

No. 889,271.

PATENTED JUNE 2, 1908.

J. S. SWENSON.

HORSE POWER CAPSTAN.

APPLICATION FILED NOV. 21, 1907.

2 SHEETS—SHEET 1.

Fig. 2.

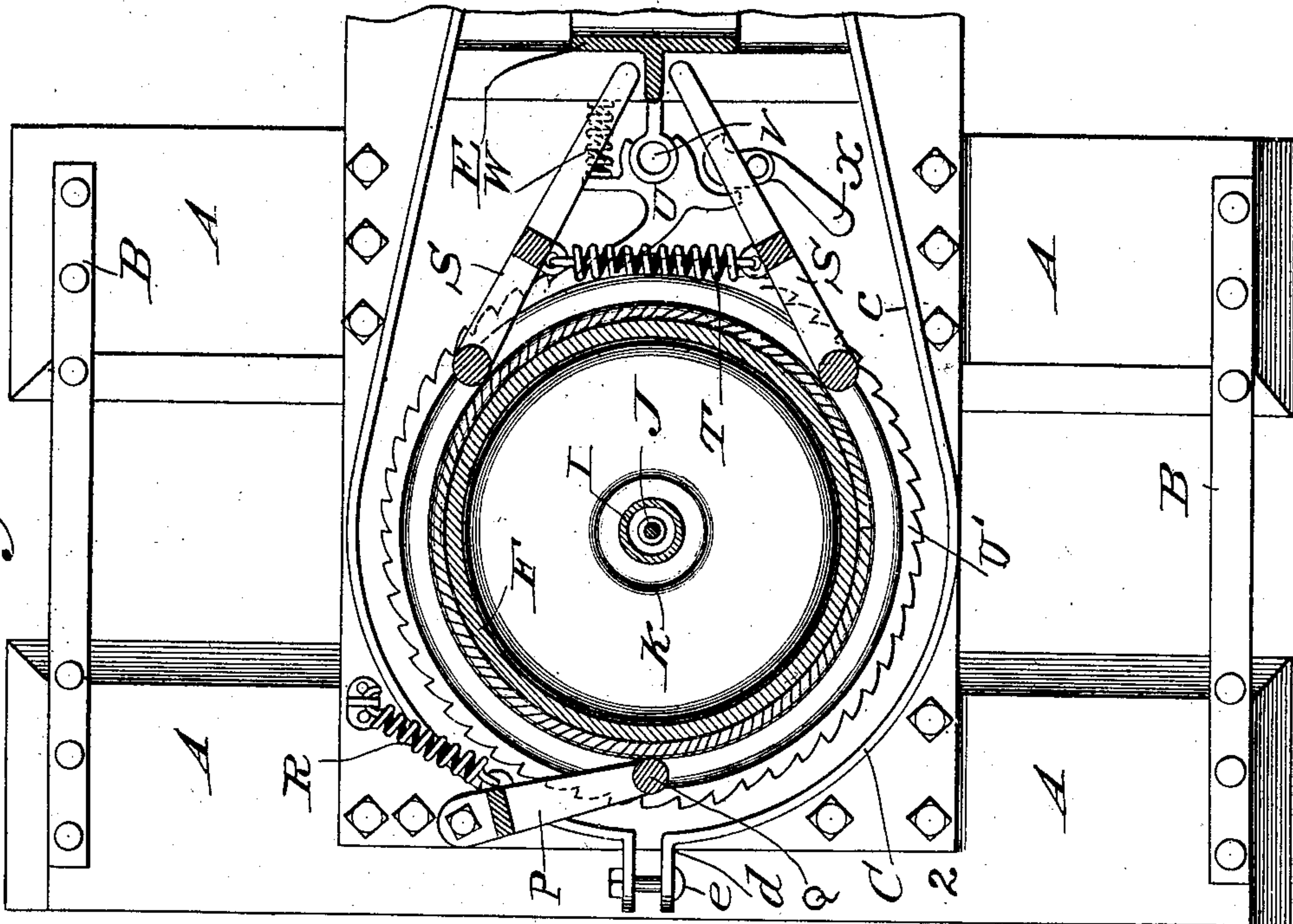
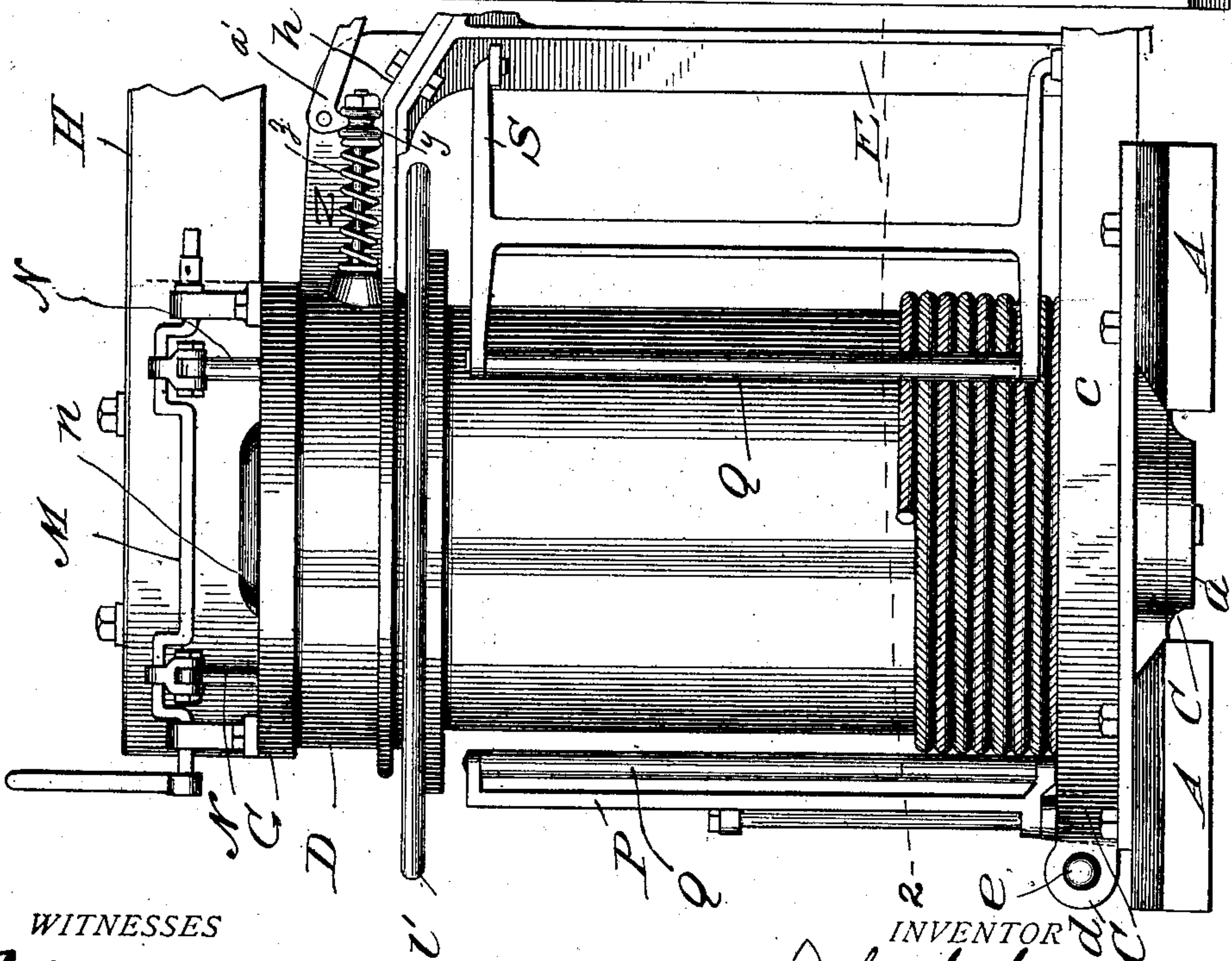


