

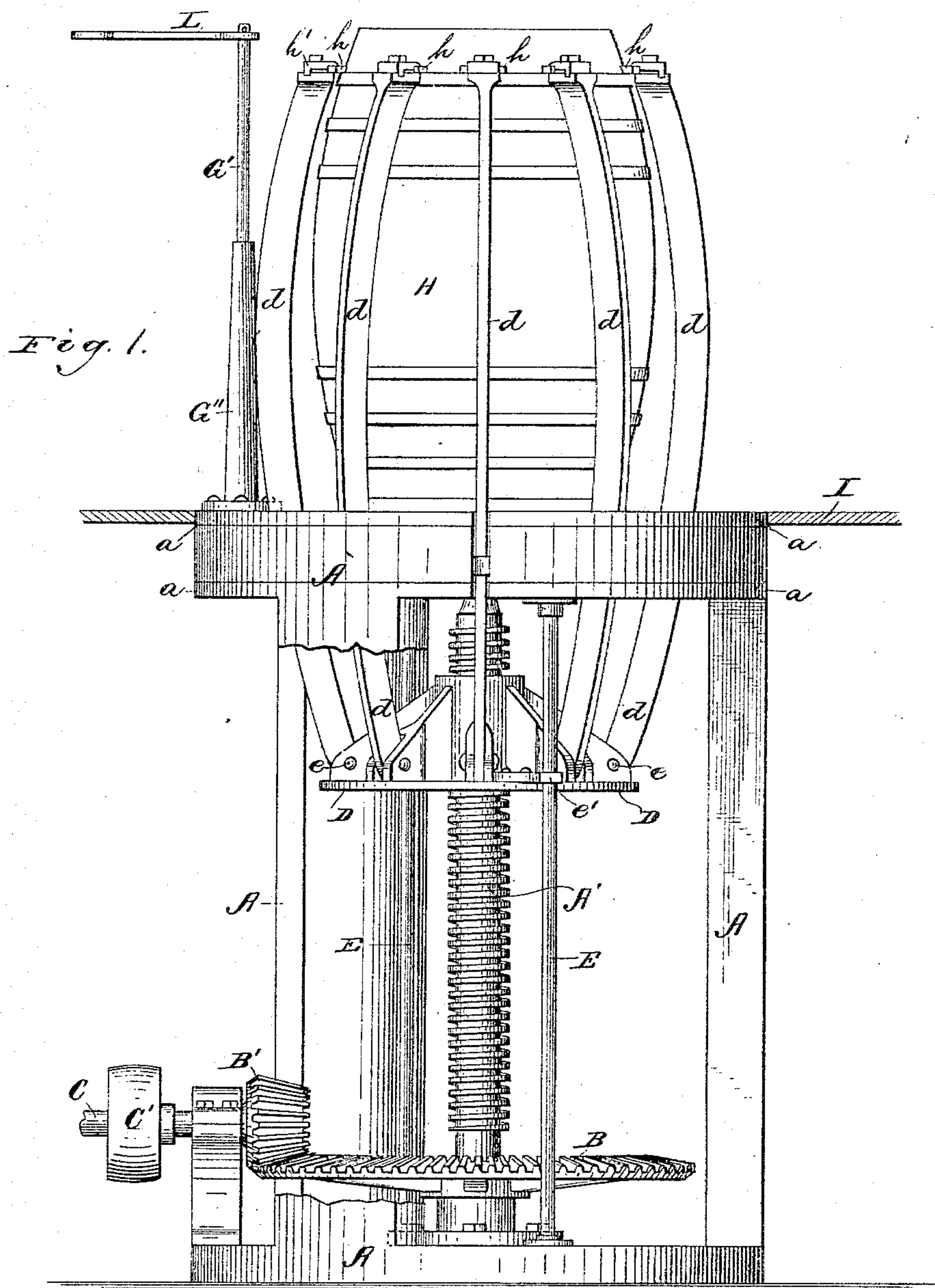
(No Model.)

4 Sheets—Sheet 1.

E. A. DELANO.
MACHINE FOR HOOPING BARRELS.

No. 323,565.

Patented Aug. 4, 1885.



Witnesses.

Henry Frankfurter.
Sam B. Dover.

Inventor.

Eben A. Delano
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Attorneys.

per.

(No Model.)

