

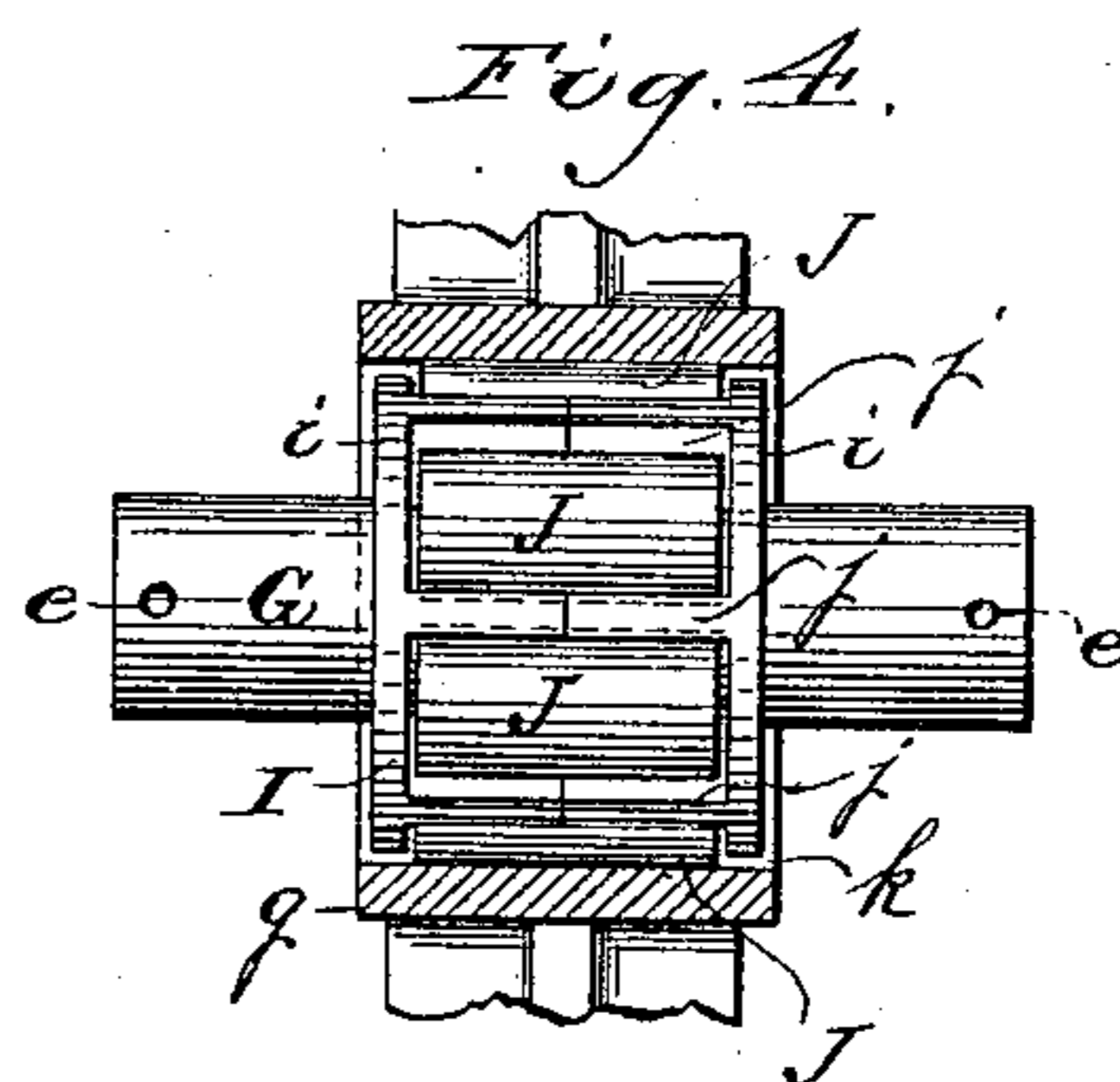
