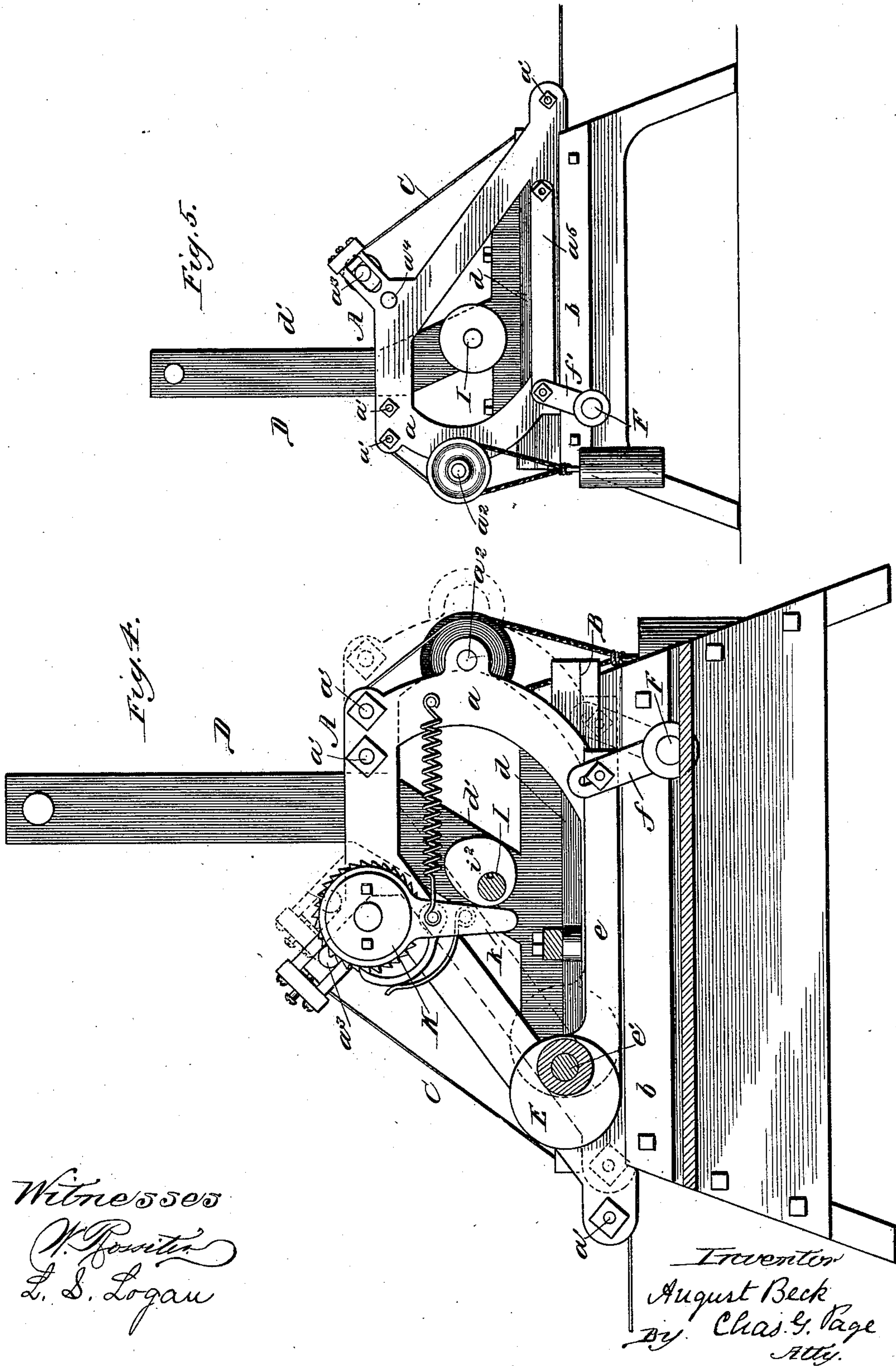
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