

No. 711,796.

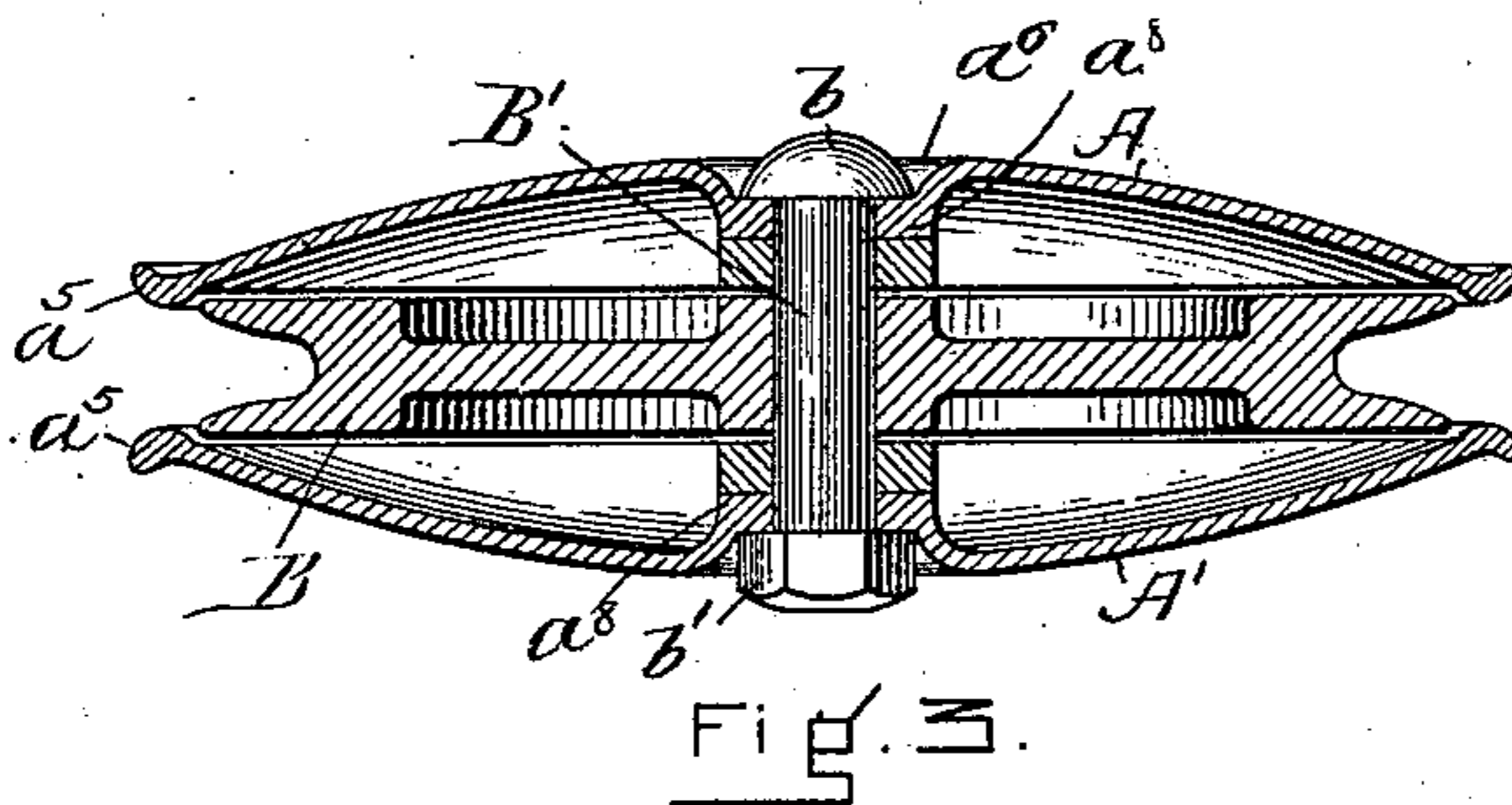
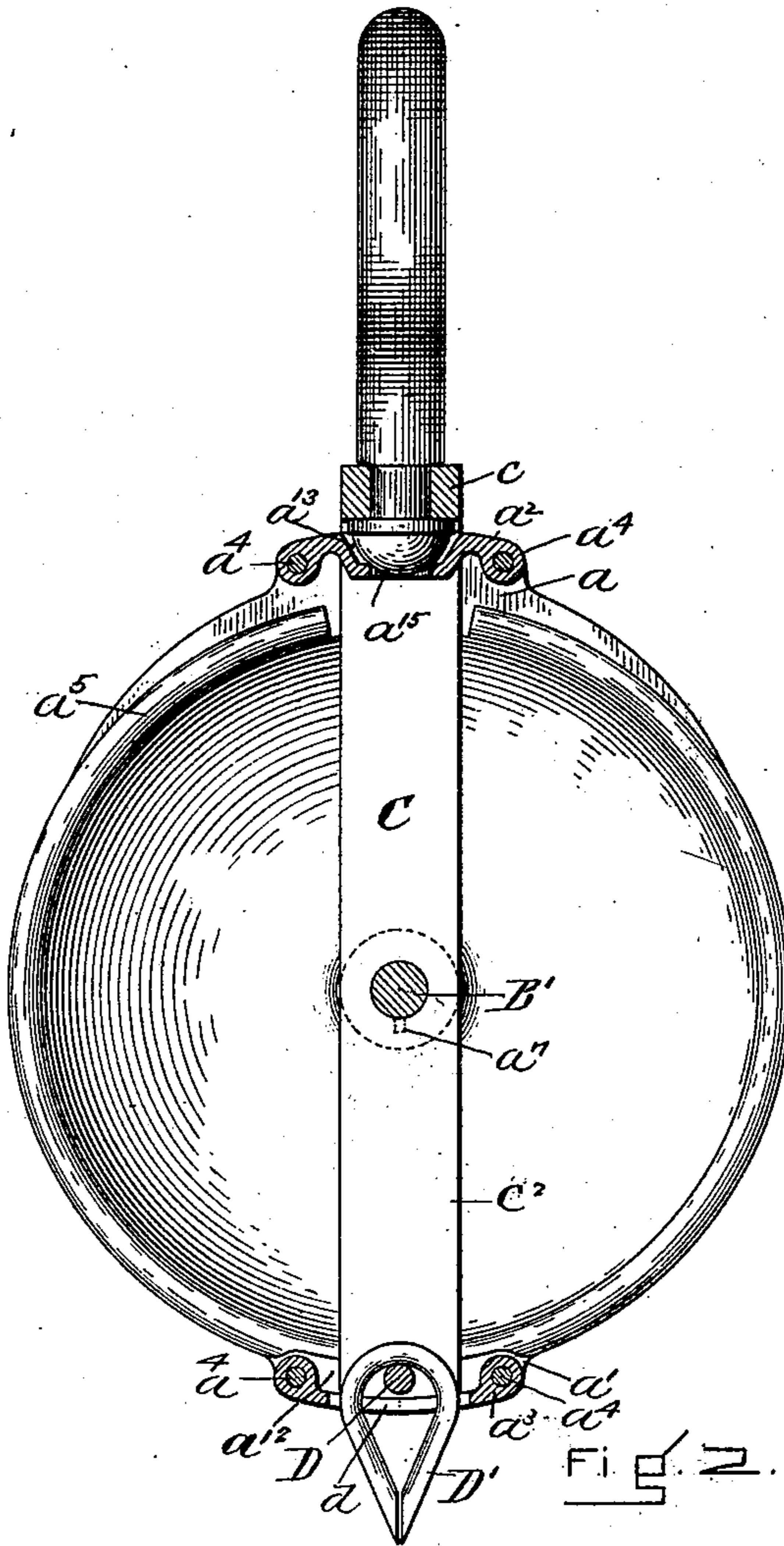
