

T. J. SOUTHARD.  
Windlass and Capstan Attachment.

No. 197,501.

Patented Nov. 27, 1877.

Fig. 1.

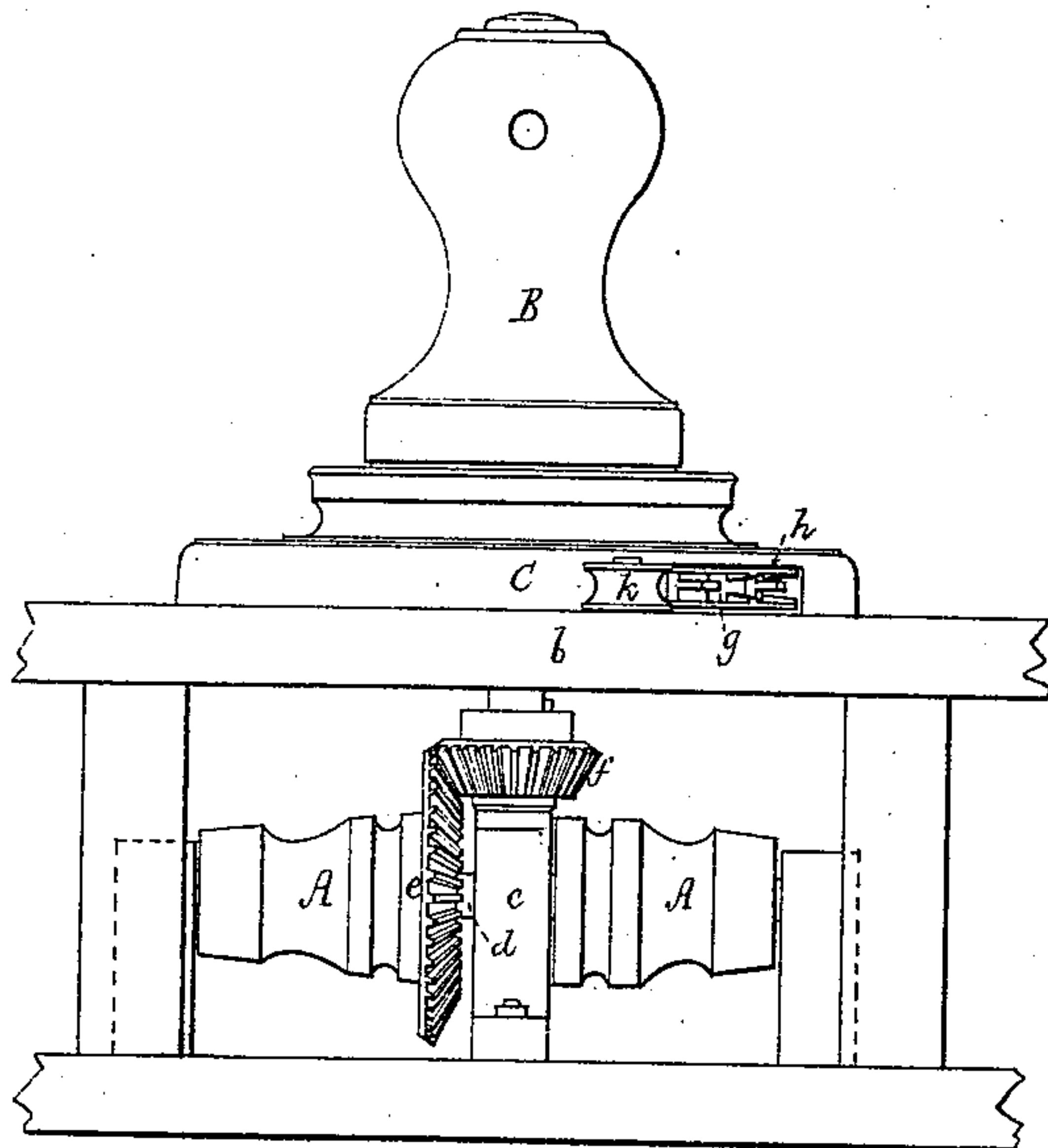


Fig. 2.