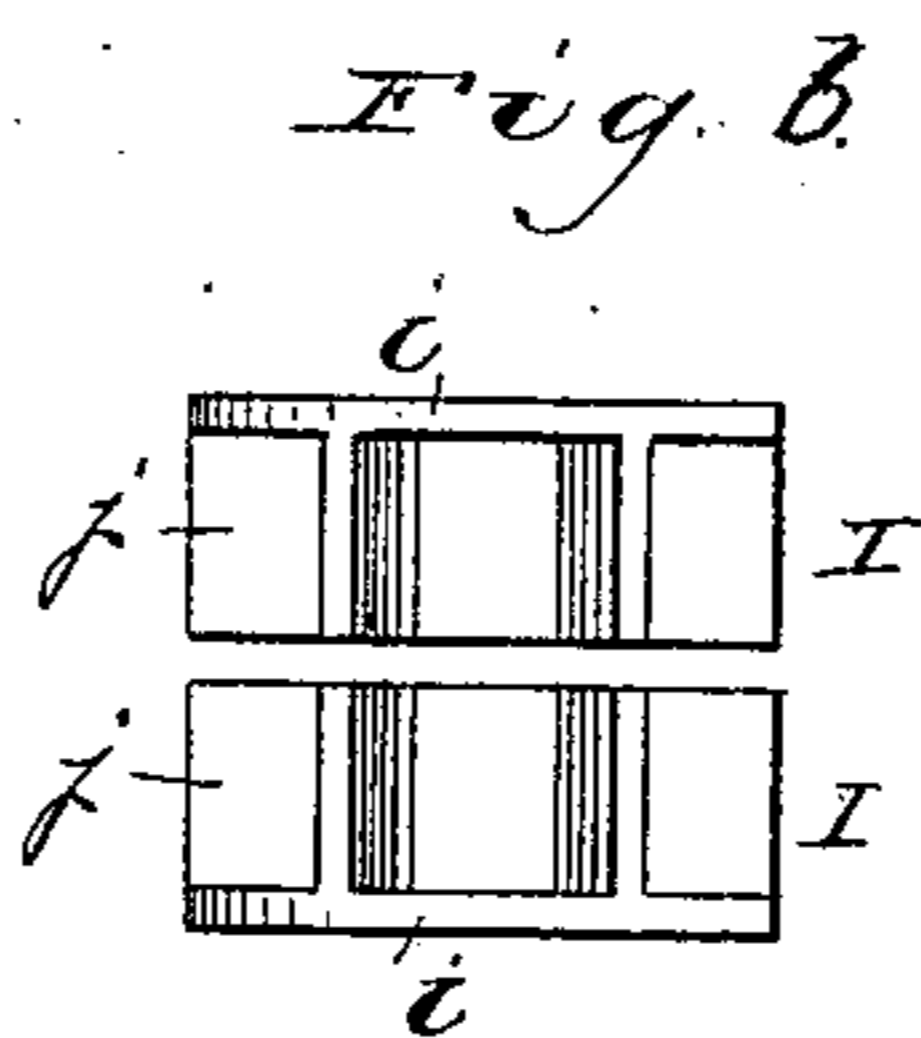