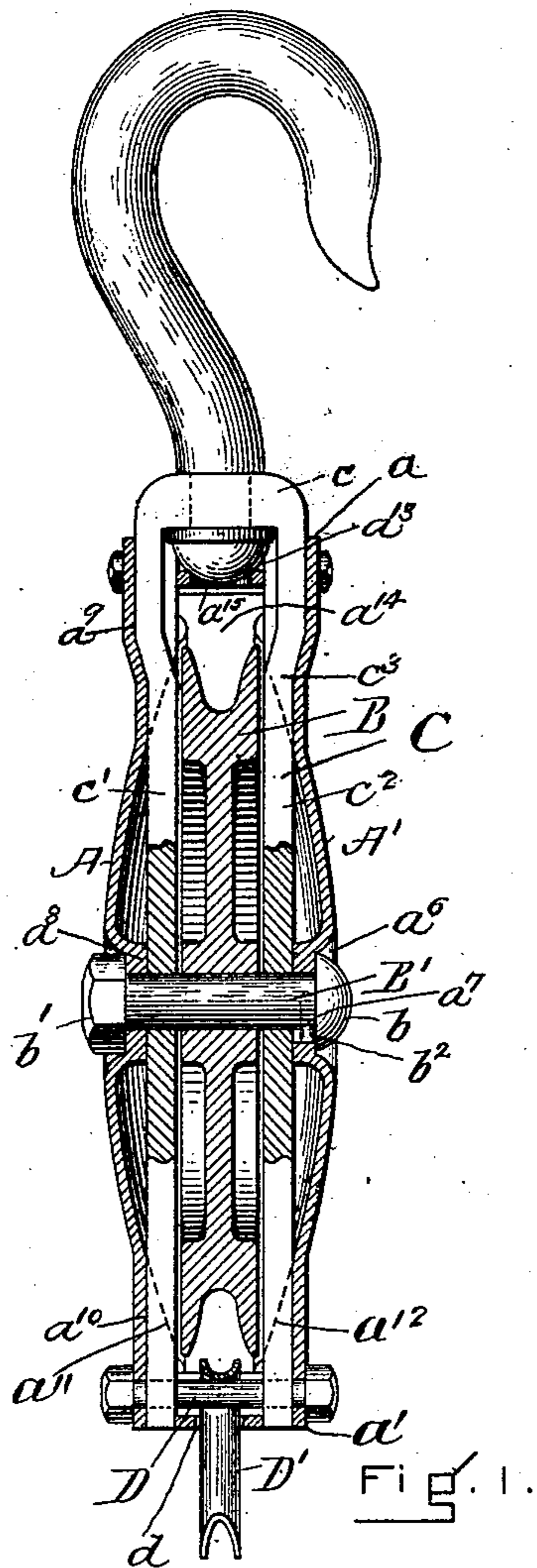
Patented Oct. 21, 1902.

