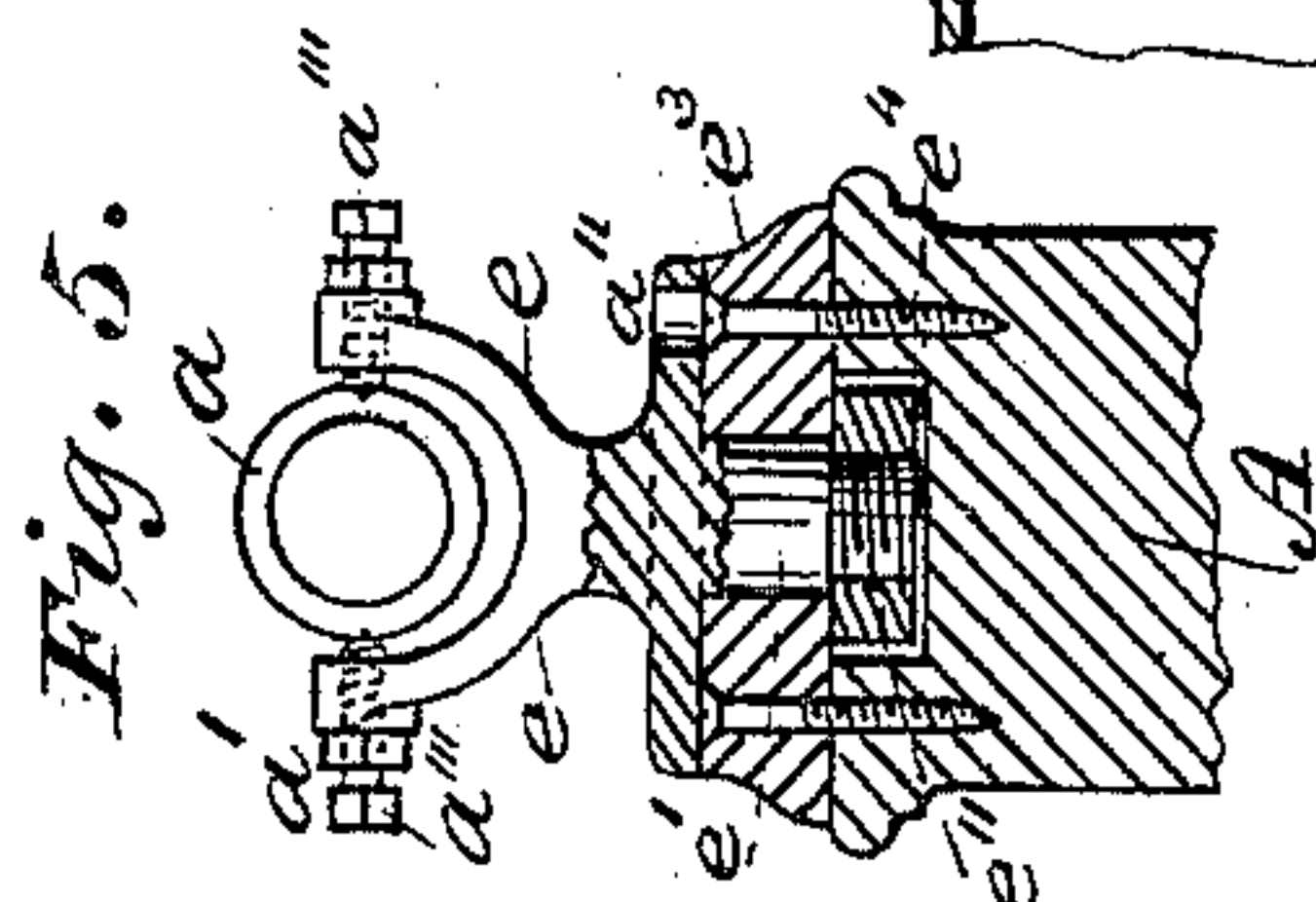
