

No. 779,437.

PATENTED JAN. 10, 1905.

G. NETTLE.
SNATCH BLOCK.

APPLICATION FILED MAY 14, 1904.

2 SHEETS—SHEET 1.

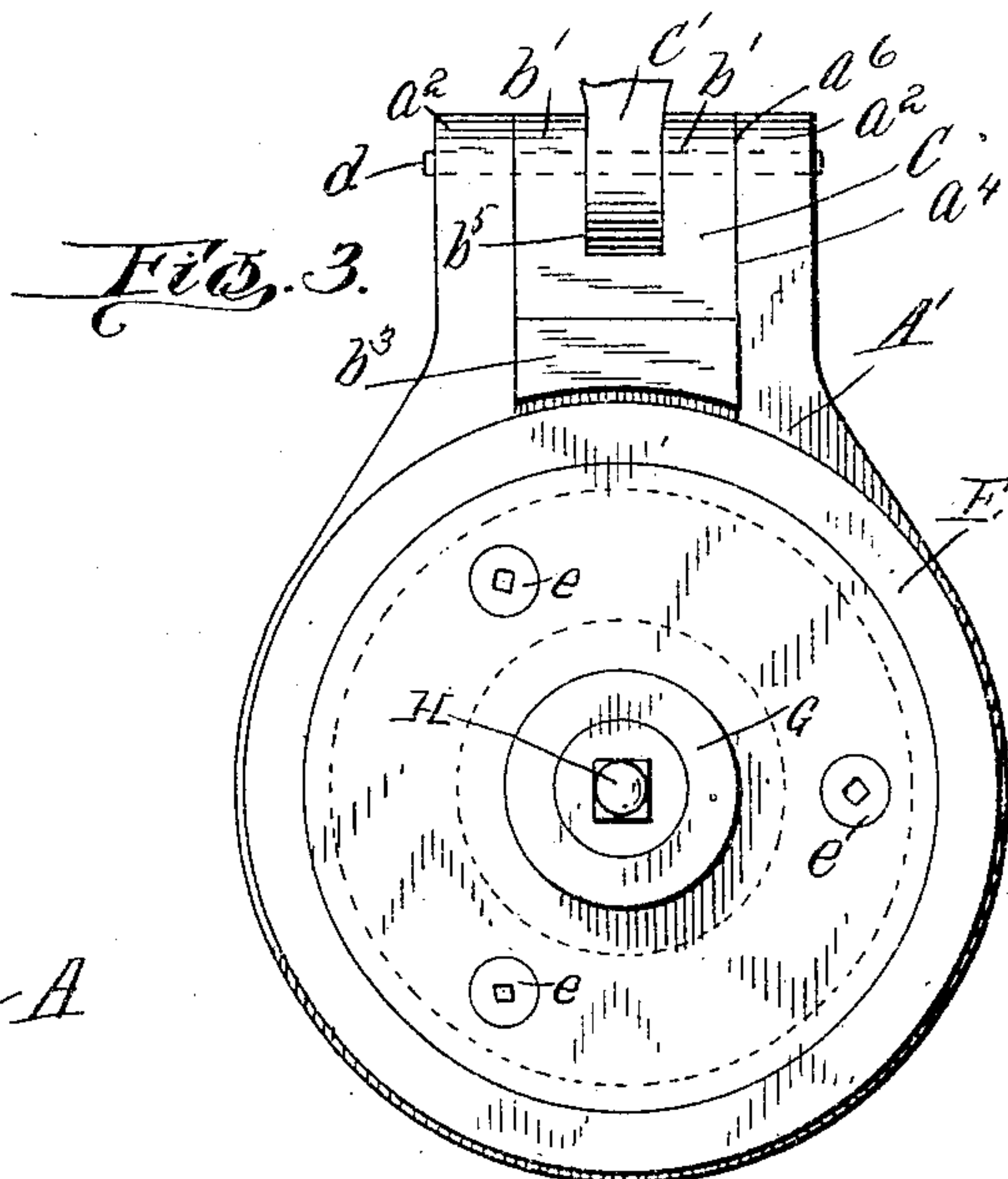
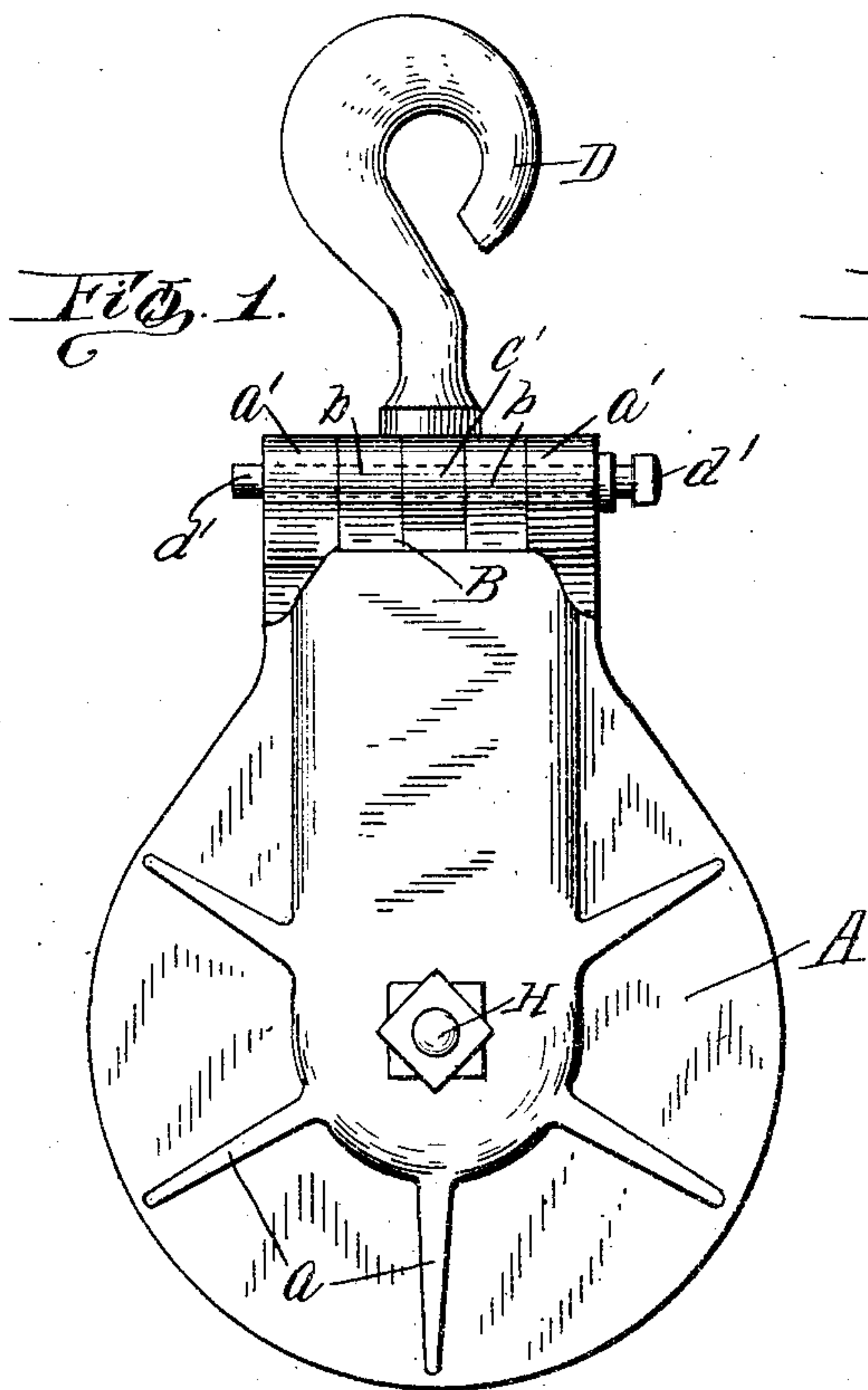


