

(No Model.)

7 Sheets—Sheet 1.

W. H. KERR.
MACHINE FOR SEWING BAGS.

No. 374,541.

Patented Dec. 6, 1887.

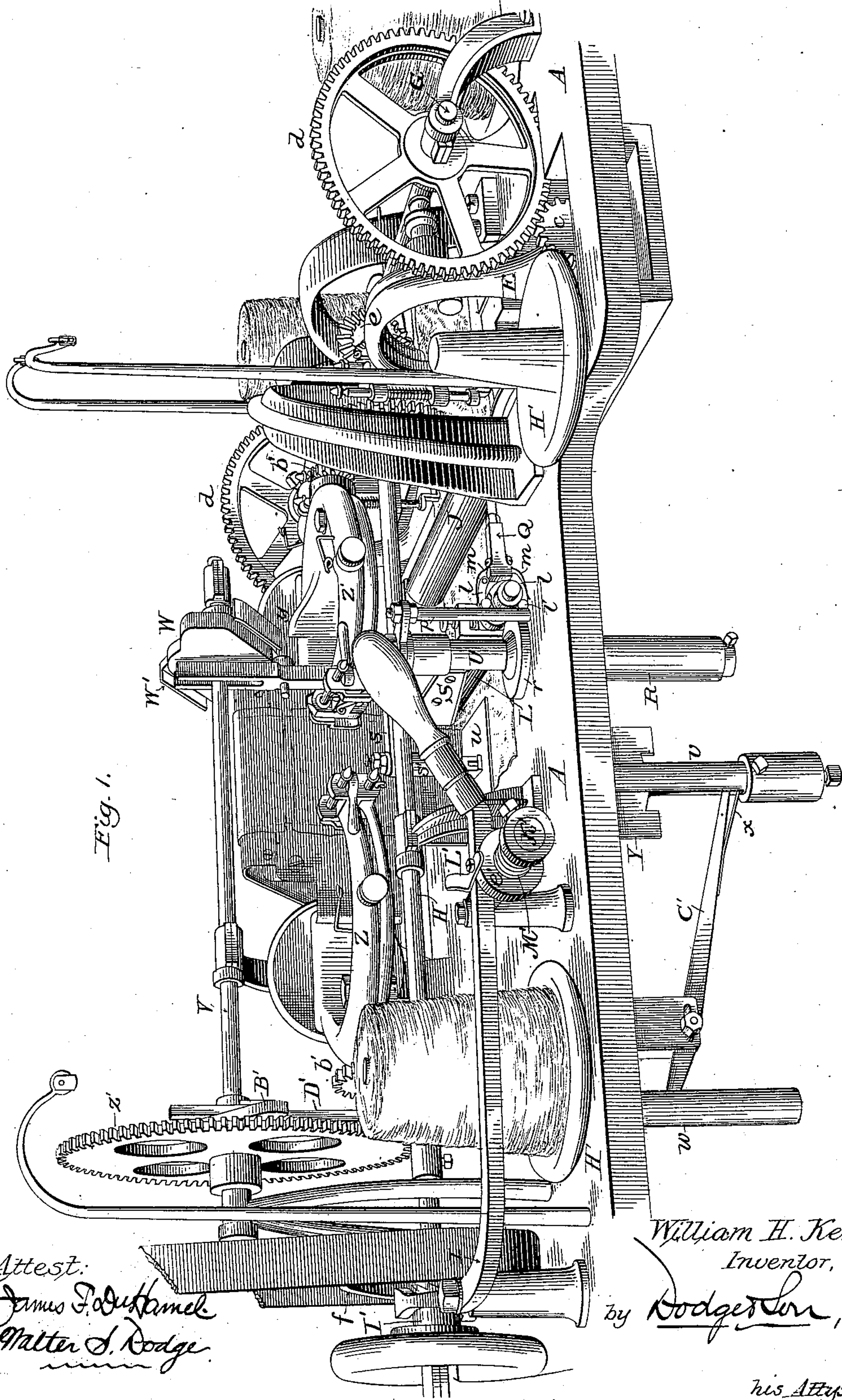


Fig. 1.

Attest:
James F. Duffin
Matter S. Dodge

William H. Kerr,
Inventor,
by Rodgers,
his Atty.

(No Model.)

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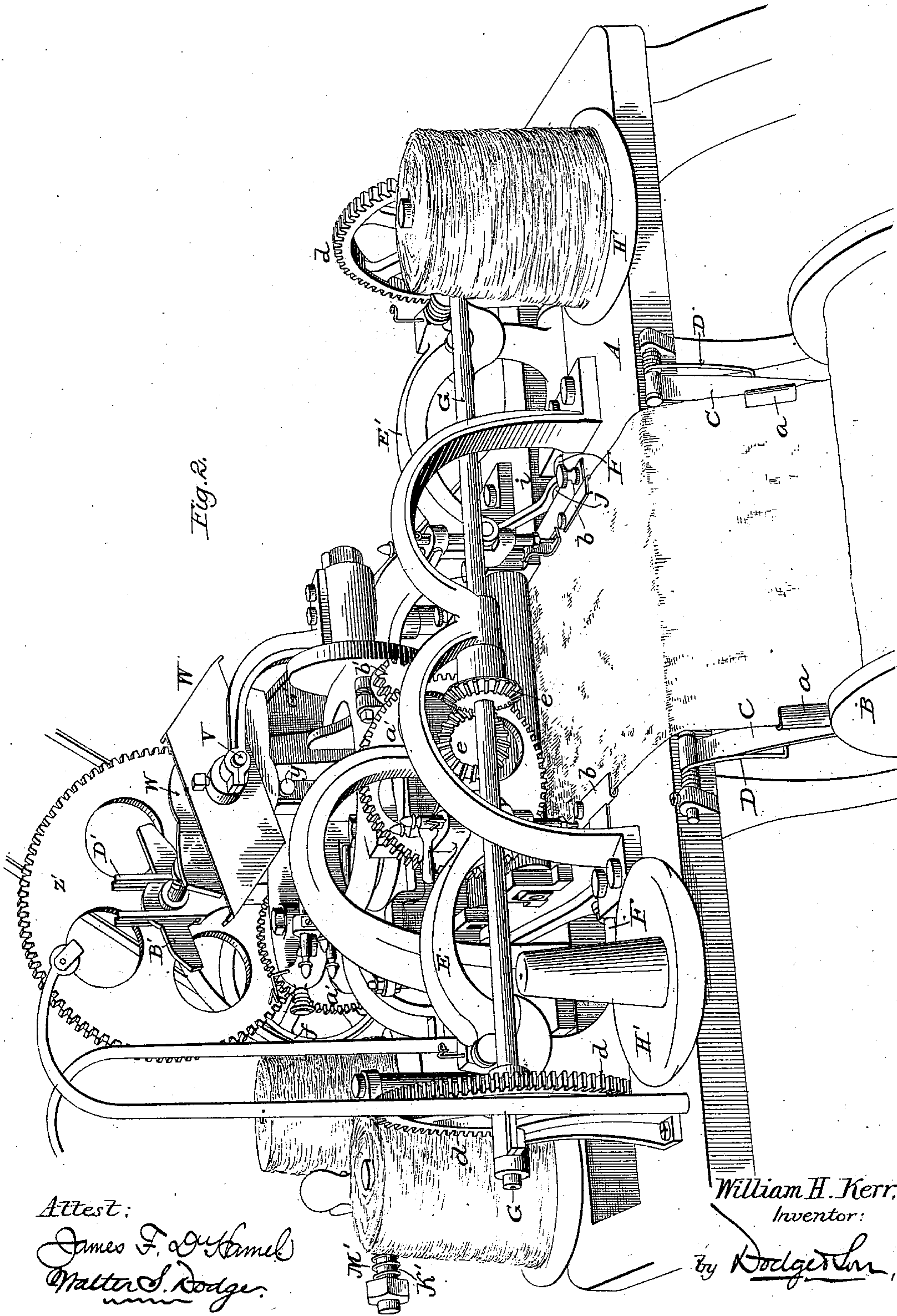


Fig. 2.

Attest:

James F. O'Hara
Matter S. Dodge.

William H. Kerr,
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by *Dodger*

his Attys.

(No Model.)

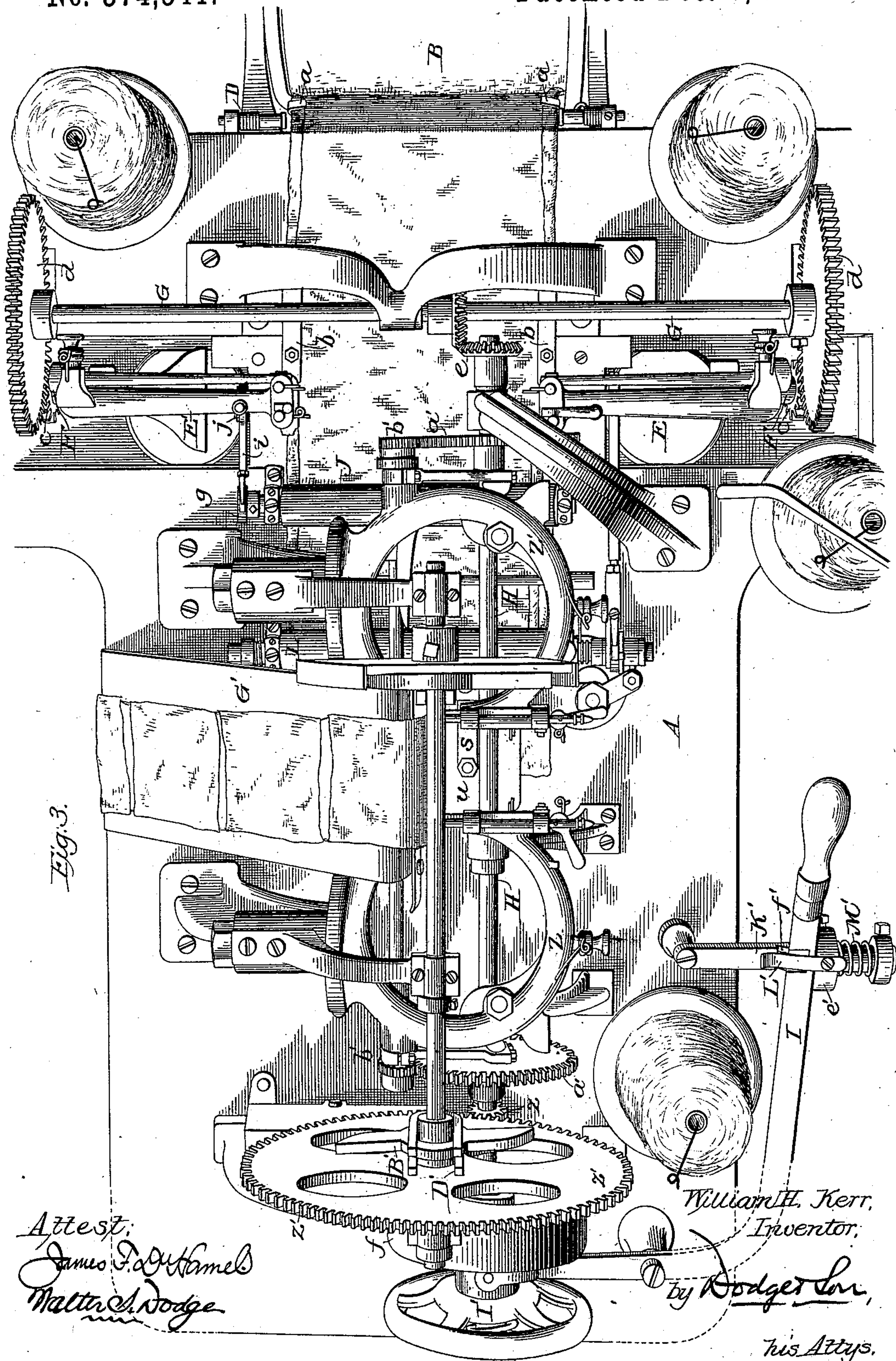
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Fig. 4.