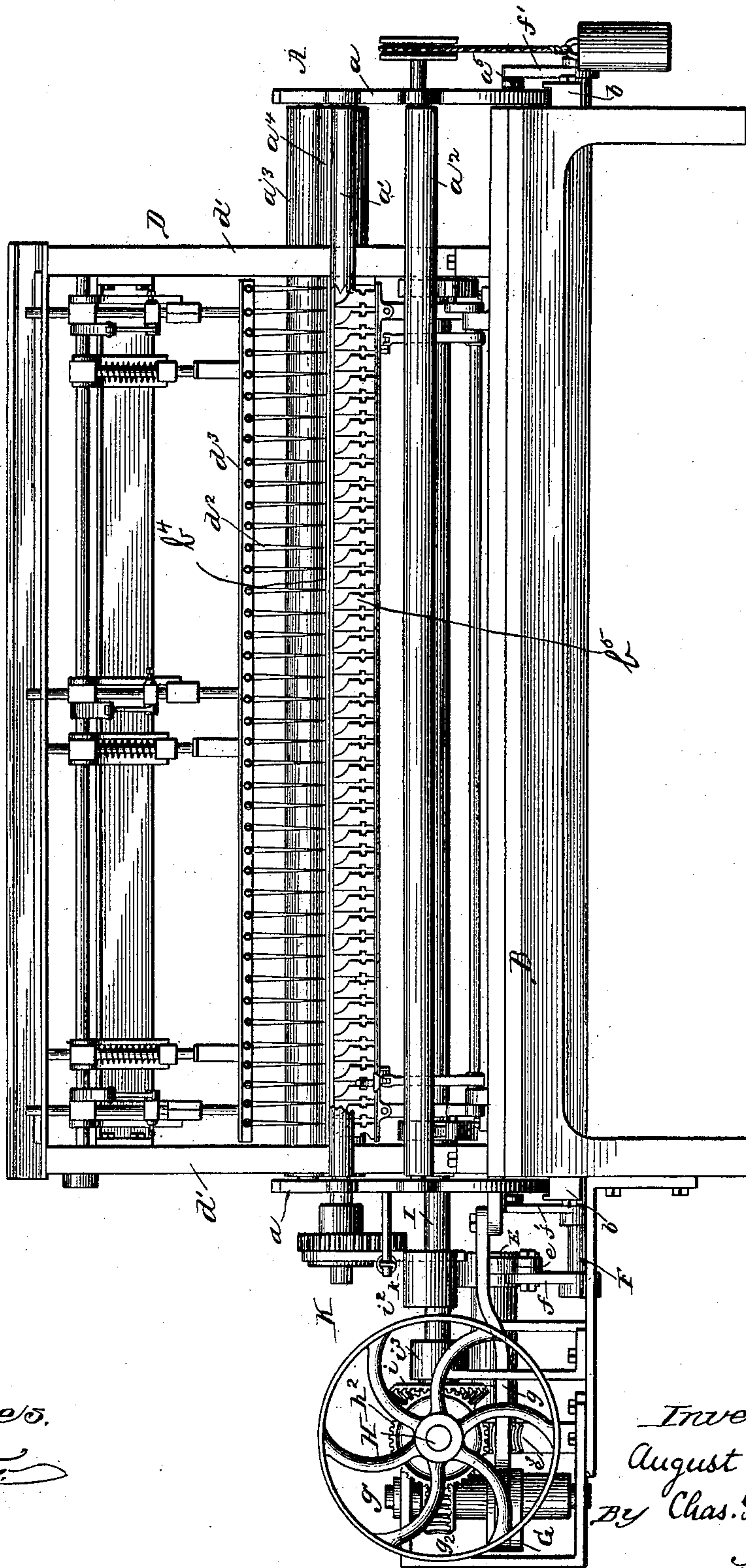
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Fig. 6.