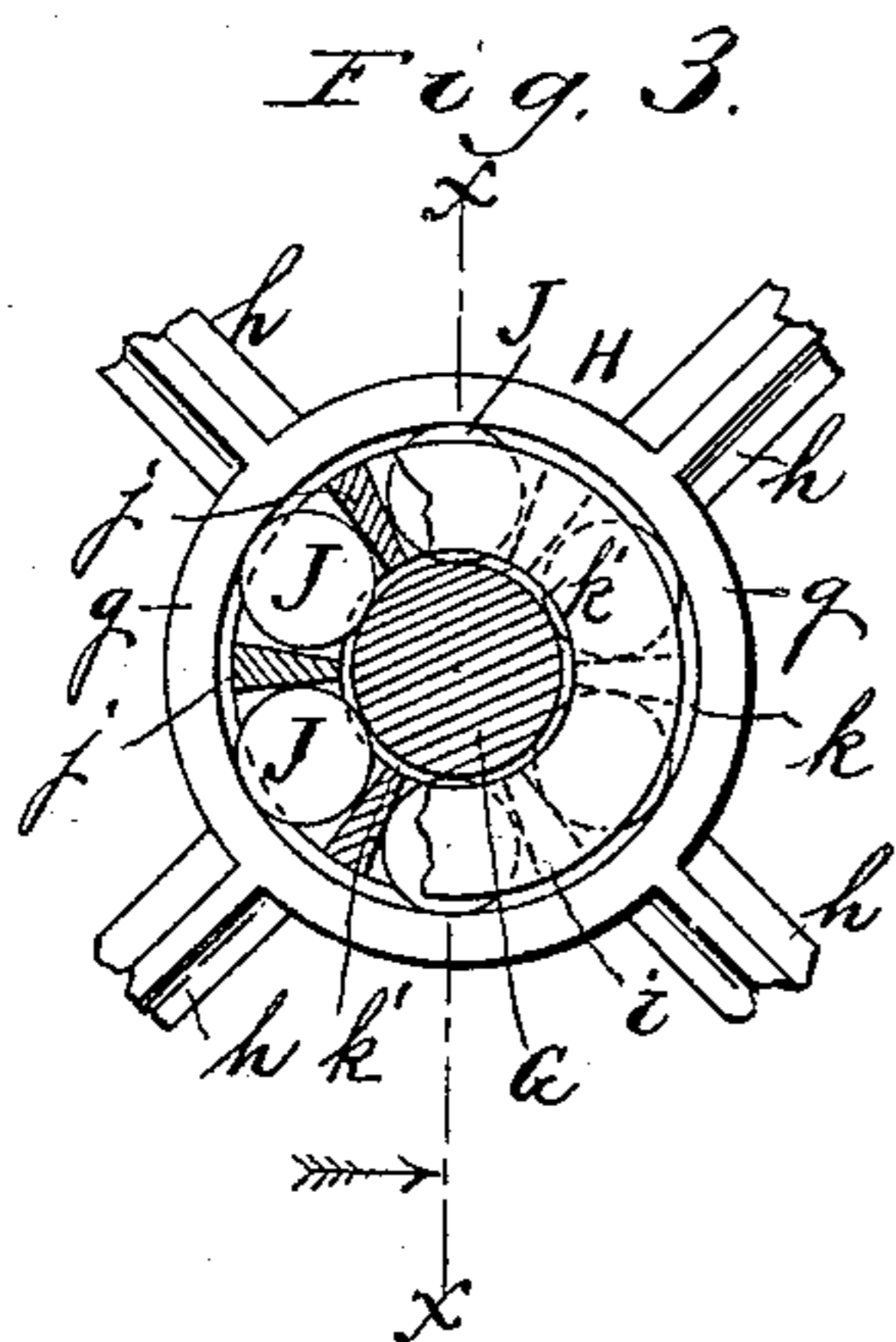
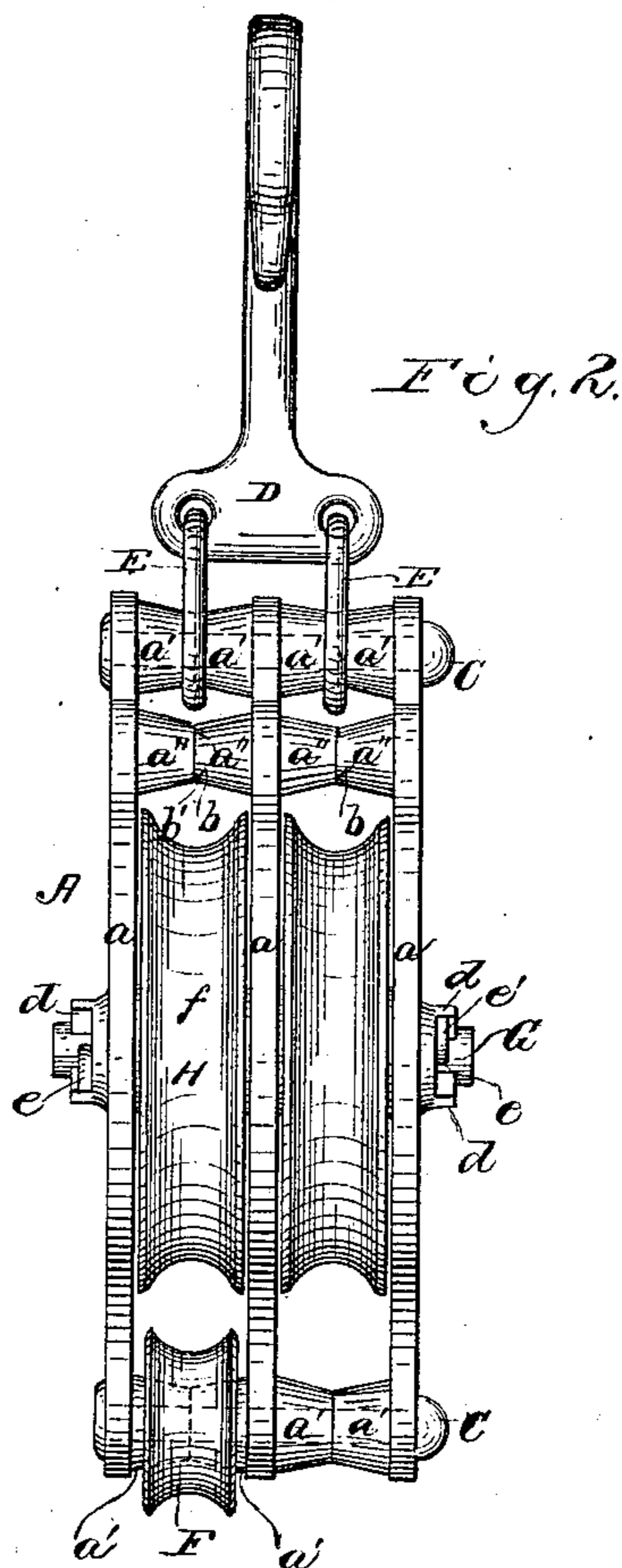