Fig. 1.



WITNESSES

Phil E. Barnes
J. J. Sheehy Jr.

INVENTOR

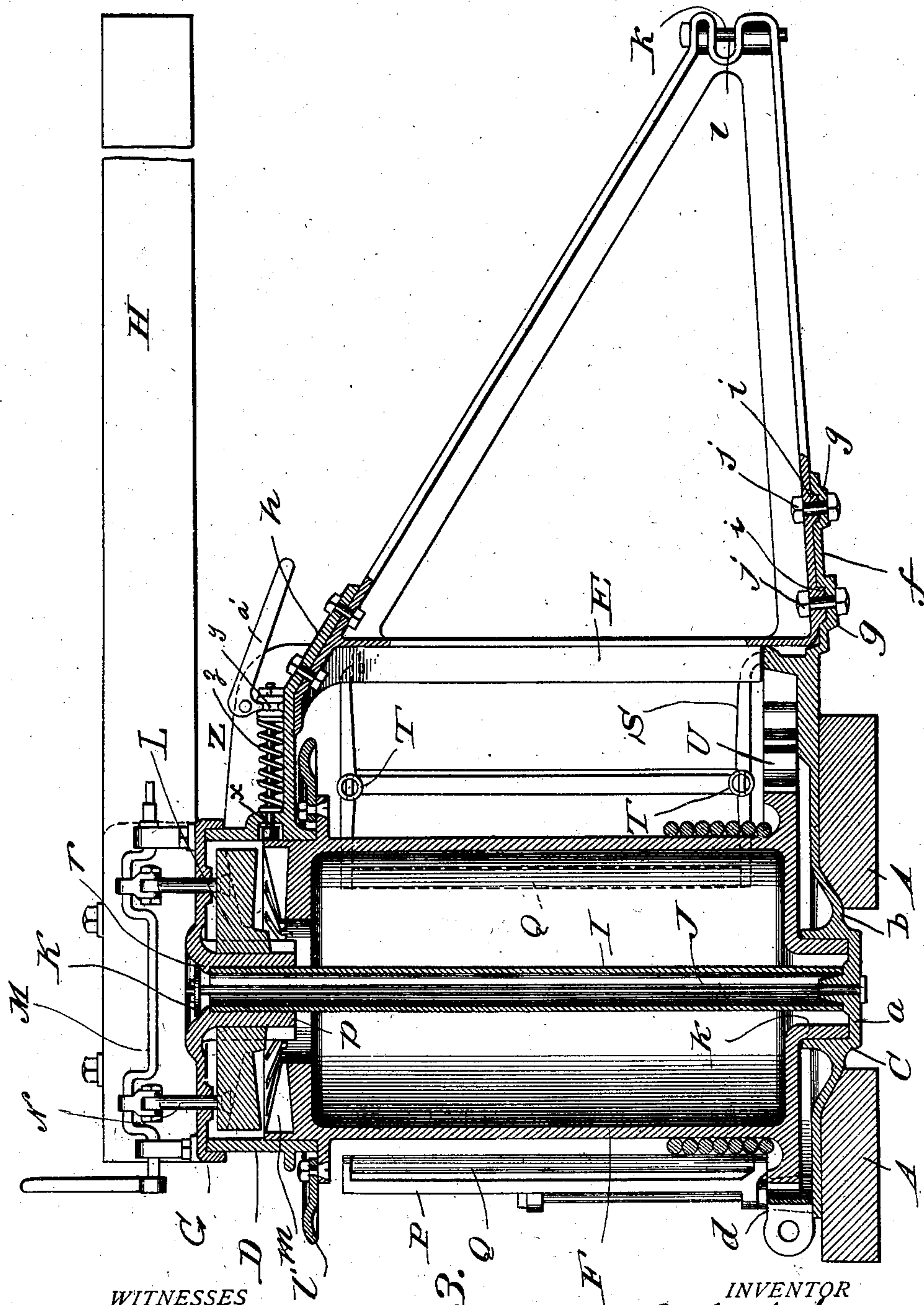
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By James J. Sheehy
Attorney

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2 SHEETS—SHEET 2.



WITNESSES
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Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN S. SWENSON, OF CRESCO, IOWA.

HORSE-POWER CAPSTAN.

No. 889,271.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed November 21, 1907. Serial No. 403,114.

To all whom it may concern:

Be it known that I, JOHN S. SWENSON, citizen of the United States, residing at Cresco, in the county of Howard and State of Iowa, have invented new and useful Improvements in Horse-Power Capstans, of which the following is a specification.

My invention pertains to horse-power capstans such as are designed more particularly for extracting stumps; and it contemplates the provision of a simple and practical and otherwise materially advantageous horse-power capstan well adapted to withstand the rough usage to which devices of corresponding nature are ordinarily subjected.

The invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a side elevation of a portion of the capstan constituting the best practical embodiment of my invention known to me. Fig. 2 is a horizontal section taken in the plane indicated by the line 2—2 of Fig. 1, looking downward. Fig. 3 is a vertical central section of the capstan with parts in elevation.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A A are bed timbers connected together through the medium of metallic straps B or other suitable means, and C is a base casting arranged on and bolted to the bed timbers, Fig. 1, and having a central socket *a* and also having a curved portion *b* designed to enable the metal to shrink during cooling without cracking. Said base casting C is further provided with strengthening ribs *c* disposed on its upper side where they are out of the way of the bed timbers A, and these ribs *c* terminate at their forward ends in clevis members *d* which receive a bolt *e*. This provision is made in order that one end of a cable may be connected to the front end of the capstan; it being contemplated to run the said cable through a pulley block attached to the stump to be extracted and coil the opposite end portion of the cable about the drum, presently described, this with a view of obviating the necessity of attaching the free end of the drum cable to another stump. At its rear side, the base casting C is provided with an extension *f* in the upper side of which are two (more or less) sockets *g* for

a purpose which will be presently set forth. The main frame of the capstan is formed by the said casting C, an annular top bearing D having a rear extension *h*, and an open, angular member E which is bolted to said extension *h*, and is also bolted to the base extension *f* and provided with lugs *i* which surround the bolts, lettered *j*, and are seated in the sockets *g*, this with a view of taking the pulling strain off the said bolts *j*. At its rear end, the member E is provided with a bifurcation *k* and a removable bolt *l*, and it is designed to pass an anchor loop of cable (not shown) around said bolt and around a stump or the like, for it will be seen when this is done and it is desired to move the machine from one setting to another, it is unnecessary to pry the capstan back toward the stump, but on the other hand is simply necessary to draw the bolt *l* from member E.

The casting of the main frame in three parts C, D and E, as described, is advantageous since there is little liability of the said parts cracking during cooling thereof.

F is a hollow drum having a central depending portion *k* journaled in the socket *a* of the base casting C, and a circumferential annulus *l'* through the medium of which it may be turned by hand, and also having a clutch member *m* at its upper end which is journaled in the top bearing D. G is a sweep casting mounted to turn upon the upper edge of said bearing D, and H is a sweep bolted to the casting G; said sweep being preferably of wood, though it may be of any other suitable material and of any approved construction without involving departure from the scope of my invention as claimed. The casting G is rounded at *n* to enable it to shrink when cooling without cracking, and is provided with a hub *p* having a flange *r* in its upper portion, which flange bears on the upper end of a gas-pipe support I the lower end of which bears on the bottom of the socket *a*. A bolt or rod J, equipped with a metallic washer K, serves as illustrated to connect the casting G with the base casting C and to hold the casting G down on the top bearing D.

Feathered and movable vertically on the hub *p* of casting G is a clutch member L complementary to the clutch member *m* of drum F; and in order that said clutch member L may be lowered and raised to make and brake connection between the sweep and the drum F, I provide the crank shaft M jour-

naled in standards on the casting G, and bolts N connecting the clutch member L and the shaft M and having heads at their lower ends socketed in the member L, as shown by dotted lines in Fig. 3.

P is a swinging device pivoted in the base casting C of the main frame and equipped with a roller Q and having for its office to hold the coils of cable in proper superposed position against the perimeter of the drum F, and R is a tractile spring connected to the device P and the base casting C, and designed to yieldingly hold the roller Q against the superposed coils of cable, as best shown in Fig. 2.

S S are swinging devices pivoted to the main frame at the opposite side of the drum F, with reference to the device P, and equipped with rollers Q, whereby they are enabled to assist the device P in performing the function ascribed to it. Arranged between and connected to the devices S is a coiled spring T which serves to hold the rollers Q of said devices under yielding pressure against the coils of cable on the drum F. The springs R and T may of course be connected in the manner illustrated or may be connected in any conventional manner that will permit of their tension being regulated as necessity demands. At this point attention is directed to the fact that while the rollers Q serve efficiently in retaining the coils of cable in proper order on the drum F, yet, by reason of said rollers being adapted to freely turn in the devices P and S there is no liability of the cable being subjected to frictional wear.