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# UNITED STATES PATENT OFFICE.

AUGUST BECK, OF CHICAGO, ILLINOIS.

## QUILTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 429,002, dated May 27, 1890.

Application filed September 20, 1887. Serial No. 250,227. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST BECK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Quilting-Machines, of which the following is a specification.

The object of this invention is to provide in quilting-machines novel and improved means whereby a great variety of novel patterns or figures may be produced in the stitching, to render such means certain and efficient in action, and to attain highly desirable results in an extremely simple and economical way.

In carrying out my invention I construct a quilting-machine with a reciprocating stitching-mechanism support, which carries one or more rows or sets of needles and suitable means for operating the same, and a reciprocating cloth-frame or cloth-carrier arranged to reciprocate transversely to the line of reciprocation of the stitching-mechanism support and provided with an automatic feed, whereby during the reciprocating movements of both the cloth-frame and the stitching-mechanism support the cloth or quilting material can be fed forward independently of the cloth-frame, and hence drawn over the cloth-plate regardless of the bodily reciprocating movements of said cloth-frame and stitching-mechanism support, which latter, of course, is provided with the cloth-plate whereon the fabric is stitched.

The cloth-frame and the stitching-mechanism support can be reciprocated by suitable propelling means, the speed of their respective movements being determined by the requirements to be met, so as to vary the patterns produced, it being understood that the curvatures of the lines of stitching and the figures produced depend for their contour upon the relative movements of the stitching-mechanism support, the cloth-frame, and the feed. Thus the speed of the feed can be determined with reference to the movement of either the cloth-frame or the stitching-mechanism support, or both; and, again, the stitching-mechanism support and the cloth-frame may obviously both move at one and the same rate of speed, or respectively at differ-

ent rates of speed, all of which changes serve to change the pattern-lines of stitching.

In the drawings, Figure 1 represents a top plan view of the frame-work of a quilting-machine embodying my invention, with the cloth-frame A at one end of the throw. Fig. 2 is a similar view with the cloth-frame at the other end of the throw, it being observed that in this figure the cog  $g^2$  of the preceding figure is removed and the shaft H broken away in order to more clearly represent the cam or eccentric G and pitman. Fig. 3 represents, on a somewhat larger scale, a longitudinal sectional elevation taken on line 3 3 of Fig. 1. Fig. 4 is a transverse vertical sectional elevation on line 4 4 of Fig. 1. Fig. 5 represents in elevation, on a smaller scale, the end of the machine that is opposite the end shown in Fig. 4. Fig. 6 is a side elevation of the machine, including a sufficient portion of a stitching mechanism or stitching devices to illustrate the application of my improvement.

The reciprocating cloth-frame A, which may be of any suitable or desired construction, is herein represented as comprising the two upright end pieces  $a$ , which are tied together by the longitudinally-arranged rods or bars  $a'$  and provided with bearings appropriate for the several cloth-rollers. Of these said rollers  $a^2$  denotes a roller whereon the cloth may be wound, and  $a^3 a^4$ , respectively, one and the other of a couple of feed-rolls, whereof the roll  $a^3$  may be an idler and the roll  $a^4$  be driven for drawing forward the cloth, which is indicated in Figs. 4 and 5 by the letter C.

The cloth-frame reciprocates parallel with the line of feed of the cloth, and to such end the end pieces  $a$  of such frame are fitted to slide in guideways  $b$ , arranged at the ends of a bed B, whereon the frame D, that carries the stitching devices is supported, as best illustrated in Fig. 3.

The cloth-frame is reciprocated from a cam or eccentric E through the medium of any suitable connections—as, for example, the pitman or connecting-rod  $e$ , having at one end the usual strap which embraces the cam or eccentric, may at its opposite end connect with an arm or crank  $f$ , Fig. 4, upon a rock-shaft F, which latter is extended through



suitable bearings below the bed B and provided with short upright arms  $f'$ , that are pivotally attached to links  $a^5$  on the ends of the cloth-frame, as best shown in Figs. 1, 5, 5 and 6.

By means of the foregoing arrangement the cloth-frame can obviously be reciprocated coincident with the line of feed of the cloth, and such action attained irrespective of any independent movement made by the frame D, upon which the stitching devices are understood to be carried. With regard to the frame D no particular stress is herein placed upon its construction, since it is to be simply any ordinary or suitably-constructed frame adapted to provide appropriate bearings for the several operative members of the stitching mechanism in a quilting-machine. The parts of such frame herein shown comprise simply a base  $d$  and a couple of standards  $d'$  rising therefrom. Under the arrangement herein presented this frame is capable of reciprocating transversely to the line of reciprocation of the cloth-frame, to which end it is operated from a cam or eccentric G, from which the strap is connected with the reciprocating frame by a pitman or connecting-rod  $g$ .

The movement of the frame carrying the stitching mechanism serves to carry the usual set of needles of such mechanism to and fro transversely to the line of feed simultaneously with the movement of the cloth-frame, which carries the advancing work forward and backward transversely to the line of movement of the frame that carries the stitching mechanism, the result of such combined movements being the production of patterns, which may be determined by the relative speeds of the said two members of the machine. The cams or eccentrics can be timed to operate the two frames at the same rates of speed or timed so that one frame shall move more rapidly than the other, it being apparent that various differences in the rates of speed will serve to produce different patterns.

