

No. 717,274.

Patented Dec. 30, 1902.

B. J. REARDON.

SPRING ROLL FOR PAPER MACHINE DRIERS.

(Application filed July 29, 1902.)

(No Model.)

2 Sheets—Sheet 1.

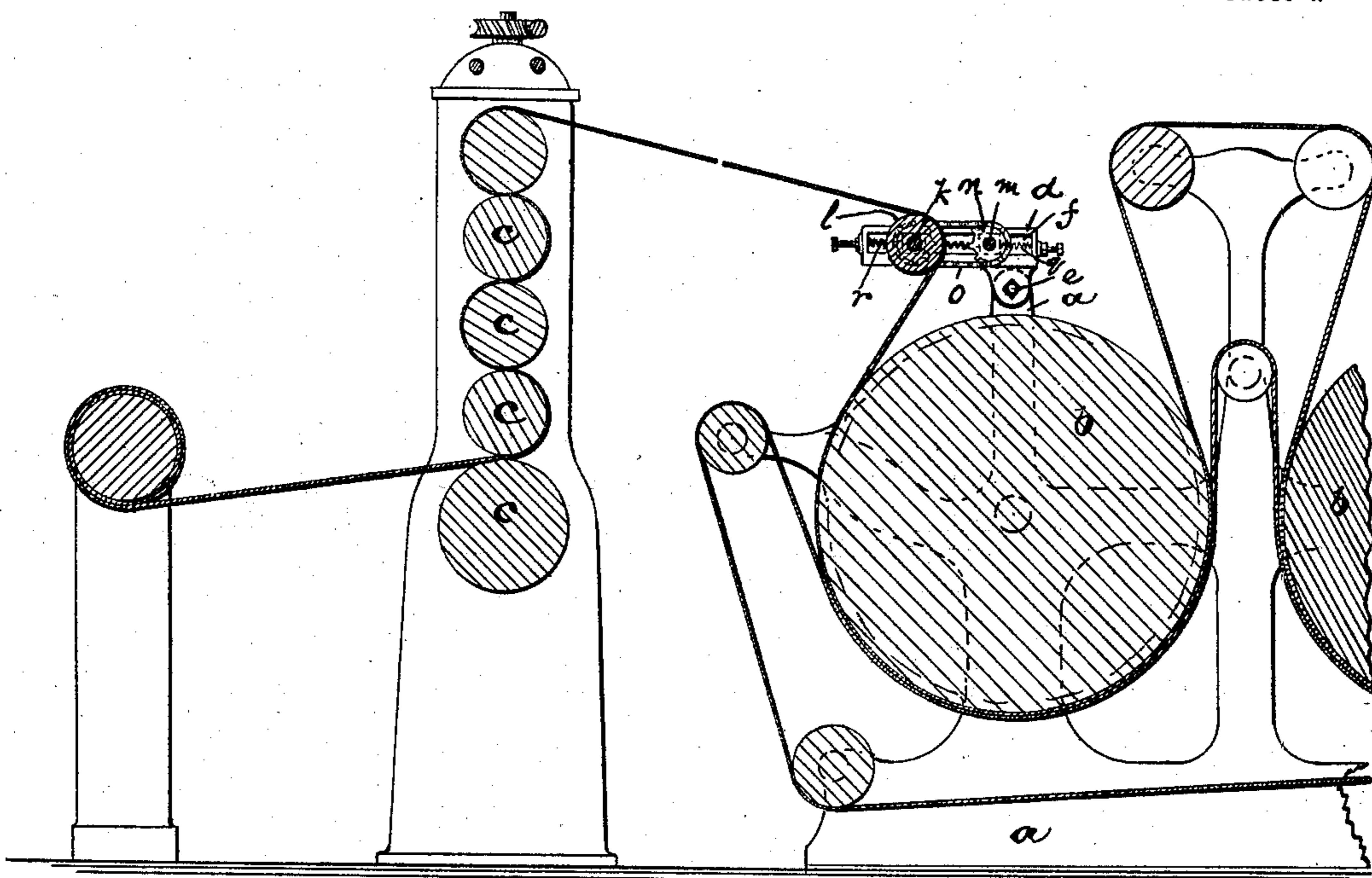


Fig. 2.

