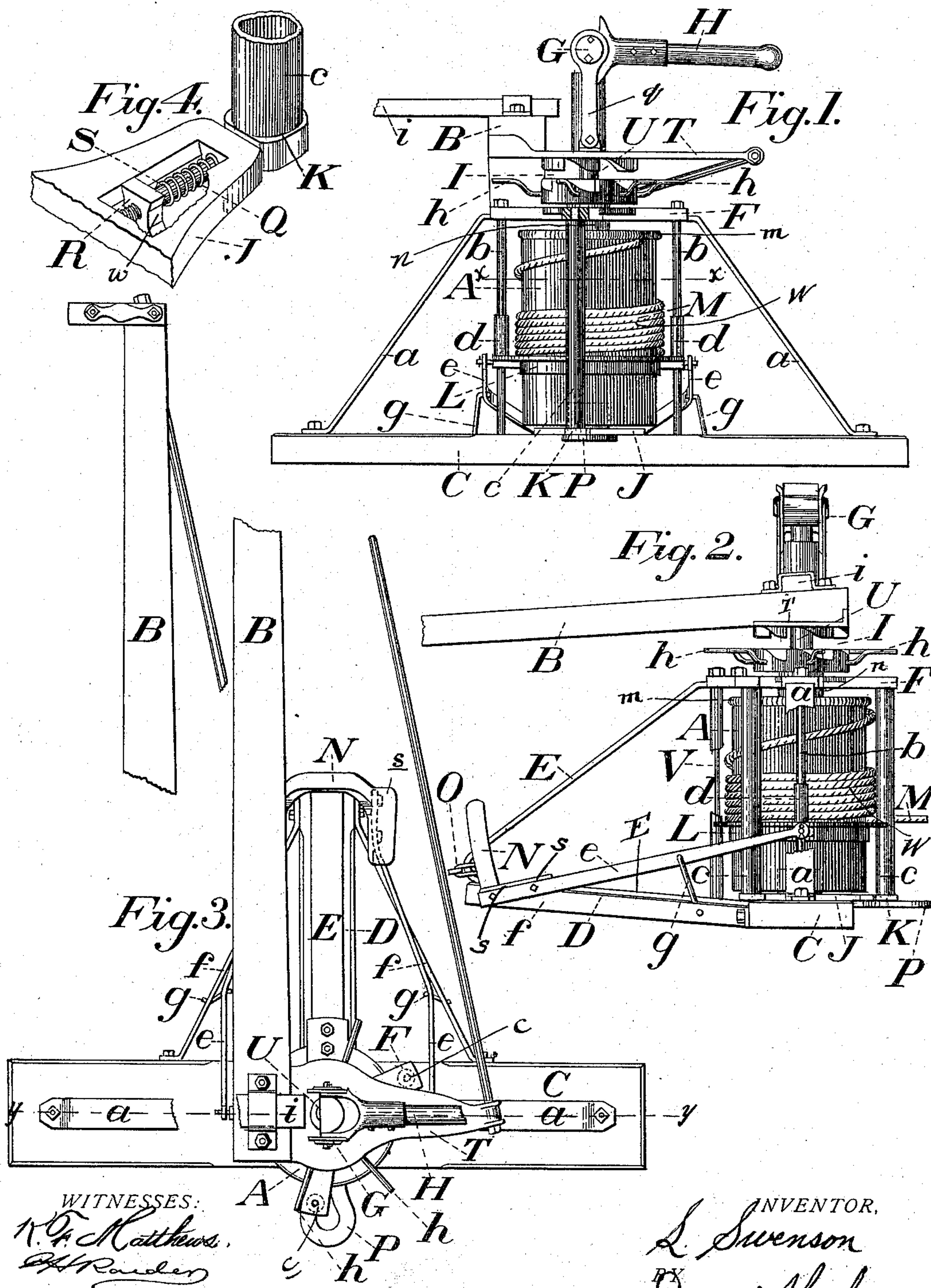


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