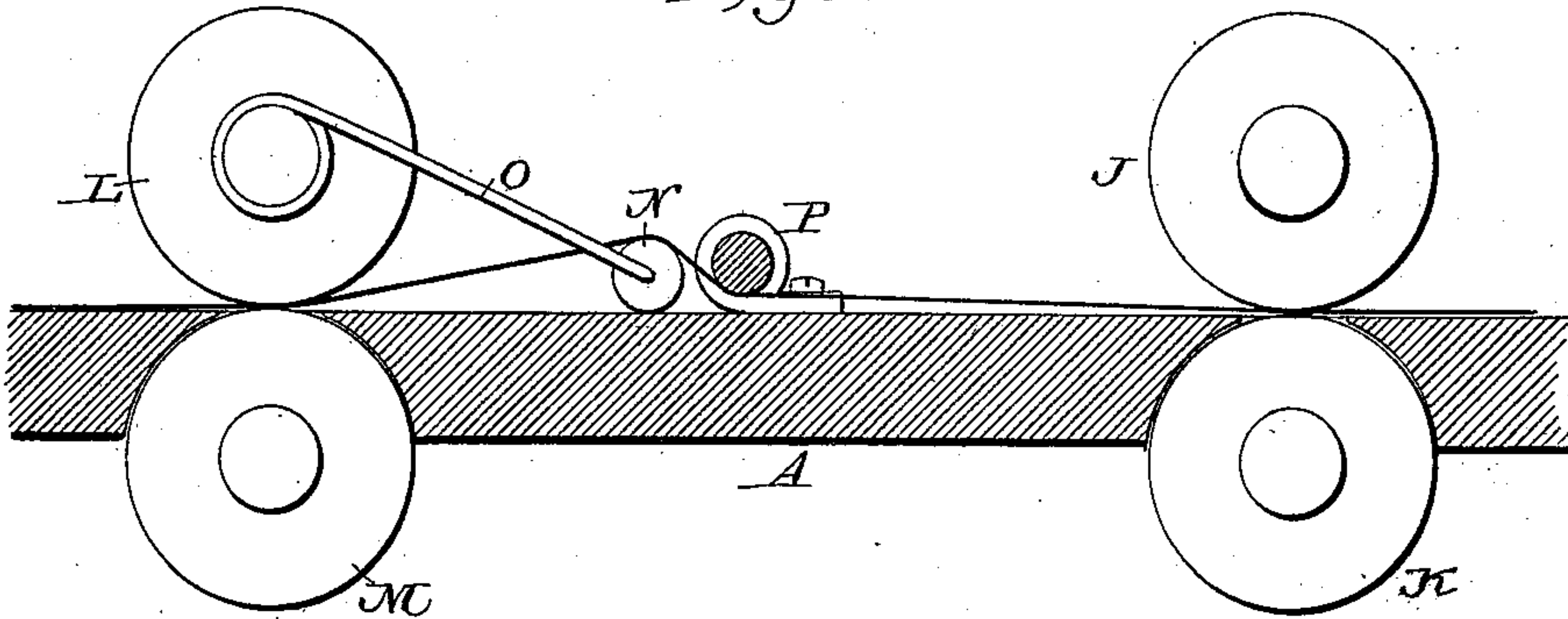


Fig. 5.

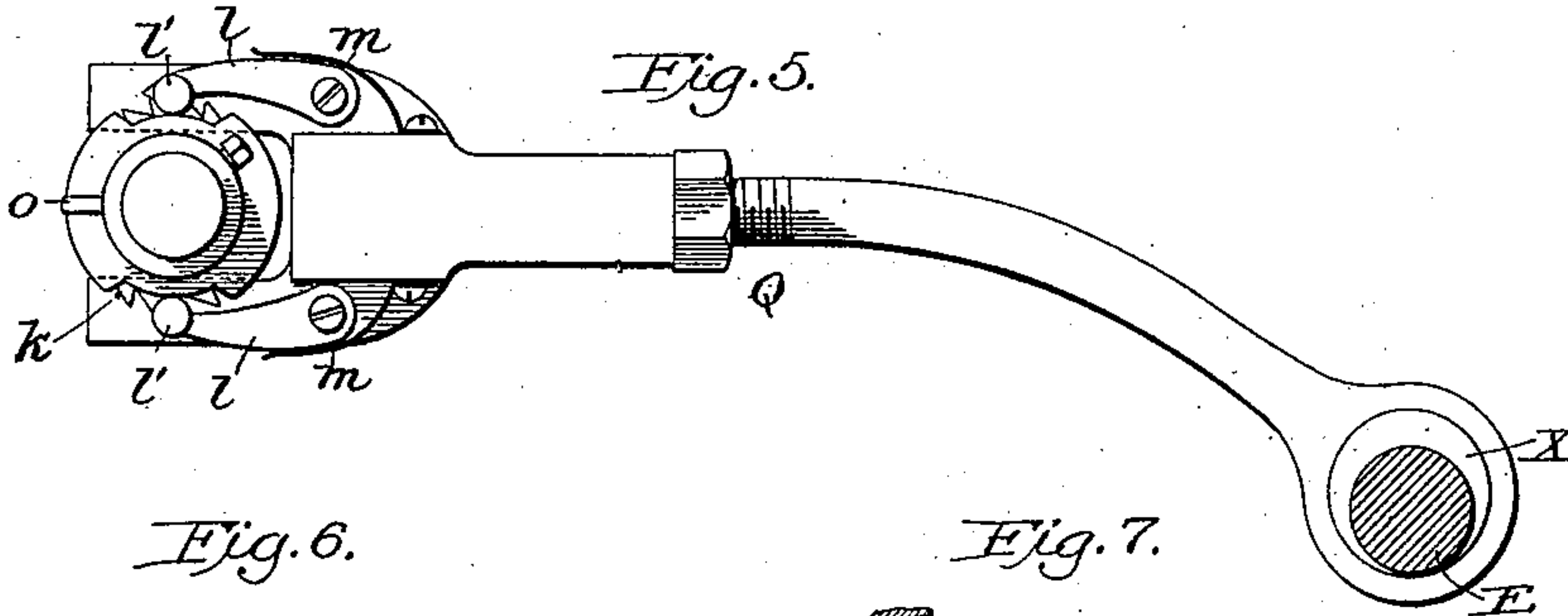


Fig. 6.

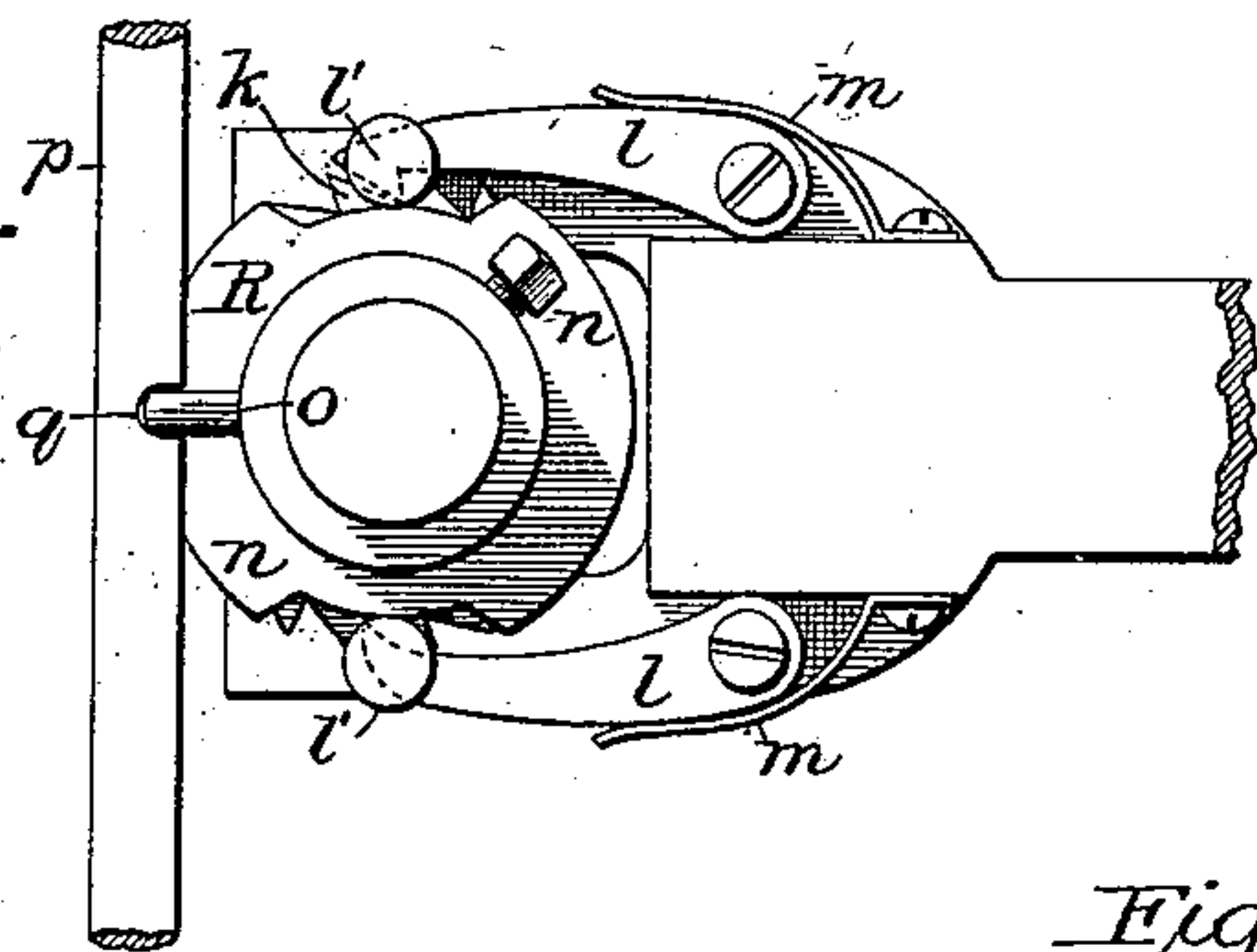


Fig. 7.

