

No. 628,815.

Patented July 11, 1899.

C. W. KEARNS.
DERRICK.

(Application filed June 11, 1898.)

(No Model.)

3 Sheets—Sheet 1.

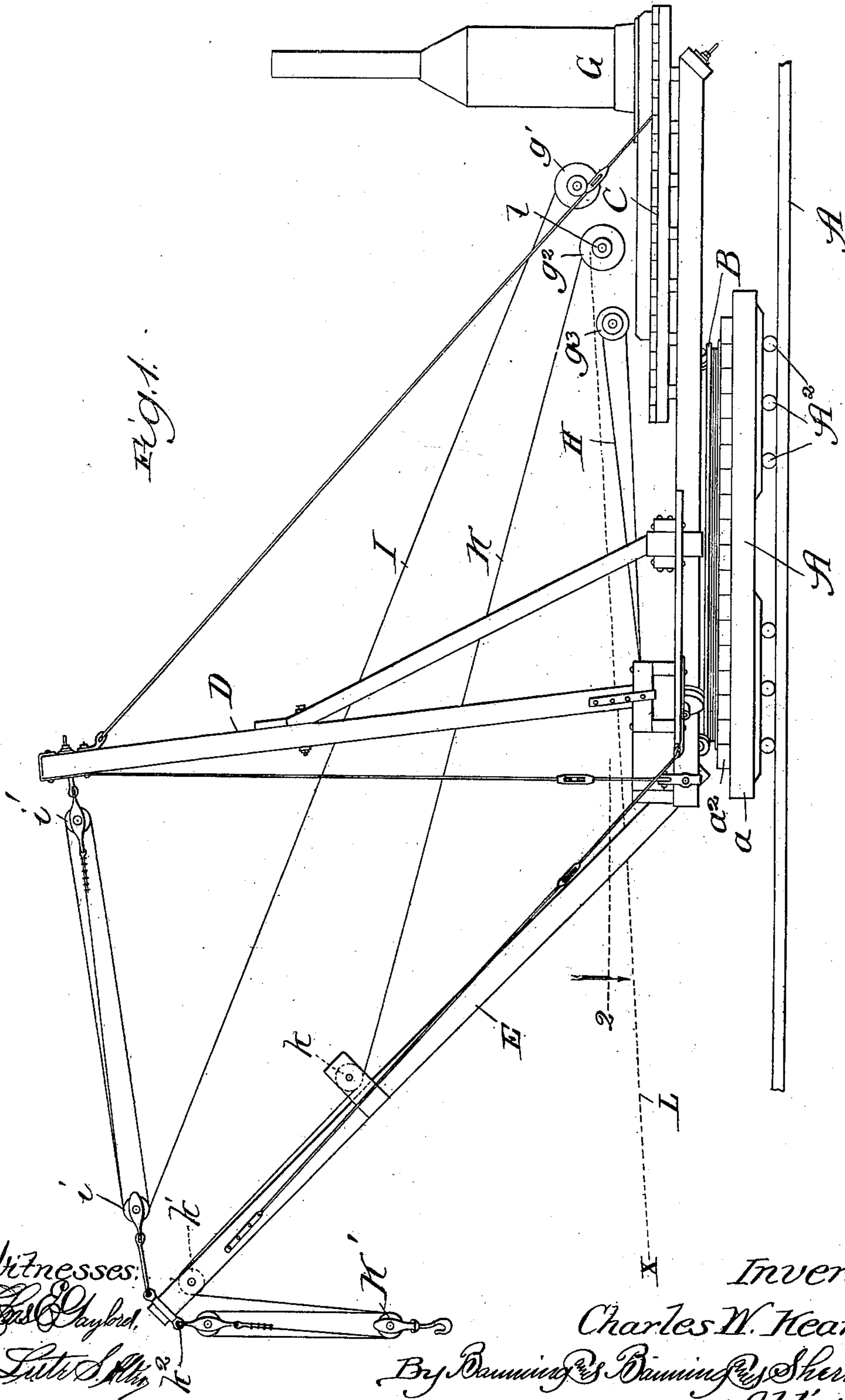


Fig. 1.