A. B. TARBOX.
WIRE ROPE BLOCK.

(Application filed Apr. 24, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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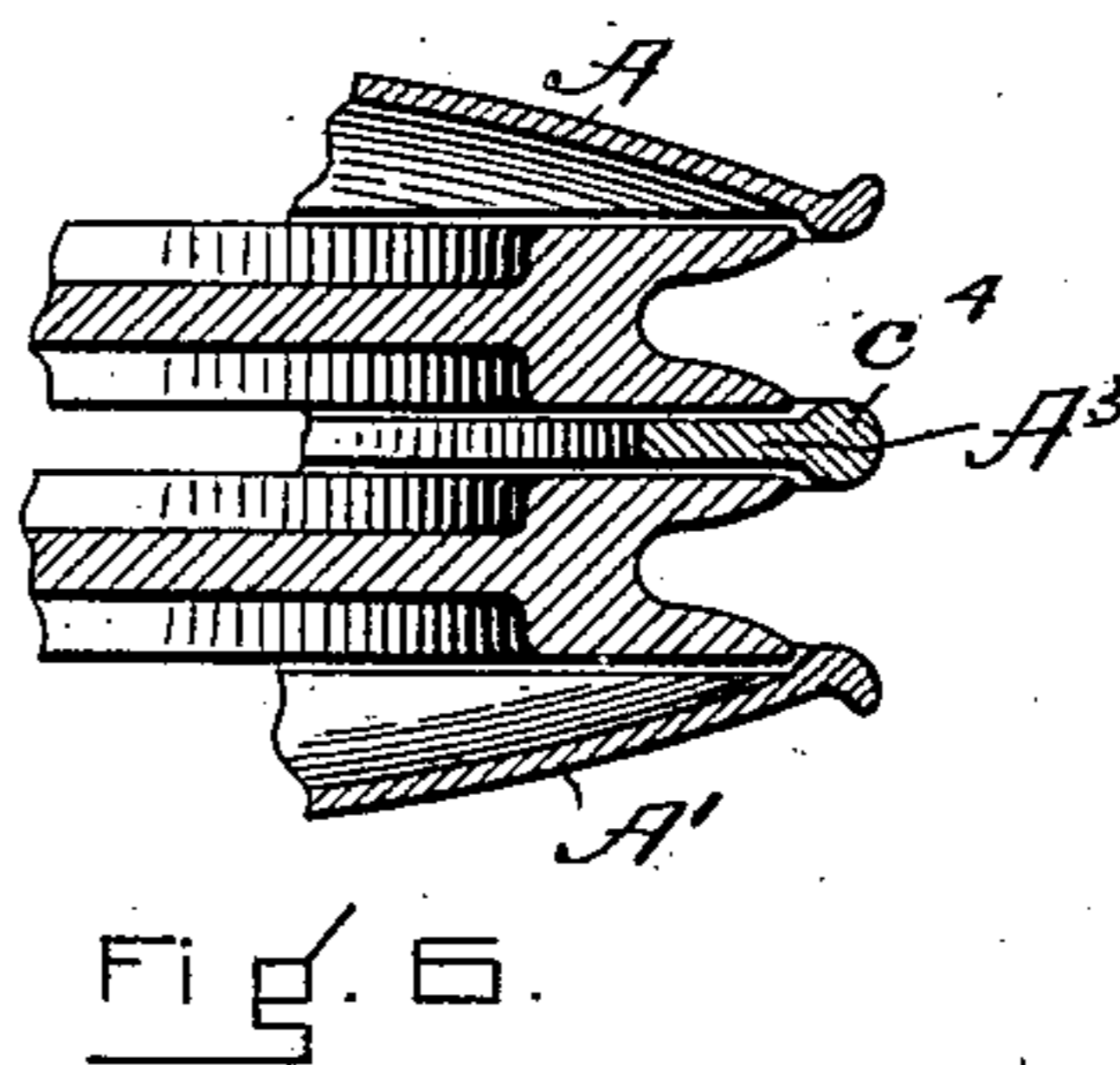
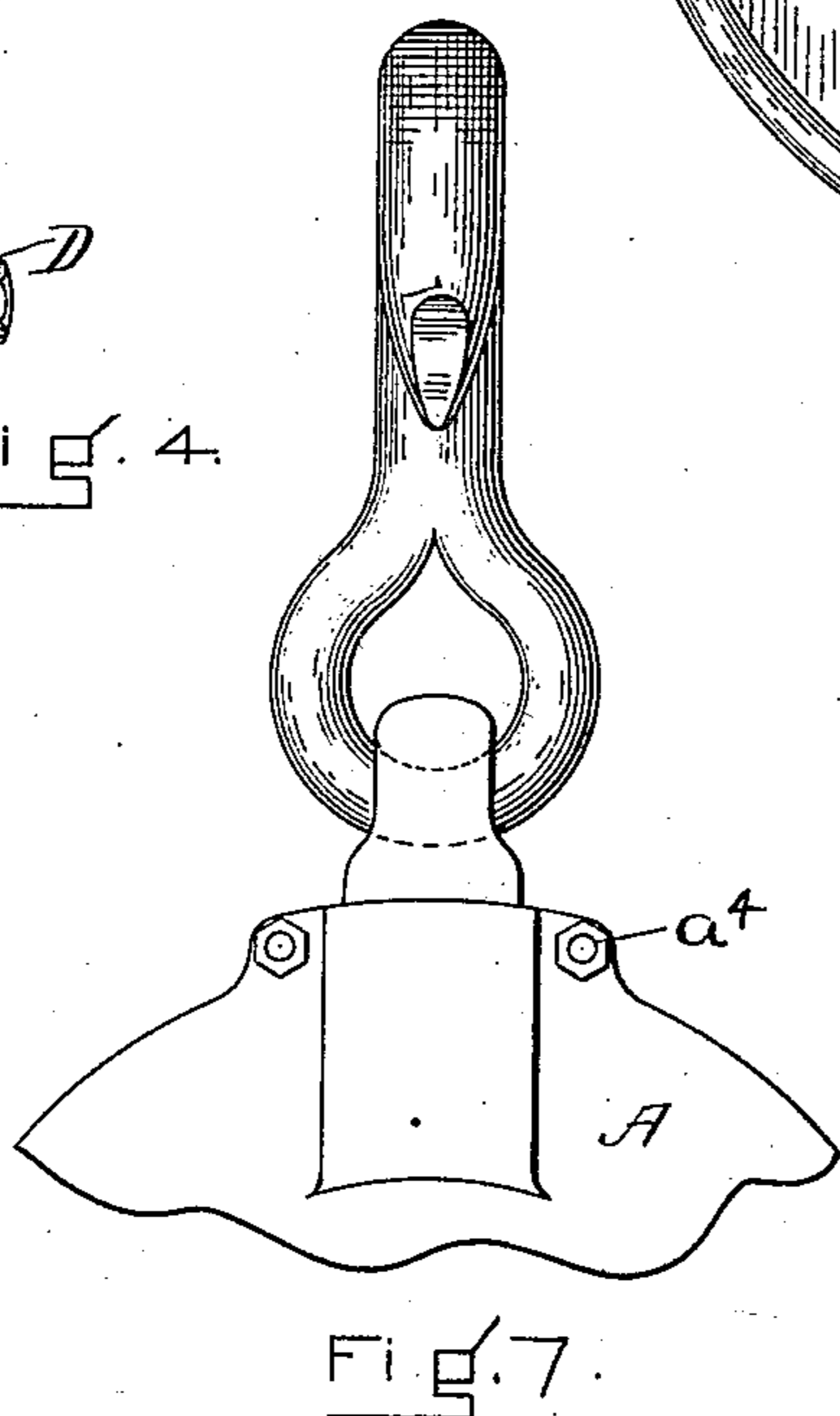
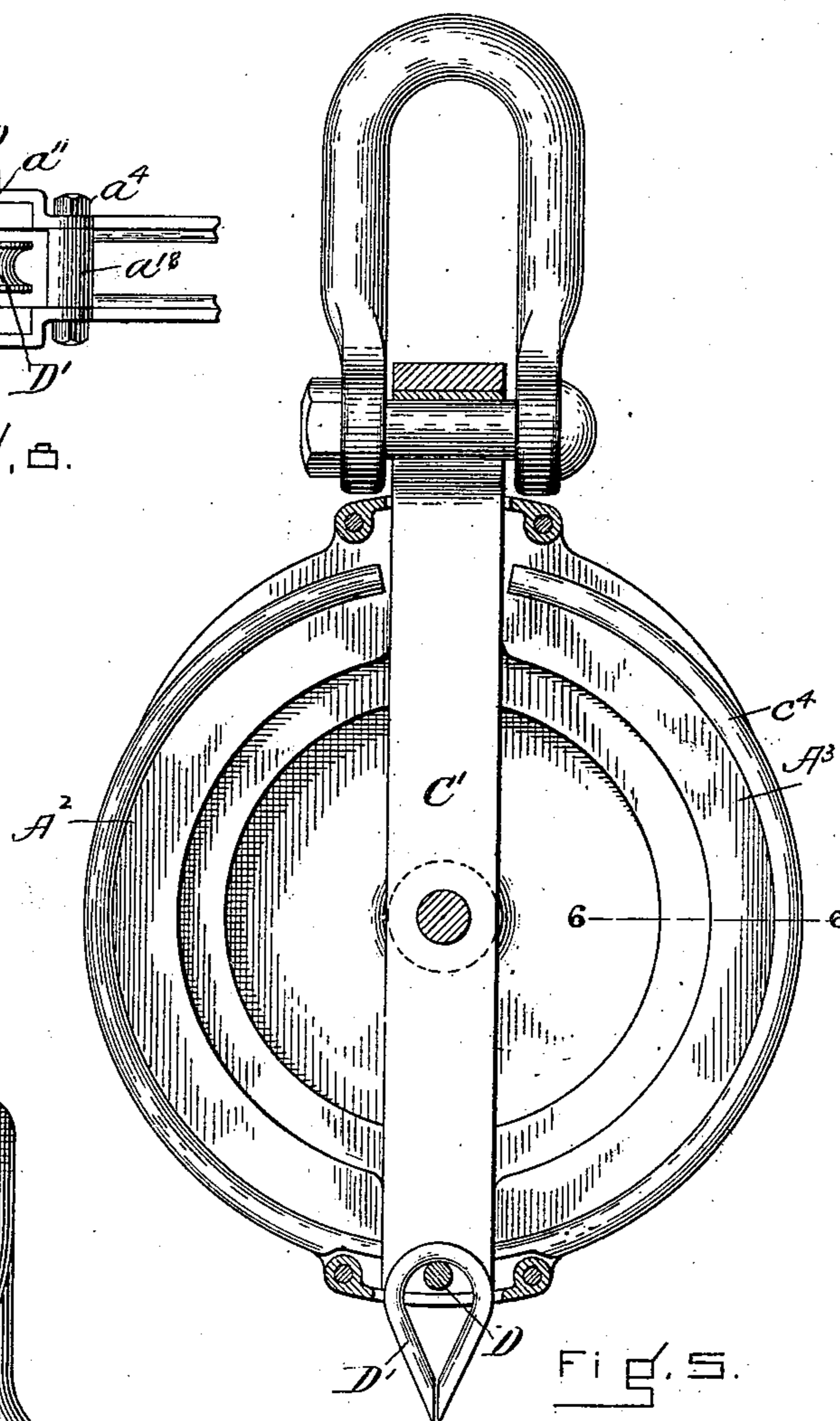
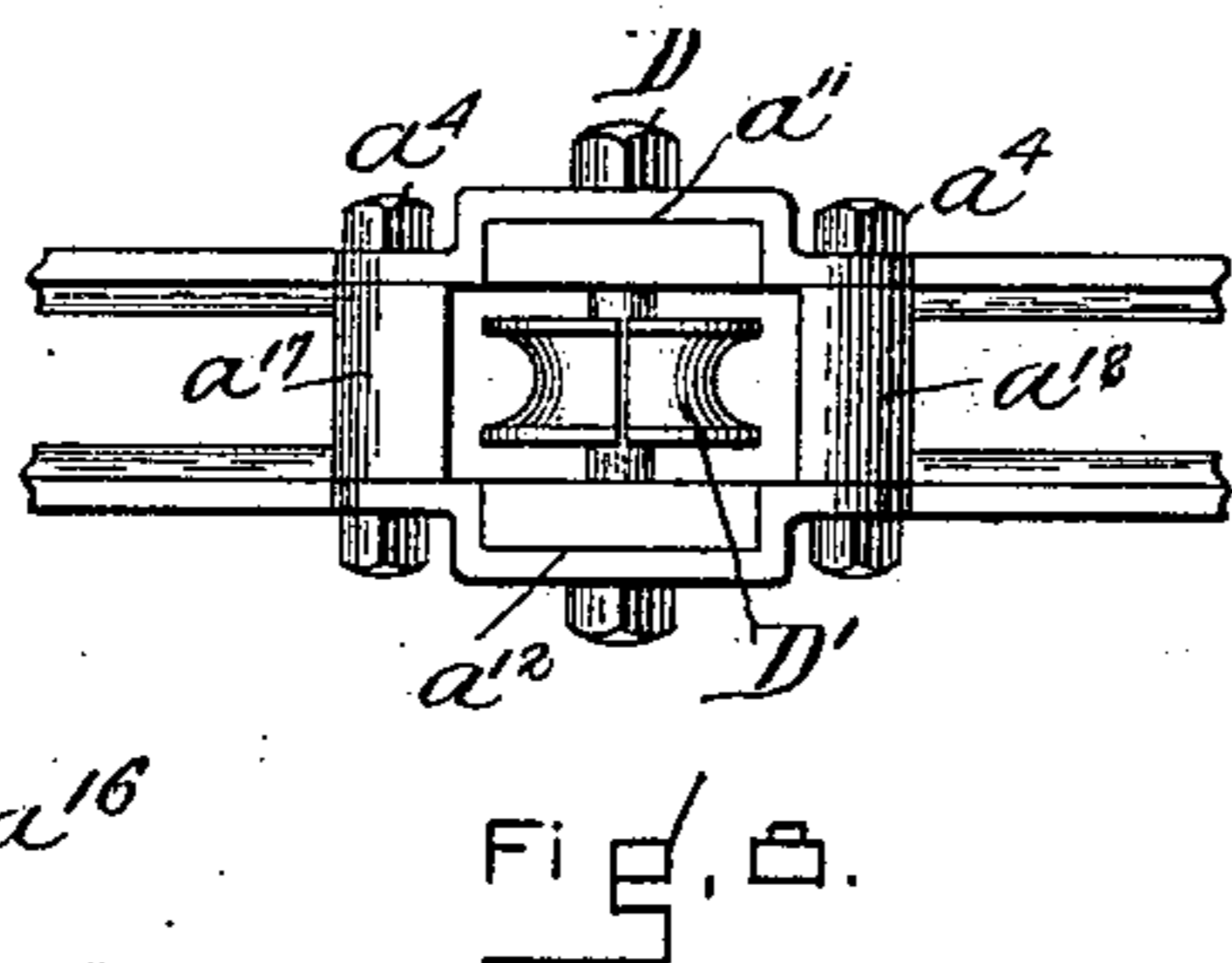