FIG. 11.

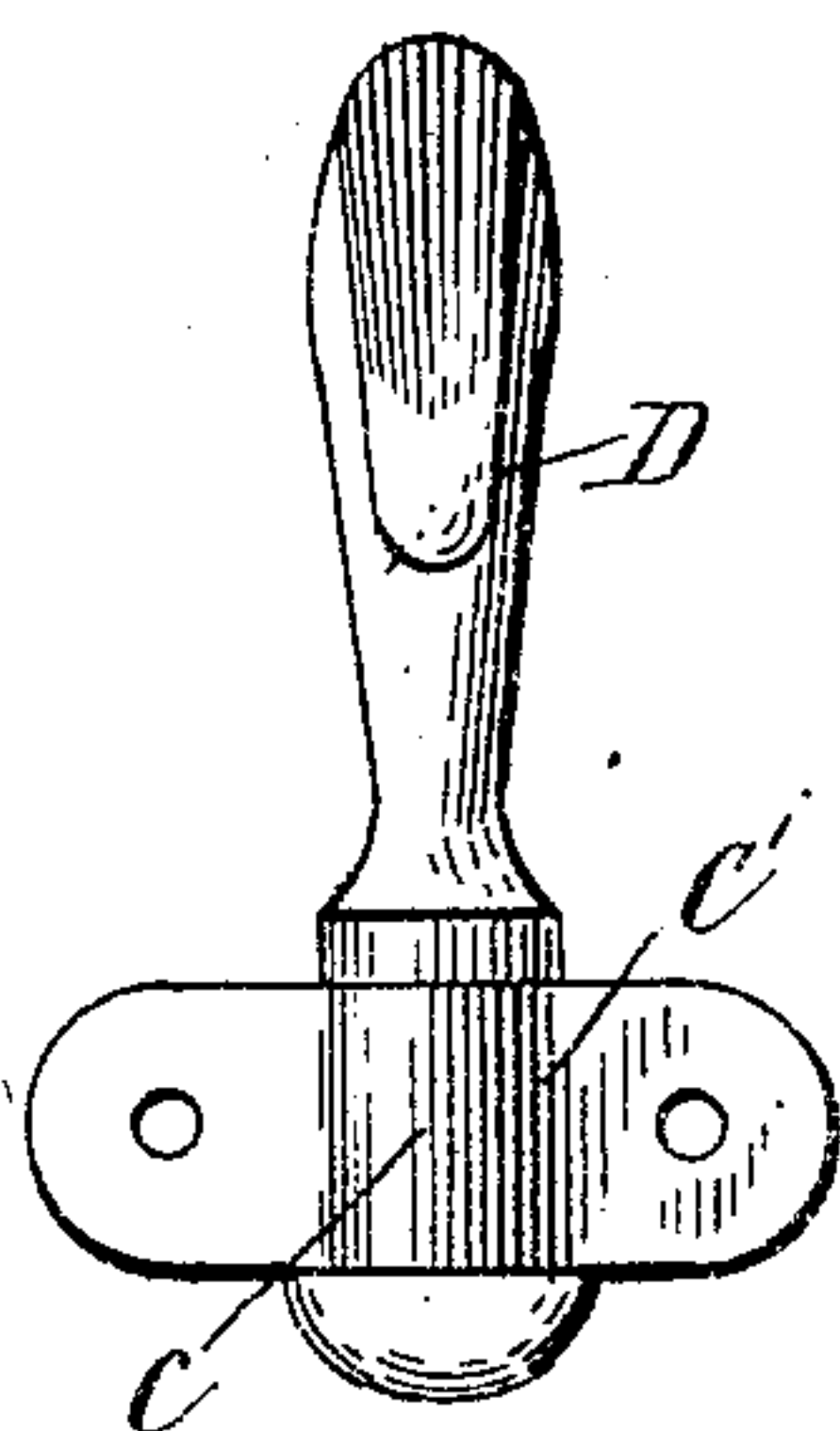
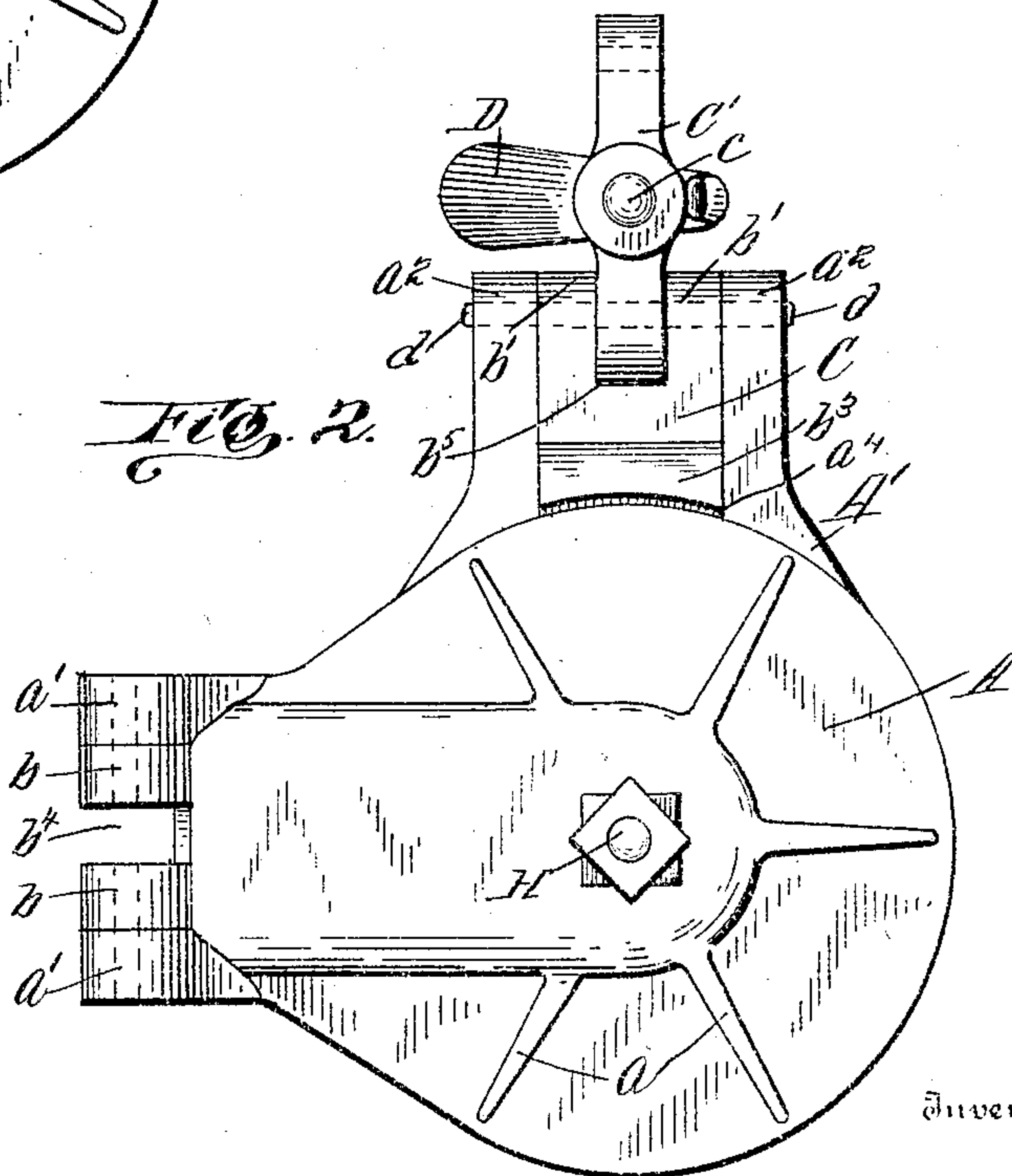