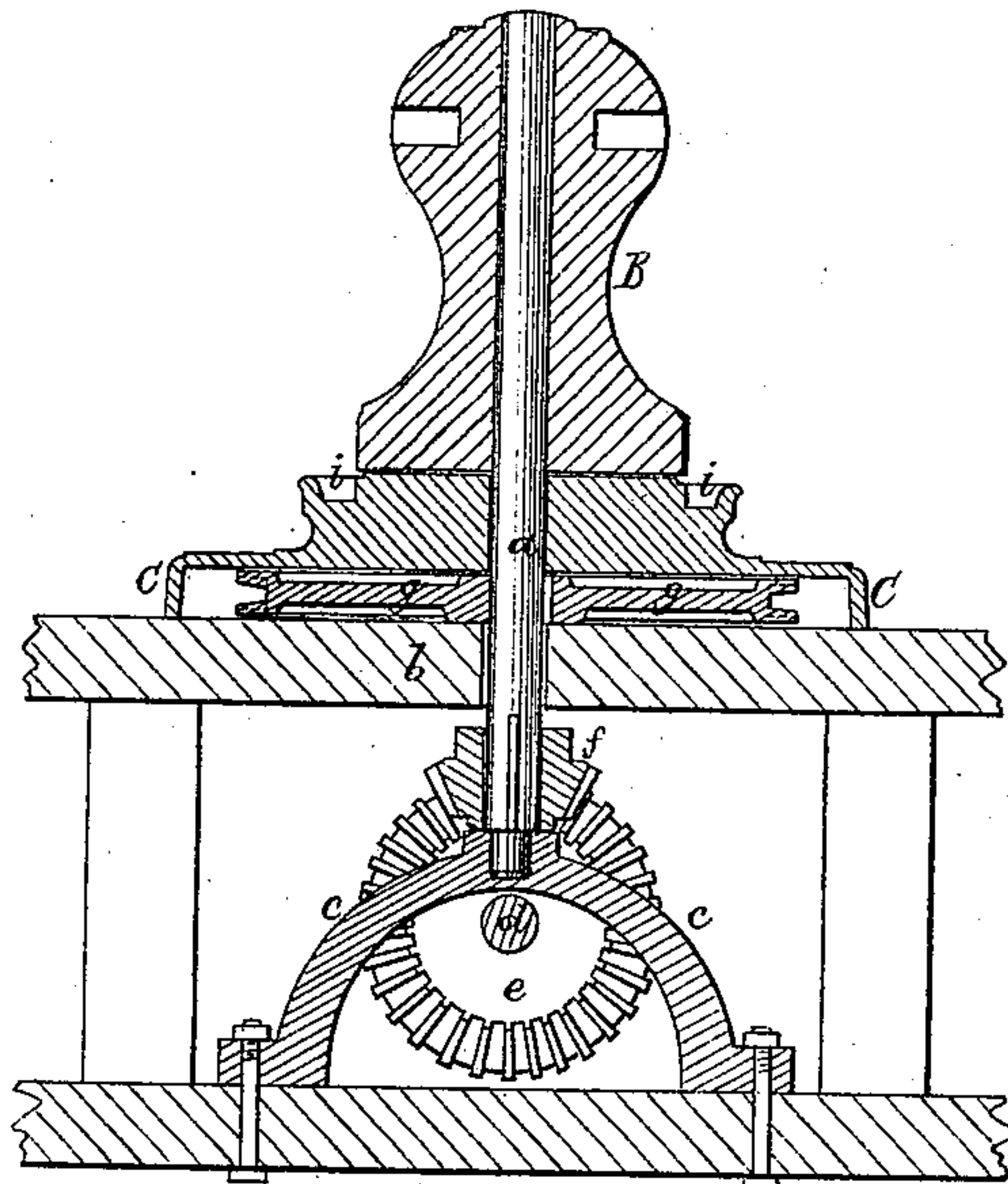


Fig. 3.