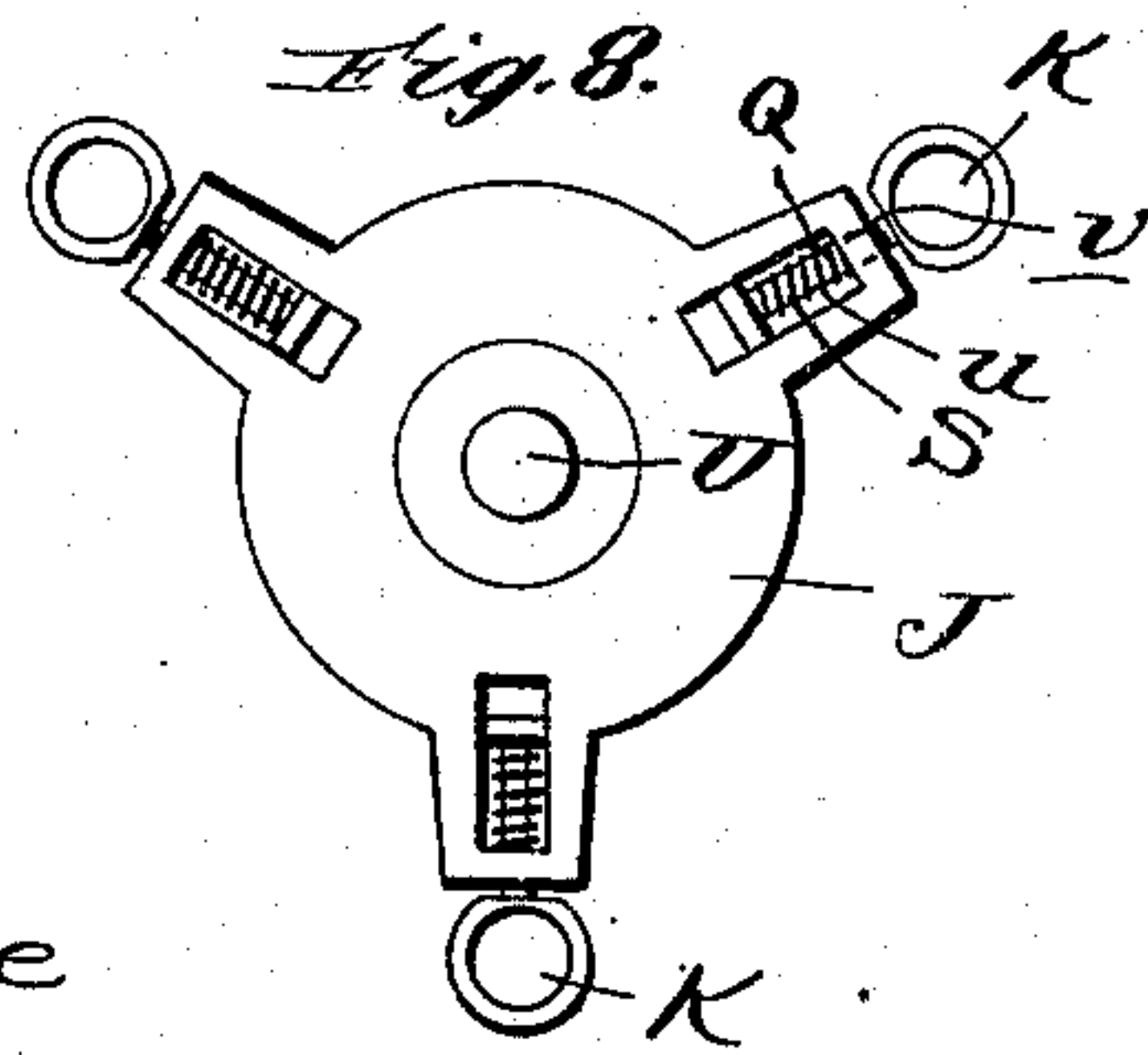