FIG. 2.



Inventor

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Witnesses

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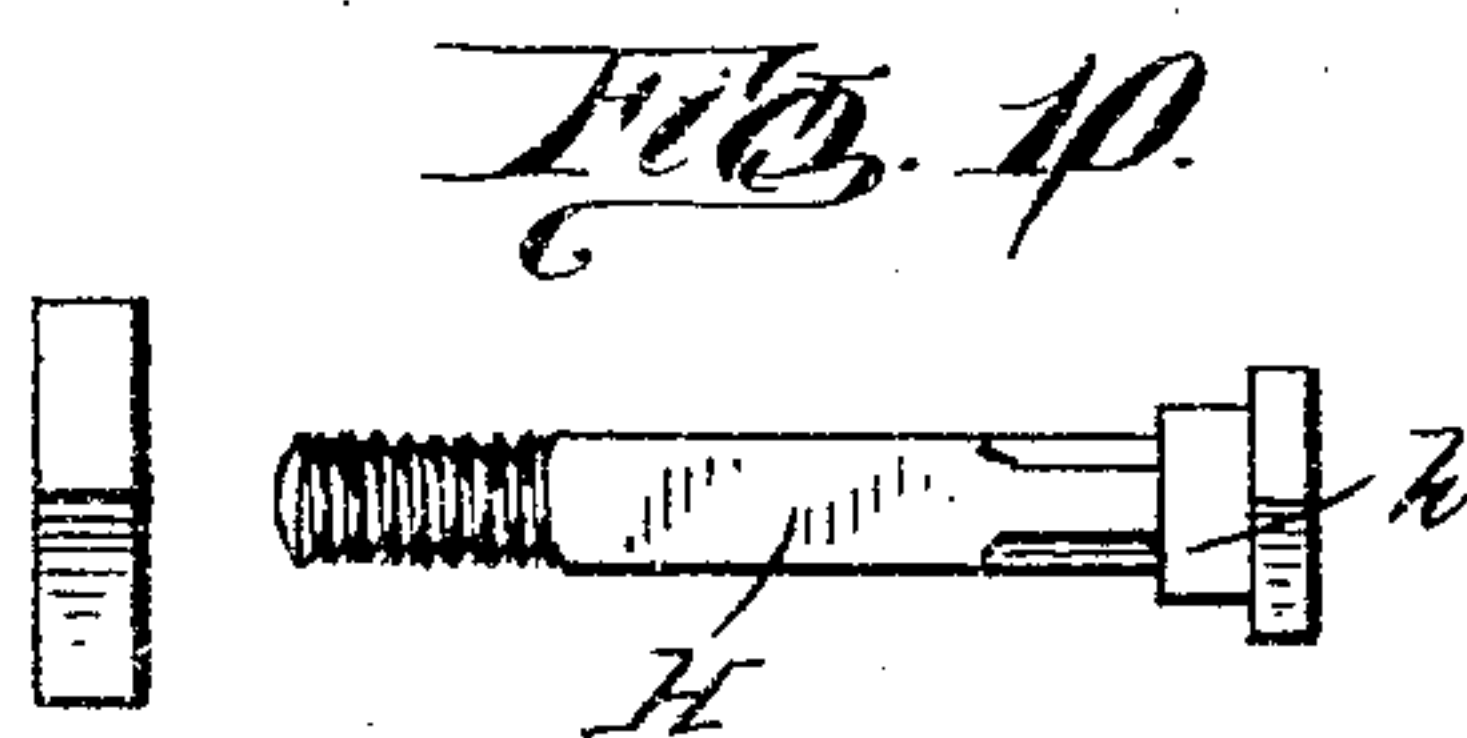
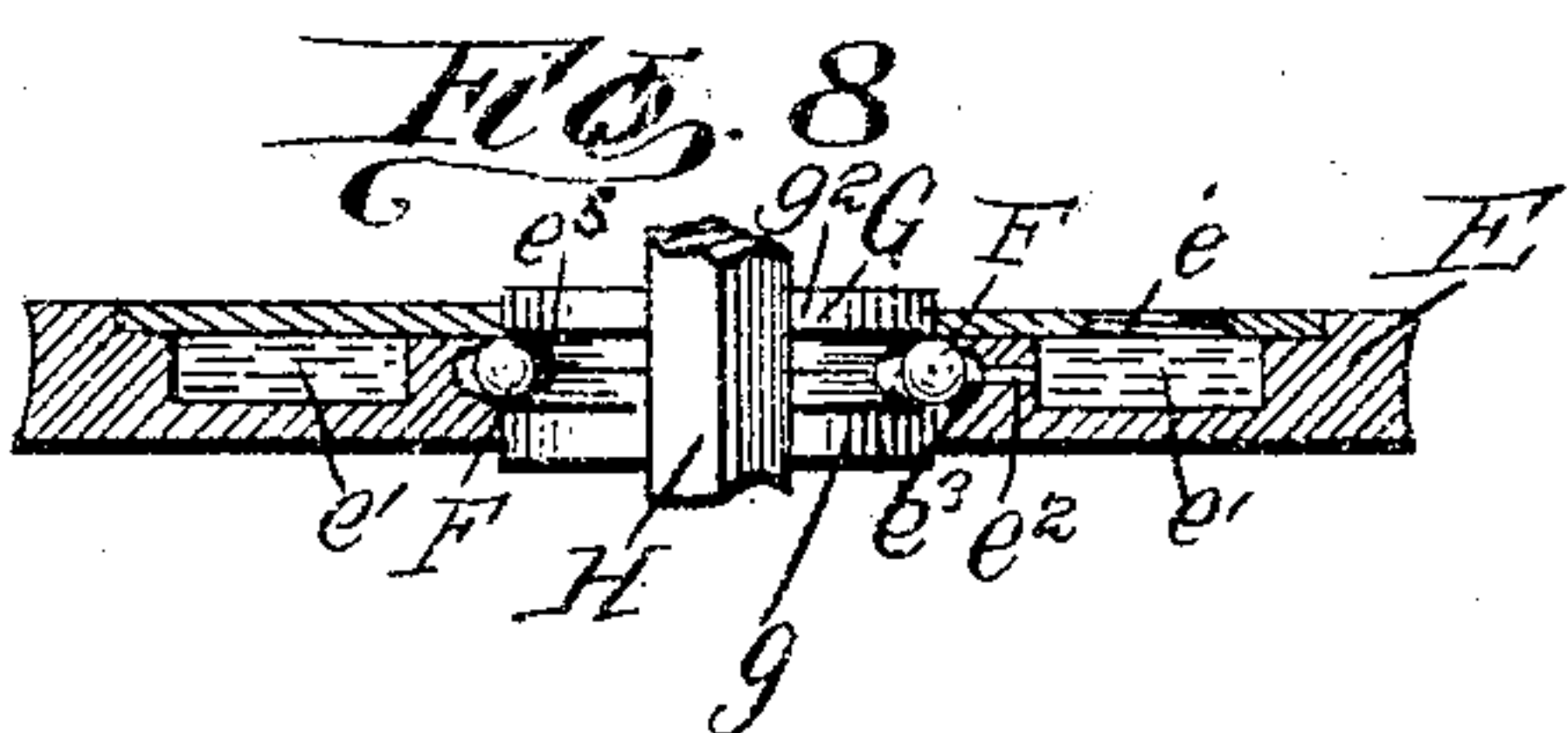