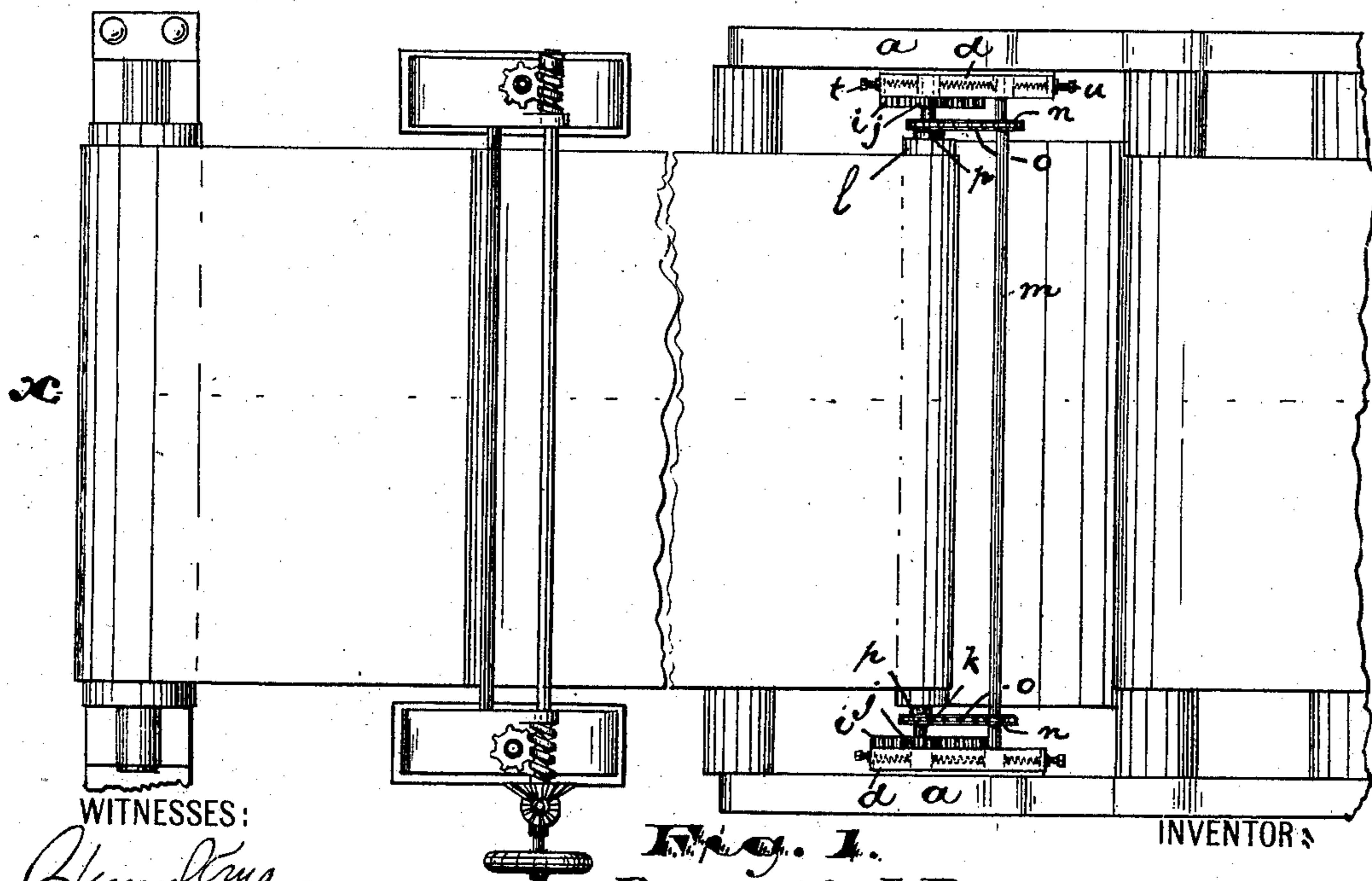


Fig. 1.

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2 Sheets—Sheet 2.