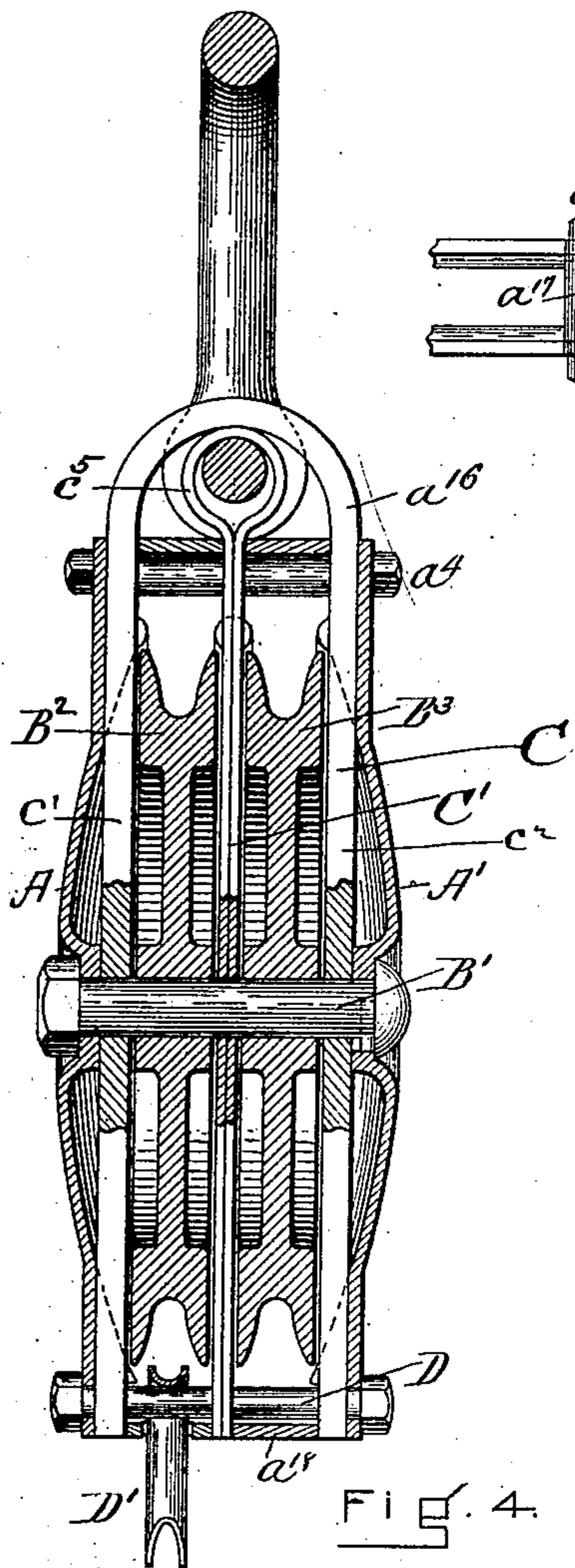
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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALFRED B. TARBOX, OF CHELSEA, MASSACHUSETTS.