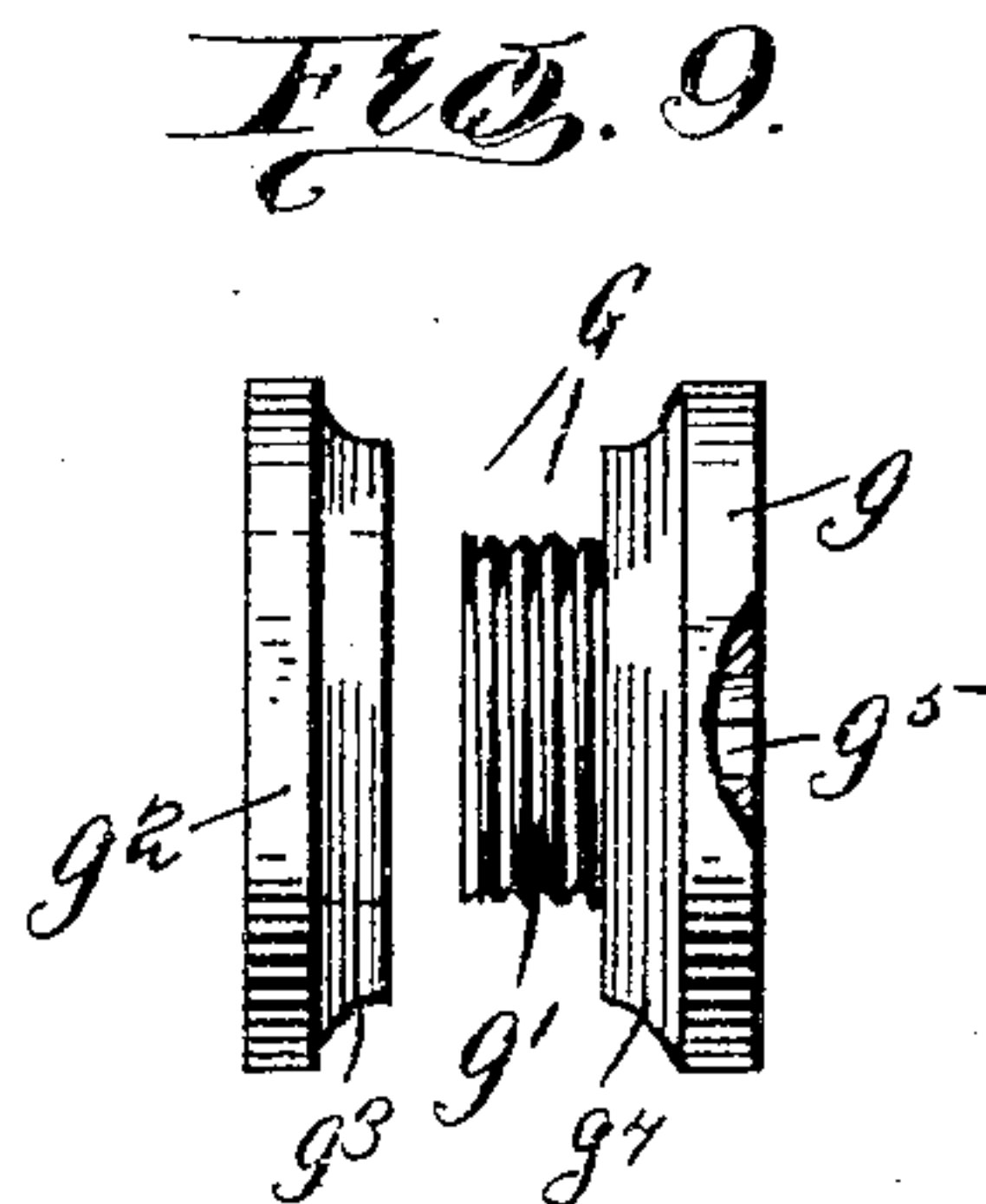
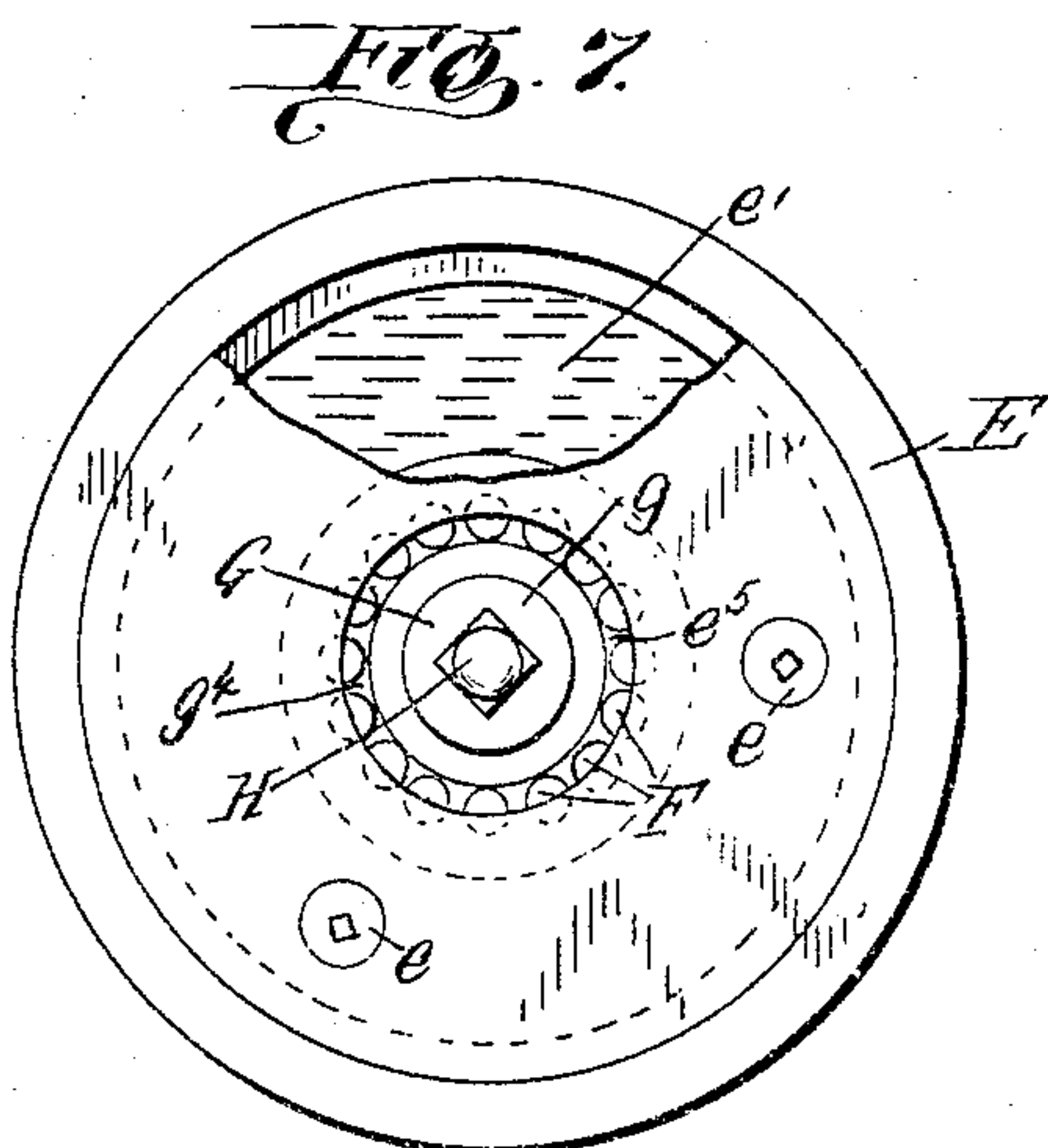