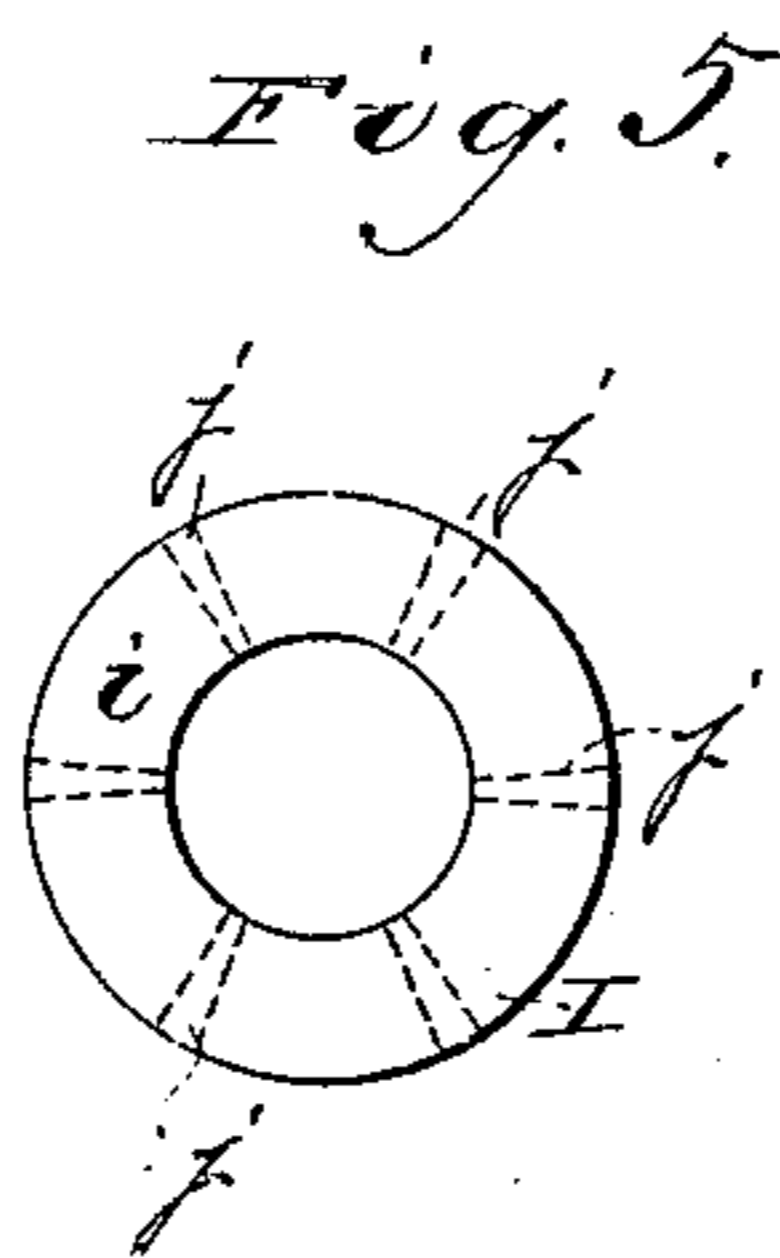