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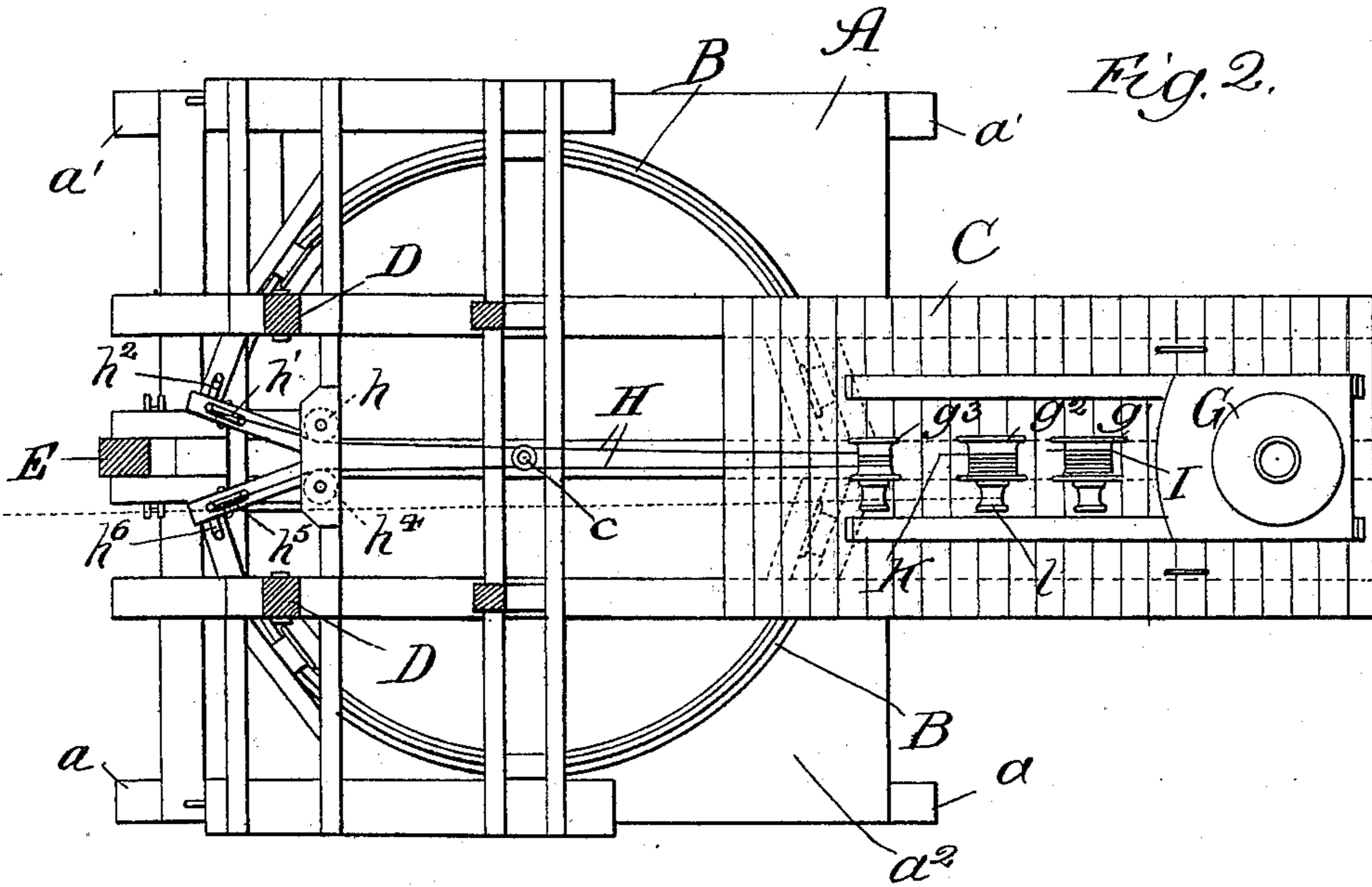


Fig. 2.