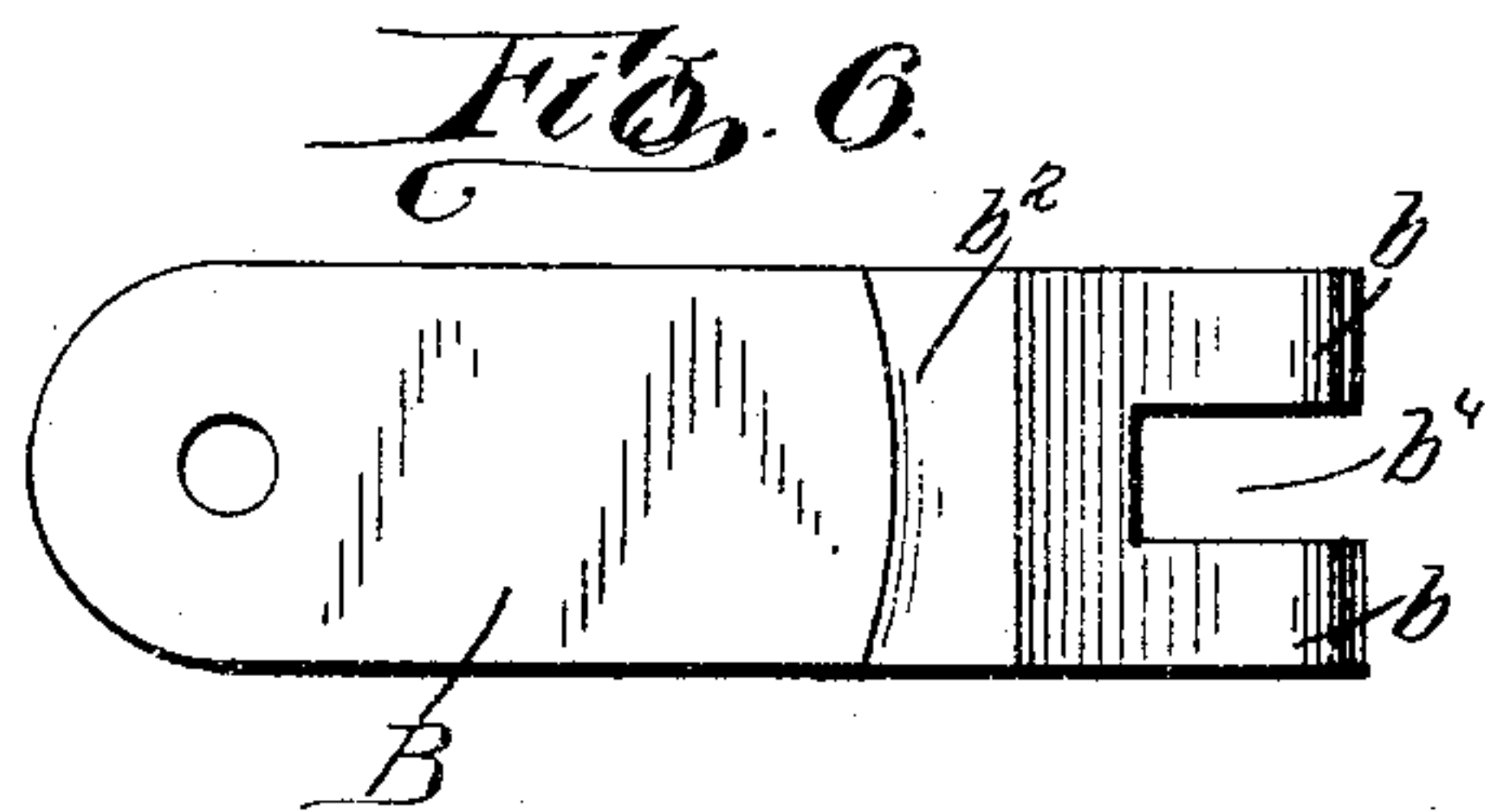
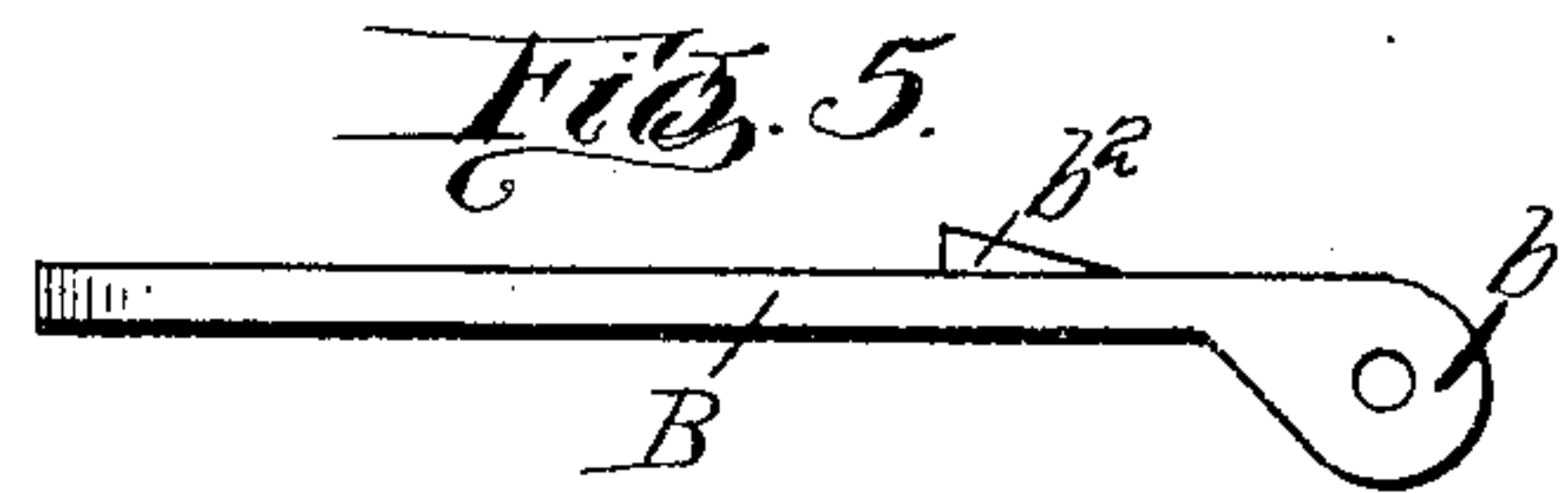
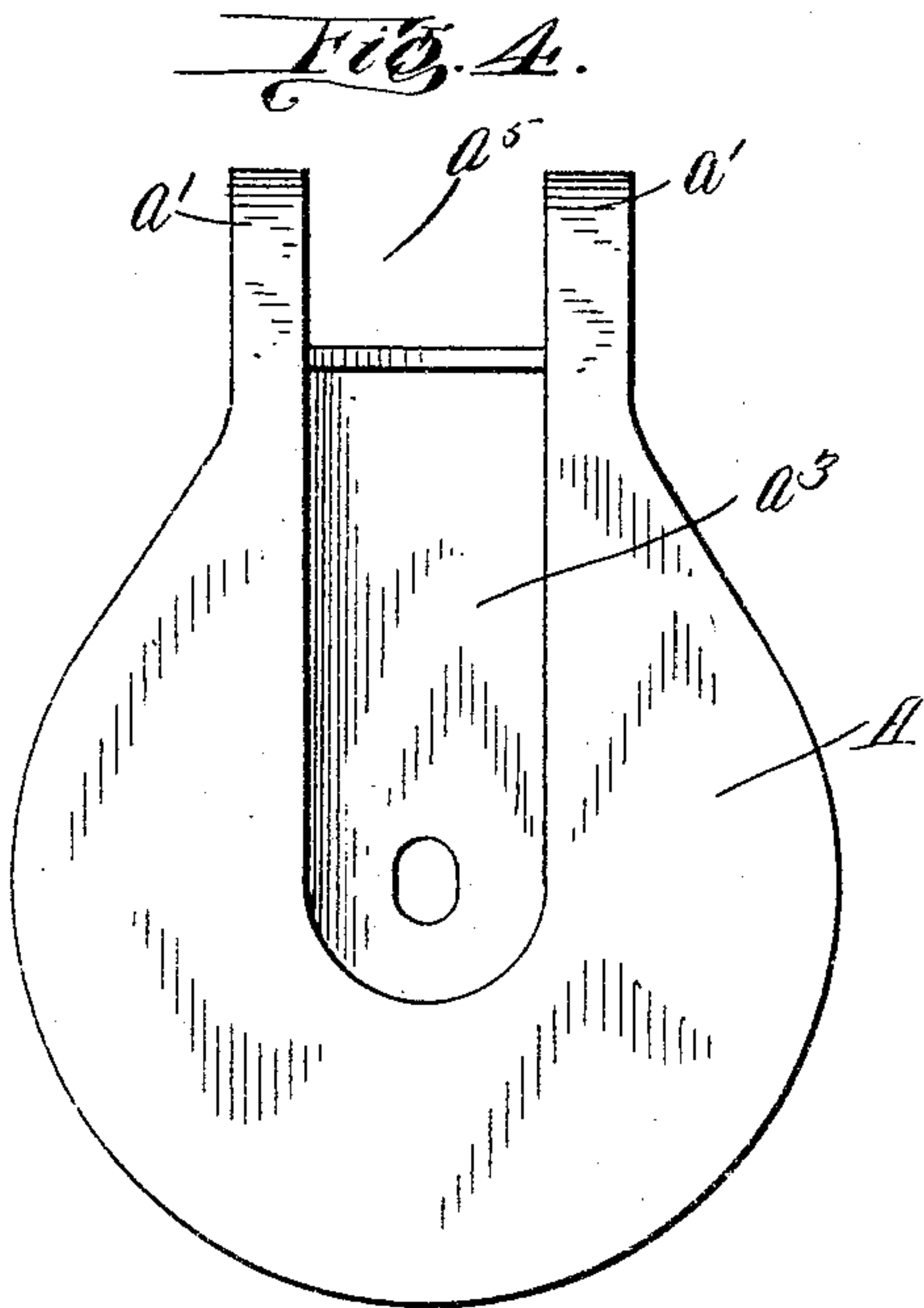
by