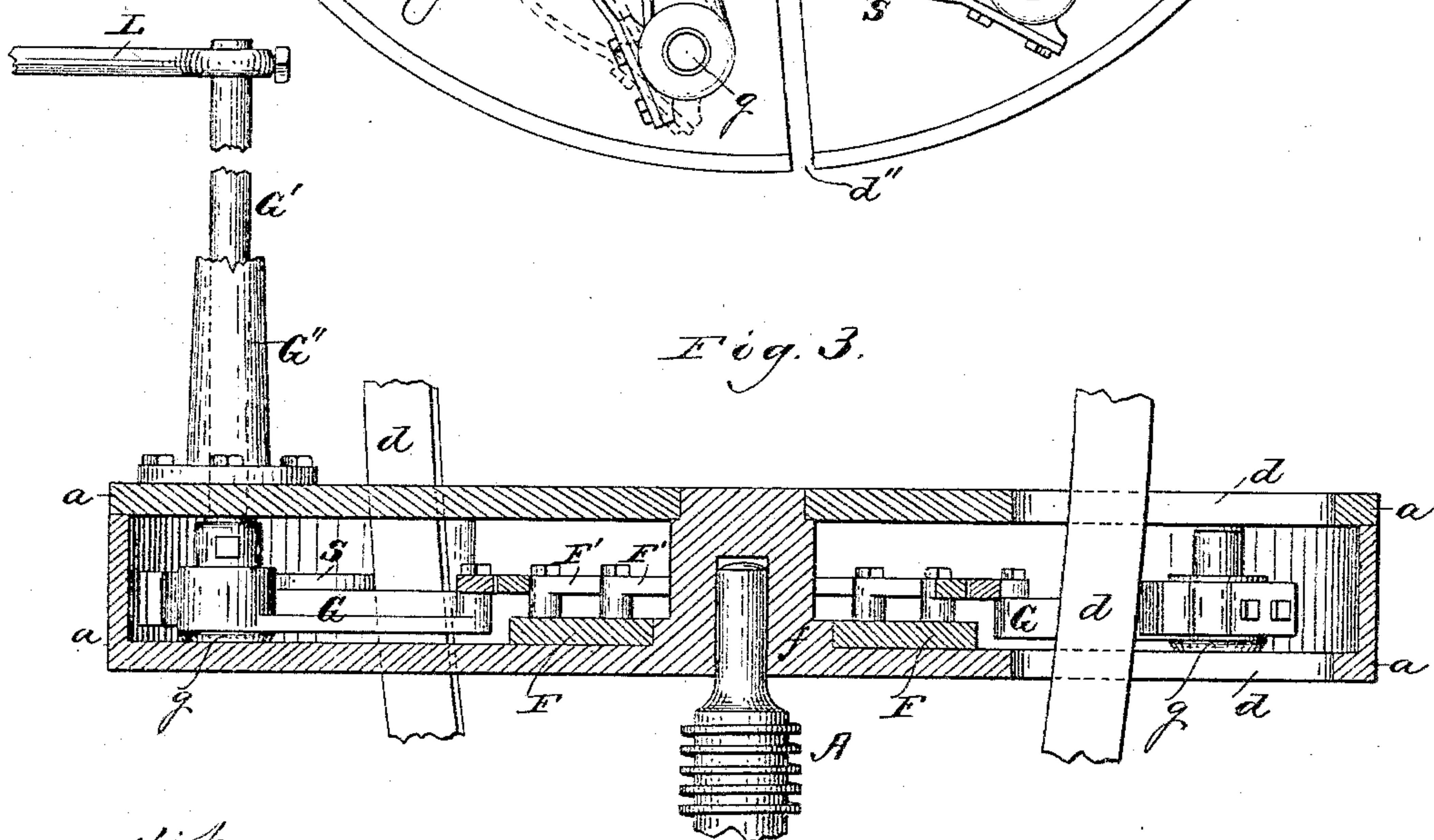
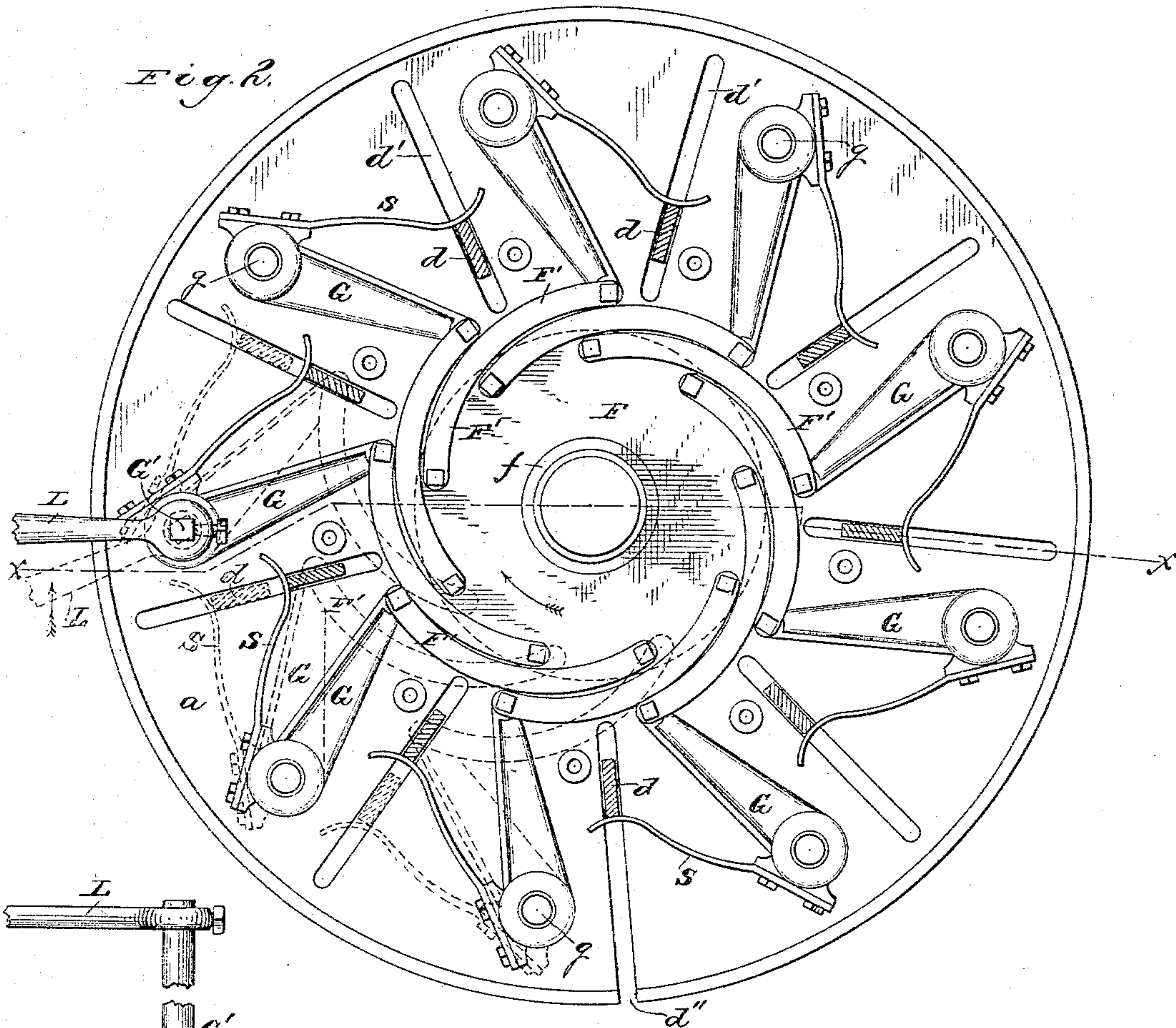
4 Sheets—Sheet 2.