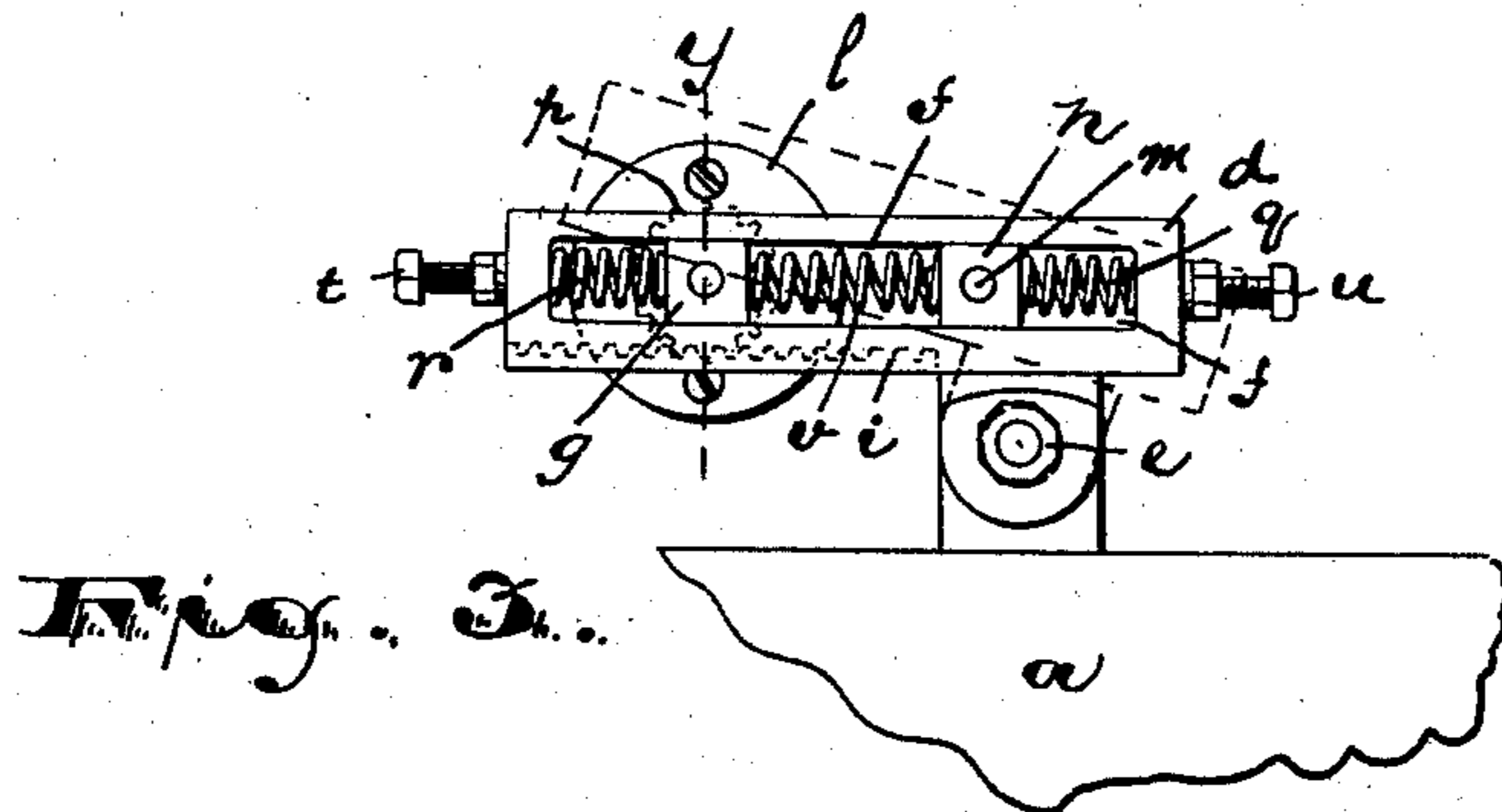


Fig. 3.