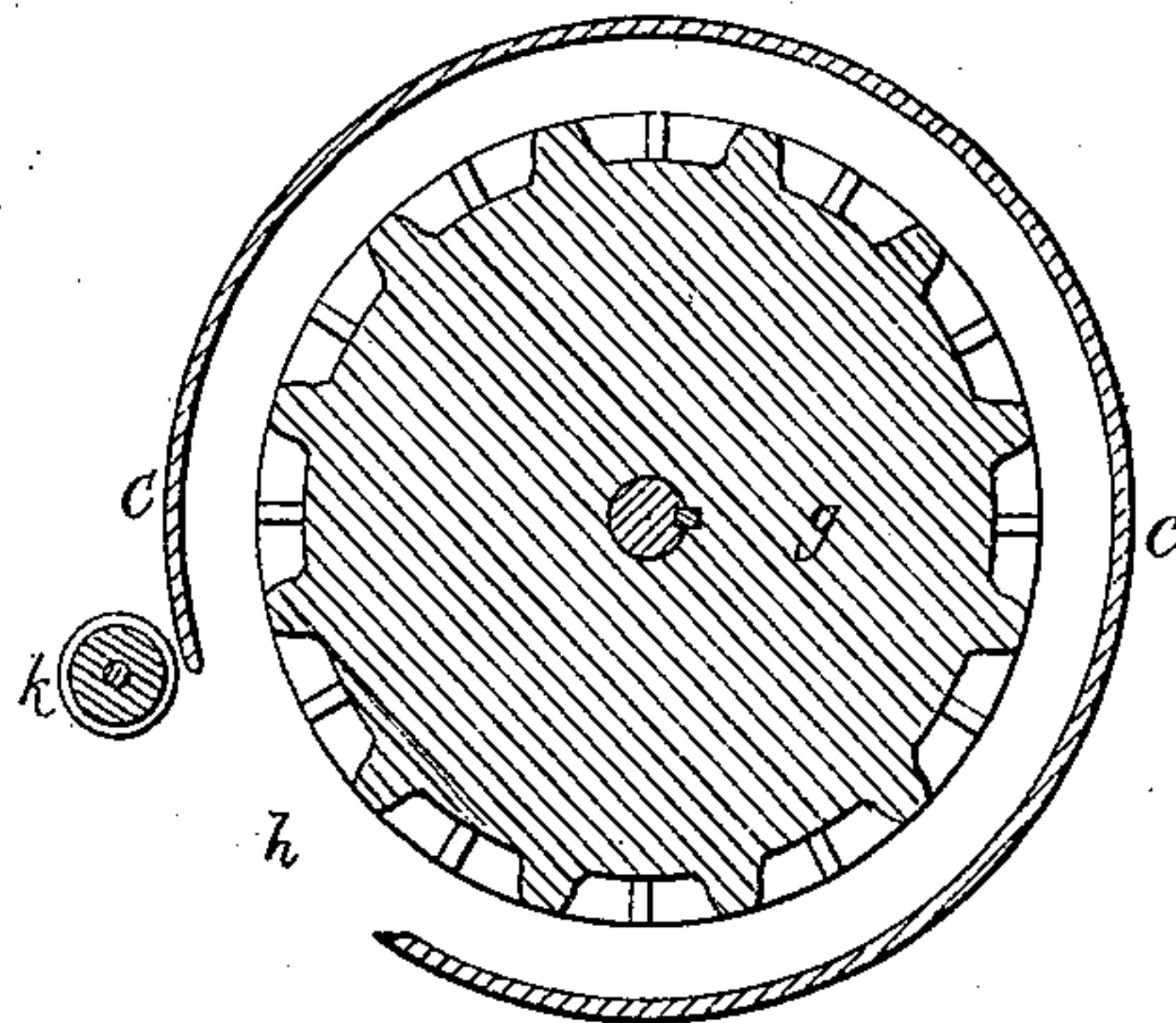


Fig. 4.