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MACHINE FOR HOOPING BARRELS.

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Patented Aug. 4, 1885.



Witnesses.
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(No Model.)

4 Sheets—Sheet 3.

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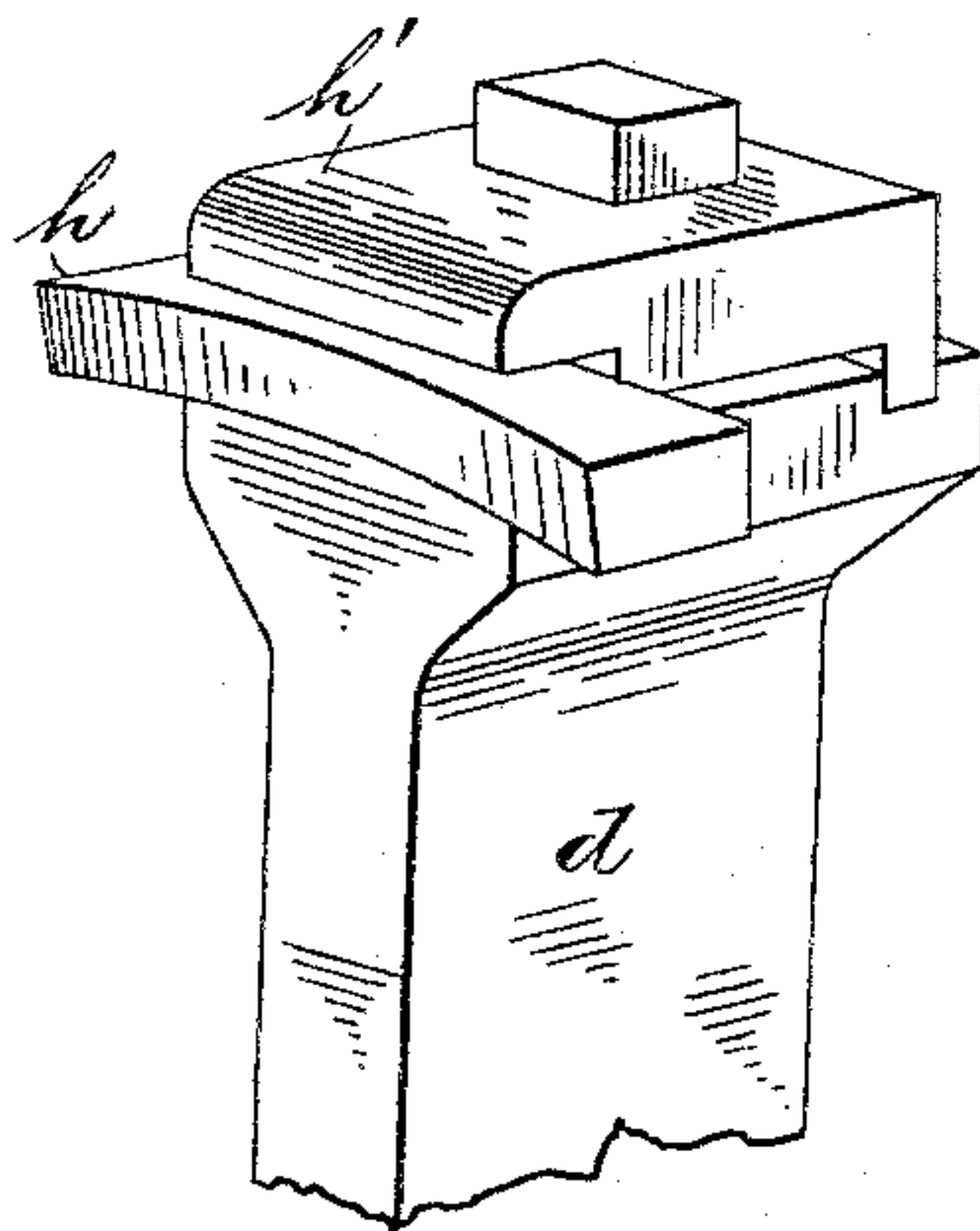