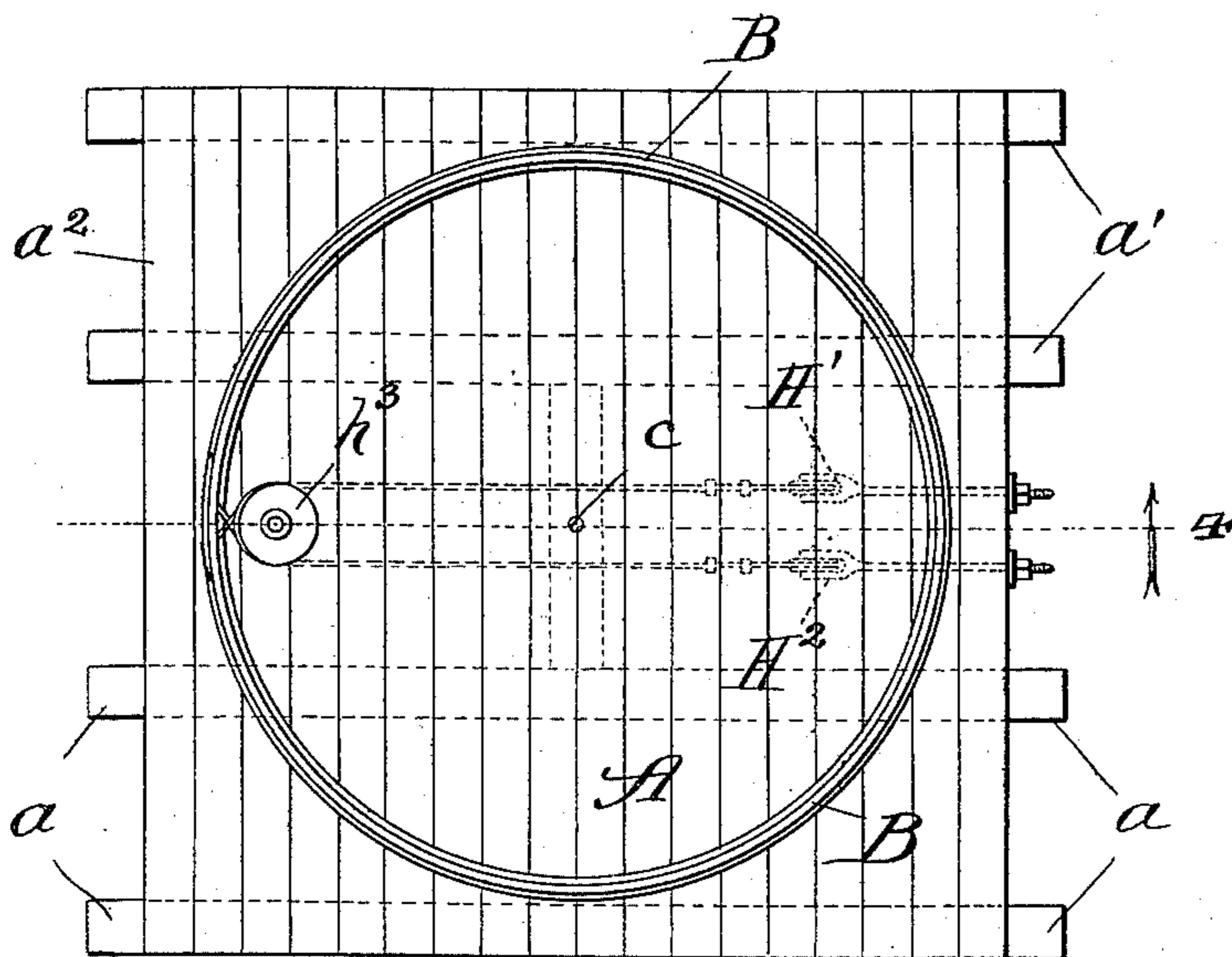


Fig. 3.