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his attorney.

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SNATCH BLOCK.

APPLICATION FILED MAY 14, 1904.

2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

GUSTAV NETTLE, OF LEABURG, OREGON.

SNATCH-BLOCK.

SPECIFICATION forming part of Letters Patent No. 779,437, dated January 10, 1905.

Application filed May 14, 1904. Serial No. 208,022.

To all whom it may concern:

Be it known that I, GUSTAV NETTLE, a citizen of the United States, residing at Leaburg, in the county of Lane and State of Oregon, have invented certain new and useful Improvements in Snatch-Blocks; 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.

My invention relates to what are known as "snatch-blocks" for pulleys—that is, blocks so constructed and arranged that they will open to receive the bight of a rope, chain, or cable without the trouble and annoyance of reeving the end through—but more particularly to logging-blocks for use in logging-camps with engines and cables.

One object of my invention is to provide an improved, novel, and simple form of such blocks.

Another object is to construct a novel and ingenious form of ball-bearing self-lubricating pulley to be used in connection with such block and which shall be exceedingly efficient in operation.

Another object is to construct the device of my invention of a minimum number of parts which shall be extremely inexpensive to manufacture.

In many constructions where logging is done with engines the pulley of the block turns on a pin, and in spite of utmost care and careful oiling friction cannot be overcome and the pin frequently burns out. By the peculiar formation of my device binding and friction of the working parts are reduced to a minimum, ninety per cent. of usual friction being eliminated, and there is a saving of seventy-five per cent. of lubricant, twenty-five per cent. of wear on the cable, and twenty-five per cent. of power required. In many constructions also the full weight or tension of the cable on the pulley comes on the block carrying the pulley. Another object, therefore, of my invention is to relieve the block of my construction of such strain, and I effect this by providing a novel form of straps, hereinafter fully described, which receive the strain of the line or cable. I am also enabled by the

use of my straps to raise one face of the block to fill the lubricant-chamber, if necessary, while the line or cable is tight on the pulley.

With these objects in view the invention consists in the novel construction, combination, and arrangement of parts, as herein specified.

In the accompanying drawings, forming a part of my specification, and in which like letters of reference indicate corresponding parts throughout the several views, Figure 1 is a front elevation of my device. Fig. 2 is a like view, one jaw or shell of the block being turned laterally. Fig. 3 is a like view, one jaw being removed clearly to display the pulley, the cone, and the inner face of the other jaw. Fig. 4 is a rear elevation of the jaw shown in Fig. 1, showing the mortise for the reception of a strap. Figs. 5 and 6 are detail views, in side and front elevation, respectively, of the strap removed from the jaw. Fig. 7 is a detail view, in front elevation, partly in section, of the pulley removed from the device, showing also the cone with its screw-cap removed to display the arrangement of the balls, the section showing the internal lubricant-chamber. Fig. 8 is a detail view showing the cone and the arrangement of the lubricant-chamber. Fig. 9 is a detail view of the cone formed in two sections. Fig. 10 is a detail of the axle-pin removed from the device. Fig. 11 is a detached detail view, in front elevation, of the swinging cross-head carrying the hook; and Fig. 12 is a detached detail view, part being broken away, of the inner face of the jaw A' of my device.

Referring in detail to the drawings, the block, as shown, comprises the two jaws, shells, or frame-plates A and A', made of any suitable material, preferably of some metal such as iron or steel, with corrugations *a* for strength and of the shape shown, by preference, with a substantially circular or bulged lower portion and a reduced neck-like upper portion terminating in knobs *a'* *a'* and *a''* *a''*. The inner faces of the jaws are mortised, as at *a'''* and *a'''*, (so as to leave a narrow shallow oblong recess or channel,) in which exactly fit wear-straps B and C, formed with similar knob-tops *b* *b* and *b'* *b'*, occupying recessed or channeled-out portions *a⁵* and *a⁶* in the jaws and

with offsets or shoulders b^2 b^3 for a purpose hereinafter appearing. The jaws are detachably connected to a swinging cross-head or bridge C' , which is provided centrally at c with a bearing for a strong hook, eye, or ring D , which is swiveled in the cross-head, all as shown in the drawings. A pin d , passing through a perforation in one end of the cross-head, constitutes the pivot thereof, said pin also passing through an alining perforation in one of the straps (constituting a pivot therefor) and through alining apertures in the knob-heads of the jaw A' . It will be noted that the two ends of the swinging cross-head rest in channeled-out portions b^4 and b^5 in the top ends of the straps, which straps are preferably made of iron or steel. A removable dowel-pin d' passes through an opening in the knob ends of the jaw A , through alining apertures in the strap B , and through alining openings in the front end of the cross-head. When it is desired to throw a bight of rope over the pulley E , the dowel-pin d' is withdrawn, the swinging cross-head swung backward, and then the jaw A moved laterally either way on the axle-pin H as a pivot, whereby free access is afforded to the pulley.