Fig. 4.

Fig. 5.

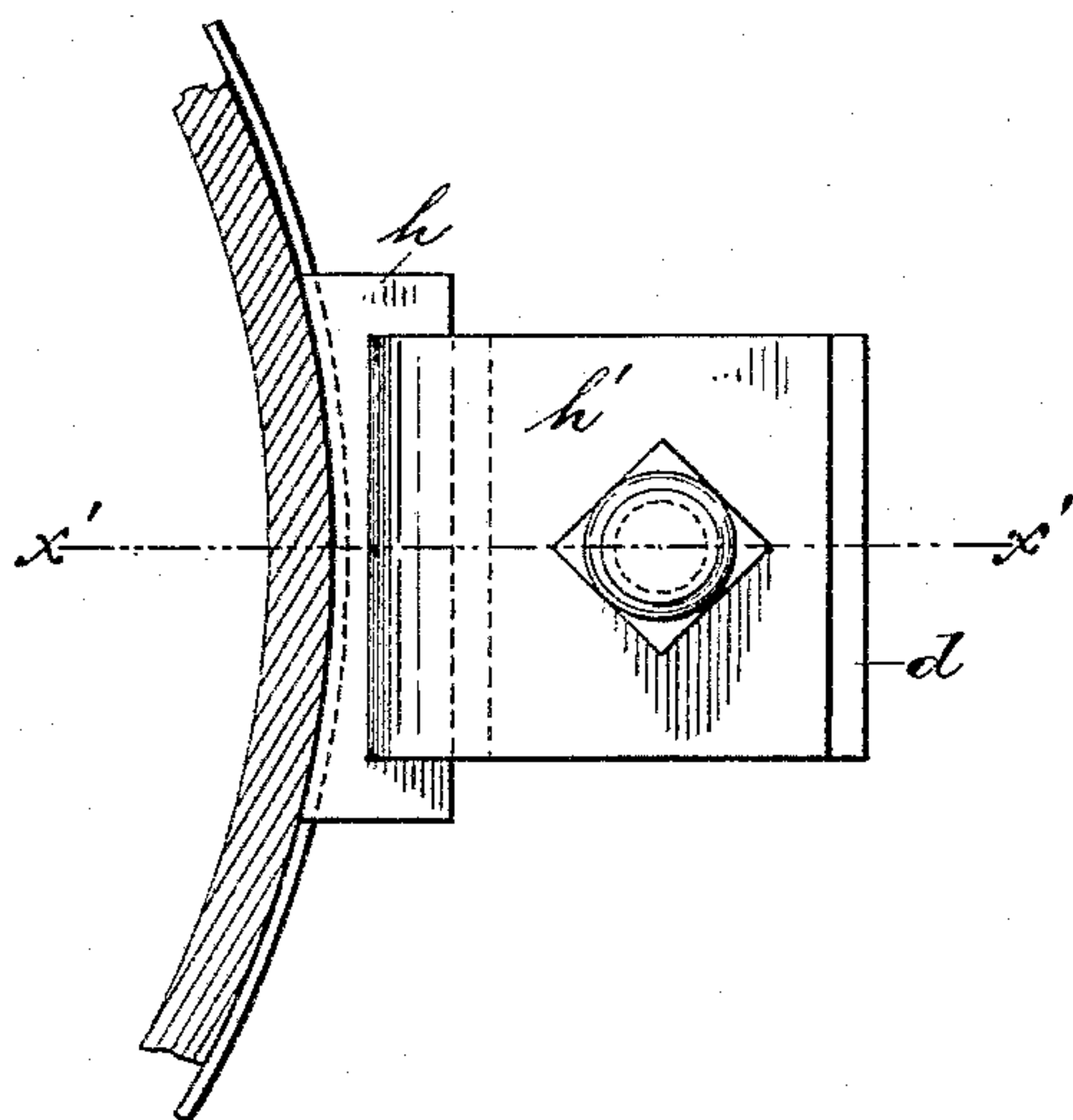