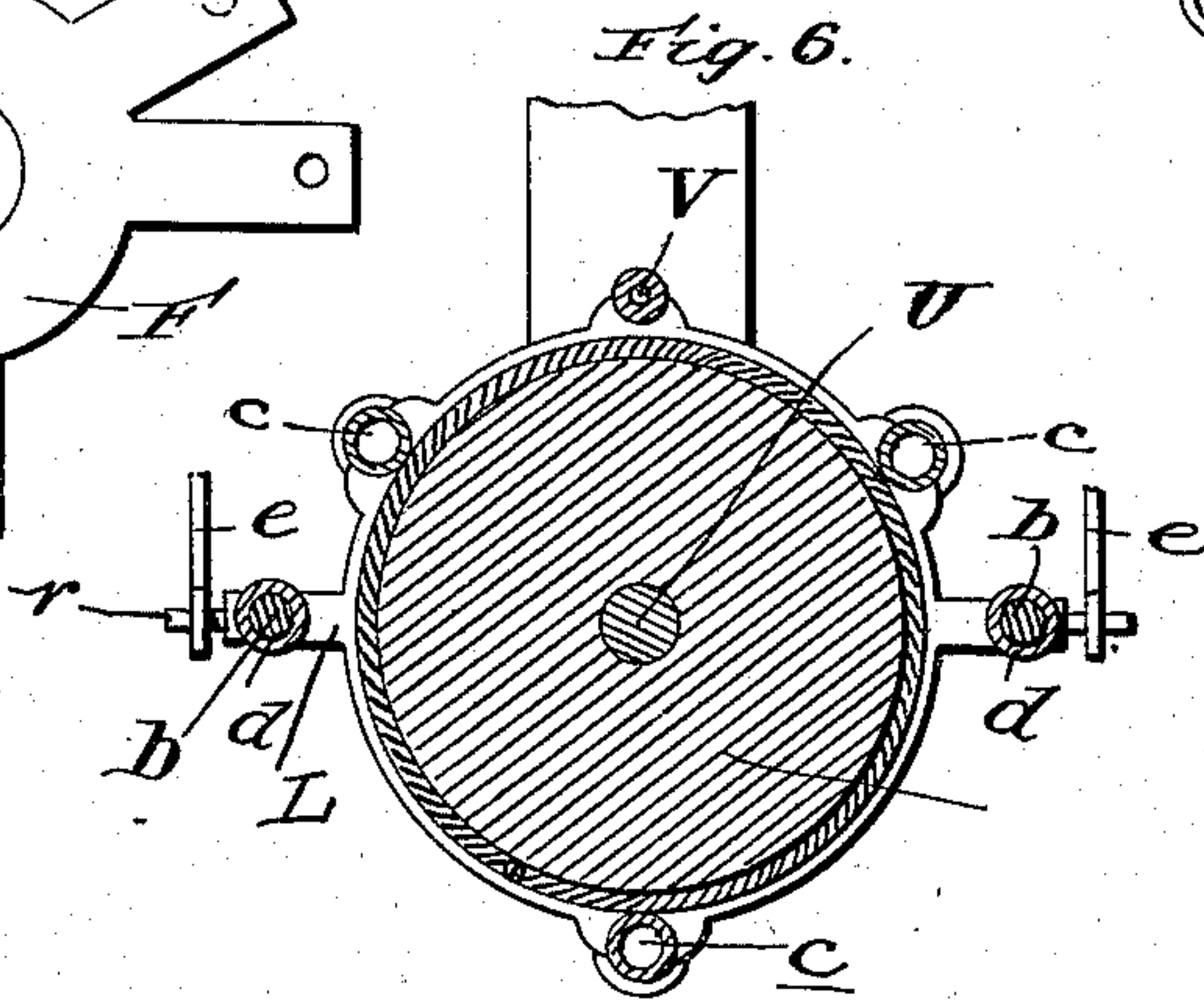
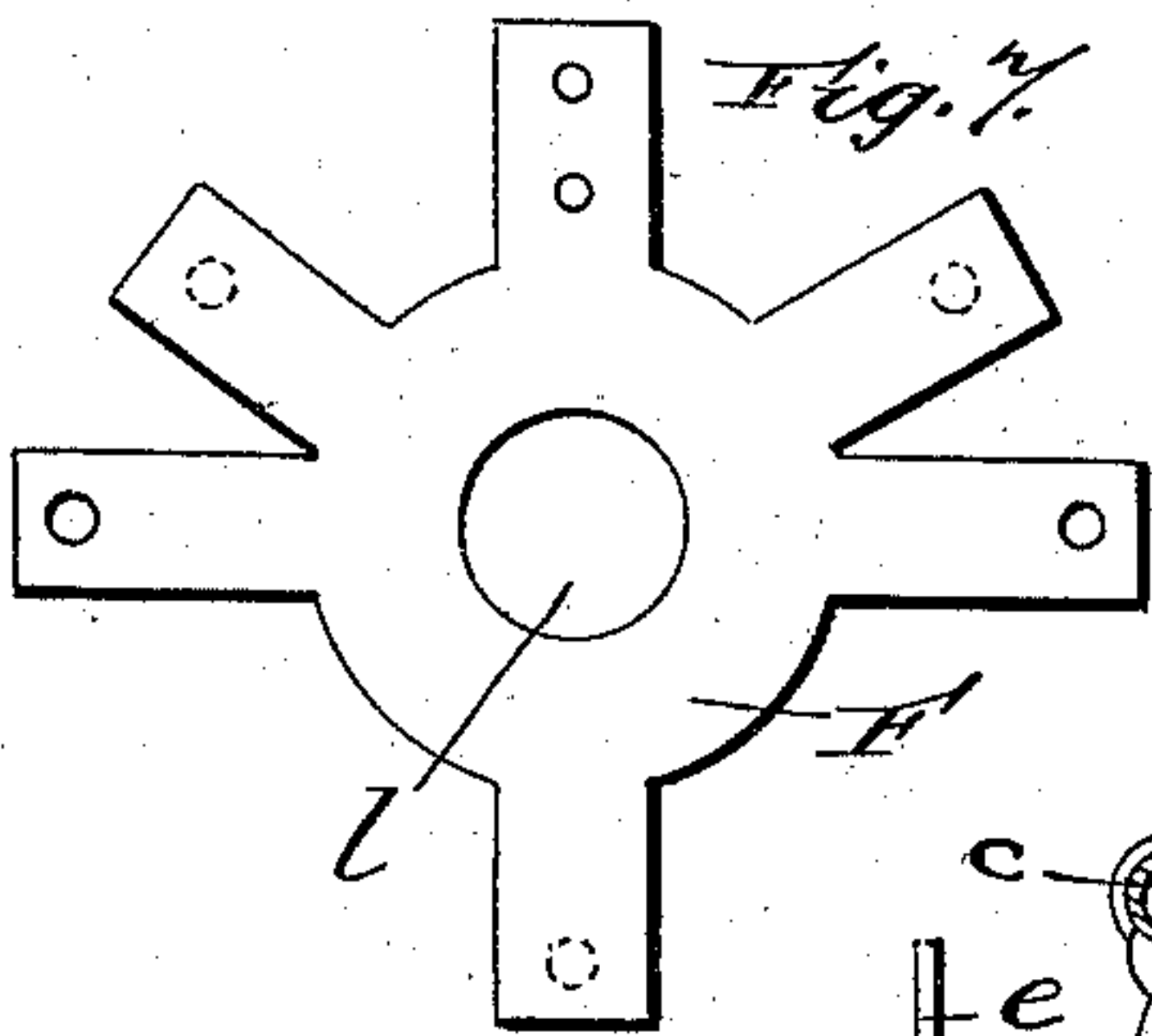