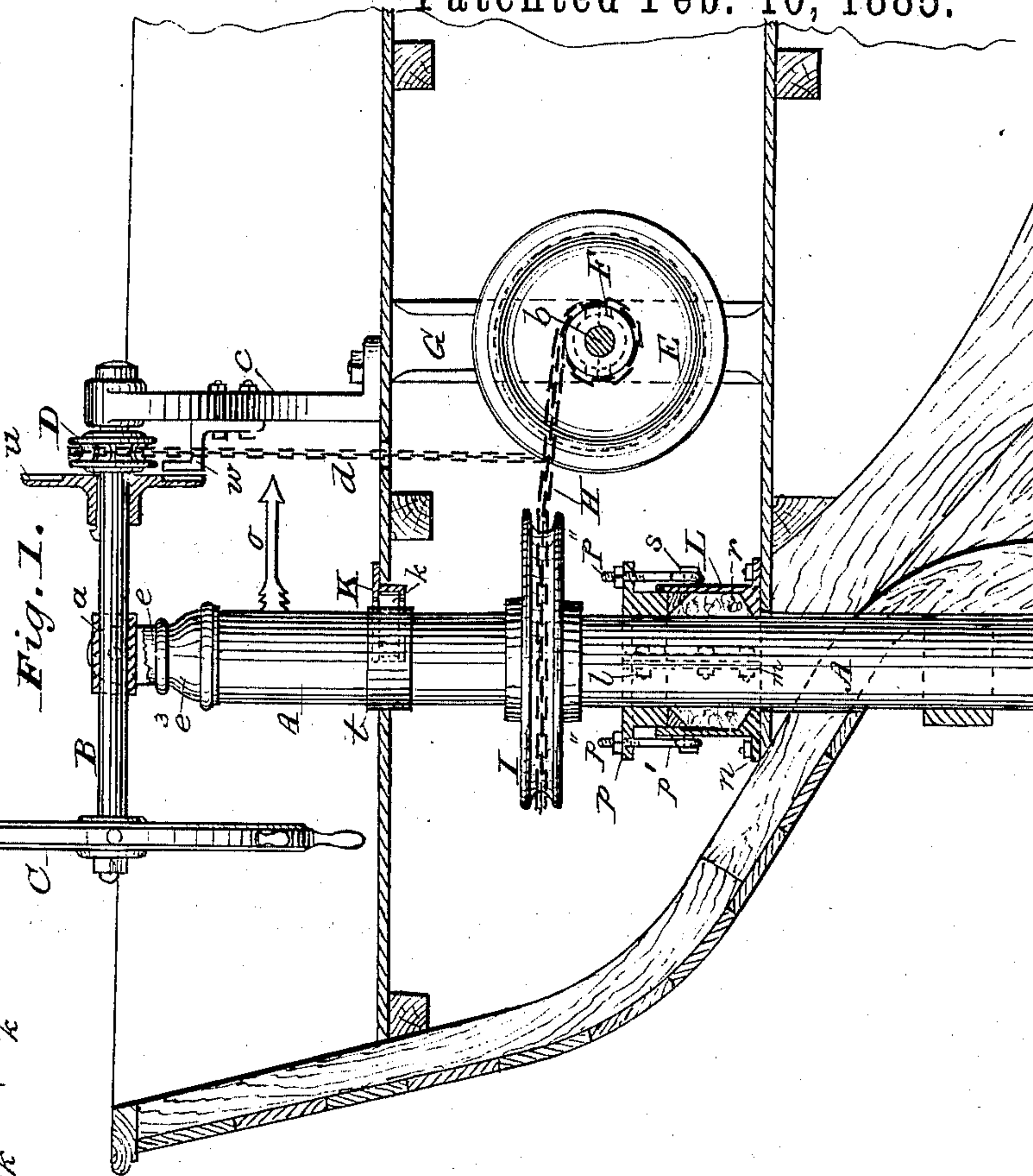