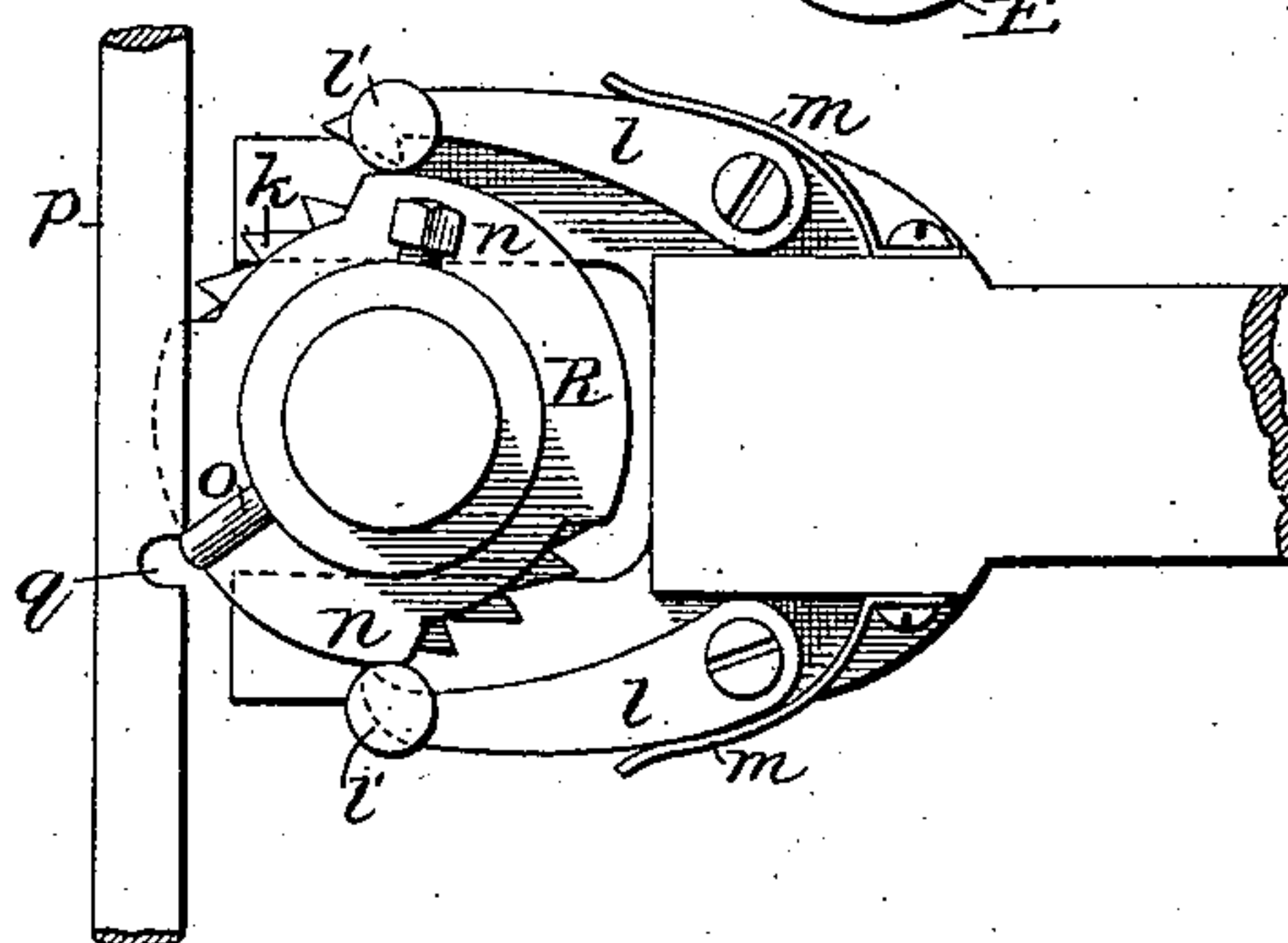
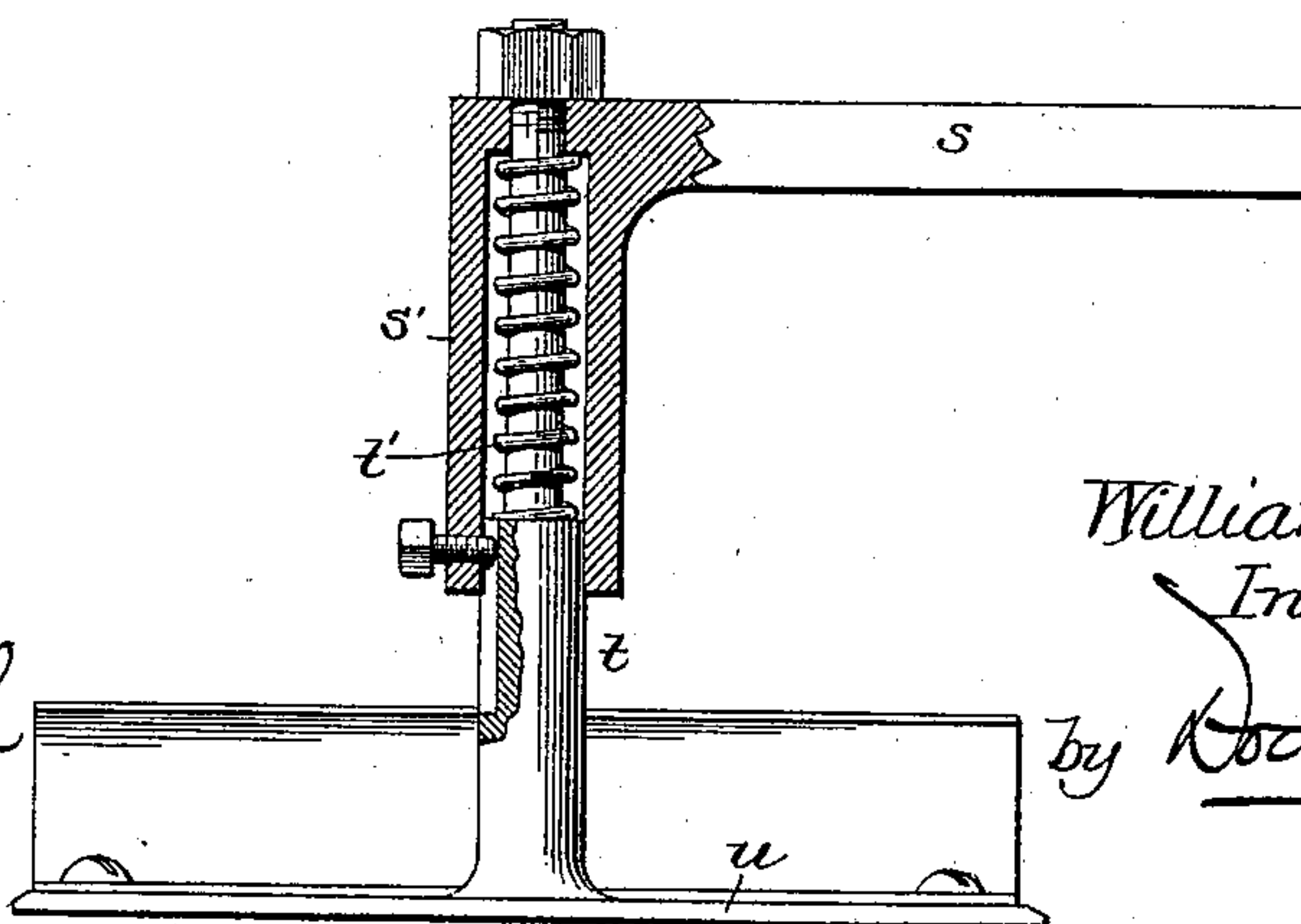


Fig. 9.



Witnesses:

James F. Duffhamel.
Malters S. Dodge

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His Attys.

(No Model.)