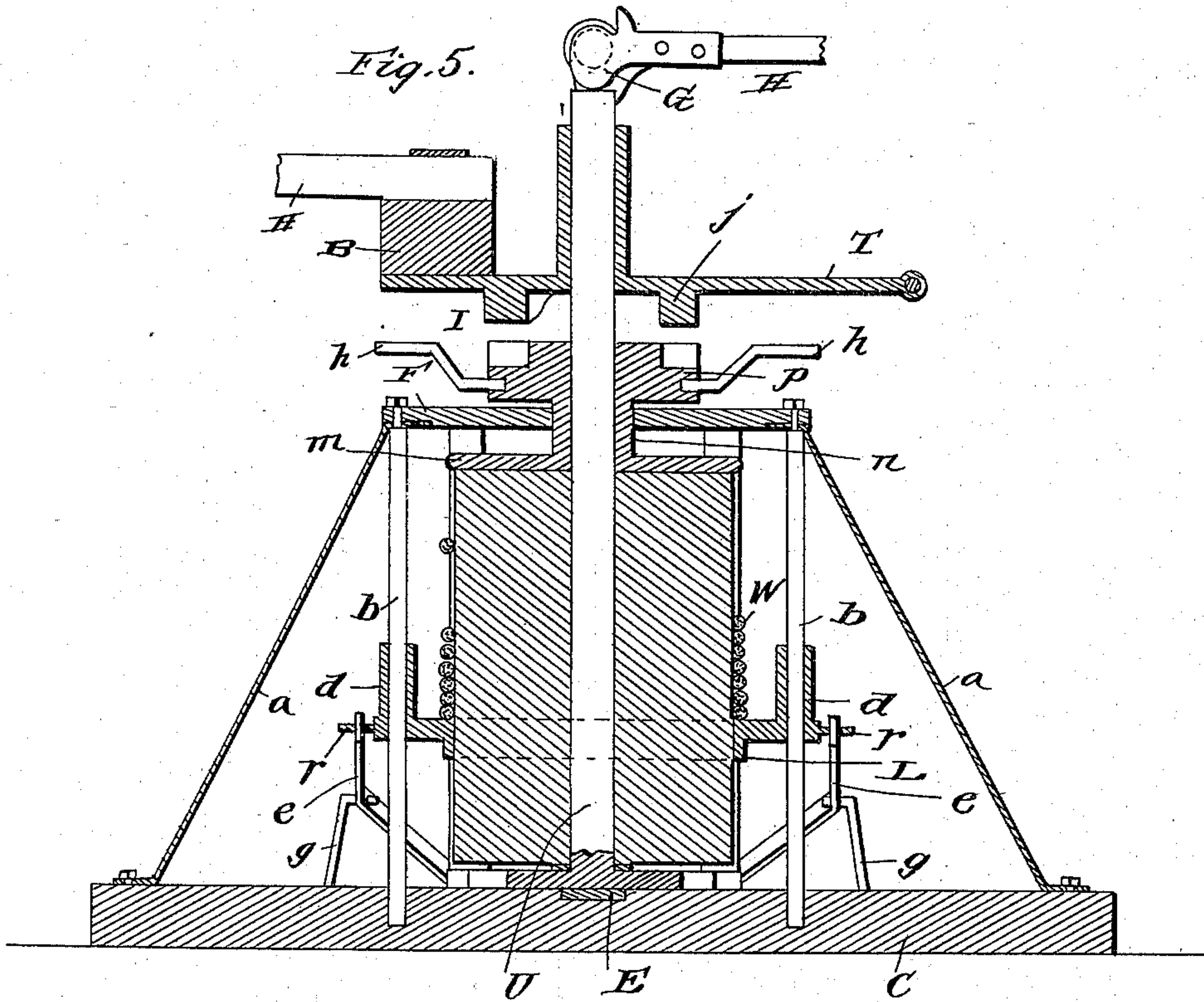
Patented Mar. 12, 1895.