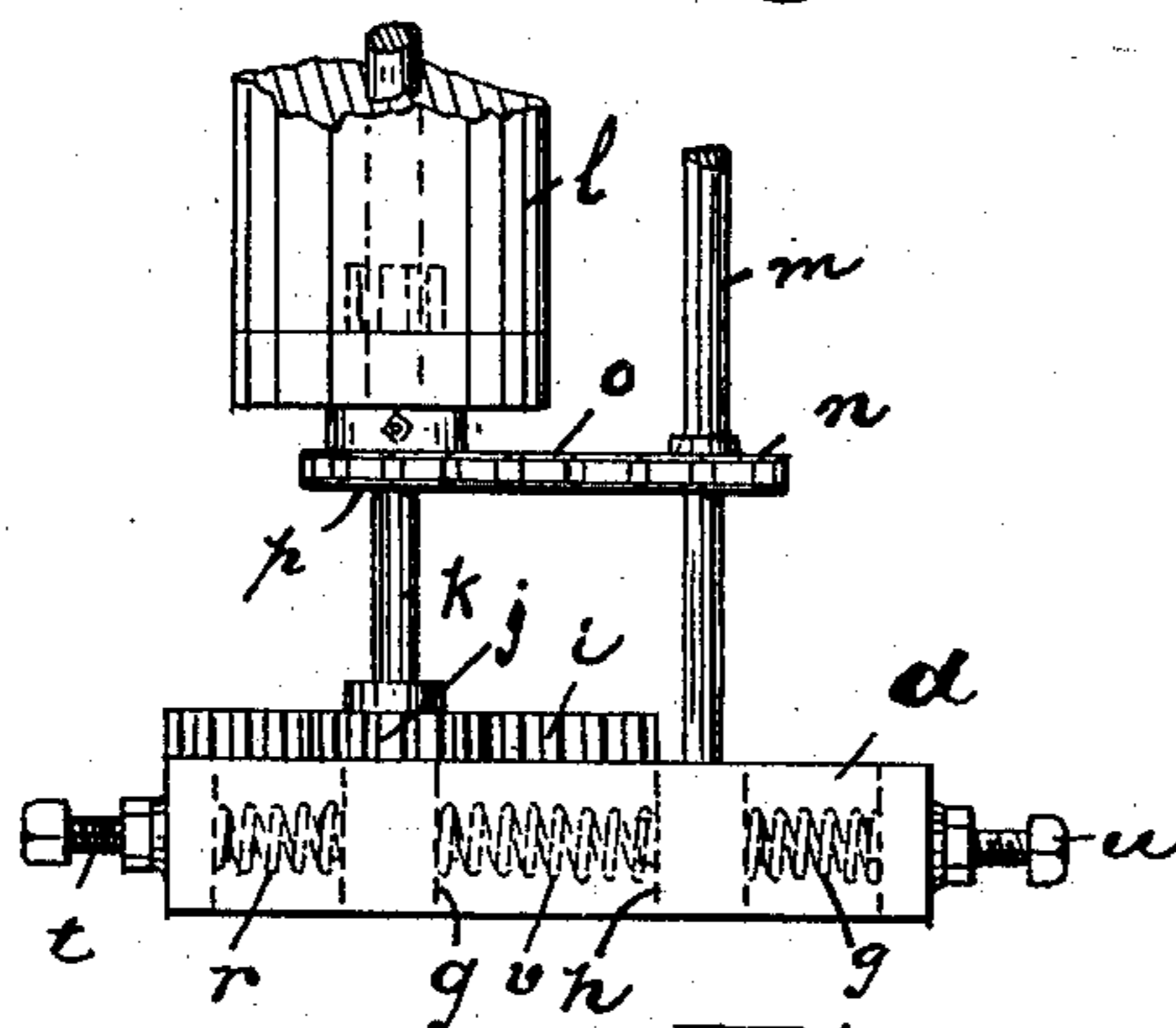


Fig. 4.