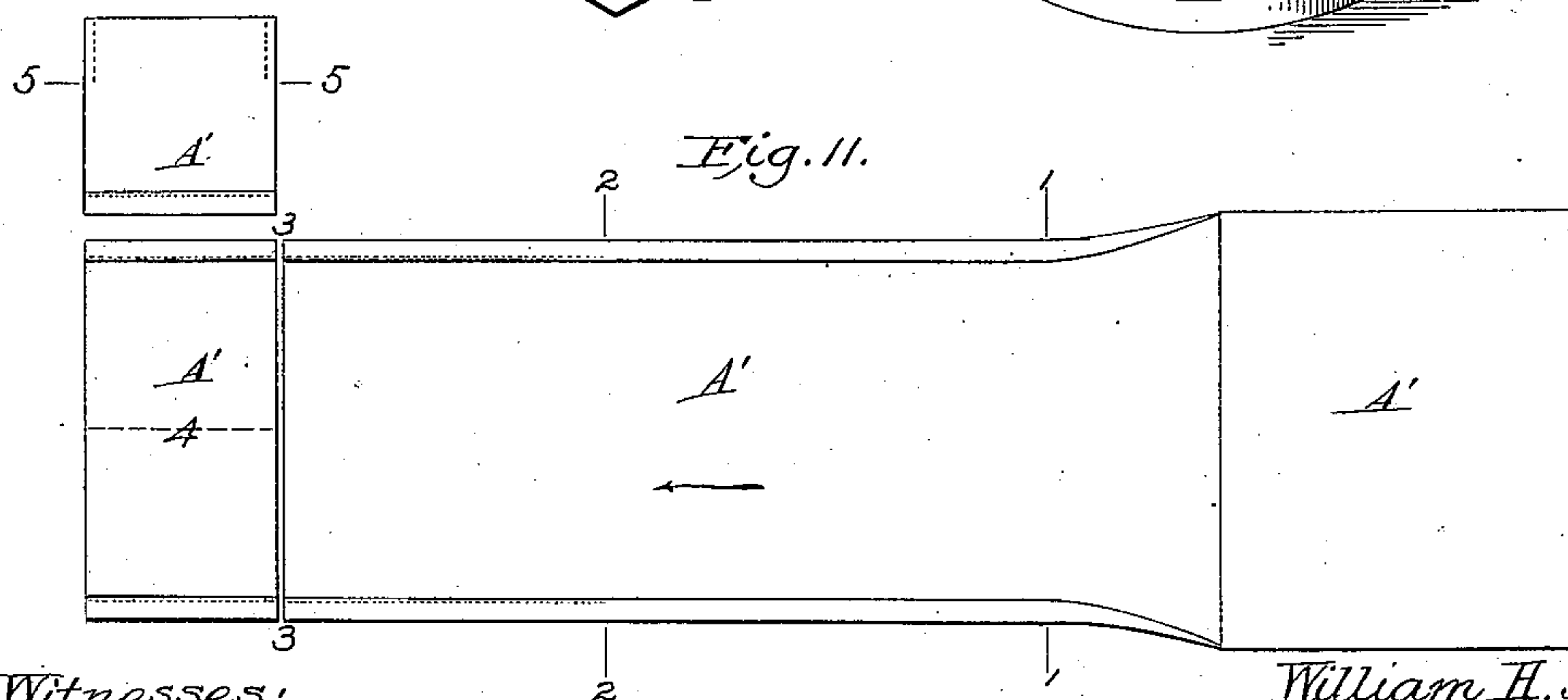
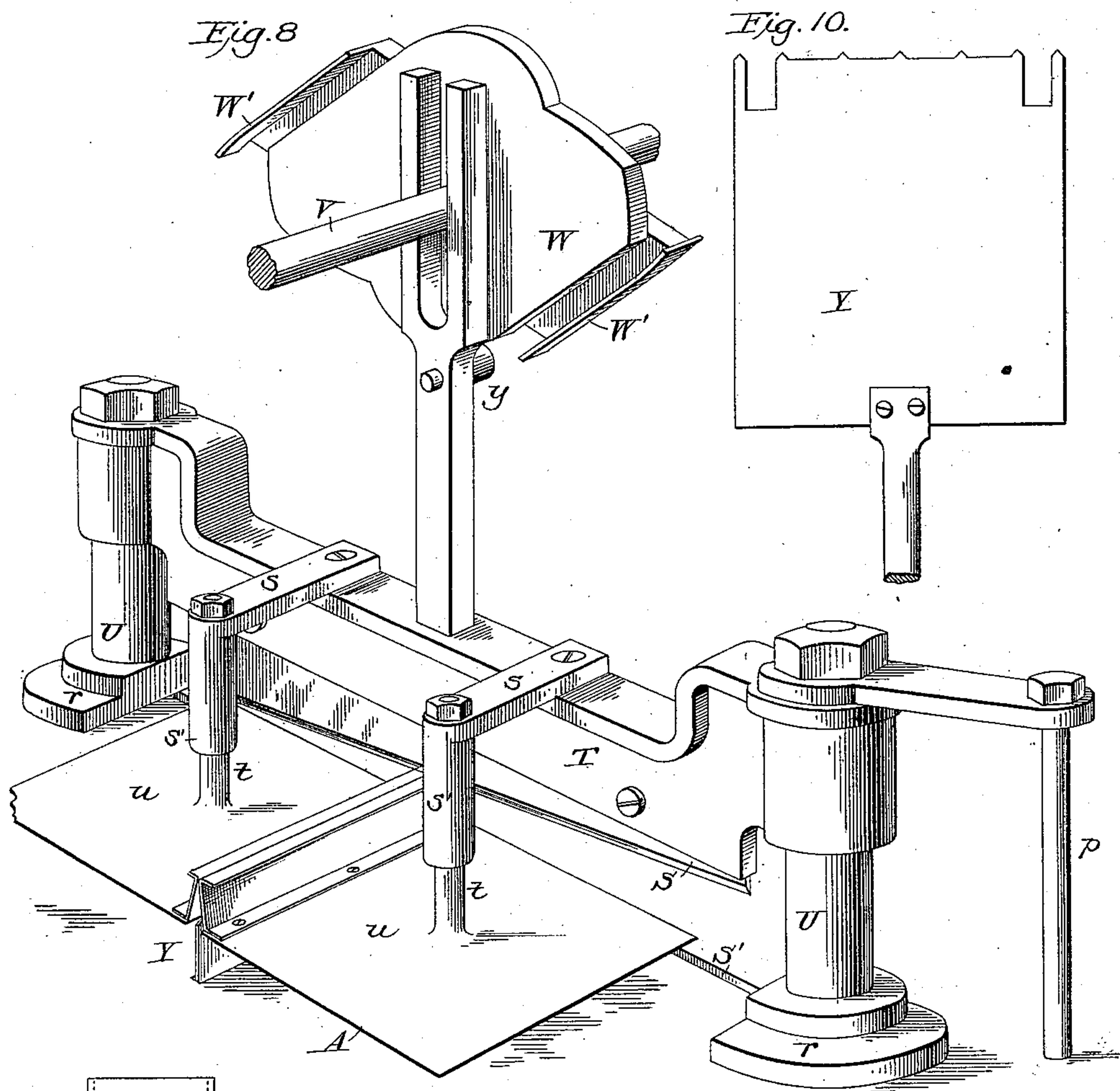
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W. H. KERR.

MACHINE FOR SEWING BAGS.

No. 374,541.

Patented Dec. 6, 1887.



Witnesses:

James F. DuKamel.
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(No Model.)