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by his attorney

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Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN WINDLASS AND CAPSTAN ATTACHMENTS.

Specification forming part of Letters Patent No. **197,501**, dated November 27, 1877; application filed  
May 17, 1877.

*To all whom it may concern:*

Be it known that I, THOMAS J. SOUTHARD, of Richmond, of the county of Sagadahoc, of the State of Maine, have invented a new and useful Improvement in Mechanism Relating to Capstans and Windlasses; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation; Fig. 2, a transverse section of a capstan and windlass provided with my invention; and Fig. 3 is a horizontal section of the sprocket-wheel and its case, to be hereinafter described.

In carrying out my invention I combine, with a windlass and a capstan arranged centrally over it, not only a sprocket-wheel applied to the capstan-shaft, but a set of bevel-gears applied to the shafts of said capstan and windlass; and I cover and protect said sprocket-wheel and support the capstan-rack by a hollow base or cap surrounding the sprocket-wheel, and provided with an opening for the passage to and from the wheel of an endless chain to encompass and operate such wheel.

In the drawings, A denotes the windlass, and B, the capstan, the latter being arranged centrally over the former, and having its shaft *a* extended down through the deck *b*, and pivoted on an arched standard, *c*, spanning the middle of the windlass-shaft *d*. To the said shaft *d* there is fixed a bevel-gear, *e*, to engage with a bevel-pinion, *f*, fixed on the shaft of the capstan. This pinion I usually apply to the capstan-shaft by a "spline" or "feather" connection, that will admit of the pinion being raised and held out of engagement with the fellow gear, in order for the capstan to be worked independently of the windlass, when such may be desirable.

On the capstan-shaft, and just above the said deck, there is fastened concentrically a sprocket-wheel, *g*, an edge view of which is shown in Fig. 4. This wheel I cover on top and circumferentially by a chambered base or cap, C, resting on the deck, and provided with a port or opening, *h*, for the passage of an endless driving-chain into and out of the

wheel. This cap has the capstan-pawl teeth-groove *i* arranged with and in it, as shown.

The chambered cap C causes the chain, in operating on the sprocket-wheel, to bear nearly around the whole of its periphery, instead of but about one-half thereof, as would be the case were the wheel not so capped.

The more the chain extends around the wheel the less will be the strain each tooth of the wheel will have to sustain, and, therefore, the less will be the liability of breakage of the teeth. Furthermore, the case keeps the chain in place, and from overriding or improperly catching on and breaking the wheel-teeth. It also supports the capstan through the pawls and their rack.

Near one end of the opening *h* there is pivoted to the deck, and arranged as shown, a guide-wheel, *k*, its purpose being to guide the chain into the said opening in a manner to prevent it from being caught on the end and broken, as it would be liable to be without the roller.

The endless chain, driven by another sprocket-wheel revolved by the steam-engine, arranged amidships or in some other proper part of the hull of the vessel, passes out of the opening *h* in a direction tangential to the sprocket-wheel of the capstan, and close to the part that may be passing about the guide-wheel.

By working the capstan, or such and the windlass, by a chain and sprocket-wheel arranged therewith, as described, and by having the capstan constantly over the windlass, important advantages result in practice.

I claim—

1. The combination of the sprocket-wheel *g* and the bevel-gears *e f*, arranged as described, with the capstan B and windlass A, and their shafts, disposed as set forth.

2. In combination with the sprocket-wheel *g* and open cap C, as described, applied to the capstan B, the chain-guide wheel *k*, arranged with the port or opening *h* of the cap, as and for the purpose substantially as set forth.

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Witnesses:

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J. R. SNOW.