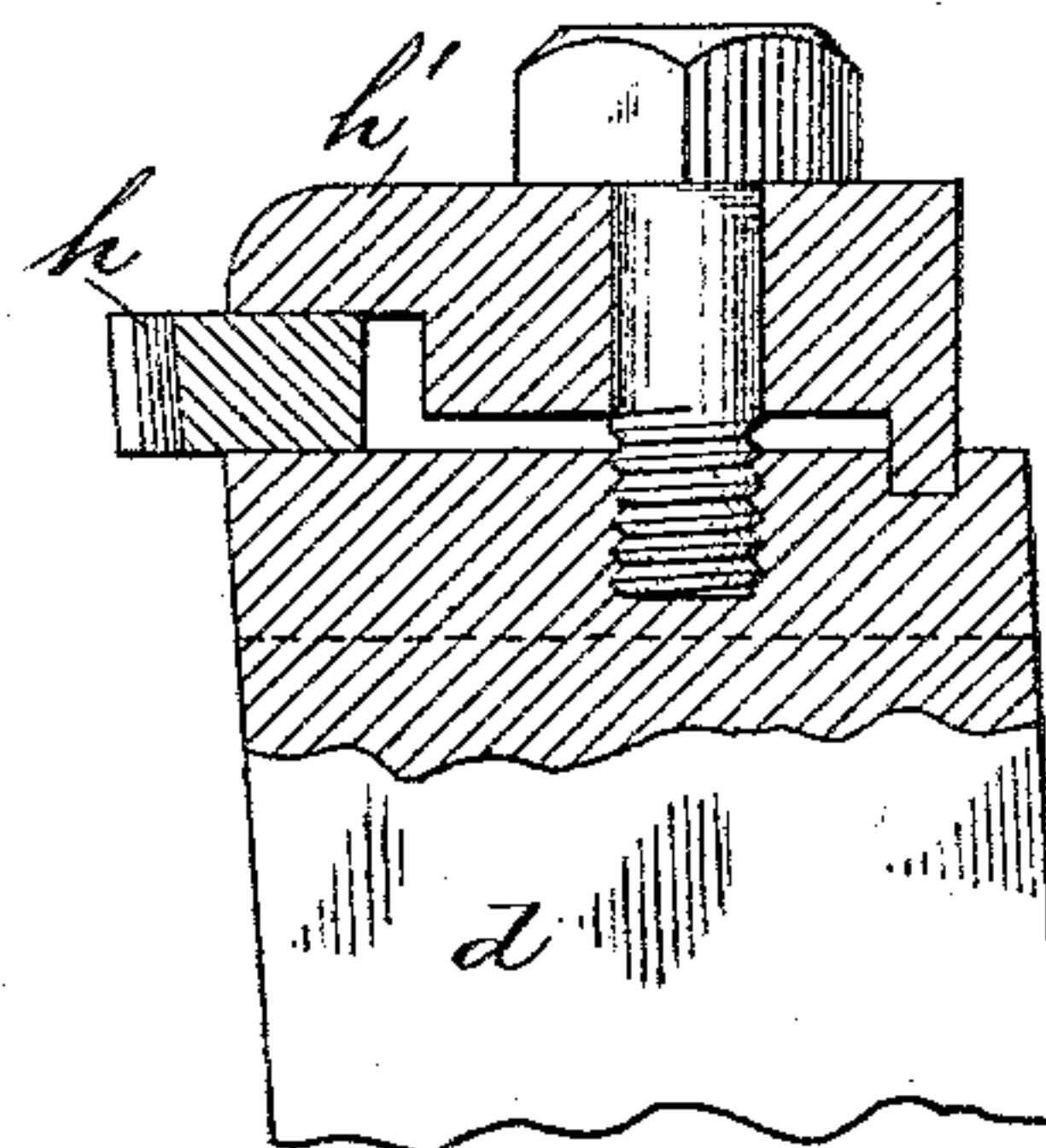


Fig. 6.