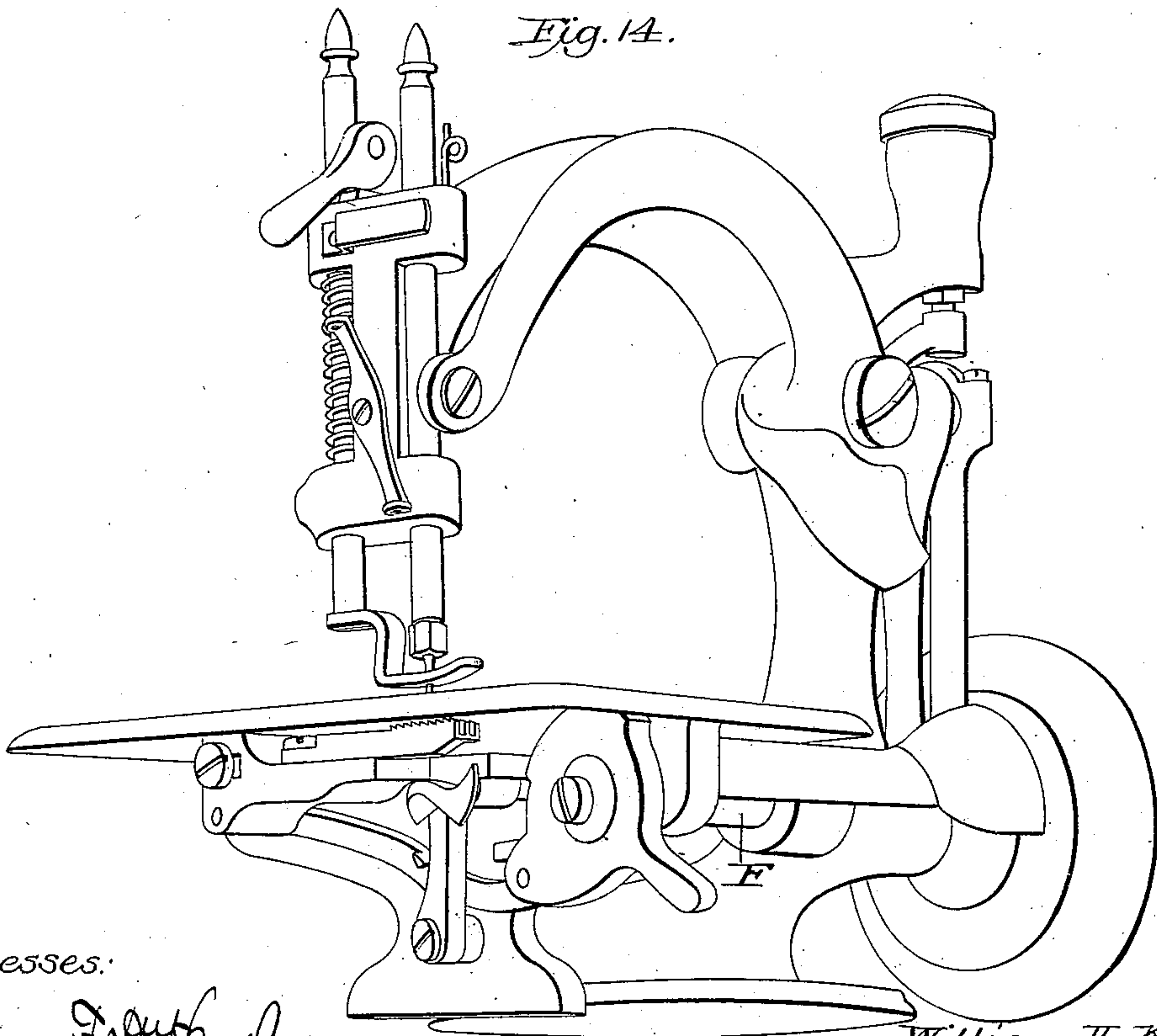
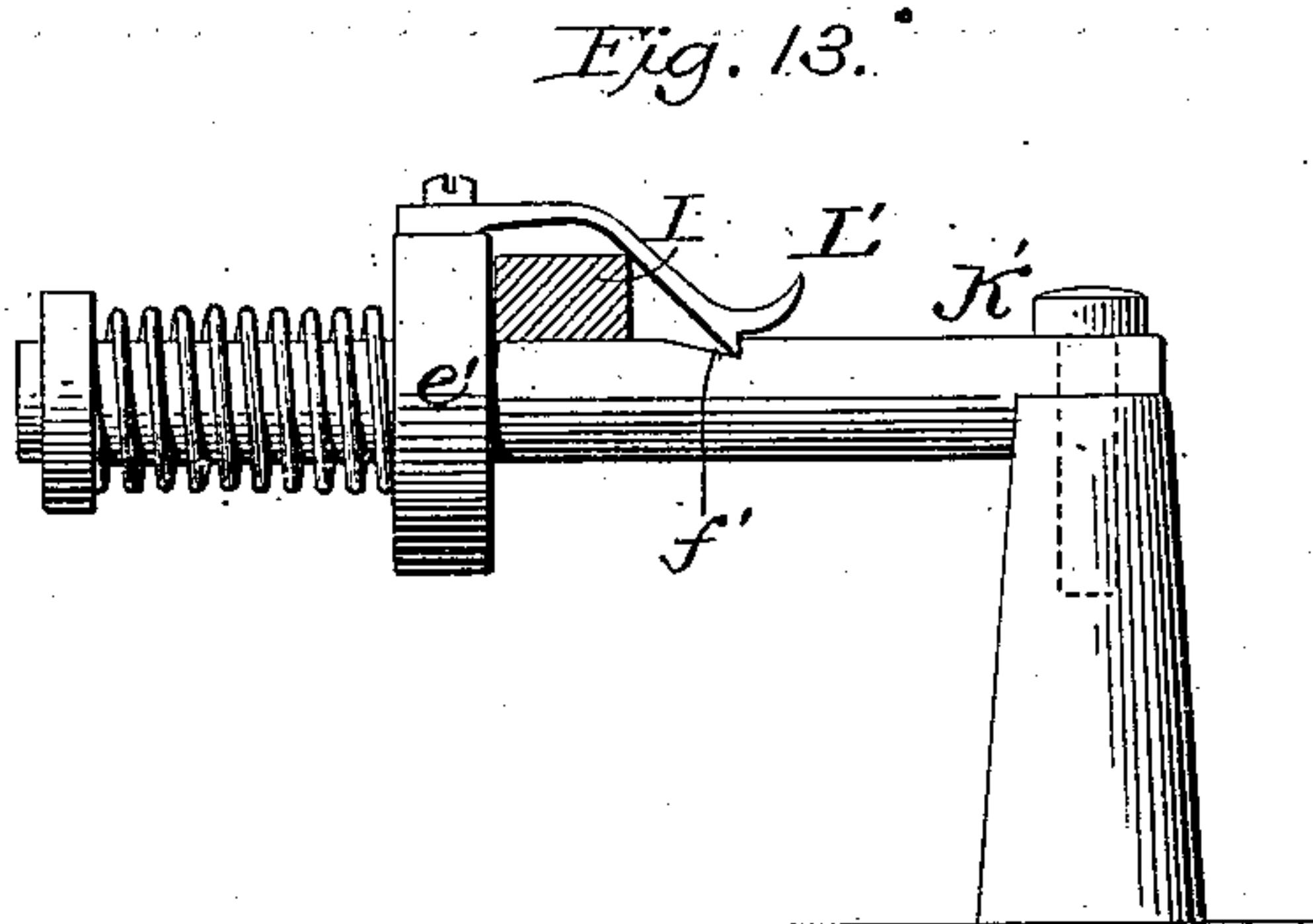
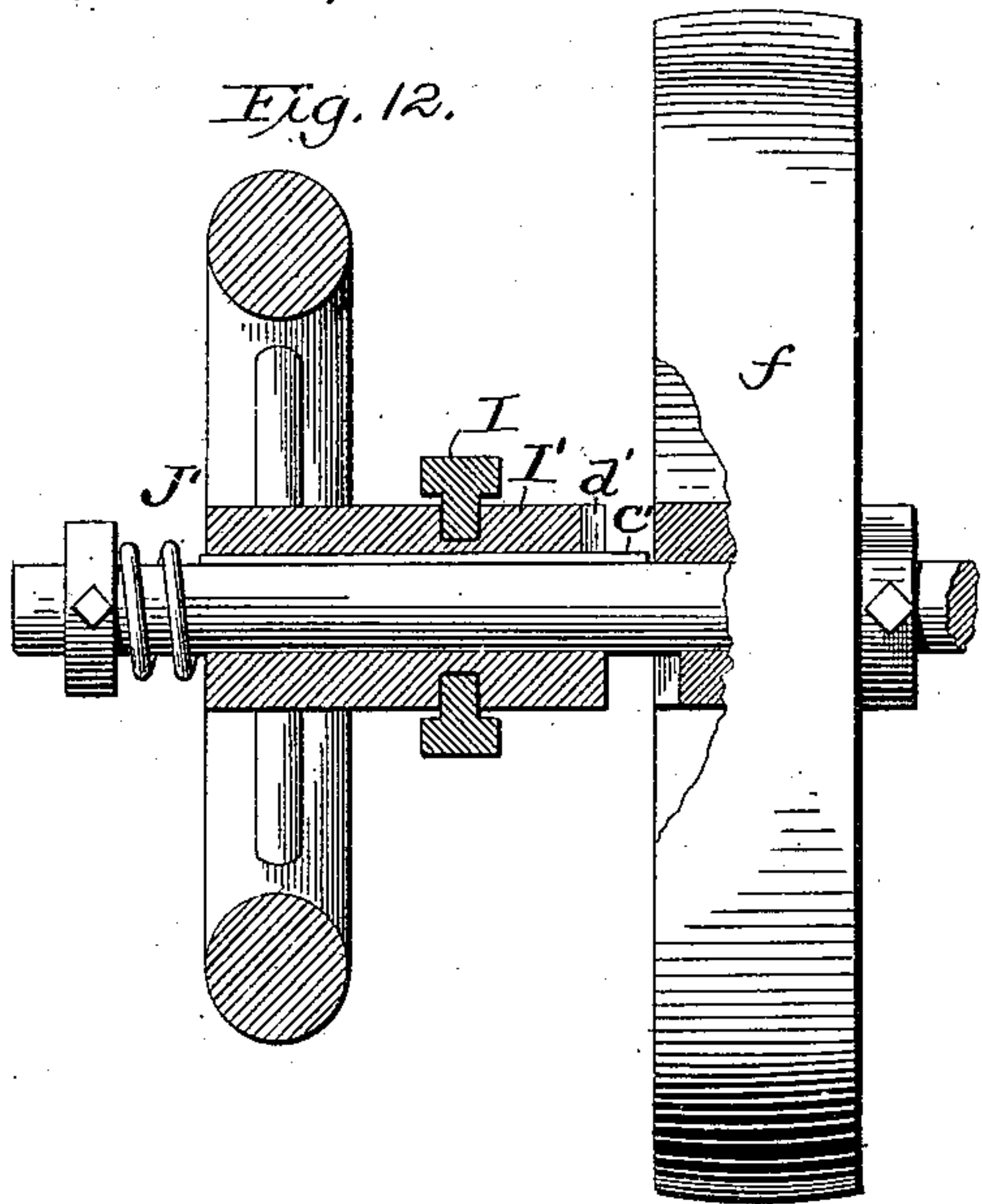
7 Sheets—Sheet 6.

W. H. KERR.

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No. 374,541.

Patented Dec. 6, 1887.



Witnesses:

James F. Duhamel
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(No Model.)

7 Sheets—Sheet 7.

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Fig. 15.

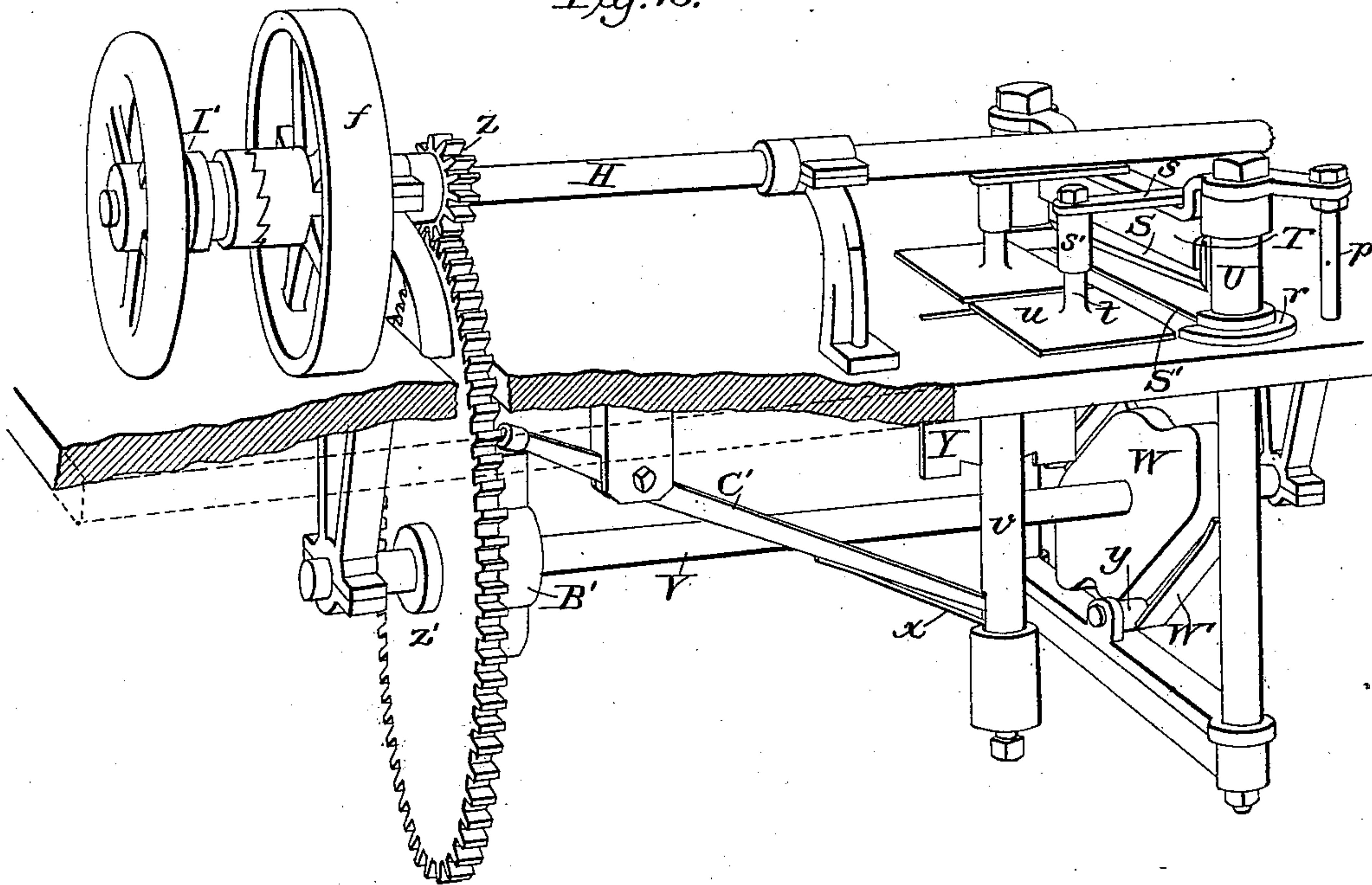
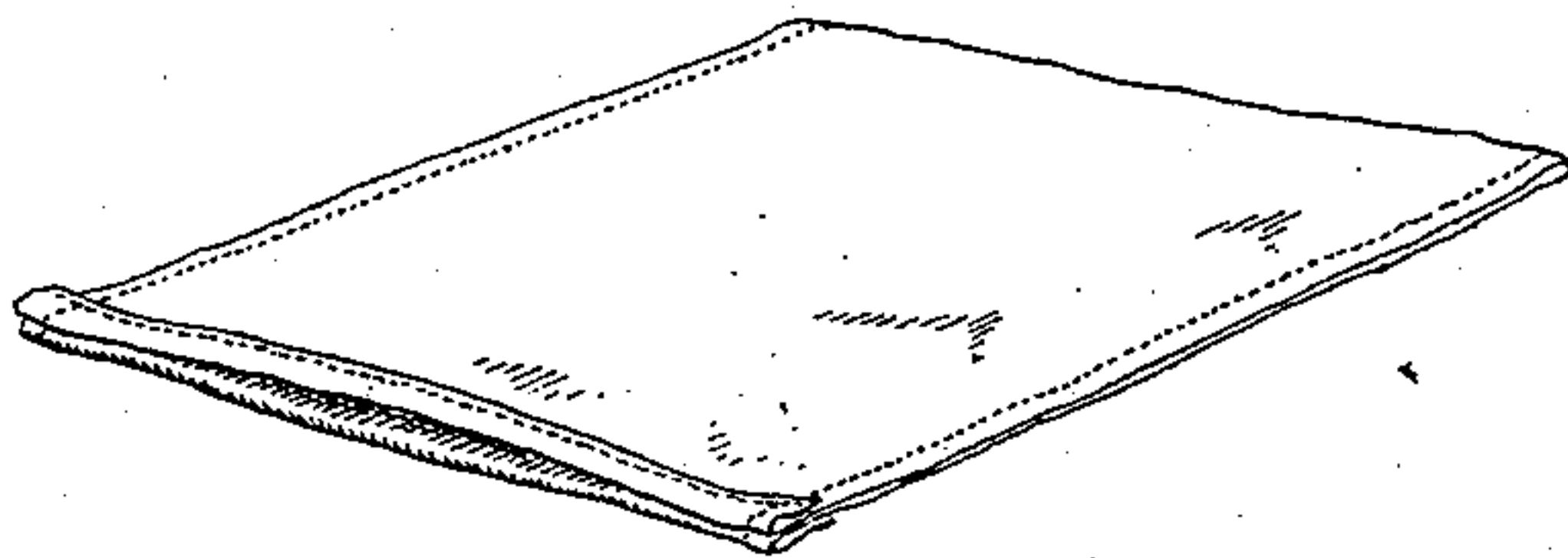