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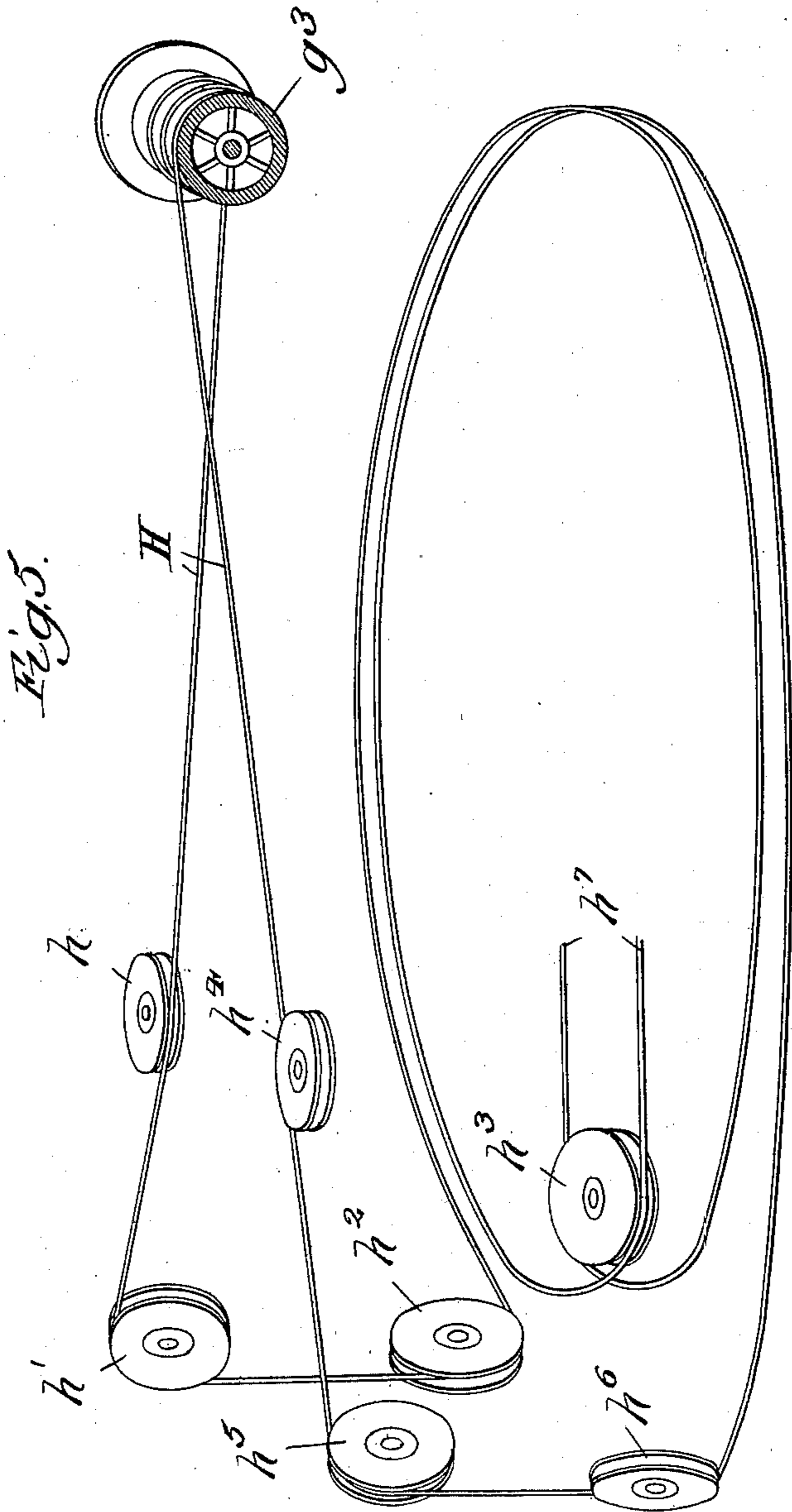
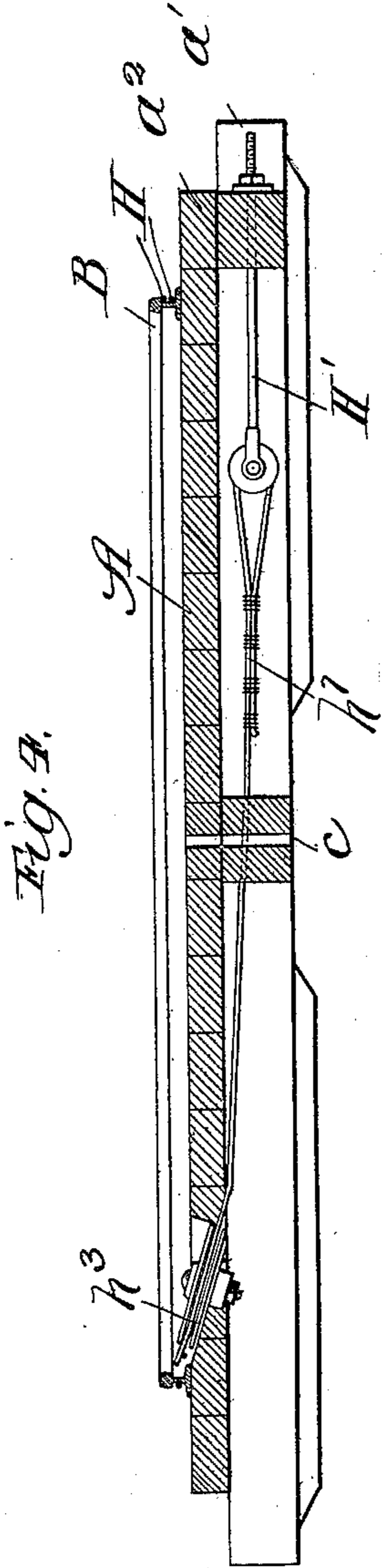
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UNITED STATES PATENT OFFICE.