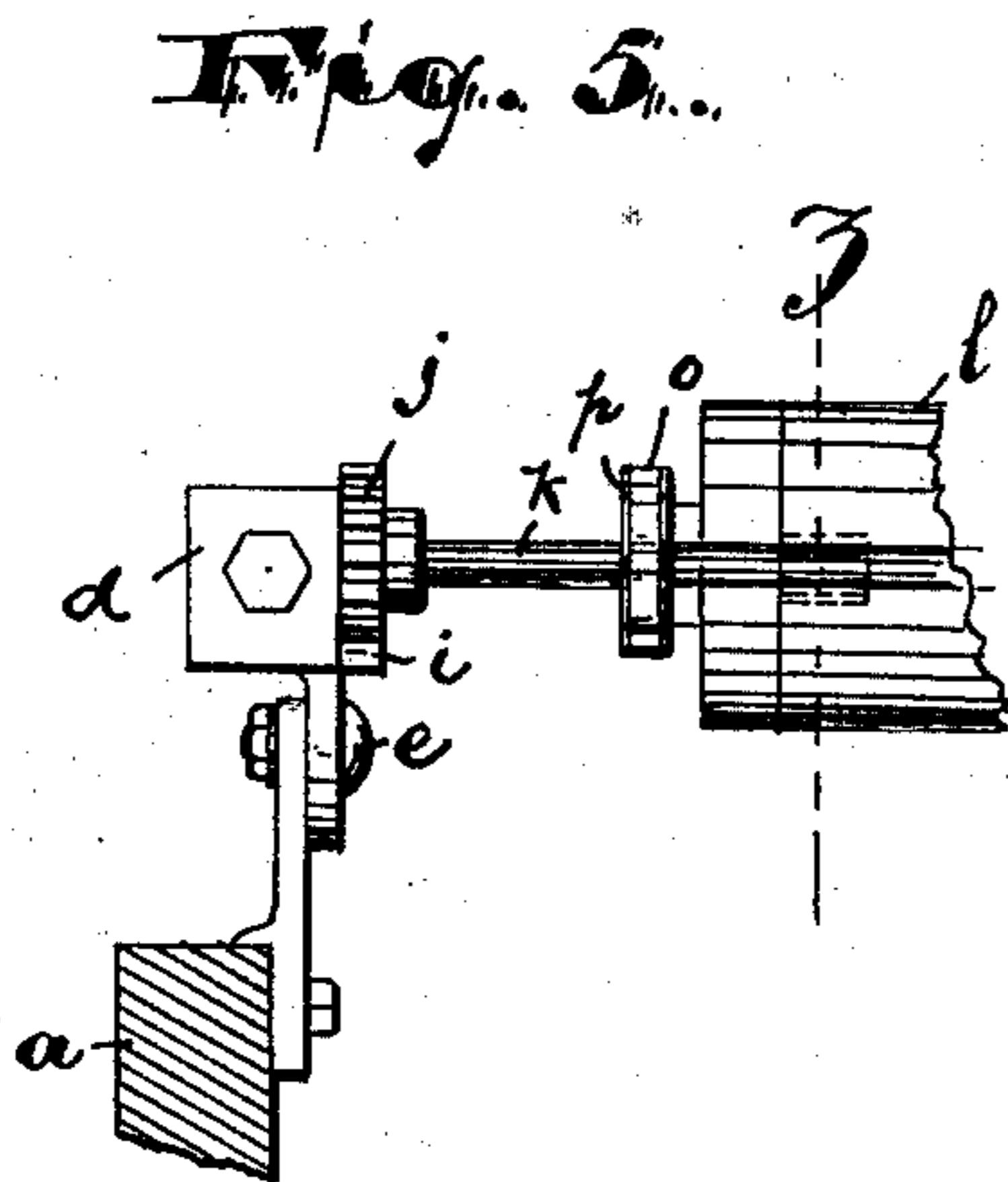


Fig. 5.