WIRE-ROPE BLOCK.

SPECIFICATION forming part of Letters Patent No. 711,796, dated October 21, 1902.

Application filed April 24, 1902. Serial No. 104,439. (No model.)

To all whom it may concern:

Be it known that I, ALFRED B. TARBOX, a citizen of the United States, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Wire-Rope Blocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to the construction of wire-rope blocks; and it consists in a block so improved in the combination and organization of its various parts that it becomes not only lighter and more compact in its construction, but of a superior strength and durability.

For a detailed account of the improved features of my invention reference is had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 shows the single-sheave block mainly in cross vertical section. Fig. 2 shows the same mainly in central vertical section with the sheave removed. Fig. 3 shows a single-sheave block in horizontal cross-section. Fig. 4 shows a double-sheave block mainly in cross vertical section. Fig. 5 is a longitudinal vertical section through the center of the block. Fig. 6 is a partial cross-section of the double sheave on the line 6 6 of Fig. 5. Fig. 7 shows an elevation of the block with attached free hook. Fig. 8 is a plan of a portion of the lower end of the block, showing especially a modified form of the dividing-piece.

Referring to the drawings, I will first describe my invention as applied to a block having a single sheave and as represented specifically in Figs. 1, 2, and 3. A A' represent the side pieces or cheeks of the block. They are made of any suitable material, but preferably of cast-steel. Beyond the line which marks their mean periphery each cheek has the top and bottom extensions, respectively, a a' . Placed between these extensions and separating the cheeks at this point are the dividing-pieces a^2 a^3 , which have holes in them through which rivets a^4 may extend and be headed against the outside of the separated cheeks. These dividing-pieces are made comparatively thin, but are of suf-