Power can be applied in any suitable way for operating the cams or eccentrics from which the cloth-frame and frame for the stitching mechanism are actuated. As an illustration of one of such ways, the two cams are herein operated from a rotary shaft II through the medium of appropriate gearing. Thus the shaft or spindle  $g'$  for the cam or eccentric G is provided with a cog  $g^2$ , that is engaged by a worm  $h$ , Fig. 1, on the shaft II, while the rotary shaft or spindle  $e'$ , provided for the cam or eccentric E and shown mounted in bearings  $e^2$ , is furnished with a cog  $e^3$ , Fig. 3, that is engaged by a worm  $h'$ , Figs. 1 and 2, on the shaft II. The rotary shaft II can also be utilized for driving a shaft I, from which the stitching mechanism that is to be employed in the quilting-machine may be driven, to which end shaft II is provided with a gear  $h^2$ , arranged to engage a gear  $i$  on said driving-shaft I.

Any desired construction or arrangement

of stitching devices carried by the frame or support D can be provided, and hence in my claims the words "stitching devices" where employed are understood to comprise any devices suitable for stitching in a quilting-machine. By way of illustrating some one of the many arrangements of stitching devices that could be employed I have shown stitching devices which, while not novel in the present case, and hence not fully represented, are shown to include a set of needles  $d^2$ , attached to an ordinary reciprocating needle-bar  $d^3$ , which can be operated from shaft I, as usual. It is, however, particularly noted that during operation the "cloth or quilting material," as it may indifferently be termed, is drawn by the action of some suitable feed device or movement over a stitching-table or cloth-plate  $b^4$ , which said cloth-plate is provided upon the stitching-mechanism support and arranged over a line of shuttles, (indicated at  $b^5$ ), so that the set of needles may stitch through the fabric upon the cloth-plate. I have not deemed it necessary to herein illustrate the presser-bar and means for operating the same, but observe that such member of a practical organized quilting-machine is understood to be present.

As explanatory of a cam  $i^2$ , herein shown on the shaft I, it may be noted that such cam is employed for actuating the arm  $k$  of a feed device K for operating the cloth-feeding roller  $a^4$ , a particular description of such feed device not being herein necessary. It is, however, distinctly understood that during operation one or more of the feed-rolls of the cloth-frame will be operated to produce a forward feed of the cloth, and hence draw the same over the cloth-plate, and that said feed roll or rolls are to be driven by any known or suitable automatic device, as will be readily understood and appreciated by those skilled in the art. The cloth-frame is therefore provided with a feed—that is to say, with one or more feed-rolls driven during the operation of the machine and while the cloth-frame is as a whole reciprocated in a direction coincident with the line of feed of the cloth. The result of the foregoing, and also the result of the foregoing combined with a reciprocating movement of the stitching-mechanism support in a direction transverse to the line of feed of the cloth, can evidently be attained regardless of any particular means for imparting motion to said members, and hence I do not limit myself to particular means for such purpose, but propose to avail myself of such as I may desire of the many known mechanical devices for moving back and forth a body which is guided and arranged for reciprocating action. The rotary shaft I extends through the standards  $d'$  of the reciprocating frame D and can be keyed within a hub of the gear  $i$  in a manner to provide a sliding connection between the two, so that the shaft while rotating may reciprocate with frame D, the gear  $i$  in such case having its



hub mounted in a stationary bearing  $i^3$ , so as to maintain it in mesh with the gear  $h^2$ .

What I claim as my invention is—

- 5 1. The combination, substantially as here-  
inbefore set forth; in a quilting-machine, of  
a reciprocating cloth-frame having an auto-  
matic feed for the cloth and arranged to re-  
ciprocate in a direction coincident with the  
line along which the cloth is fed, and a recip-  
10 rocating stitching-mechanism support carry-  
ing a cloth-plate and a set of needles and ar-  
ranged to reciprocate transversely to the di-  
rection of reciprocation of the cloth-frame,  
for the purpose described.
- 15 2. The combination, in a quilting-machine,

of a reciprocating cloth-frame provided with  
feed-rolls  $a^3$   $a^4$  and an automatic feed device  
for operating the same, a reciprocating stitch-  
ing-mechanism support carrying stitching de-  
vices and arranged to reciprocate transversely 20  
to the direction of reciprocation of the cloth-  
frame, and means, substantially as herein set  
forth, for independently but simultaneously  
operating said cloth-frame and stitching-mech-  
anism support, substantially as described.

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Witnesses:

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