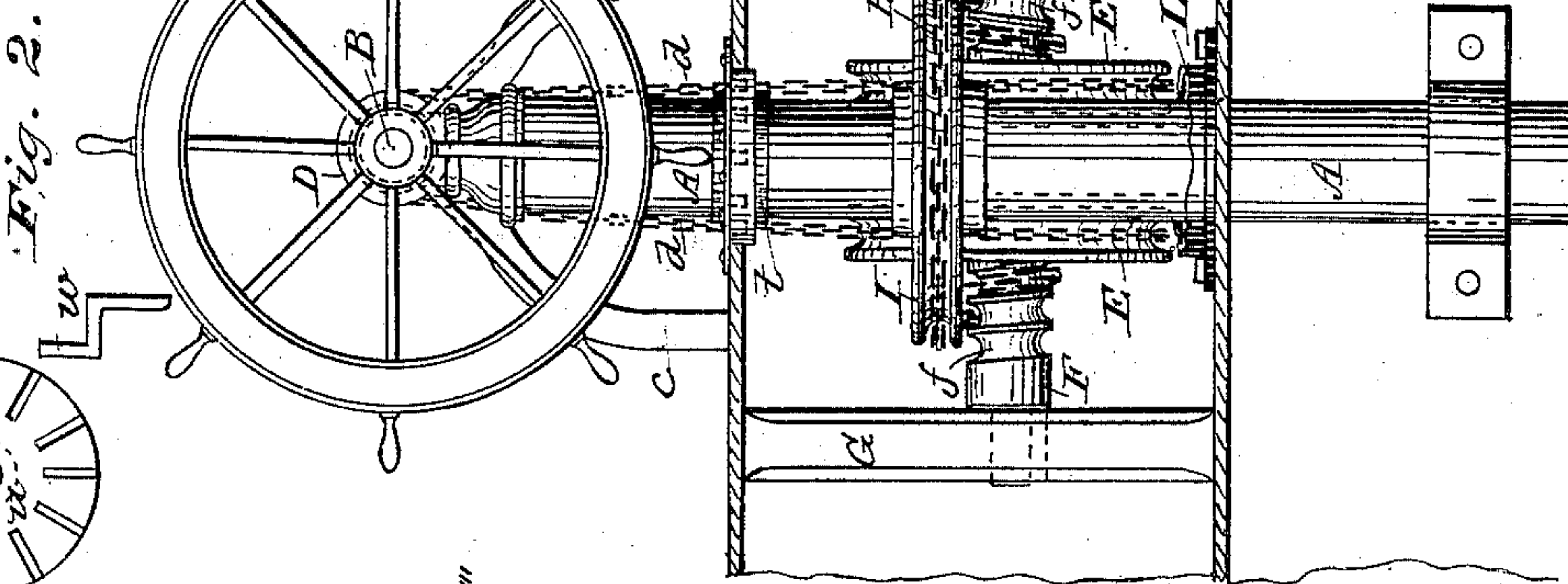
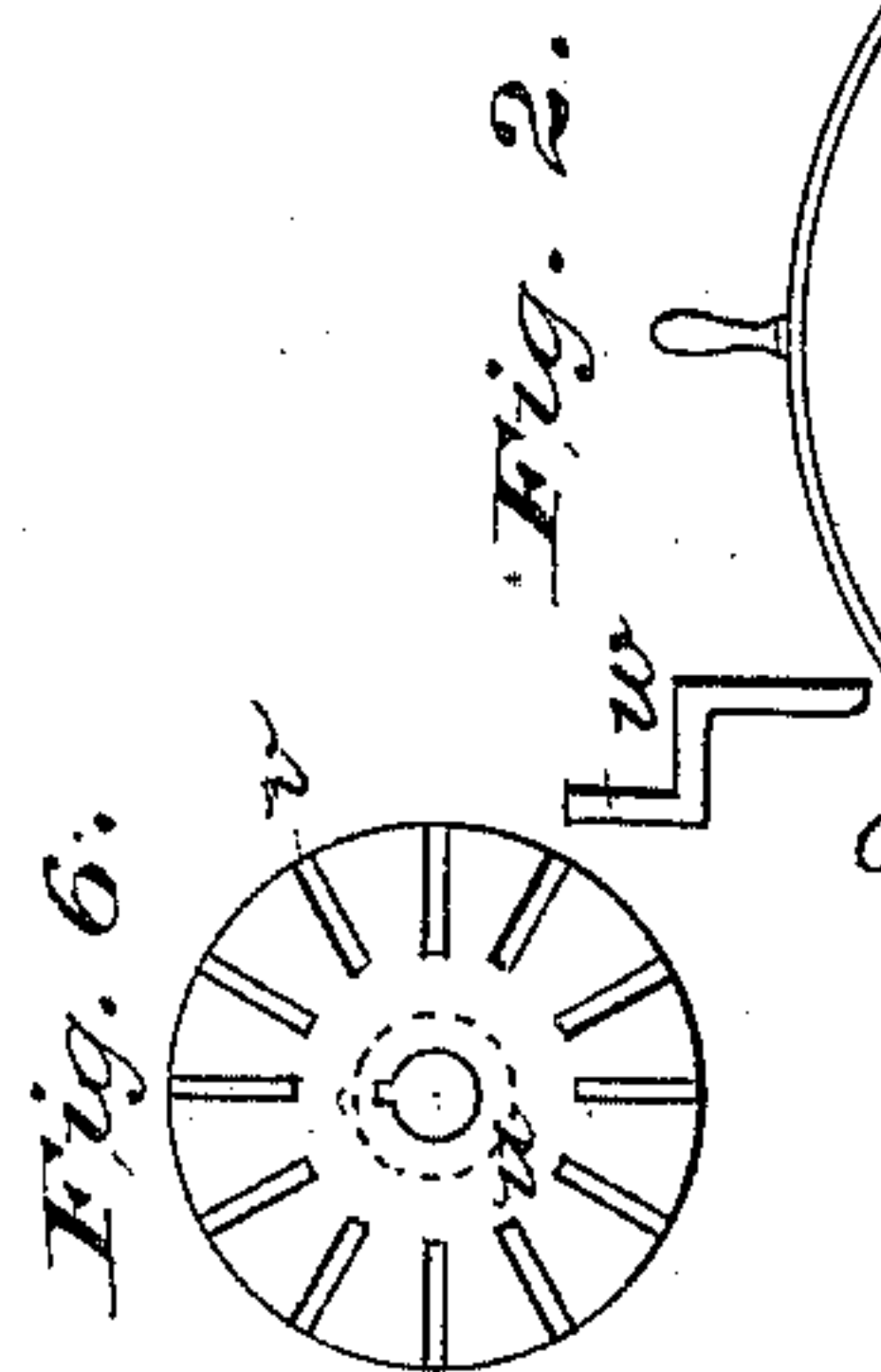