ficient width to separate the two cheeks, so that there is formed the sheave-inclosing chamber, in which may be journaled the sheave B. The cheeks are made concaved in their formation, curving in to guard the edges of the inclosed sheave. (See Fig. 3.) The advantages of this construction are increased by the annular rib or bead a^5 , integrally cast with the cheek-pieces and which extends inwardly sufficiently to guard the outer edge or rim of the sheave and prevent the fraying and breaking of the strands of the wire rope by riding upon the edge of the sheave. It also holds the rope in place and eliminates any possibility of its riding off the sheave to become cramped between it and the sides of the block. It also reinforces and strengthens the cheeks or side plates at this point. Through the center of each cheek passes the sheave-pin or axle B', its headed end b and nut b' resting against the sides of the respective cheeks and contained within the cavities a^6 , which are formed by the casting. The cheeks are made relatively thick at this point to provide, primarily, a strong bearing for the sheave-pin and also to furnish sufficient stock to receive the key b^2 , which is attached to the head of the sheave-pin and which is received in the slot a^7 of the bearing as the bolt is inserted. This key b^2 holds the sheave-pin against any possibility of rotation and provides a fixed axle, on which the sheave may turn. The cheek-pieces A A' are also reinforced at this point, that they may offer a surface bearing to the hook or shackle-strap C. It will be observed, particularly by reference to Figs. 1 and 2, that this strap C, of whose functions a more detailed description will hereinafter be made, has a connecting head-bar c and the two arms c' c^2 , which extend diametrically across the inner surfaces of the cheeks, between them and the inclosed sheave, and through which the sheave-pin passes. Inasmuch as the cheek-pieces are concaved, the two arms of the strap do not rest against them along their entire inner surface, but have a bearing at their center at the points a^8 . The arms of the strap also bear alongside the cheek sides at the points a^9 a^{10} . Naturally the arms of the strap would come in contact with the narrowing cheek sides as they concave in to present

the headed guard beyond the periphery of the sheave. This, however, is provided for by so casting each side piece that it may extend out and around the respective arms of the strap when in place, and so provide mortised recesses, as it were, a^{11} a^{12} , (see Fig. 8,) into and along which the arms may extend and lie. By this construction the continuity of the casting of the cheek-pieces is preserved and the arms of the strap retained in permanent position. Furthermore, by so doing the block is given a compactness which could hardly otherwise be obtained.

The block is adapted to have a stiff swivel-hook, a shackle, or a loose hook attached to it, or, rather, the strap C, through which the connection is made. The strap C is made quite heavy in order to bear the great strain which comes upon it. The arms of the strap by extending diametrically across the block along the interior of the cheek sides gives them added strength, and in this connection it is to be observed that the cheek sides of my block, backed by the strap-arms and reinforced, as they are, at their centers and along their edges by the reinforcing rib or bead before made mention of, although they are cast comparative light, take on a rigidity and strength sufficient to withstand the rough usage to which they are subjected. The same end pieces a^2 a^3 which hold the cheeks in divided position hold also the strap-arms wedged apart, so that any drawing strain upon the strap will not draw the two arms together, so as to cramp the sheave. This may be seen by reference to Figs. 1 and 2, where the arms are shown as lying sufficiently within the recessed sections a^{11} a^{12} of the cheek sides as to extend down outside the dividing-pieces, which act as an inner bearing. Any tendency for the arms to bulge at their center is prevented by the sheave-pin acting as a connecting-bolt. The shape of the strap is therefore permanently assured. The strap extends but a short distance from the periphery of the block. This is especially true if a stiff hook be used, as may be seen by reference to Fig. 1, where the extension is no more than the width of the strap, the headed end of the hook being formed in the cavity a^{13} , made by the inturning of the dividing-piece a^2 . This practically brings the headed end of the hook within the block, which enables the hook to be set lower than has been common heretofore and shortens the length of the block. It is to be noticed in this connection that the extensions a of the side cheeks A A' are sufficient to provide a channel a^{14} between the dividing-piece a^2 and the groove of the sheave, permitting of the free running of the wire rope. For a stiff swivel-hook in order that a larger head may be formed upon the end of the hook to give it increased strength the cavity a^{13} may be increased in its capacity by bowing outward the strap-arms at the points c^3 , which is provided for in the casting of the side pieces A A' by in-

creasing the depth of its strap-holding recesses. The head also may extend deep into the cavity a^{13} by cutting an opening a^{15} in the dividing-piece a^2 .

If a shackle or loose hook be used, as may be seen by reference to Figs. 4, 5, and 7, inasmuch as the curvable connection is necessarily outside the block, the strap extends from the block sufficiently to provide a loop a^{16} , through which a connection may be made with the hook or shackle; also, when the connections are made outside the block, as with the shackle or loose hook, the extensions a of the cheek-pieces are not so extended as they would be if the cavity for the headed end of a stiff hook had to be provided for, as before explained. The division or separating pieces a a' are also alike in their construction.

In Figs. 4, 5, and 6 I have represented my invention as applied to a block having more than one sheave, two sheaves being shown. The construction of the cheek-pieces are the same as with the single sheave. They are separated, however, a sufficient amount to receive the two sheaves B² B³, the arms c' c^2 of the encircling strap C, together with the strap C', and plates A² A³, which are interposed between the two sheaves. Instead of employing a single division-piece to hold the cheeks in their separated position, as with the single sheave, the division-pieces a^2 a^3 are made in two sections, receiving between them the strap C' and the interposed plates A² A³. The division-pieces a^2 a^3 may be of the form used in connection with cheeks inclosing a single sheave; but I much prefer the form shown in Fig. 8, where the pieces are made in separate parts a^{17} a^{18} , each part having practically the formation of a tube or sleeve, which not only marks the degree of separation of the inclosing cheeks, but through whose hollow interior passes the bolts a^4 , which bind the two cheeks together, and so form the sheave inclosure. The form of the division-pieces shown in Fig. 8 may also be used, as represented, with a block having a single sheave. The plates A² A³ when in position comprise an annular ring interposed between the two sheaves. Between them, however, passes the strap C'. The plates A² A³ extend at their ends sufficiently to lie between the dividing-pieces a^2 a^3 , and so are held in place by the bolts a^4 , which must necessarily pass through them. The plates are quite thin and have along the outer edges, extending from both sides, the sheave-protecting rib or bead c^4 .