Fig. 16.



Witnesses

James F. Gubamel
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Inventor:

William H. Kerr,
By his Attorneys,
Dodge & Son.

UNITED STATES PATENT OFFICE.

WILLIAM HALL KERR, OF ILION, NEW YORK.

MACHINE FOR SEWING BAGS.

SPECIFICATION forming part of Letters Patent No. 374,541, dated December 6, 1887.

Application filed November 5, 1886. Serial No. 218,088. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HALL KERR, of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Bag-Machines, of which the following is a specification.

My invention relates to machinery for the manufacture of bags, and is more especially designed for making small bags for tobacco, seeds, and the like, though adapted, also, to the manufacture of other and larger ones as well.

The invention embraces a variety of novel features and details of construction, which will be hereinafter explained.

For the purpose of enabling the following description to be more readily followed and understood, I will state briefly the mode or process of making a bag, which is as follows: The cotton or other fabric of which the bags are to be made is drawn from a reel upon which it is wound after being woven or cut to the proper width. As the material passes from the reel it is carried through or beneath fingers or folders, which turn the two edges of the material inward toward each other, laying them upon the body of the strip or sheet preparatory to their being sewed to form hems, one at each side. As the material passes out from beneath the first stitching mechanisms, which operate on both edges simultaneously, and in all respects alike, a cutting-blade acts upon the sheet or strip and separates therefrom a portion sufficient to form one bag. This portion is then folded across its middle, or midway between the hems, bringing the two hems together, after which the folded material is carried through a second double-stitching mechanism and is stitched up each side, thus forming a bag with a seamless folded bottom, and with a hem at the top all around, the hem serving to receive the draw-string, the insertion of which completes the bag, which requires only to be turned to make it ready for use.

In the accompanying drawings, Figures 1, 2, and 3 are perspective views of my improved machine, as seen from different positions; Figs. 4, 5, 6, 7, 8, 9, 10, 12, and 13, views illustrating various details; Fig. 11, a diagram illustrating the mode of forming a bag; Fig. 14, a

perspective view of one of the stitching mechanisms preferably employed, and of the character more particularly referred to in the following description. Fig. 15 is a perspective view of a portion of the machine, showing a slightly-modified arrangement of the parts; Fig. 16, a perspective view of one of the completed bags.

In the practical carrying out of my invention I have found it convenient and advantageous to employ "chain-stitch" sewing mechanism, because of its simplicity, the small amount of power required to operate it, and for other reasons; but I wish it clearly understood that I do not limit myself to the use of any particular form or class of sewing mechanism, every form known being capable of giving good results.

Referring again to the drawings, it will be seen that the mechanism is mounted on a firm stand or table, A, which is advisably made of metal to give due strength and solidity. At one end of the table A is a reel, B, upon which is wound the cloth or material from which the bags are to be made, this material being woven or cut to the precise width required before being wound upon the reel. It is necessary to prevent the cloth from unwinding too freely and to keep it stretched smoothly between the reel and the first stitching mechanism, for which purpose I provide a flat plate, C, which is pressed constantly against the under side of the cloth by a spring, D, as best shown in Fig. 2. A counter-weight may obviously be substituted for the spring. The plate C is provided with two inwardly-turned lips, *a a*, which turn the edges of the cloth inward and lay them upon the body of the strip or sheet, as shown in Figs. 2 and 3, additional guides or folders, *b b*, being also placed upon the bed or table A close to the first stitching mechanism. This mechanism consists simply of two sewing-machines, E E', of any approved construction, set in recesses in the body or table A, and placed end to end, the parts of one being reversed, so that while placed thus end to end they shall feed the material in the same direction away from the reel. In other words, machine E is a right-hand machine, feeding from the operator, as usual, and the machine

E' is a left-hand machine, also feeding from the operator, a result readily attained with the well-known Willcox & Gibbs mechanism by simply reversing the cams, hook, feed-dog, &c.

5 As these stitching devices in themselves do not differ in any manner from the machines which have for many years been in extensive use, it is unnecessary to enter into a further description of them than to mention, as above, 10 that one is a right-hand and the other a left-hand machine, and that they are placed end to end to act simultaneously and alike upon the two edges of the material.

In order to drive the two stitching mechanisms E E' together and at precisely the same 15 rate, I provide the shaft F of each with a pinion, *c*, each pinion in turn meshing with a gear-wheel, *d*, on a shaft, G, journaled in suitable bearings or supports rising from table A, 20 as shown in Figs. 1, 2, and 3. Shaft G receives motion through bevel-pinions *e e* from the main driving-shaft H of the machine, which is furnished with pulley *f* and is designed to be driven by belt from any convenient source. 25 The pulley *f* is loose upon the shaft, but is connected therewith and caused to rotate the same, when required, by means of a shifting clutch carried by a hand-lever, I, thus enabling the operator to stop and start the machine quickly by merely moving the lever. 30

The stitching mechanisms E E' are both provided with the usual feeding devices to insure the proper movement of the goods beneath the needles; but to relieve the feed-dogs 35 in part of the work of drawing the material forward, and for other purposes hereinafter explained, I employ feed-rollers J K, the upper one of which is furnished with a ratchet-wheel, *g*, to which motion is imparted intermittently by a dog or hook, *h*, carried by a 40 pitman or rod, *i*, which is reciprocated longitudinally by an eccentric, *j*, on the hook-shaft of sewing head or machine E'. The eccentric *j* is so set with reference to the feed-dogs of the stitching mechanisms E E' that the feed- 45 roll J shall move the goods forward simultaneously with said dogs and to the same extent, thereby avoiding improper strain upon the needles, thread, or goods, yet keeping the hemmed goods at all times flat and smooth between the stitching mechanisms E E' and the 50 feed-rolls J K. The roll J is advisably made of steel and milled or roughened to cause it to take hold of the goods, and the lower roll, K, which is driven only by the friction of the 55 goods passing between the two rolls, is covered with soft leather in essentially the same manner as the drawing-rolls of cotton drawing and spinning machinery. This covering is 60 sufficiently elastic to compensate for the slight difference in thickness of the middle portion of the goods and the hemmed edges, and insures a uniform advance of the goods at all points in its width. The rolls J K also serve 65 to keep the goods flat and smooth and prevent the edges from drawing inward away from the needles of stitching mechanisms E and E'.

From the feed-rollers J K the hemmed goods pass to and between a second pair of feed-rollers, L M, of the same character as the rolls J 70 K, but differently driven. The rollers L M serve to advance and deliver the hemmed goods to a knife or cutter, which severs from the strip or sheet a portion sufficient for one bag, and said rollers also serve to hold the 75 goods against movement during the operation of the knife or cutter, at which time they stand at rest.

The stitching mechanisms E E' and the feed-rolls J K operate continuously, though the 80 rollers have a step-by-step motion, as above pointed out; hence there will necessarily be an accumulation of the hemmed goods between the two pairs of feeding-rollers J K and L M during the operation of the knife or cutter 85 and while the feed-rolls L M are at rest. To compensate for this increase or accumulation and prevent clogging the machinery, I provide between the two pairs of rolls a cross-bar or a small roller, N, carried by spring-arms O, 90 and passing beneath the goods from edge to edge, as shown in Fig. 4. The arms O are preferably made of fine spring-wire, which is coiled at or near the point of attachment to the frame-work or table of the machine, in order 95 to give due elasticity and range of movement. When the rolls L M cease to feed the goods forward, the rod or roller N and its spring-arms O rise and lift the goods which are held by the rolls L M at one side of the 100 rod or roller N, and pass beneath a cross rod, P, at the other side thereof. The arms O exert a lifting force only sufficient to lift the surplus goods with certainty, and are readily drawn and held down by the pressure of the goods 105 during the feeding operation of the rolls L M.