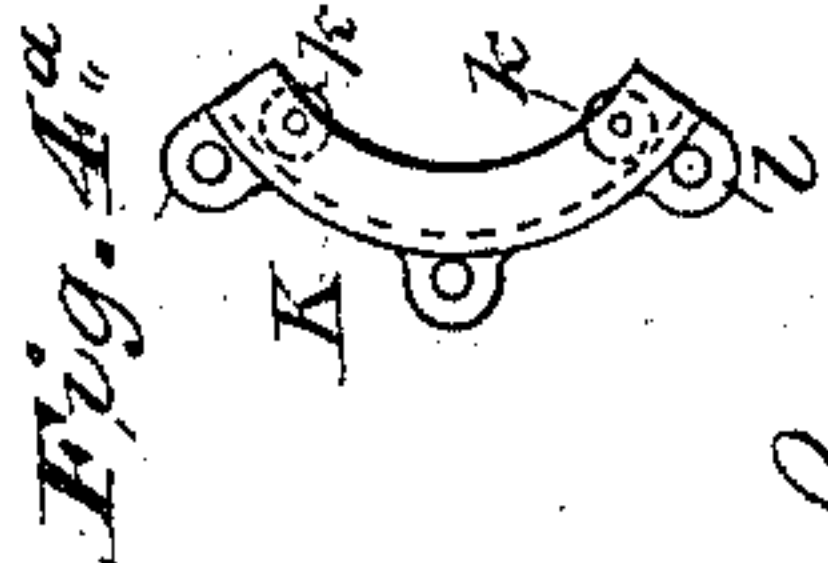