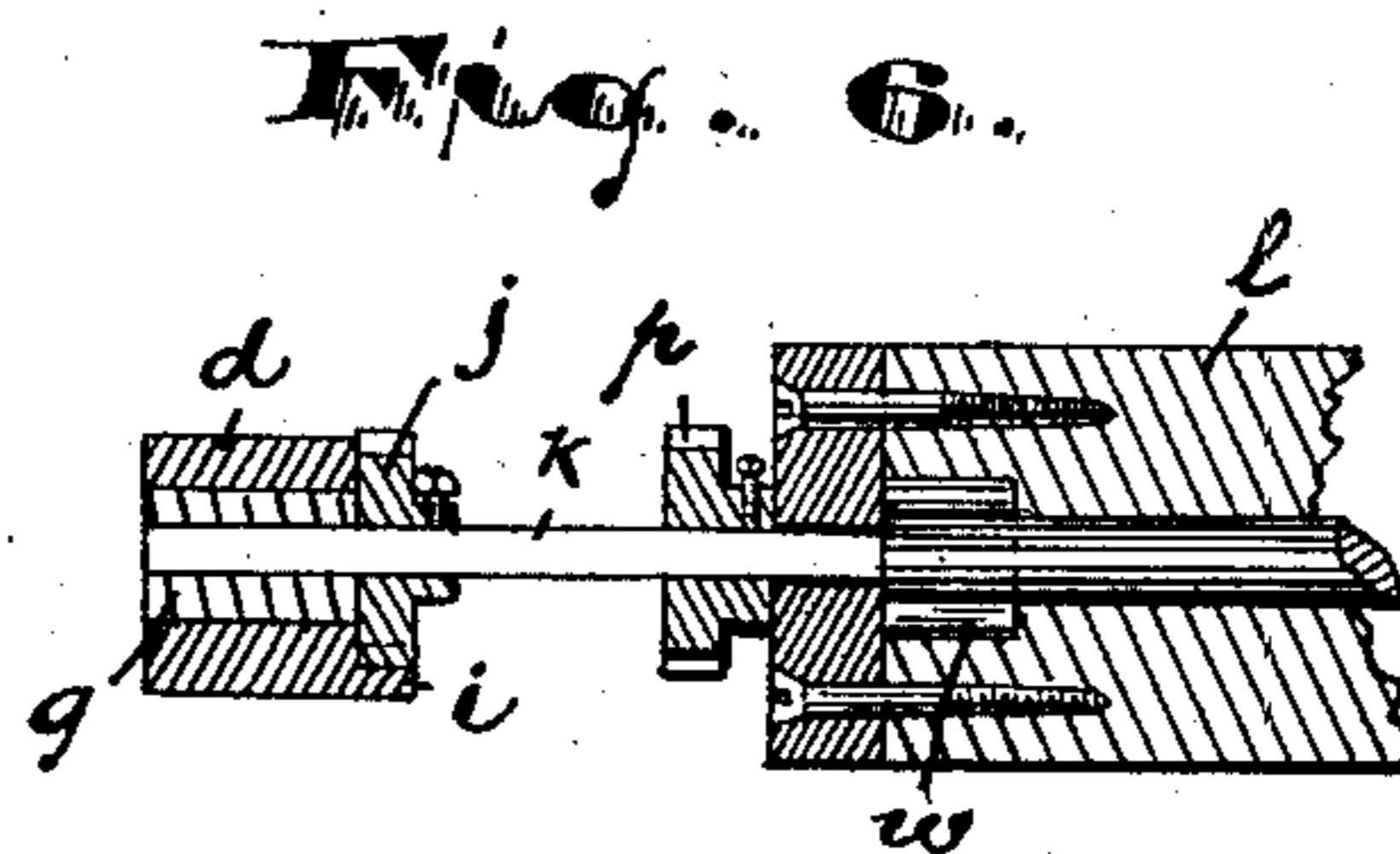


Fig. 6.

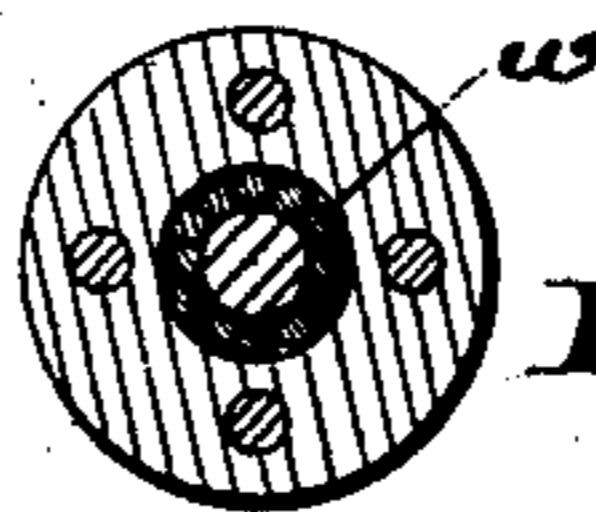


Fig. 7.

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UNITED STATES PATENT OFFICE.

BERNARD J. REARDON, OF MILLBURN, NEW JERSEY.

SPRING-ROLL FOR PAPER-MACHINE DRIERS.

SPECIFICATION forming part of Letters Patent No. 717,274, dated December 30, 1902.

Application filed July 29, 1902. Serial No. 117,436. (No model.)

To all whom it may concern:

Be it known that I, BERNARD J. REARDON, a citizen of the United States, residing at Millburn, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spring-Rolls for Paper-Machine Driers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of this invention is to reduce, if not entirely avoid, the loss due to the complete transverse severance of the paper sheet as it travels from the drying-rolls to the stack of calender-rolls, because of the strain on the paper acting upon the weak edges of the sheet, such weak edges being the result of imperfect work or otherwise in the earlier stages of its making.