As above mentioned, the rolls L M operate only while the knife or cutter is at rest and the knife acts only while said rolls are at rest, and as the period of operation of one is just 110 about equal to that of the other it is necessary that the rolls L M while acting shall feed about twice as fast as the rolls J K, in order to carry forward the goods accumulating during the inaction of the rolls L M. To accomplish 115 this result I make use of a double-acting pawl-and-ratchet mechanism for turning the feed-roll L, instead of a single-acting one such as used for turning roll J. The construction of this mechanism is illustrated in Fig. 5, in 120 which *k* indicates a ratchet-wheel secured upon the shaft of roll L, and *l l* two dogs or pawls serving to give rotary motion to said wheel, one dog being made in the form of a hook to pull upon the ratchet-teeth while moving back- 125 ward and the other being adapted to bear at its end directly against the teeth in going forward. The dogs *l l* are both pivoted to one end of a pitman, Q, the other end of which encircles an eccentric, X, on the shaft of stitch- 130 ing mechanism E, the eccentric serving to impart a reciprocating motion to the pitman in the direction of its length, and the dogs, held in engagement with the ratchet-wheel by

springs *m m*, serving to alternately push and pull said wheel, and thereby to give it and the roll *L* a continuous rotary motion during the reciprocation of the pitman. The feed-rolls *L M* are thrown into and out of action at the proper times by means of a disk, *R*, Figs. 6 and 7, mounted on and capable of rotating a short distance about the shaft of roll *L*. The disk has two raised faces, *n n*, which, as the disk is turned in one direction, ride against lugs *l'* on the dogs *l* and throw the dogs clear of the teeth of the ratchet, but which pass out of contact with the lugs and permit the dogs to again engage with the teeth when the disk is turned in the opposite direction. The disk is turned at proper times and to the required extent by means of a rod or stem, *p*, which moves with the cutting blade or knife, a stud, *o*, projecting from the disk *R* into a notch or recess, *q*, in the rod or stem *p* and engaging with one or the other wall thereof as the rod or stem moves up or down. The notch *q* is of such depth and the stud or lug of such length as to cause a considerable movement of the disk after the dogs are thrown out, so that while the blade is cutting and withdrawing from the material the disk may hold the dogs *l l* out of action.

S indicates the moving knife or cutter blade, which acts in conjunction with a fixed blade, *S'*, formed upon or secured to the bed or table *A*. The blade, which has its lower edge oblique to the face of bed or table *A*, is secured to a cross-head, *T*, guided by two vertical rods or stems, *U U*, which pass through tubular guides *r r*, secured in the bed or table, as shown in Fig. 8, the cross-head being further guided by a forked or slotted arm or extension which extends upward and straddles a shaft, *V*, which carries the cam *W*, by which the cutter is raised and lowered. The cam *W* has overhanging lips or flanges *W'*, by which the cross-head *T* is raised positively, the body of the cam serving to positively depress it, both acting upon a stud, *y*, on the upright arm of the cross-head. The rod or stem *p*, operating the stud *o*, which turns the cam-disk *R*, is made fast to and moved by an arm projecting from the cross-head *T*, as also shown in Fig. 8, the rod consequently moving in unison with the cross-head and cutter-blade.

In Figs. 6 and 7 the action of the disk *R* and the manner of its actuation by stem *p* is illustrated, Fig. 6 showing the stem and its stud in the elevated position which they occupy when the cutter-blade is raised and at rest, and Fig. 7 showing the parts when the knife is at or near its lowest point, or in the act of cutting.

Projecting from the cross-head *T* are two arms, *s s*, each having a tubular neck, *s'*, through which passes a rod or stem, *t*, carrying at its lower end a presser-plate, *u*, of the form shown in Fig. 8—that is to say, consisting of a horizontal and a vertical portion, the latter thin and elastic. The rods or stems *t* are represented as reduced in diameter within

the tubular necks *s'*, and encircled each by a spring, *t'*, which serves to press the stem and its plate *u* downward, but permits the tubular neck to descend after the presser-plate reaches and bears upon the goods on the table, so that the cross-head by which the tubular necks, with their stems and presser-plates, are carried may continue to descend and carry with it the cutting-blade after the cloth is clamped and held by the plates. The springs may, however, be omitted. This construction also causes the cloth to be held by the presser-plates after the blade completes its cutting operation and while it is rising from the fabric, during which time a folding blade or plate, *Y*, rises through an opening in the bed or table *A* beneath and midway between the hemmed ends of the severed portion of the goods, and, carrying the same upward between the opposing upright faces of the presser-plates *u*, folds the severed portion at the middle to form a closed bottom for the bag and to bring the two hems into line to form a hemmed mouth therefor.

The folding-plate *Y* is serrated along its upper edge, as shown in Fig. 10, to prevent the goods from shifting its position while being carried upward to a second pair of sewing-machines, *Z Z'*, which stitch the edges of the folded fabric together, and thus complete the bag ready to be turned and provided with the drawing-string, for the reception of which the hem is formed. The plate is also cut away where it passes the presser-feet and feed-dogs of the two stitching mechanisms, to permit it to carry the folded goods well under the needles and insure the proper placing thereof between said presser-feet and feed dogs.

In the diagram, Fig. 11, the manner of forming the bag is made clear. The material, *A'*, is drawn from the reel. Its edges are turned over inward at the points 1 1. The stitching of the edges begins at the points 2. The necessary material for one bag is severed from the strip *A'* at the line 3. It is folded across the middle or at the line 4 and carried up to the second pair of stitching mechanisms, which begin the stitching at the points 5 and stitch the sides of the bag from its bottom to its top as the material is fed upward, thus completing the bag, as above stated, ready for turning and for the insertion of the drawing-string. The folding-plate *Y* is guided by the walls of the opening in the bed or table *A* through which it passes, and by a slotted post, *v*, and it is raised at proper intervals by means of a cam, *B'*, on the same shaft with cutter-operating cam *W*, said cam *B'* acting through the medium of a lever, *C'*, and vertical stem or slide *D'*, moving in a slotted tubular post of guide, *w*, the two ends of the lever *C'* extending through the sides of posts *v* and *w*, and being guided thereby. The stems of slide *D'* and folding-plate *Y* rest at their lower ends directly upon the ends of the lever *C'*, and the plate falls by gravity when the cam *B'* permits it to do so. To prevent undue jar by reason of the sudden

fall of the folding-plate, the end of the lever C' beneath said plate is furnished with a spring, x , on its lower side to bear upon the lower wall of the slot in post v , or upon an adjustable stop placed to limit the descent of the lever. It is not, however, necessary to depend upon gravity to lower the folding-plate, as the cam B' may be made of the same general character as cam W and adapted to act positively both in raising and in lowering the slide D'. In such case the slide D' and the stem of the folding-plate would of course be pin-pointed or otherwise connected directly with the ends of lever C'.

Shaft V receives motion from the main driving-shaft H through the medium of a pinion, z , and gear-wheel z' .

The sewing mechanisms Z Z' are precisely like the first pair, E and E', and are driven in the same manner by gear-wheels $a' a'$, meshing with pinions $b' b'$ on the shafts of the two stitching mechanisms, the gear-wheels $a' a'$ being in this instance placed upon the main shaft H. It will be observed, however, that instead of having their needle-bars arranged to work vertically, as in the mechanisms E E' and as in all ordinary machines, the heads Z Z' and the needle-bars are arranged horizontally, so as to feed the material vertically.

The timing of the movements of the folding-plate relatively to the action of the stitching-mechanisms Z Z' is such that one bag is completed shortly before another is brought to said stitching mechanisms, from which it follows that several stitches are formed between the bottom of each bag and the top of the next at each side. Owing to the well-known action of the chain-stitch machines a short chain of stitches is thus formed between each bag and the next, so that when the bags are cut apart a knot or tie is formed, which prevents the sewing from ripping out.

The sewing mechanisms are furnished with the usual tension and stitch-regulating devices, presser-foot, feed-dog, thread-guides, &c. The finished bags connected by the short chain of stitches fall over a suitable guide, G', into a basket or other receptacle.

In the drawings I have represented the cam-shaft V and the cams B' and W as located above the table; but in practice I prefer to place them below, as shown in Fig. 15, where they will be less in the way, and where they can be operated with fewer intermediate parts, the cam W in such case acting directly on a stud projecting from a cross-bar connecting the two stems U U of the cross-head, and the cam B' acting in like manner upon a stud on the stem of the folding-plate.

Thread is drawn from cops or spools H' through suitable guides.

It is desirable to provide means whereby the machine shall be thrown out of action in the event of clogging or in case undue resistance arises from any cause. To effect this result the clutch-sleeve I', which slides upon a spline or feather, c' , on the main driving-shaft,

is provided at its end with V-shaped teeth d' , to engage with teeth of like form on the hub of the band-wheel, and spring J' serves to hold the clutch normally in engagement. When, however, the resistance to the operation of the machine unduly increases, the force of spring J' is overcome, and the teeth of the clutch ride upon each other and crowd back the clutch-sleeve against the spring, thereby moving lever I about its pivot. The lever I bears against a collar, e' , mounted upon a horizontal rod or stem, K', and carrying a spring locking-dog, L', which passes over the lever to enter a notch, f' , in the rod and hold the lever in position to cause the clutch to remain locked, as indicated in Figs. 3 and 13. When, however, the action of the clutch-teeth crowds the clutch-sleeve back against spring J', the lever I lifts spring-dog L' out of notch f' and a spring, M', behind the collar e' serves to assist the lever in pressing the clutch-collar I' back against the resistance of spring J', thus insuring the stopping of the machine.

In some cases the hemming may be deemed unnecessary, and in that event the stitching mechanisms E and E' may be omitted or thrown out of action, the second pair of stitching-machines alone being used.

No claim is made herein to the bag, *per se*, nor to the method of manufacturing the same; and I hereby reserve to myself the right to make these matters the subject-matter of a new application.

Having thus described my invention, what I claim is—

1. A bag-making machine consisting of the following elements, in combination, viz: a pair of lips or folders to turn the edges of the fabric inward upon the body, a pair of stitching mechanisms arranged to stitch the folded edges, a cutter to sever from the hemmed sheet a portion sufficient to produce one bag, a folding blade and guides to fold the severed portion midway between and parallel with the two hems, and a second pair of stitching mechanisms to stitch the sides of the hemmed and folded goods.