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(No Model.)

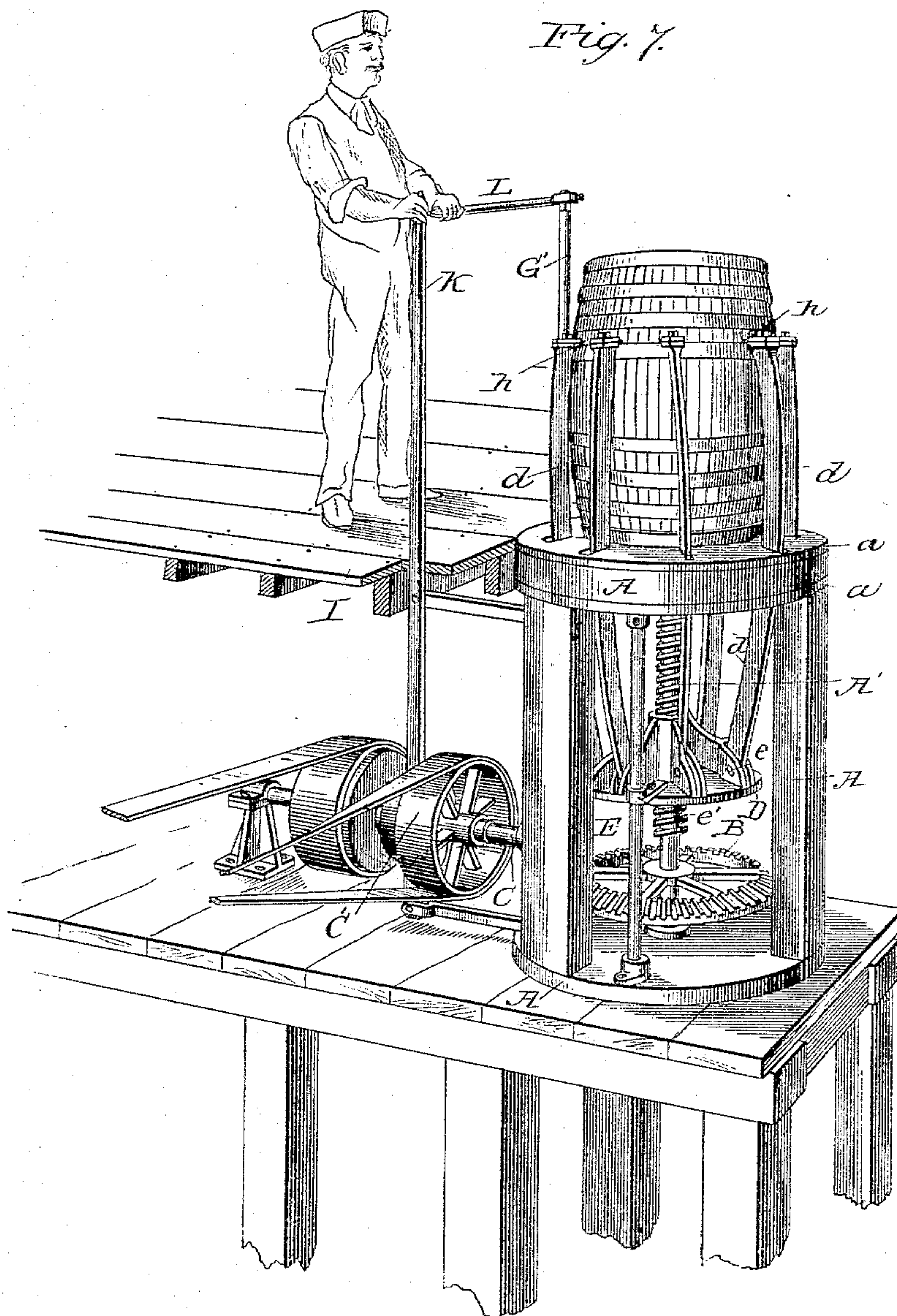
4 Sheets—Sheet 4.

E. A. DELANO.

MACHINE FOR HOOPING BARRELS.

No. 323,565.

Patented Aug. 4, 1885.



Witnesses.
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UNITED STATES PATENT OFFICE.

EBEN A. DELANO, OF CHICAGO, ILLINOIS, ASSIGNOR TO DANIEL W. RYAN,
OF SAME PLACE.

MACHINE FOR HOOPING BARRELS.

SPECIFICATION forming part of Letters Patent No. 323,565, dated August 4, 1885.

Application filed October 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, EBEN A. DELANO, of Chicago, State of Illinois, have invented a new and useful Machine for Hooping Barrels, of which the following is a specification.

My invention relates to improvements in barrel-hooping machines in which vertically-reciprocating arms are employed to draw the hoops on the barrel; and the objects of the invention are to adapt the arms to take hold of and operate upon the hoops in drawing them on the barrel, and to regulate the movement and operation of the arms.