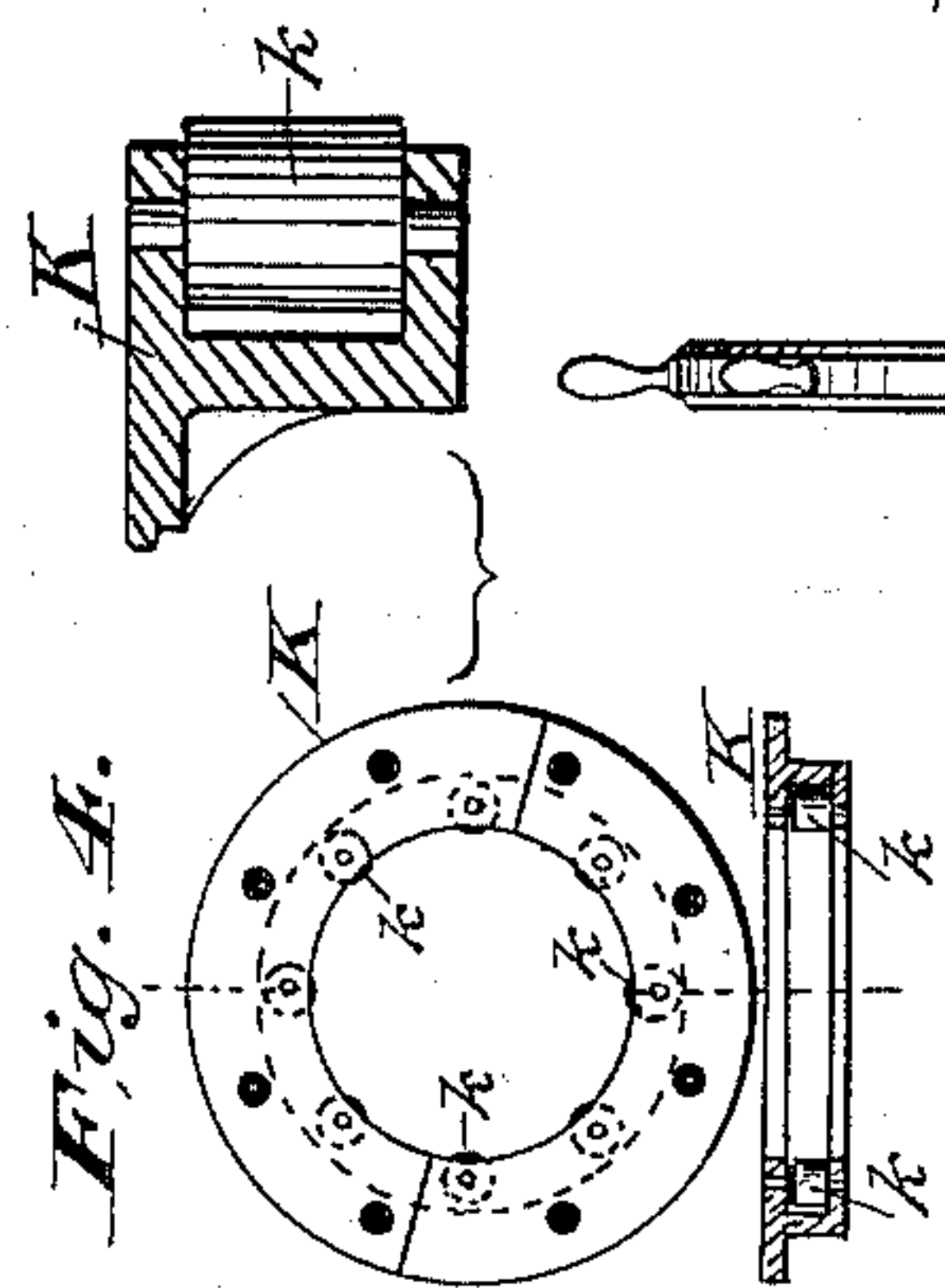