2. In a machine for making bags, the combination of two stitching-machines and mechanism for imparting motion simultaneously and equally to both, guides or folders for turning both edges of a fabric before it reaches said machines, a cutter for severing the fabric, a folding-plate moving in a plane at right angles to the travel of the fabric during the hemming operation to fold the severed portion, and a second pair of stitching-machines in a plane at right angles to the first pair for stitching the severed portion at right angles to the first lines of stitching.

3. In a bag-machine, the combination of four sewing-machines arranged in pairs, the first pair being arranged to stitch the two edges of a strip of goods simultaneously and the second pair being arranged to stitch a severed section of said fabric in lines at right angles to the stitching of the first pair.

4. In a bag-machine, the combination of two pairs of sewing-machines and an intermediate folder, the first pair of machines having their needle-bars arranged to work vertically, the folder arranged to rise vertically beneath the goods stitched by the first pair and serving to fold the same between the two lines of stitching and to carry the folded goods to the second pair of sewing-machines, and said second pair having their needle-bars arranged to work in horizontal planes.

5. The combination, in a bag-machine, of a bed or table, folders or lips for turning over the edges of the fabric traversing said table, two sewing-machines adapted to simultaneously stitch the two folded edges, and an intermittently-acting knife or cutter adapted and arranged to sever from the hemmed fabric the amount of goods required for the formation of one bag.

6. In a bag-machine, the combination of a bed or table, folding guides or lips adapted to turn or fold the edges of a fabric passing over said table, two stitching mechanisms adapted and arranged to stitch the folded edges, an intermittently-acting cutter to sever from the hemmed goods a portion suitable for the formation of one bag, and an intermittent feeding device located between the stitching mechanisms and the cutter and arranged to act only when the cutter is at rest, whereby the material is carried beneath the cutter, but is prevented from moving while the cutter is acting.

7. In combination with a bed or table and with a stitching mechanism provided with the usual feed-dog, feed-rolls actuated through connection with the stitching mechanism and operating synchronously and equally with the feed-dog, whereby long or heavy material may be drawn past the stitching mechanism without undue strain upon the feed-dog.

8. In combination with a stitching mechanism and with a cutter, a feeding-roll located between the cutter and the stitching mechanism, the cutter and feed-roll being adapted to operate alternately and the stitching mechanism to act continuously, and a take-up device located between the feed-roll and the stitching mechanism and serving to take up the stitched material accumulating between the feed-roll and stitching mechanism while the feed-roll is at rest and the cutter is in action.

9. In combination with a stitching mechanism and an intermittently-acting cutter, a feeding-roll located just in rear of the stitching mechanism and adapted to act in unison with the feed-dog thereof, a second feed-roll located just in advance of the cutter and adapted to operate in alternation therewith, and an automatic take-up device located between the two feed-rolls and serving to draw the goods taut between them while one is in action and the other at rest.

10. In a bag-machine, the combination, with a cutter, of yielding presser-plates movable with the cutter to and from the supporting-bed,

said plates serving to hold the material while the cutter acts upon it and to prevent its being lifted by or with the cutter.

11. In combination with a fixed bed, and a cutter movable to and from the same, yielding presser-plates movable with the cutter, and a folding-plate arranged to rise through an opening in the bed and to pass between the presser-plates to fold the severed material at right angles to the edge of the cutter.

12. In a bag-machine, the combination of a supporting-bed, a cutter, a pair of presser-plates to hold the material upon the bed while acted upon by the cutter, a stitching mechanism above the presser-plates, and a folding-plate adapted and arranged to pass between the opposing faces of the presser-plates to fold the goods lying beneath them and to carry the same in a folded condition to the stitching mechanism.

13. In a bag-machine, the combination, with an intermittently-acting feed-roll, of a cutter arranged to act alternately therewith to sever the material advanced by the roll.

14. In a bag-machine, the combination of an intermittently-acting feed-roll, an intermittently-acting cutter arranged to act in alternation with the feed-roll, and a yielding presser-plate movable with the cutter and serving to hold the material while being cut and to release it when the cutter rises and the roll begins to feed.

15. In combination with stitching mechanisms, as E E', a reel, B, for containing a supply of goods to be hemmed, a movable plate, C, bearing against the goods between the reel and the stitching mechanism, and a spring bearing against said plate and serving to hold it against the goods with a yielding pressure, substantially as and for the purpose set forth.

16. In combination with a stitching mechanism and a reel for holding the goods to be stitched, an intermediate yielding plate bearing against the goods and provided with inwardly-turned lips to fold the edges of the goods preparatory to stitching.

17. In combination with stitching mechanisms, as E E', and with reel B, intermediate swinging plate, C, and spring D, bearing against said plate and serving to hold the same with a yielding or elastic pressure against the goods passing from the reel to the stitching mechanism.

18. In combination with stitching mechanisms, as E E', each provided with the usual feeding devices and both adapted to feed in the same direction, a feed-roll, J, in rear of said stitching mechanisms, timed to feed exactly in unison therewith, whereby the feed-dogs are relieved of a portion of the labor and strain of feeding the material forward and the material is kept smooth and fed equally throughout its width.

19. In combination with sewing mechanisms, as E E', feed-rolls J K in rear thereof, the roll J provided with a ratchet-wheel, g, and the shaft of one of the sewing mechanisms be-

ing provided with an eccentric, *j*, and a pitman, *i*, provided at one end with a dog, *h*, to engage with the ratchet-wheel *g*, and connected at the other end with the eccentric *j*.

5 20. In combination with sewing mechanisms, as *E E'*, an intermittently-acting cutter, as *S*, a feed-roll, *L*, located between the sewing mechanism and the cutter and provided with a ratchet-wheel, *k*, an eccentric, *X*, rotating synchronously with the movements of
10 the needle of the stitching mechanism, a pitman connected with said eccentric, dogs or pawls *l l*, carried by the pitman and serving alternately to push and pull the ratchet-wheel,
15 and a cam-disk, *R*, adapted and arranged to throw the dogs out of engagement with the ratchet-wheel.

21. In combination with a sewing mechanism, as *E'*, eccentric *X*, pitman *Q*, connected
20 with said eccentric and provided with dogs *l*, feed-roll *L*, provided with ratchet-wheel *k*, cam-disk *R*, provided with notch *q*, cross-head *T*, provided with cutter *S*, and rod *p*, and stud *o*, projecting from said rod and adapted to
25 enter the notch *q* and turn disk *R*.

22. The combination of feed-roll *L*, provided with ratchet-wheel *k*, a reciprocating pitman provided with pawls to engage with and rotate said wheel, a cam-plate to throw said
30 pawls out of engagement with the ratchet-wheel, a reciprocating cross-head, *T*, provided with a cutting-blade, *S*, and a rod, *p*, carried by the cross-head and provided with a stud, *o*, to engage with and move the cam plate as
35 the cross-head and knife rise and fall, said parts being constructed and arranged substantially as set forth, whereby the feed-roll is caused to advance a given quantity of material to the cutter, then to come to rest and
40 hold the material against further movement while the cutter descends, and rises again clear of the material.

23. In combination with cross-head *T*, provided with blade or cutter *S*, arms *s*, and tubular necks *s'*, stems *t t*, provided with plates *u*
45 *u*, and springs *t' t'*, encircling the stems and serving to press the stems and plates downward.

24. In combination with presser-plates *u u*,
50 folding-plate *Y*, adapted and arranged to rise between said parts, for the purpose set forth.

25. In combination with yielding presser-plates *u u*, folding-plate *Y*, provided with a serrated edge and arranged, substantially as
55 described and shown, to rise and carry the bag material upward between the presser-plates, the serrated edge serving to prevent the material from shifting its position upon the plate.

26. In combination with presser-plates *u u*
60 and sewing mechanism above the same, a folding-plate arranged to rise between the plates and to carry the material lying beneath them in a folded condition to the sewing mechanism.

65 27. In combination with sewing mechanism,

as *Z*, presser-plates below said mechanism, a bed beneath said presser-plates, and a folding-plate mounted in an opening in the bed and arranged to rise between the plates
70 to fold the material lying beneath them and to carry it to the sewing mechanism, said folding-plate being notched to clear the feeding devices of the stitching mechanism.

28. In combination with cross-head *T*, provided with blade *S*, presser-plates *u u*, and
75 stud *y*, folding-plate *Y*, slide *D'*, and lever *C*, pivoted between the slide *D'* and plate *Y* and supporting said parts at opposite sides of its pivot, and rotary shaft *V*, provided with cams
80 *W* and *B'*, the former serving to operate the cross-head and the parts carried thereby, and the latter serving to actuate the slide *D'*, lever *C'*, and folding-plate *Y*.

29. A bag-machine consisting of a bed or table, guides for folding the edges of a strip
85 of material moving over the table, sewing mechanism arranged to stitch the two folded edges simultaneously, an intermittently-acting feed device in rear of and adapted to feed
90 faster than the sewing mechanism, an intermittently-acting cutter arranged to act alternately with the intermittent feed device, yielding presser-plates adapted to bear upon and
95 hold the material during the operation of the cutter, a folding-plate adapted to rise between the presser-plates, fold the material, and carry it upward, and sewing mechanism arranged to receive the folded material from the folding-plate, and gearing and actuating mechanism,
100 substantially such as shown and described, for imparting motion to the various parts.

30. The combination, in a bag-machine, of the following elements, to wit: a supporting-
105 bed, *A*, folders *b* to turn the edges of material passing over the bed, sewing mechanisms *E E'* for stitching the folded edges, feed-rolls *J K* in rear of the stitching mechanisms, ratchet-wheel *g*, secured upon roll *J*, pitman *i*, provided with dog *h* to engage with ratchet-wheel *g* and connected with eccentric *j*, spring-
110 arms *O*, provided with cross-bar *N*, feed-rolls *L M*, ratchet-wheel *k*, secured upon roll *L*, pitman *Q*, provided with dogs *l l* to engage with said ratchet-wheel and connected with
115 eccentric *X*, cam-plate *R*, reciprocating cross-head *T*, provided with blade *S* and stud *y*, presser-plates *u u*, carried by the cross-head, springs *t'*, serving to press the plates down upon the bed, folding-plate *Y*, lever *C'*, and
120 slide *D'*, stitching mechanisms *Z Z'* above the presser and folding plates, shaft *V*, provided with cams *B'* and *W*, shafts *G* and *H*, and gearing connecting said shafts with each other and with the sewing mechanisms.

WILLIAM HALL KERR.

Witnesses:

THOS. RICHARDSON,
WARREN H. BOLES.