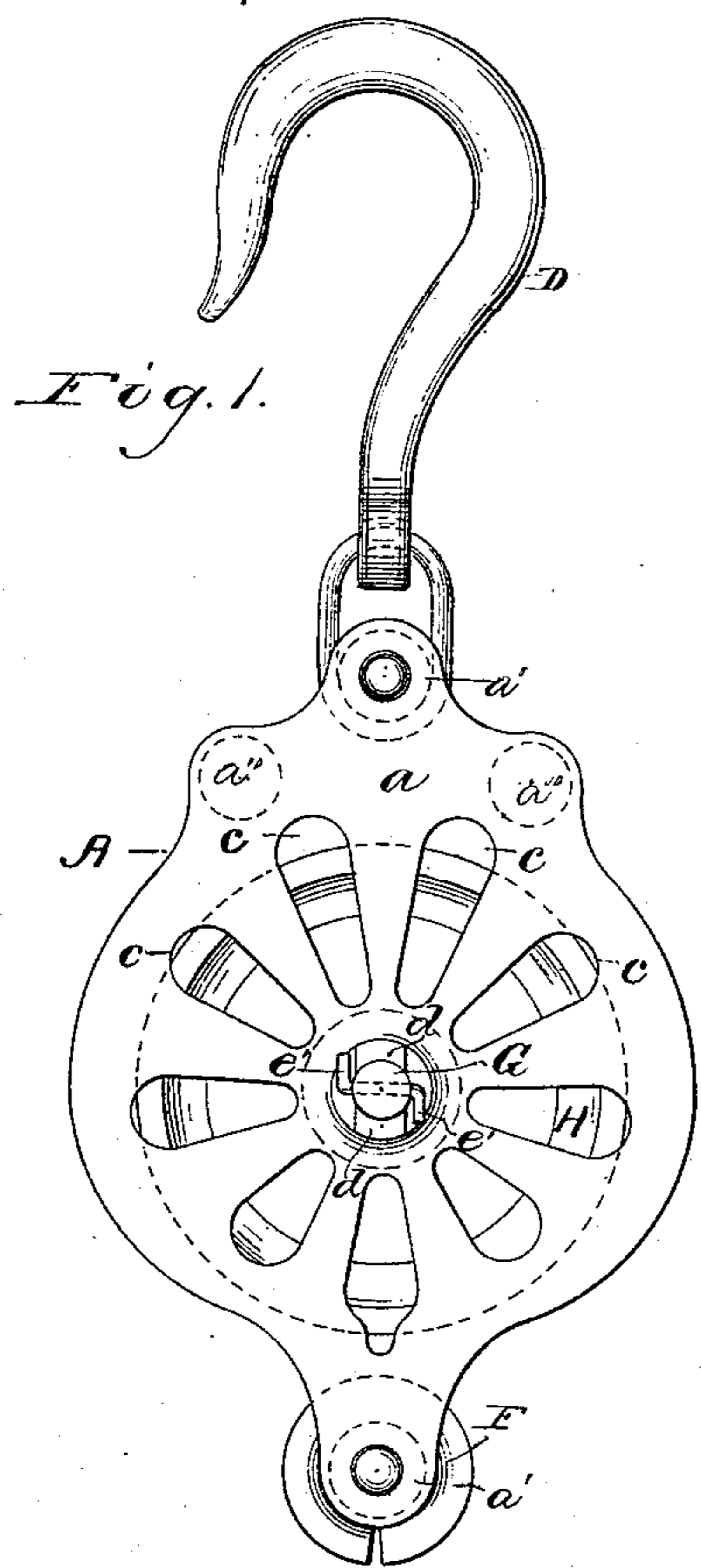
(No Model.)