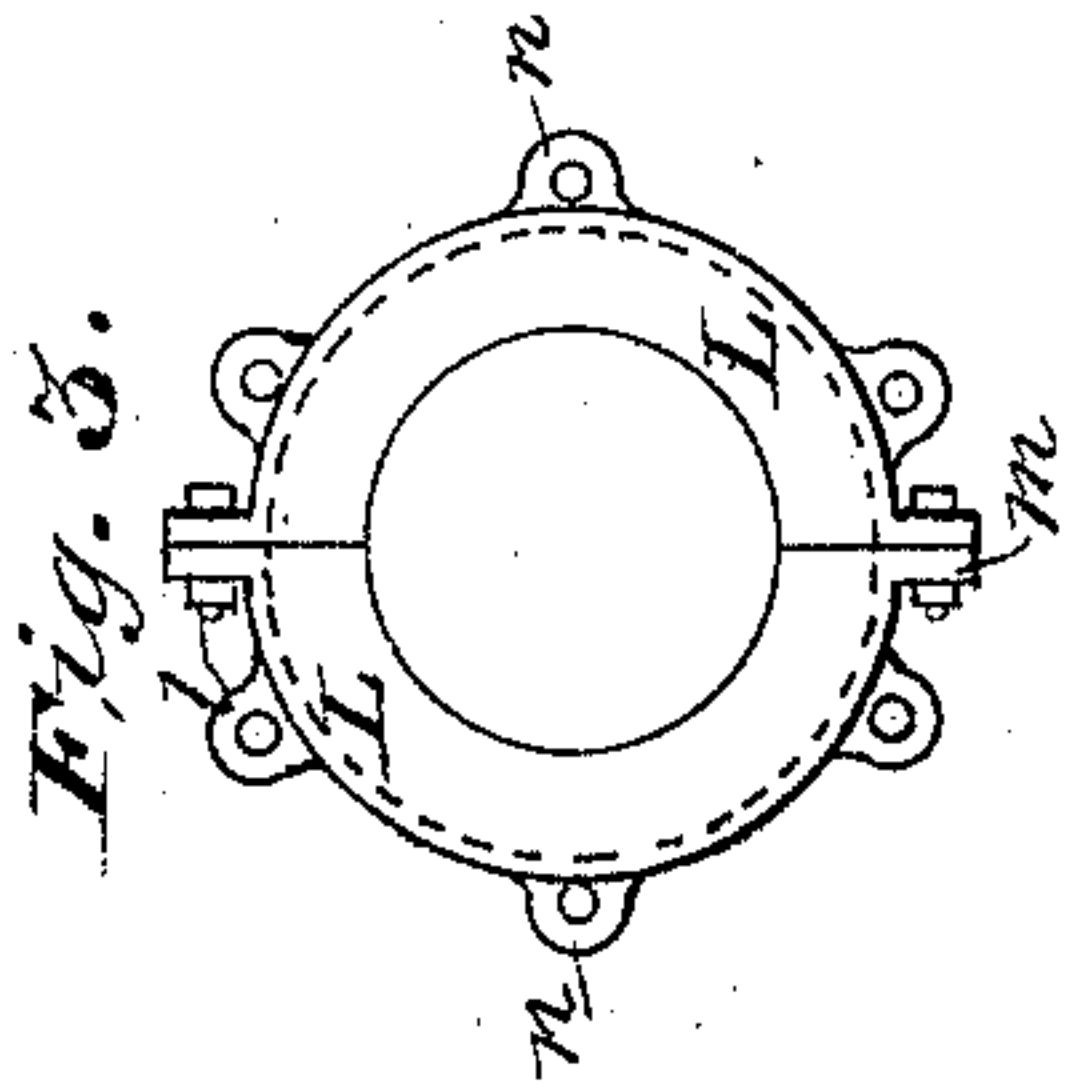