The invention consists in the improved paper-making machine, in the spring-controlled roller therefor, and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a plan of a portion of a paper-mill having my improvements. Fig. 2 is a section of the same, taken at line *x*. Fig. 3 is a side elevation of one of the brackets or supports and its connections containing the improvements embodying the invention. Fig. 4 is a plan, and Fig. 5 is an end view, of the same. Fig. 6 is a section on line *y*, Fig. 3; and Fig. 7 is a section on line *z* of Fig. 5.

In said drawings, *a* indicates a suitable bed-frame on which the drying-rolls *b b* have their bearings, and *c* is the stack of calendering-rolls arranged next in order to the said drying-rolls and receiving the paper from said drying-rolls in any ordinary manner. At the end of the bed-frame toward the calendering-rolls and at opposite sides of said frame are secured brackets or supports *d d*, which are preferably adjustable to suit vari-

ations in the arrangement of the calendering-rolls. When adjustable, the said brackets are fixed to the frame by set-screws *e* or other suitable means. The brackets or supports are horizontally slotted, as at *f*, and in the slots are arranged sliding bearing blocks or boxes *g h*. The walls of the slots are properly worked to present smooth slideways to said blocks or boxes. At the inner side of each of the brackets or supports is arranged or formed a rack *i*, adapted to receive a cog-wheel or pinion *j* of the guide-roller shaft *k*, arranged in the blocks *g*. Said guide-roller shaft carries the guide-roller *l*, over or under which the paper travels as it leaves the drying-rolls for the calendering-slack.

Within the slots *f*, a little distance back from the sliding bearing-blocks *g*, are the sliding bearing-blocks *h*, in which are journaled the opposite ends of the shaft *m*. Said shaft *m* carries a pair of fixed sprocket-wheels *n n*, each connected by a chain *o* with a fixed sprocket-wheel *p* on the shaft *k*. Thus the shafts rotate together.

Between the opposite end walls of the slots *f* and the sliding blocks *g* and *h* are arranged springs *q r*, the tension of which can be increased or diminished by adjusting-screws *tu*, seated in the ends of the brackets or supports *d*, and between the said sliding bearing-blocks in said slots *f* are springs *v*, which normally bear oppositely against said blocks.

The guide-roller *l* is loose on its shaft *k*, and to secure the greater sensitiveness of draft the said roller is mounted on balls or rollers *w*, Figs. 6 and 7.

I find in operation that where heretofore the paper sheet in passing from the drying to the calendering rolls was slightly torn or thin and weak it was extremely liable to tear irregularly from one edge to the other, and thus occasion considerable loss, the reduction of strain at one end of the guide-roller, due to the tear, tending to increase the strain at the other, so that initial weakness or tear continued across the sheet. By my improvements this is very largely avoided, and in practice I effect a very material saving of broken paper.

It will be understood that the sheets in the machine are very wide and are cut up into three or more narrower lengths, and thus if

the breakage is limited to one edge the damage to the center part and opposite side is avoided.

Having thus described the invention, what I claim as new is—

5 1. The combination, in a paper-machine, with a guide-roll over which the paper may travel from the drying-roller to the calender-rollers, of slotted brackets and sliding bearing-blocks for said guide-roll therein each op-
10 posed at opposite sides by springs, substantially as set forth.

2. The combination, in a paper-machine, with a shaft and its guide-roll over which the paper may travel from the drying-rolls to
15 the calender-rolls, of slotted brackets or supports, for said guide-roll, sprocket-wheels on the guide-roll shaft, a pair of sliding blocks providing bearings for the guide-roll shaft, another pair of sliding blocks, a shaft in the
20 latter blocks, sprocket-wheels on the two said shafts and chains connecting the same, springs interposed between the sliding blocks and be-

tween said blocks and the end walls of the slots, racks arranged on the brackets or supports and pinions on the guide-roll shaft engaging said racks, substantially as set forth. 25

3. The combination, in a paper-machine with a shaft and its guide-roll over which the paper may travel from the drying-rolls to the calender-rolls, of slotted brackets or supports
30 at the opposite sides of the machine, bearing-blocks for the guide-roll shaft, said guide-roll shaft and springs arranged horizontally in front of and behind the said sliding blocks and means for regulating the tension of the
35 springs, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of July, 1902.

BERNARD J. REARDON.

Witnesses:

CHARLES H. PELL,
C. B. PITNEY.