The pulley E may be of either steel or iron, case-hardened or tempered, and is provided on its exterior surface with a plurality of screw-plugs e , by which an annular lubricant-chamber e' , located internally and concentrically in the pulley, may be supplied with suitable lubricant. A number of these screw-plugs are provided, preferably, so that the lubricant-chamber may be filled at any time, no matter what may be the position of the pulley. Preferably a single opening or channel e^2 leads from the lubricant-chamber to the antifriction balls or rollers F , working in the annular channel e^3 , the walls of which converge inward, as shown, constituting one side of a race or runway for the balls, the other side of the race being the annular recess e^5 in the tread portion of the cone G , which is preferably formed of the same material as the pulley. The cone G is, as shown, preferably formed in two sections, one section constituting the base portion g and having a screw-threaded neck portion g' to engage with the internal screw-threads of the cap g^2 , constituting the other section of the cone. When the cap g^2 is screwed onto the neck portion of the section g , the appearance of the cone is substantially that of a low spool, each section being beveled, as shown at g^3 and g^4 , constituting the raceway e^5 for the balls. The cone G is adapted to extend at each end slightly beyond the exterior surfaces of the pulley E , so that when my device is in operative position the straps B and C of the jaws rest on the projecting ends of the cone, thus giving the pulley free movement or play at all times. In the devices of many patents there are no means shown or provided to stay the

shells apart when in position, so that when a heavy weight is placed on the rope passing over the pulley in these previous constructions it causes the shells to bear in upon the pulley, binding it so tightly as to prevent turning or rotation thereof with any degree of ease. My peculiar construction remedies this difficulty.

The cone G is provided centrally with a square opening g^5 , through which passes the axle-pin H , square in cross-section, so that the cone is held in position by and has no movement on the axle-pin. The axle-pin H is formed with a square head h at one end fitting a square opening a^7 in the shell A' , thus holding the axle-pin, and likewise the cone, against movement, and with screw-threads at the other end, as shown. When the two shells are, with the cone therebetween, properly positioned on the shaft or axle-pin with the straps of the shells pressing against the slightly-protruding ends of the cone, these parts are clamped in position by turning on the screw-threaded end of the axle-pin nuts, (preferably two in number.) Thus should there be any possible wear on the cone such wear will all come on one side; but this may be counteracted by occasionally removing the jaw A and the axle-pin H , turning the cone a quarter, and replacing the axle-pin and jaw, thus throwing the wear, if any, on an entirely different part of the cone.

The wear-straps B and C form a valuable feature of my invention. It will be noted that they receive the strain of the line or cable, which would otherwise come entirely on the jaws A and A' . I am also enabled by the use of the straps B and C to swing the jaw A upward on the pin d as a pivot by removing the nuts on the pin H , thus obtaining access to one of the screw-plugs e in the cone to fill the internal lubricant-chamber, if necessary, all while the line or cable is taut or tight or exerting strain on the pulley. If the straps were not provided, pin H would rest on the shells and I would not be able to raise the same. It will be noted that the beads or projections b^2 b^3 on the straps act to prevent the cable or rope from slipping out of place or between the pulley and the shells or jaws.

Various minor modifications will readily suggest themselves to those skilled in the art; but such slight changes not affecting the spirit of my invention come clearly within the scope and purview thereof.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, means constructed and arranged to permit swinging movement of the cross-head, such means also permitting independent lateral movement of either jaw, removable straps supported by said jaws, a ball-bearing pulley disposed between the two jaws and provided

centrally with an opening, a cone, formed, in two sections, disposed in the central opening of the pulley, and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

2. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, the jaws and cross-head being provided with alining openings, removable pins passing through such alining openings, removable straps supported by said jaws, a ball-bearing pulley disposed between the two jaws and provided, centrally, with an opening, a cone, formed in two sections, disposed in the central opening of the pulley, and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

3. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, the jaws and cross-head being provided with alining openings, removable pins passing through such alining openings, removable straps pivoted on said pins and arranged in juxtaposition to the inner faces of the jaws, a ball-bearing pulley disposed between the two jaws and provided, centrally, with an opening, a cone, formed in two sections, disposed in the central opening of the pulley, and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

4. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, the jaws and cross-head being provided with alining openings, removable pins passing through such alining openings, removable straps pivoted on said pins and arranged in juxtaposition to the inner faces of the jaws, a ball-bearing pulley disposed between the two jaws and provided, centrally, with an opening, a cone, formed in two sections, one section having a screw-threaded neck portion and the other section an internally-screw-threaded portion, said cone being disposed in the central opening of the pulley and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

5. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, the jaws and cross-head being provided with alining openings, removable pins passing through such alining openings, removable straps pivoted on said pins and arranged in juxtaposition to the inner faces of the jaws, a ball-bearing pulley disposed between the two jaws and provided, centrally, with an opening, a cone, formed in two sections, one section having a screw-threaded neck portion and the other section an internally-screw-threaded portion, said cone being disposed in the central opening of the pulley and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, and means constructed and arranged to supply lubricant to the ball-bearing parts of the pulley, substantially as described.

6. In a device of the character described, two jaws, a swinging cross-head connecting said jaws, the jaws and cross-head being provided with alining openings, removable straps pivoted on said pins and arranged in juxtaposition to the inner faces of the jaws, a ball-bearing pulley disposed between the two jaws and provided, centrally, with an opening, screw-plugs on the exterior surface of the pulley, the pulley being provided internally with a lubricant-chamber with which the screw-plugs communicate, the pulley being further provided with a single channel from the lubricant-chamber to the ball-bearing parts of the pulley, a cone, formed in two sections, one section having a screw-threaded neck portion and the other section an internally-screw-threaded portion, said cone being disposed in the central opening of the pulley and arranged to permit movement of the pulley therearound, said cone being provided, centrally, with a square opening, and an axle-pin, square in cross-section, upon which the cone and pulley are supported, said axle-pin and cone being rigid against movement, substantially as described.

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

GUSTAV NETTLE.

Witnesses:

J. F. KELLY,
GEO. H. KELLY.