(No Model.)

F. H. CATHCART.
STEERING APPARATUS.

No. 311,869.

Patented Feb. 10, 1885.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK H. CATHCART, OF ALEXANDRIA, VIRGINIA.

STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 311,869, dated February 10, 1885.

Application filed April 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. CATHCART, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Steering Apparatus; 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 improvements in that class of steering apparatus in which the power is transmitted through a series of pulleys or sheaves and chains to the rudder-post; and the object of my invention is to improve the construction of such steering apparatus, render them more reliable and powerful, much easier to operate, and to prevent leakage around the rudder-post, as also to lessen the friction, and thereby facilitate the movement.

The invention consists in arranging around the rudder-post a packing or stuffing box to prevent the water from being forced up around said post, as is now ordinarily the case.

It also consists in placing in or against the deck a plate recessed for the reception of friction-rollers, which bear against the rudder-post, and said plate may extend partly or entirely around the post and serve to lessen the friction thereof.

It also consists in pivoting the shaft of the steering-wheel in a hollow sleeve or box attached to the upper end of the rudder-post, so as to compensate for any movement of said post and shaft; and it further consists in the construction and arrangement of certain details, as will be more fully described hereinafter, and more specifically pointed out in the claims, reference being had to the accompanying drawings and the letters of reference marked thereon.

Like letters indicate similar parts in the different figures of the drawings, in which—

Figure 1 represents a side elevation of my improved steering apparatus, partly in section. Fig. 2 is an end elevation of the same. Fig. 3 is a top or plan view of the packing-receptacle for the rudder-post. Fig. 4 are detail views of the anti-friction collar or plate in plan and sections. Fig. 4^a is a modification. Fig. 5 is a detail view, partly in section, of the

swivel-box for the steering-wheel shaft. Fig. 6 is a view of the becking attachment.

In the accompanying drawings, A represents the rudder-post, of proper size for any suitable vessel, and has at its upper end a pivoted swivel-box or bearing, *a*, for the shaft B of the steering-wheel C. The swivel-box is mounted in a yoke, *e*, having a swivel-pin, *e'*, which is held in place by a nut, *e''*, and this is in turn secured to the top of the rudder-post by means of a cap, *e'''*. The cap is secured by screws *e''''*, which are entered through a hole in the flanged part *a''* of the yoke. The swivel-box is supported on the points of the screws *a'''*, and held in place by lock-nuts. The shaft B has on its inner end a sprocket-wheel, D, and is supported at that end in a standard or bearing, *c*. A chain, *d*, passes over the sprocket-wheel and extends to the sheaves E E', loosely mounted on a transverse shaft, *b*, supported in uprights or brackets G. On the sides of the sheaves are secured or cast the spools or drums F F', having a right and left hand thread, *f f'*, by which the chain H, which is secured to them, is prevented from folding or doubling on itself. The chain H extends around a sheave, I, secured to the rudder-post, and imparts motion to it when the steering-wheel is operated.

To ease and facilitate the movement of the rudder-post, a collar, K, provided with friction-rollers *k*, is arranged in the upper deck. This collar may extend entirely around the post, although I prefer to form it of about one-third the length of the circle, as shown at Fig. 4^a, and provide it with two rollers only, as this gives the best results. This collar is placed on the side nearest to the transverse shaft *b* and its sheaves and drums, as the strain would be in that direction.

An arrow-head, *o*, indicates the position of the rudder.