The accompanying drawings illustrate the mechanism employed to attain these objects.

Figure 1 shows a side elevation of a machine containing the invention. Fig. 2 shows an enlarged plan or top view of a portion of the machine. Fig. 3 is a vertical section on line $x x$ of Fig. 2. Fig. 4 is an enlarged perspective view of a detached part. Fig. 5 shows a top view of Fig. 4 in connection with a portion of a barrel and its hoop. Fig. 6 is a vertical section on line $x' x'$ of Fig. 5. Fig. 7 is a perspective showing the manner of operation.

The machine comprises a stout frame, A, in which is journaled a screw-shaft, A', provided with a wheel, B, which connects with a gear, B', on a shaft, C, which is provided with a pulley, C'.

The parts thus far referred to are not substantially different from what has heretofore been used.

D represents the support for the drawing-arms d , which are pivoted to the support at e and extended up through slots d' in the top plates, $a a$, of the frame. This support has a screw-opening in the center, corresponding with the screw-shaft, through which the shaft passes. It also has two or more lugs or ears, e' , having holes or slots, which operate, in connection with rods or bars E, to allow the support to slide or be moved up and down by the rotation of the screw-shaft, but prevent its turning therewith.

Fig. 2 shows the uppermost of the top plates a removed for the purpose of showing the interior mechanism employed to regulate the inward movement of the arms. This mechanism

consists of a plate, F, arranged to turn on the part f , or a central pivot with links F', pivotally connected at one end of the links in a circle on the plate. The outer ends of the links are pivotally connected each to a crank or lever, G. These cranks are pivotally secured to the nether of the plates a , in a circle near the outer edge, at g , so that their inner ends may move back and forth. Springs S are secured to the cranks so as to extend across the slots d' and rest against the back of the arms d . One of the cranks G is fixed to a shaft, G', at the pivotal point g , which shaft extends up through the uppermost of the top plates a and a short tube, G'', or other device designed to give the shaft lateral support and permit it to be turned, and is provided with a hand-lever, L, at the top. The arms d are placed nearer to the center at the bottom than at the top, so that they will always incline outward of their own weight and rest against the springs S. The tips of the arms are each provided with a hardened steel die or hoop-driver, h , whose surface upon the side next to the barrel describes the arc of a circle corresponding to the mean of the different circles of the barrel between the end and bilge, and is slightly beveling or tapering, so as to fit against the tapering circular surface of the barrel and present a projecting sharp corner of considerable length in the arc of a circle, so as to take a wide hold on the thin curved edge of the hoops while the face of the driver is resting against the barrel in such manner as to prevent the corner from cutting into the stave when the driver is pressed inwardly with sufficient force to prevent its slipping off the hoops. The bevel or taper in the face of the drivers need not, however, extend over the whole of the face. A portion of the face next to the corner or hoop-catching edge so tapered would be sufficient to prevent the corner from cutting the stave, and that is all that is required, the essential thing being that the corner shall work close to or against the stave but not cut into it. These dies are secured by a cap, h' , held down by a screw-bolt passing through the cap and into a threaded hole in the end of the arm. They are thus made detachable, and may be

readily replaced in case of breakage, and adjusted laterally on the arms to make the arcs nicely conform to the circle of the barrel. One of the slots, d' , as seen at d'' , is extended through, so that the corresponding arm may pass outward sufficiently beyond the others to allow a barrel to pass in between the two adjacent arms when thrown back against the outer end of their respective slots.

The machine is set sufficiently below the floor I of the operating-room to bring the uppermost of the top plates a about even with the floor; and the lever L projects toward the shifting-lever K, employed in connection with the usual well-known pulley devices for reversing the motion of machines driven by pulleys, so that the two levers shall be within reach of the operator at the same time, as illustrated in Fig. 7.

By giving motion to the screw-shaft in one direction the support D is drawn down and in the other it is elevated, and thereby the movement of arms d is reciprocated up and down.

By means of the lever L and its connection with one of the cranks G, which cranks are all connected by the links F' to the center plate in the manner shown, the springs S may be all simultaneously moved or swung back beyond the outer ends of the slots d' , so that the arms will fall back in the slots. The arm in the slot which is extended, as at d'' , will fall back further than the rest, and the barrel to be hooped is put in on the top plate at the point between the adjacent arms. This arm is now moved in by hand until it will be caught by the spring, and the lever L is then turned in opposite direction, and moves the springs in together, so that all the arms are thereby simultaneously moved in together, and held by a yielding pressure against the barrel, the arms which first come against the barrel moving it in until met by those on the opposite side. The barrel is thus adjusted into position to be hooped, and held while being hooped by the inward pressure of the arms.