E. Y. MOORE.

### SHEAVE OR PULLEY BLOCK.

No. 329,667.

Patented Nov. 3, 1885.



Witnesses.

Camp Frankfurter.  
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# UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF EVANSTON, ILLINOIS.

## SHEAVE OR PULLEY-BLOCK.

SPECIFICATION forming part of Letters Patent No. 329,667, dated November 3, 1885.

Application filed July 9, 1885. Serial No. 171,076. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD Y. MOORE, a citizen of the United States of America, residing at Evanston, in the county of Cook and State Illinois, have invented certain new and useful Improvements in Sheaves or Pulley-Blocks, of which the following, in connection with the accompanying drawings, is a specification.

10 In the drawings, Figure 1 is a side view of the sheave and sheave-block embodying my invention. Fig. 2 is an edge view of the same. Fig. 3 is a detail, the same being an end view of the cage, shown partly in section, and also showing the relation or relative position of the anti-friction roller to the cage and pulley or sheave. Fig. 4 is a section in the plane of the line  $x x$  of Fig. 1. Fig. 5 is a detail, the same being an end view of the cage, and Fig. 6 is a detail representing the cage with its parts separated.

Like letters of reference indicate like parts.

25 A represents the sheave-block, which consists of two side pieces,  $a a$ , when the block is intended to contain only one sheave or pulley.  $a' a'$  are studs cast upon the inner faces of the plates  $a a$ , and so arranged that the ends of these studs will be in contact with each other and hold the plates  $a a$  apart sufficiently to permit the sheave or pulley to play freely between them.

35 C C are rivets or bolts passing through the plates  $a a$  and through the studs  $a' a'$  for the purpose of clamping the said plates firmly together. To further prevent any torsional or slipping movement of one plate relatively to the other, I cast upon the end of the studs  $a' a'$ , upon one of the said plates a small nib,  $b b$ , and in the studs upon the plate  $a$ , I make 40 small sockets or depressions to receive the nibs  $b b$ , as indicated by the dotted or broken lines at  $b' b'$ , Fig. 2.

D is the hoisting-hook, and E E are links connecting it to the block A, the studs  $a' a'$  45 passing freely through the said links.

F F is an anti-friction ring or thimble on the lower studs,  $a' a'$ .

50 I make a central opening in each plate  $a a$ , and also cast in the said plate a number of radial slots,  $c c$ , to secure lightness without too great a sacrifice of strength, and these slots, as well as the outline of the plates  $a a$ ,

produce a neat and finished appearance; but I do not here intend to restrict myself to mere form, configuration, or design; neither do I 55 intend to claim the configuration or design shown.

G is an axle passing horizontally through the central portion of the plates  $a a$ .  $d d$  are lateral projections on the plates  $a a$ .  $e e$  are 60 holes passing through the axle G near its ends; and  $e' e'$  are flexible wires passing through the said holes, respectively.