L. SWENSON.
STUMP EXTRACTOR.

No. 535,426.

Patented Mar. 12, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

LORENS SWENSON, OF CRESCO, IOWA.

STUMP-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 535,426, dated March 12, 1895.

Application filed January 7, 1895. Serial No. 534,116. (No model.)

To all whom it may concern:

Be it known that I, LORENS SWENSON, a citizen of the United States, residing at Cresco, in the county of Howard and State of Iowa, have invented certain new and useful Improvements in Stump-Extractors; and I do 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 ap-
10 pertains to make and use the same.

This invention relates to improvements in stump extractors, and among other things, it has for its object, to improve such devices by providing an efficient and inexpensive means
15 for maintaining the extracting or pulling rope in such a condition around the drum as to prevent any binding action or undue strain and consequent friction, by the crossing of the rope during its winding and unwinding, which
20 so commonly occurs with machines at present in use, and to cause the rope to wind and unwind in a single thickness and a uniform manner.

A further object of the invention is to afford a quick and conveniently operated means
25 for taking up any slack in the rope without the aid of the draft animal.

A further object is to produce a machine of a compact and durable construction, at a
30 comparatively small expense, and to adapt the same to be readily shifted from one stump to another.

Other objects and advantages will appear from the following description and claims
35 when taken in connection with the annexed drawings, in which—

Figure 1, is a side elevation of my improved machine. Fig. 2, is a similar view taken at right angles to Fig. 1. Fig. 3, is a plan view
40 with parts broken. Fig. 4, is a perspective view of a part of the lower casting and friction on tube or roller, with its adjustable connection. Fig. 5, is a vertical, sectional view taken on the plane indicated by the dotted line *y, y*,
45 on Fig. 3. Fig. 6, is a horizontal, sectional view taken on the plane indicated by the dotted line *x, x*, on Fig. 1. Fig. 7, is a plan view of the upper casting or plate, and Fig. 8, is a similar view of the lower casting with the bearings
50 for the friction rollers in position.