The screw-shaft set in motion in the direction to draw the arms down, and the hoop-drivers being brought into position on the hoops, draw them down on the barrel by a slow motion under the control of the operator. This operation is repeated with respect to each hoop to be driven on the upper end of the barrel, and the barrel is then inverted and the other end hooped in the same manner. A reverse motion of the screw from that required to draw the hoops down on the barrel raises the hoop-drivers to the proper elevation to catch the top edge of the hoop.

I am aware that reciprocating arms carrying hoop-drivers have heretofore been employed in machines for driving on the temporary truss-hoops, which are made considerably thicker and stouter in every way than the finishing or permanent hoops, so that a square notch in or projecting from the inner side of the arms without much width of contact on

the truss, and not working closely against the barrel, will have place for ready engagement, and may be employed in drawing them on; but such drivers cannot be practically used to drive on the finishing or permanent hoops, which are much thinner and in every way weaker than the truss-hoops, and to drive them on requires special drivers adapted to take a wide hold on the thin edge of the hoop and work close to the outer circular tapering surface of the barrel without cutting or abrading it, and also that such drivers should be held to their work by a uniform yielding pressure against the barrel with sufficient force to hold and drive the hoops on, but not enough to break them, or cut or mar the outer surface of the staves. To meet these requirements is the design of my invention. The arms are provided with hoop-drivers adapted to take a wide hold on the thin edge of the hoop, and the segmental beveled or tapering face of the drivers not only allows the projecting corner of the driver to be engaged with the thin hoop, but causes the driver to pass over the surface of the barrel without cutting or abrading it when under the necessary inward pressure against the barrel to prevent them from slipping off the hoops, and the pressure of the arms inwardly against the barrel is not only made yielding by springs, but the arrangement or combination of the lever with the springs is such that more or less or the same amount of spring force may be applied inwardly upon the arms without regard to their position as to being more or less extended outwardly within the slots, so that the operator during the operation of drawing on the hoops by means of the lever can apply the requisite force to hold the drivers on the hoops to drive them, but not enough to break them in the operation, the drivers being allowed to slip off by slacking the lever before breaking the hoops.

What is claimed, is—

1. In a barrel-hooping machine, a reciprocating arm-support, as D, having arms d , provided with hoop-drivers, in combination with springs applied against the back of the arms, and a hand-lever, as L, having a link-connection with the springs, the arrangement and relation of the lever and springs being such that the inward pressure of the springs upon the arms may be increased or lessened through the medium of the lever without changing the position of the arms, substantially as specified.

2. In a barrel-hooping machine, the driving-arms, as d , provided with hoop-drivers made of steel and having a sharp projecting corner extended in the arc of a circle, in combination with an inclined or beveling face adapted to fit closely against the outer circular tapering surface of the barrel when the corner is resting on the thin curved edge of the hoop in the act of driving it on the barrel, substantially as specified.

3. In a barrel-hooping machine, the support D, having arms d hinged thereto, in combi-

5 nation with one or more top plates, *a*, having slots *d'*, the pivotal points of the arms on the support being placed nearer the center than the inner ends of the slots *d'*, so that the arms will at all times incline outward at the top, substantially as specified.

10 4. In a barrel-hooping machine, a reciprocating arm-support, as D, having hoop-driving arms *d* hinged thereto, in combination with a slotted plate, *a*, provided with a pivotal plate, F, having links F', connecting said pivotal plate with cranks G, which are pivoted to plate *a* and provided with springs S, arranged to extend across the slots of said plate, 15 and a hand-lever, L, by which the springs of said cranks are operated on the arms passing through the slots, substantially as specified.

20 5. In a barrel-hooping machine, a slotted plate, as *a*, provided with a pivotal plate, F, having links F', connecting said pivotal plate with cranks G, said cranks being pivoted to plate *a*, and having springs S extending across the slots thereof, and a hand-lever for simultaneously operating all of said cranks and 25 their springs, substantially as and for the purpose specified.

6. In a barrel-hooping machine, the combi-

nation of a reciprocating arm-support, as D, having the hoop-driving arms *d* hinged thereto, with a stationary plate, as *a*, arranged for 30 supporting the barrel to be operated on, and having radial slots *d'* for the hoop-driving arms to work in, and a pivotal plate, F, having link-connections with said arms, and a connection with a hand-lever, L, whereby the pivotal 35 plate may be turned by operating the hand-lever, substantially as and for the purpose specified.

7. In a barrel-hooping machine, the combination of the friction-pulley C', having the 40 friction-clutch and lever K, with a reciprocating arm-support, D, having arms *d* hinged thereto, a stationary plate *a*, arranged for supporting the barrel to be operated on, and having radial slots *d'* for the arms to work in, 45 and a pivotal plate F, having connections with the arms, and a connection with a hand-lever L, whereby said pivotal plate may be turned by operating the hand-lever, substantially as specified.

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