At the lower end of the rudder-post, or on the lower deck, where said post passes through the ship, is secured a packing-receptacle, L, made, preferably, in sections, and bolted together by means of flanges *m* and bolts *l*. It is secured to the deck by bolts or screws passing through lugs *n*, or a flange. A bisected gland, *p*, and a bisected ring, *p'*, are fitted into the receptacle, and are adjusted in place by eyebolts *p''* to compress the packing *r* against

the rudder-post. The eyebolts are attached to pins *s*, secured to the sides of the packing-receptacle *L*, so that they are always ready for use.

5 Instead of a swivel-pin, as represented in Fig. 5, the pin may have a ball end and be fitted in a socket to correspond therewith without departing from the spirit of my invention. The swivel-box may be provided
10 with trunnions moving in journals on the yoke instead of using the screws *e*⁴. A metal band, *t*, is placed around the rudder-post for the rollers to bear against.

A becking attachment, for holding the wheel
15 in position, consists of a disk, *u*, having a series of slots or projections, *v*, secured to the shaft *B*, and with said slots a dog, *w*, attached to the stand *c*, engages, by which the wheel is held. The wheel and shaft, with the disk, is
20 moved slightly forward or aft, and thus engages or releases it with the dog.

It will be readily seen that by arranging the sheaves and chains with the threaded spools, as herein shown, the chain passing over them
25 will be kept separate, and will not double on itself, and great power can be exerted on the rudder-post by the different sizes of sheaves, sprocket-wheel, and spools. The stuffing-box around the rudder-post prevents water pass-
30 ing around it and into the vessel, which, as is well known, often amounts to a large quantity, necessitating extra pumping out of the ship. By the rollers around the rudder post binding and friction is prevented, and it will
35 move much easier. The swivel box on the end of the rudder-post compensates for the working or movement of the vessel, and the entire steering apparatus requires much less power than those now in ordinary use, and is
40 not liable to get out of working order.

I am aware that, broadly, a stuffing-box for rudder-posts, with a packing, is not new; also, that a swivel-bearing for the steering-wheel shaft is old; and, also, that a becking attach-
45 ment, with a spring-bolt fitting into holes in the shaft for holding the steering-wheel in position has been patented, and therefore disclaim such, limiting myself to the construction herein shown and described; but,

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

1. The combination, with a rudder-post, of a bisected stuffing-box secured to the deck, around said post, for the reception of pack- 55 ing, to prevent leakage, when these parts are constructed as shown, and substantially as specified.

2. In a steering apparatus, the combination of the rudder-post having a sheave, *I*, and 60 chain *H*, with the sheaves *E E'*, having right and left hand threaded spools *F*, to which the chain *d* is secured, and passes over a sprocket-wheel, *D*, on the shaft *B*, all substantially as set forth. 65

3. In a steering apparatus having a rudder-post operated by sheaves, sprocket-wheel, and spools provided with right and left hand threads, to which the chains are attached, in combination with a stuffing-box around said 70 post, and a recessed collar with friction-rollers arranged in the upper deck, all constructed and arranged substantially as shown and set forth.

4. In a steering apparatus having a rudder- 75 post operated by sheaves, sprocket-wheel, and spools provided with right and left hand threads, and chains connected to them, in combination with a stuffing-box for packing around said post, a recessed collar, with friction-rollers, 80 arranged in the upper deck, and a swivel-box for the steering-wheel shaft, all constructed and arranged as and for the purpose herein described.

5. In a steering apparatus, the combination 85 of the rudder-post with a bisected packing-receptacle, a bisected packing-ring and gland, and the eyebolts secured to pins on the packing-receptacle, all constructed and arranged substantially as set forth. 90

6. In a steering apparatus as herein described, the becking attachment consisting of a disk provided with a series of slots on its face, and secured to the shaft *B*, in combina- 95 tion with a dog secured to the wheel-stand *c*, constructed and arranged substantially as and for the purpose set forth.

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

FRANK H. CATHCART.

Witnesses:

J. M. YZNAGA.

ALEX. SIMON.