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DERRICK.

SPECIFICATION forming part of Letters Patent No. 628,815, dated July 11, 1899.

Application filed June 11, 1898. Serial No. 683,222. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. KEARNS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Derricks, of which the following is a specification.

My invention relates to that class of derricks which are arranged for use with a prime mover in the shape of a steam-engine, and particularly to that class of derricks known as "turn-table" derricks, and has for its object the providing of a simple, economical, and efficient turn-table derrick.

The invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a derrick constructed in accordance with my improvements; Fig. 2, a plan view of the same with the mast, boom, and some other parts removed; Fig. 3, a plan view of the supporting-platform upon which the turn-table rests; Fig. 4, a sectional elevation taken on the line 4 of Fig. 3; and Fig. 5, a diagrammatic view of the means for swinging the turn-table.

In the art to which this invention relates it is well known that the turn-table derricks now in use are constructed largely of metal beams and castings, and as a consequence when any of such parts become worn or broken it is necessary to send them to the factory for "shop repairs." This is a serious objection in that it involves considerable expense, as well as loss of time, which may be a most important factor in that contractors are often required to finish their work at or before a stated time.

The principal object of my invention, therefore, is to remove these objections and to provide a simple, economical, and efficient turn-table derrick which may be constructed of or repaired with ordinary commercial wood timber, such as is found in any lumber-yard and such as may be kept in stock without any large expenditure of money.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

In constructing a derrick in accordance

with my improvements I make a supporting-platform A and form it of two longitudinal supporting-timbers a and a' , upon which the transverse floor-boards a^2 are laid, the whole forming a structure in the shape of a skid. This supporting-platform is adapted to run on tracks or "ways" A' by means of the cylindrical rolls A^2 , which are interposed between the platform and the ways, so that the platform may be moved backwardly and forwardly as seems desirable or necessary.

For the purpose of supporting the turn-table I provide the platform with a circular track B, formed, preferably, of the ordinary railway-rail, which, as is well known, in cross-section shows a channel on each side formed by the head and web flange portion. Upon this circular track the turn-table C is supported, as shown particularly in Figs. 1 and 2, and has its pivotal point in the platform at c at or near the geometrical center of the track, as shown particularly in Fig. 3. To the turn-table is secured the mast D and the boom E, both of which are formed of ordinary commercial wood timber. The boom, as is well known, is used to support and move the load to or from the center of the turn-table. Upon the platform is also secured in any suitable manner a hoisting-engine G, having three drums g^1 , g^2 , and g^3 , all of which will be more fully hereinafter described.

In order to swing the turn-table, with its load, so as to carry it from one place to another, I provide a cable or similar element H and pass it around the drum g^3 . This cable is then passed over the sheave-pulleys $h h' h^2$ and down through the structure and around the track B and in the outside channel thereof, as shown particularly in Fig. 4, and thence around the idler-roll h^3 , one end being secured to the platform by means of the yoke H^1 . A second portion of the cable is passed around the sheave-pulleys $h^4 h^5 h^6$, thence around the outside channel in the track, down through the platform, and around the idler-pulley h^3 , and has its end h^7 secured to a second yoke H^2 . It will be seen from this arrangement that when the engine is operated so as to rotate the drum g^3 in one direction one portion of the turn-table cable is wound up and the other unwound, so as to rotate the

table in one direction. An opposite rotation of the drum g^3 will swing or rotate the turn-table in the opposite direction.

It is often desirable and necessary to bring the load nearer to the track or move it over from the track, and in order to accomplish this result it is necessary to raise or lower the boom. In order to do this, a cable I is provided, one end of which is secured to the drum g' , from whence it is allowed to pass through a pulley-block i , which is secured to the outer end of the boom, thence around and through a pulley-block i' , which is secured to the upper end of the mast, then again around the pulley i , and back to the pulley i' , to the block of which it is secured, so that as the boom-cable is wound up the boom is raised and as such cable is unwound the boom is permitted to fall.