Referring by letter to said drawings:—C, indicates a horizontal timber, and D, indicates

a timber which is arranged approximately horizontal, and extends laterally from or about the center of the timber C.

F, indicates the upper casting. This casting is supported upon the timbers C, and D, by means of vertical rods *b*, and V, as shown. The casting F, is braced to the sill timbers by braces, *a*, as better shown in Figs. 1, and
55 5, of the drawings.

f, indicates braces which tie the outer end of the timber E, to the timber C, so as to firmly secure the parts together, and the construction thus far described constitutes the main
60 65 frame for supporting the various mechanical parts of my machine.

The casting F, as better shown in Fig. 7, of the drawings, has a sufficient number of arms, which are provided with holes to receive the
70 upper ends of the rods *b*, and also the upper journal ends of the friction rollers, as will be presently described, and this upper casting is also provided with a central aperture *l*, for a purpose which will presently appear.

U, indicates a vertically-disposed shaft or rod. This shaft is suitably secured in the main frame and extends for a sufficient altitude above the drum or spool A, which is arranged loosely thereon. The drum is pro-
80 vided with a head *m*, fixed thereto and this head has a round neck *n*, which passes through the aperture *l*, of the upper casting, and on the upper end of this neck is fixed or formed thereon the lower section *p*, of a clutch I.

B, indicates the sweep. This sweep is connected with a horizontally-disposed casting T, by means of a bracket, as shown, and the under side of this casting has either formed
85 thereon or fixed thereto, the upper section *j*, of the clutch I. This casting T, is also provided with a vertically-disposed guide tube, which is slidable upon the upright rod or shaft U, and carries with it the upper section of the clutch.

H, indicates a hand lever. This hand lever is pivotally connected with the casting T, and consequently the upper section of the clutch, by means of links Q, and the hand lever which is journaled in the upper ends of
95 100 said links, has a cam or eccentric G, which is designed to contact with the upper end of the shaft U, so that it may be manipulated in raising and lowering the upper section of

the clutch, so as to allow the same to engage and disengage with the lower section, for a purpose which will be hereinafter more fully explained.

5 From the construction described, it will be seen that after the clutch has been disengaged by raising the upper section from the lower one, the drum may be turned without moving the sweep and in order to render the
10 turning of the drum convenient, I have provided capstan arms *h*, on the lower section of the clutch for the grasp of the operator, and the arms may be of an angular form, as shown. When it is desired to turn the drum by hand
15 such as to adjust the rope or take up slack, it is simply necessary to first throw down the hand lever *H*, when the eccentric thereon coming in contact with the upper end of the shaft *U*, will lift the upper section of the
20 clutch, as better shown in Fig. 5, of the drawings, when the drum will be free to turn.

E indicates a metallic brace. This brace is secured at one end to the casting *F*, and thence passing obliquely downward is secured to the
25 outer end of the timber *D*, over which it passes lengthwise. The opposite end of this brace extends across the timber *C*, and is provided with an eye or loop *P* for the attachment of a chain, rope or the like, as better shown
30 in Fig. 3, of the drawings, and by which it may, when desired, be secured to any object to stay the machine in position. This brace *E*, where it bends or loops adjacent to the timber *D*, will form a convenient means for
35 attaching a chain *O*, by which the machine may be also secured to a suitable object, and this brace may be also used for the attachment of a draft animal in moving from place to place.

40 *L*, indicates a slidable collar, which is placed upon the drum *A*, and designed to move vertically thereon. This collar is provided with vertically-disposed eyes, which may be provided with tubular projections *d*, and they receive the rods *b*, which serve to guide them
45 and consequently the collar in its up and down movements on the drum. This collar is provided with diametrically arranged lug journals *r*, which take through journal apertures
50 in a lever *e*. This lever *e*, comprises two similar branches of angular form, having the apertures at one end to receive the lug journals of the collar, and their opposite ends are connected by a weight *N*, which is preferably provided
55 at opposite ends with foot pieces *s*. The levers are supported at or about their angles in links *g*, which are pivoted to the braces *f*, as a convenient means, and the weight of the levers is designed to exert a sufficient pressure
60 thereon to keep the slidable collar of the drum raised, but should the weight be insufficient the operator by placing his foot upon the pieces *s*, may bring his weight to bear thereon.