The strap C' is made relatively thin, that it may extend with double thickness through the center of the block and at its end form the loop c^5 inside the turn of the outer strap C. The sheave-pin passes through it, so that practically it acts as a reinforcement to the outer strap C and also strengthens and reinforces the whole block along its center.

For attaching a wire rope to the end of the block a bolt D is thrust through the side pieces and arms of the strap or straps. A

becket D' may be placed upon this bolt, about which the rope may be spliced. In order that free access may be had to the becket, a slotted opening *d* is cut in the dividing-piece *a*³, through which the becket hangs. In case the piece is made in two parts, as in Fig. 8, a free access to the becket is of course obtained. By thus hanging the becket it is brought well up into the block, and the connecting-bolt D, upon which it hangs, by connecting the cheeks and the strap-pieces, as it does, adds to the strength and stability of the entire lower portion of the block.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The block herein described having a shell comprising cheeks, with an annular sheave-protecting guard along their inside outer edge, and end extensions beyond said annular guard, and division-pieces attached to said cheeks between said extensions, substantially as described.

2. The block herein described with cheeks concaved in to offer a sheave-protecting guard along their inside outer edge, means for dividing said cheeks to form the sheave-inclosed chamber, and a strap the arms of which extend alongside the inner cheek-surfaces to make attachment with a sheave-pin, substantially as described.

3. The block herein described with cheeks concaved in to offer a sheave-protecting guard along their inside outer edge, means for dividing said cheeks to form a sheave-inclosed chamber, and a strap the arms of which extend alongside the inner surfaces of said cheeks to make attachment with a sheave-pin, and which straps are contained in and inclosed by the recess formed in the casting of said cheeks, substantially as described.

4. The block herein described having cheeks concaved in to form an annular sheave-protecting guard along their inside outer edges, and with end sections extending beyond said annular guards, pieces attached to and adapted to separate the cheeks between the end extensions, and a shackle-strap the arms of which are adapted to extend down outside the division-pieces aforesaid and alongside the respective cheeks to make attachment with the sheave-pin, substantially as described.

5. The block herein described having cheek-pieces concaved in to form an annular sheave-protecting guard along their inside outer edge, with also a central cavity for the headed end and nut respectively of the connecting-sheave pin, said sheave-pin and means for retaining it in a fixed position, substantially as described.

6. The block herein described having cheeks provided with end extension-pieces adapted to be inserted between the end extensions of said cheeks for retaining the said cheeks in their sheave-inclosing position, a

connecting-sheave pin, a strap, the arms of which make engagement with said sheave-pin, and a hook adapted to be headed beneath the cross-bar of said strap and within the block, substantially as described.

7. The block herein described having cheeks concaved in to offer an annular sheave-protecting guard along their inside outer edge, and with end extensions extending beyond said annular guard, pieces attached to and adapted to separate the cheeks between the end extensions, a strap, the arms of which are adapted to extend down alongside the inner side of said cheeks to make engagement with a sheave-pin, and a hook headed beneath the cross-bar of said strap within the cavity formed in the division-piece, substantially as described.

8. The block herein described having cheeks concaved in to offer an annular sheave-protecting guard along their inside outer edge, means for separating the said cheeks and retaining the same in position, a strap, the arms of which extend down alongside the inner side of said cheeks to make engagement with a sheave-pin, and which makes a loop outside the block, substantially as described.

9. The block herein described having cheeks concaved in to offer an annular sheave-protecting guard along their inside outer edge, means for retaining said cheeks in a separated position, a plurality of sheaves contained within said inclosing cheeks, division-plates between said sheaves provided along their outer edges with a sheave-protecting bead or rim, and means for retaining said division-plates in position, substantially as described.

10. The block herein described having cheeks concaved in to offer an annular sheave-protecting guard along their inside outer edge, means for retaining said cheeks in a separated position, a plurality of sheaves contained within said inclosing cheeks; a sheave-pin providing a common axle for said sheaves, division-plates provided with guard-rims for protecting said sheaves, with means for their retention, and straps interposed between and alongside said sheaves to make attachment with the said sheave-pin and provide loops without the block, substantially as described.

11. The block herein described having sheave-inclosing cheek-pieces, provided with end extensions, dividing-pieces attached to and separating the said cheek-pieces between the end extensions, a strap, the arms of which extend diametrically across said block outside said division-pieces, a bolt passing through said cheeks and arms at their extensions at the end of the block, and a becket suspended thereon within the block, substantially as described.

ALFRED B. TARBOX.

In presence of—

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J. M. DOLAN.