In order to raise and lower the load when it is desirable or necessary, a third cable K is provided, one end of which is passed around the drum g^2 , from whence it is passed through an idler-pulley k , secured at any desirable location on the boom, thence over a second idler-pulley k' at or near the upper end of the pulley, and through the block and tackle K' , of which it forms a part and which is secured at k^2 to the upper end of the boom. It will thus be seen that when this drum g^2 is operated the cable is either wound up or released, and as a consequence the load is either raised or lowered.

It is oftentimes desirable to shift the position of the derrick, and in order to do so a cable L is provided, one end of which may be secured to a stake driven in the ground at a point X and the other end passed around a nigger-head l on one of the drums, as shown particularly in Fig. 2. By winding up the cable on this nigger-head the derrick may be moved on its skids to the desired position.

From the foregoing description of construction and operation it will be seen that the parts are constructed of ordinary commercial timbers, and when one becomes worn, destroyed, or broken it is not necessary to send it to the factory for shop repairs. All that is needed is to have a carpenter take a piece of timber of the desired size and fit it into position to replace the old, worn out, or destroyed piece, all of which can be done quickly and economically. A further advantage is that the first cost of construction is considerably less than where the derrick is formed of metal castings and steel or iron beams. It is also considerably lighter than such metallic structures and fully as efficient in operation. A further advantage, which is a material one, is that the derrick may be taken apart and easily shipped to a desired point, where it can be again erected and put in position with the assistance of an ordinary carpenter.

I claim—

1. In mechanisms of the class described, the combination of a supporting-platform, a circular track arranged thereon, a turn-table

mounted on the circular track, a hoisting-engine on the turn-table, and a cable cord or similar element connected to such engine and rove around the circular track and the ends thereof so secured to the supporting-platforms as to secure a complete rotation of the turn-table, substantially as described.

2. In mechanisms of the class described, the combination of a supporting-platform formed of timbers arranged longitudinally with the floor portion laid thereon and transversely thereof so as to form a skid, a circular track formed of a railway-rail arranged on the supporting-platform, a turn-table mounted on such track having its pivotal point at the central portion thereof, a hoisting-engine on such turn-table, and a cable cord or similar element secured to a drum on the hoisting-engine and passed around the outer channel in the circular track having its ends so secured to the supporting-platform as to secure a complete rotation of the turn-table, substantially as described.

3. In mechanisms of the class described, the combination of a supporting-platform formed of wood timbers, a circular track formed of a railway rail or rails laid thereon, a turn-table mounted on such circular track and having its pivotal point at or near the center thereof, a hoisting-engine on such turn-table, a mast secured to such turn-table and formed of wood timber, a boom pivotally connected to the turn-table so as to have its outer end raised or lowered, and cable mechanism attached to the hoisting-engine and secured to the boom so as to raise and lower the same and also passed around the circular track and the ends thereof so secured to the platform as to secure a complete rotation of the turn-table, substantially as described.

4. In mechanisms of the class described, the combination of a supporting-platform formed of wooden timbers, a circular track formed of a railway rail or rails laid thereon, a turn-table mounted on such circular track and having its pivotal point at or near the center thereof, a hoisting-engine on such turn-table, a cable cord or similar element secured to a drum on the hoisting-engine and passed around the outer channel in the circular track having its ends so secured to the supporting-platform as to secure a complete rotation of such turn-table, a mast secured to such turn-table and formed of wood timber, a boom pivotally connected to the turn-table so as to have its outer end raised or lowered, cable mechanism attached to the hoisting-engine and secured to the boom so as to raise and lower the same, and a block-and-tackle falls secured to the outer end of the boom and having its cable or rope secured to the hoisting-engine to raise and lower a load as desired, substantially as described.

5. In mechanisms of the class described, the combination of a supporting-platform, a circular track formed of railway-iron laid thereon, a turn-table mounted on such circular

track and having pivotal connection with the platform at or near the center of the track, a mast formed of wood timber secured to the platform, a boom formed of wood timber pivotally secured to the platform so as to permit the raising and lowering of its outer end, a block-and-tackle mechanism secured to the outer end of the boom to raise and lower a load, a hoisting-engine on such turn-table provided with three winding-drums, a cable passed around the channel in the circular track and having its ends so secured to the

supporting-platform as to secure a complete rotation of the turn-table, a cable connected to the second of such winding-drums and to the boom portion to raise and lower the boom, and a cable secured to the third of such winding-drums and the block-and-tackle mechanism to raise and lower a load, substantially as described.

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