65 *W*, indicates the rope or cable. This rope is attached to the drum at one end, at or near the upper end thereof, and is designed to wind

downwardly around the drum. The slidable collar is designed to rest the rope as shown, as it is being wound and while wound, and it
70 will be seen that by reason of the weight *N*, or such pressure as the operator may exert upon the levers *e*, the collar will be held up on the drum, and as the weight of the rope increases, according to the amount used, the
75 collar will gradually descend.

c, indicates friction rollers. These rollers are arranged at suitable points around the drum, and the distance which they are placed
80 from the circumference of the drum is equal or approximately so to the thickness of the rope or cable employed. These rollers are designed to exert a yielding pressure upon the rope so as to keep the same from crossing, and will hold it in a uniform manner, one layer
85 above another. The upper casting *F*, receives the upper ends of these friction rollers in its perforated branches, and there are preferably three of the rollers employed. The lower ends of the rollers are stepped in laterally adjustable
90 bearings supported in the lower casting *J*. This lower casting upon which the drum is placed, is provided with branches having slots as shown, and there is one arm for each
95 friction roller bearing. One wall of these slots *u*, is provided with a hole or aperture *v*, and the longitudinal walls of the slot are beveled on the upper and lower sides to receive the recessed portions *w*, in the opposite sides
100 of a nut *R*. The bearings for the lower ends of the friction rollers, which are preferably hollow, comprise a recessed seat *K*, and an integral stem *Q*, which takes through the hole or aperture *v*, and the stem is threaded to receive the nut *w*.

105 *S*, indicates a spiral spring, which surrounds the stem *Q*, and is interposed between the apertured walls of the slotted branch of the casting *J*, and the nut on said stem. By this construction it will be seen that the bearings
110 *K*, will be allowed to move laterally and will be held inwardly under spring pressure so that should the rope become lapped or crossed on the drum, the rollers will give and thereby prevent damage or injury to the parts. This
115 construction will also permit of ropes of different sizes being used.

The sweep *B*, which is connected to the upper section of the clutch by means of the bracket, is also connected to the outer end of
120 the casting *T*, by a brace as shown, and a small sweep or arm *i*, is attached to the sweep *B*, at its inner end, for the attachment of the driving line.

125 While I have described very minutely and in detail, the various parts of my device, and their combinations, yet I do not wish to be understood as confining myself to such exact construction, as I am aware that many of
130 the parts will permit of modifications. The weighted lever, for instance, can be changed in configuration, and the friction rollers may be differently supported so as to be rendered laterally adjustable.

Having described my invention, what I claim is—

1. In a stump puller, the combination with a drum having a rope or cable attached at one end thereto, a slidable collar arranged on the drum and adapted to support the rope and a friction roller or rollers arranged with respect to the drum so as to prevent the rope from crossing during its winding on the drum and off of the same, substantially as specified.

2. In a stump puller, the combination, with a drum, having a rope attached at one end thereto, and a collar slidable on the drum and adapted to support the rope, substantially as specified.

3. In a stump puller, the combination with a rotatable drum, having a rope attached at one end thereto, a collar slidable on the drum and adapted to support the rope, and a weighted lever for sustaining the collar adjustably, substantially as specified.

4. In a stump puller, the combination with a drum, having a rope attached at one end thereto; of a slidable collar arranged on the drum and adapted to support the rope, and a laterally adjustable friction roller or rollers exterior to the drum and rope as it is wound thereon, substantially as specified.

5. In a stump puller, the combination, with a suitable frame; of a vertically-disposed shaft arranged thereon, a clutch, a drum on the shaft, and having one section of the clutch, a sweep secured to the other section of the clutch, arms or links rising from the upper section of the clutch, an eccentric or cam lever journaled in said arms or links, and adapted to engage the upper end of the vertical shaft so as to disengage the clutch and allow the drum to be rotated independently of the sweep, substantially as specified.

6. In a stump puller, the combination with a rotatable drum, of the slidable collar arranged thereon, and having the diametrically-arranged lug journals, the angular levers journaled on said lugs at one end, the weight connecting the opposite ends, and the connections *g*, for fulcruming said levers at an intermediate point in their length, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

LORENS SWENSON.

Witnesses:

E. J. THOMAS,
S. S. CULVER.