U is a pawl, fulcrumed at V on the base casting C, and backed by a spring W and arranged to engage a toothed flange U' on the drum F, as best shown in Fig. 2. By virtue of this provision, the drum F is held against retrograde movement when a cable is being moved thereon, and hence loosening of the cable is prevented as is also backward swinging movement of the sweep H.

X is a lever fulcrumed on the base casting C and adapted to be moved by the foot of an attendant into engagement with the adjacent arm of the pawl U, Fig. 2, to disengage said pawl from the toothed flange of the drum F when it is desired to turn said drum backward, and Z is a brake mounted in the main frame and arranged to be put in frictional engagement with the perimeter of drum F with a view of preventing too free rotation of the drum when the cable is pulled by hand off the same; said free backward rotation of the drum being objectionable because of the liability of its throwing a loop of cable from the lowest coil such as would be likely to interfere with the advantageous and convenient operation of the device. The said brake Z may be of any construction compatible with the purpose of my invention

without involving departure from the scope thereof, though I prefer to have it comprise a plunger x guided in the top bearing D of the main frame, a grooved portion y secured on the outer end of said plunger, a coiled spring z surrounding the plunger and interposed between the bearing D and the portion y so as to tend to move and hold the plunger away from the drum F, and a hand lever a' mounted on the top bearing D and engaged with the grooved portion y and arranged when depressed as shown in Fig. 3 to move the plunger x into frictional engagement with the drum and retain said plunger in said position for the purpose stated. On upward movement of the said lever a' , the spring x will obviously serve to move the plunger x out of engagement with the drum and hold the plunger away from the drum.

The general operation of the capstan will be fully understood from the foregoing description, and it is therefore deemed unnecessary to herein describe the same in detail.

The construction herein illustrated and described constitutes the best embodiment of my invention of which I am cognizant, but it is obvious that in the future practice of the invention such changes or modifications may be made as fairly fall within the scope of my invention as defined in the claims appended. For instance the perimeter of the drum F may be plain as shown or grooved in the conventional manner, in the discretion of the manufacturer.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. A frame for a horse-power capstan, comprising a base casting having an extension, and a member bolted to the said extension of the base section and adapted for the connection of an anchor cable; one of the said elements having a socket and the other having a lug disposed in the socket, for the purpose set forth.

2. A frame for a horse-power capstan, comprising a base casting having an extension, a member adapted for the connection of an anchor cable; one of said elements having a socket and the other having a lug disposed in the socket, and a bolt extending through said socket and lug and connecting the elements.

3. A frame for a horse-power capstan, comprising a base, a top bearing, and a portion fixed to and connecting the base and top bearing and extending laterally therefrom and having a bifurcation in its outer end and a removable bolt bearing in said end and extending across the bifurcation.

4. A frame for a horse-power capstan, comprising a base casting having an extension, a top bearing having an extension, and an open angular frame arranged between and bolted to the extensions of the base casting

and top bearing; the opposed portions of the extension on the base casting and the open angular frame having a lug and a socket receiving said lug, respectively.

5 5. A frame for a horse-power capstan, comprising a base casting having ribs on its upper side terminating at the front of the casting in clevis members, and a bolt arranged in said clevis members.

10 6. The combination in a horse-power capstan, of a frame, a drum mounted to rotate in the frame, and a friction brake comprising a plunger guided in the frame and having a grooved portion, and a lever mounted in the
15 frame and engaging the grooved portion of the plunger and arranged in one position to hold the plunger in frictional engagement with the drum.

20 7. The combination in a horse-power capstan, of a base casting, a top bearing, an angular member fixed to and connecting the base casting and top bearing, a drum interposed between and journaled in the base casting and top bearing, a sweep casting

mounted on the top bearing and having a 25 hub and a flange in said hub, means for connecting said sweep casting and the drum, a gas pipe arranged in the hub of the sweep casting and between the flange of said hub and the base casting, and a connecting rod 30 extending through the base casting and the gas pipe and equipped with a washer bearing on the sweep casting.

8. The combination in a horse-power capstan, of a frame, a drum mounted to rotate in 35 the frame, a friction brake-plunger carried by the frame and movable into and out of engagement with the drum, and a lever arranged to move said plunger against the drum. 40

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN S. SWENSON.

Witnesses:

M. O. SWENSON,

A. S. LARSON.