It will be perceived on reference to Figs. 1 and 2 that when the axle G is arranged in 65 place the wires  $e' e'$  pass through the openings  $e e$ , and are bent to lap or engage the projections  $d d$ . By these means the said axle is prevented from being rotated, and also from moving endwise or out of the plates  $a a$ . 70

H is the sheave or pulley, which consists of a grooved rim or perimeter,  $f$ , and of a hollow circular or annular hub,  $g$ , connected to the rim or perimeter by means of radial arms or spokes  $h h$ . 75

I is the cage. This cage consists of two annular pieces,  $i i$ , from the inner sides of which project bars or webs  $j j$ , lying in radial planes, as is clearly indicated in Fig. 3. The bars or webs do not form continuous parts connecting the end pieces,  $i i$ , as is clearly indicated 80 in Fig. 6. By this means I am enabled to construct the cage with facility.

It will be perceived that the bars or webs  $j j$  form tapering pockets, which are narrowest 85 at the inner circumference of the end pieces of the cage. This cage is such in diameter as to fit loosely into the hub  $g$ , a small space,  $k$ , Figs. 3 and 4, existing between the outer circumference of the cage and the inner circumference of the said hub. The inner circumference of the cage is also such as to leave a small space,  $k'$ , between it, Fig. 3, and the axle G. 90

J J are rollers arranged in the pockets between the bars or webs  $j j$ . These rollers are 95 such in diameter as to bear against the inner rim or surface of the hub  $g$ , and also against the axle G, as is clearly indicated in Fig. 3, but so as to not cause the parts to bind when 100 they are arranged together in the manner hereinafter described. In other words, the rollers J J, the function of which is to decrease friction, are comparatively loose or free in their

pockets, and their ends are prevented by the ends of the cage from bearing against the plates *a a*. In other words, the rollers *J J* have no sliding contact with any part of the device.

5 This cage, where its rollers are arranged within the hub *g* and the axle *G*, passes freely through the center of the cage and through the plate *a a*, and is secured in place in the manner already described, is retained in place  
 10 by the said plates, and the pulley or sheave *H* is mounted on the rollers *J J*, which serve as so many free or rotative and traveling bearings on which the sheave or pulley rotates.

By constructing the block in the manner now  
 5 described the work of casting its parts and arranging them together is rendered easy, and the block is susceptible of being made in such form as to present a neat and finished appearance. It is also light, being as sufficiently  
 10 strong for all purposes for which it is intended.

By mounting the sheaves or pulleys upon anti-friction rollers, and by constructing the cage as described, the friction of the working  
 5 or bearing parts is greatly diminished, and the means employed for that purpose are simple in their construction and operation.

In Fig. 2 I have shown a double block and two sheaves or pulleys therein; but a single sheave and block may be made and combined  
 10 with the cage and its rollers in the manner described.

When the block is adapted to carry two or more sheaves or pulleys, the interior plates have studs extending from both sides thereof,  
 5 by which means, and by the alternate arrangement of the nibs and sockets, one pattern will serve for casting all the interior plates and another for all the exterior plates.

Having thus described my invention, what

I claim as new, and desire to secure by Letters 40 Patent, is—

1. The combination of the cage *I*, made in two parts, each consisting of annular end pieces on the inner faces of which are bars or webs *j j*, forming tapering pockets narrowest 45 at the inner circumferences of the said end pieces, the rollers *J J*, arranged in the said pockets, and being such in diameter as to project both inwardly and outwardly therefrom, the axle *G*, passing between the said rollers, 50 the sheave or pulley *H*, having a hollow hub bearing on the said rollers and the sides of the sheave-block, the latter overlapping the ends of the said cage, substantially as and for the purposes specified. 55

2. The combination, in a pulley-block, of the side plates, *a a*, each having the studs *a' a'* and *a'' a''* cast on their inner faces, the said studs being arranged for contact with each other at 60 their inner ends, one of the studs *a'' a''* having thereon a nib, *b*, and the other having a socket to receive the end of the nib on a corresponding plate, and fastenings for clamping the said plates together, substantially as and for the purposes specified. 65

3. The combination of the sheave-axle *G*, the lateral extensions *d d* on the outer sides of the sheave-block, and the wires or fastenings *e' e'*, passing through the said axle and between the said extensions, substantially as and for 70 the purposes specified.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

EDWARD Y. MOORE.

Witnesses:

F. F. WARNER,  
 ADDIE HUSZAGH.