

No. 619,591.

Patented Feb. 14, 1899.

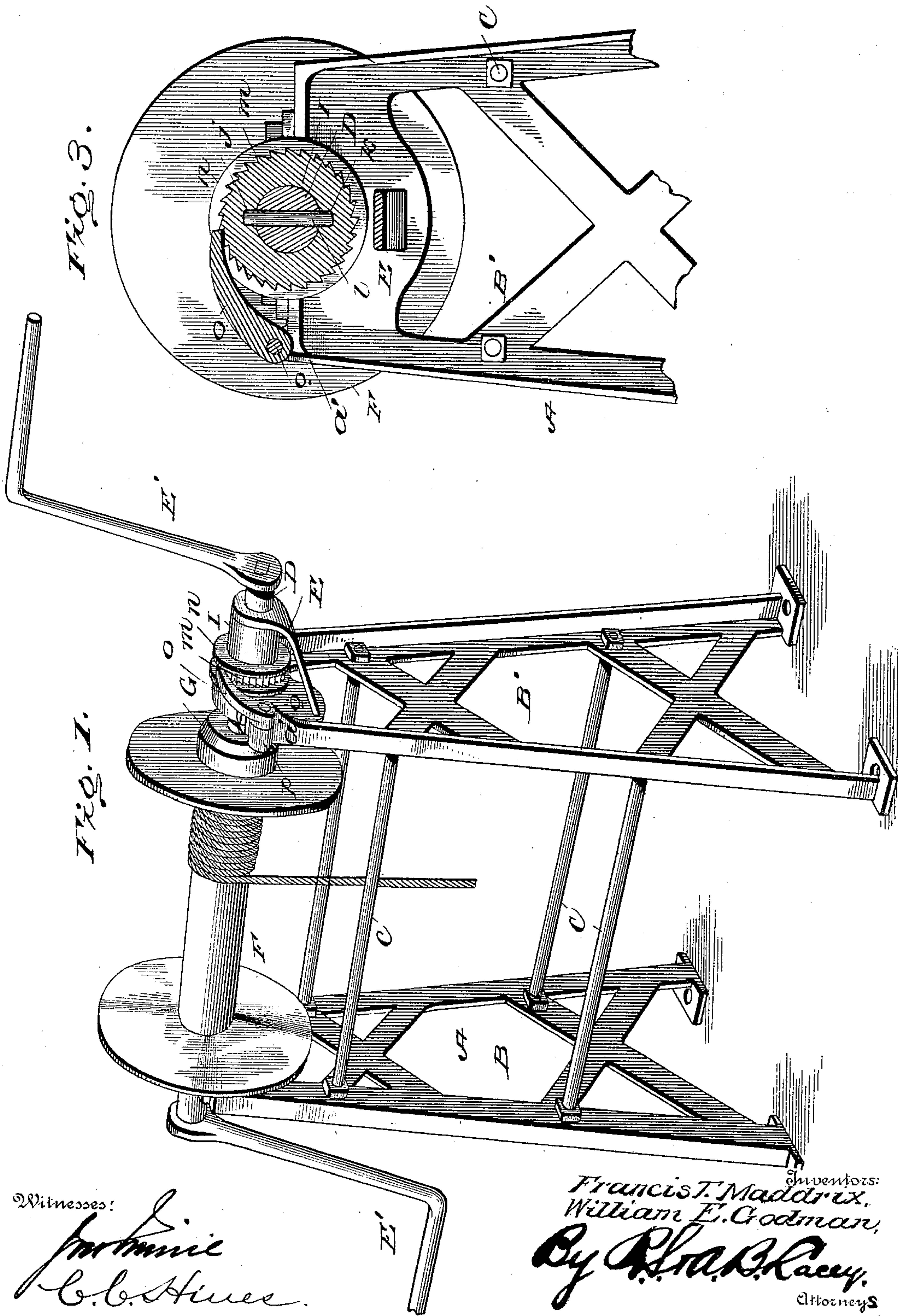
F. T. MADDRIX & W. E. GODMAN.

DREDGE WINDER.

(Application filed May 24, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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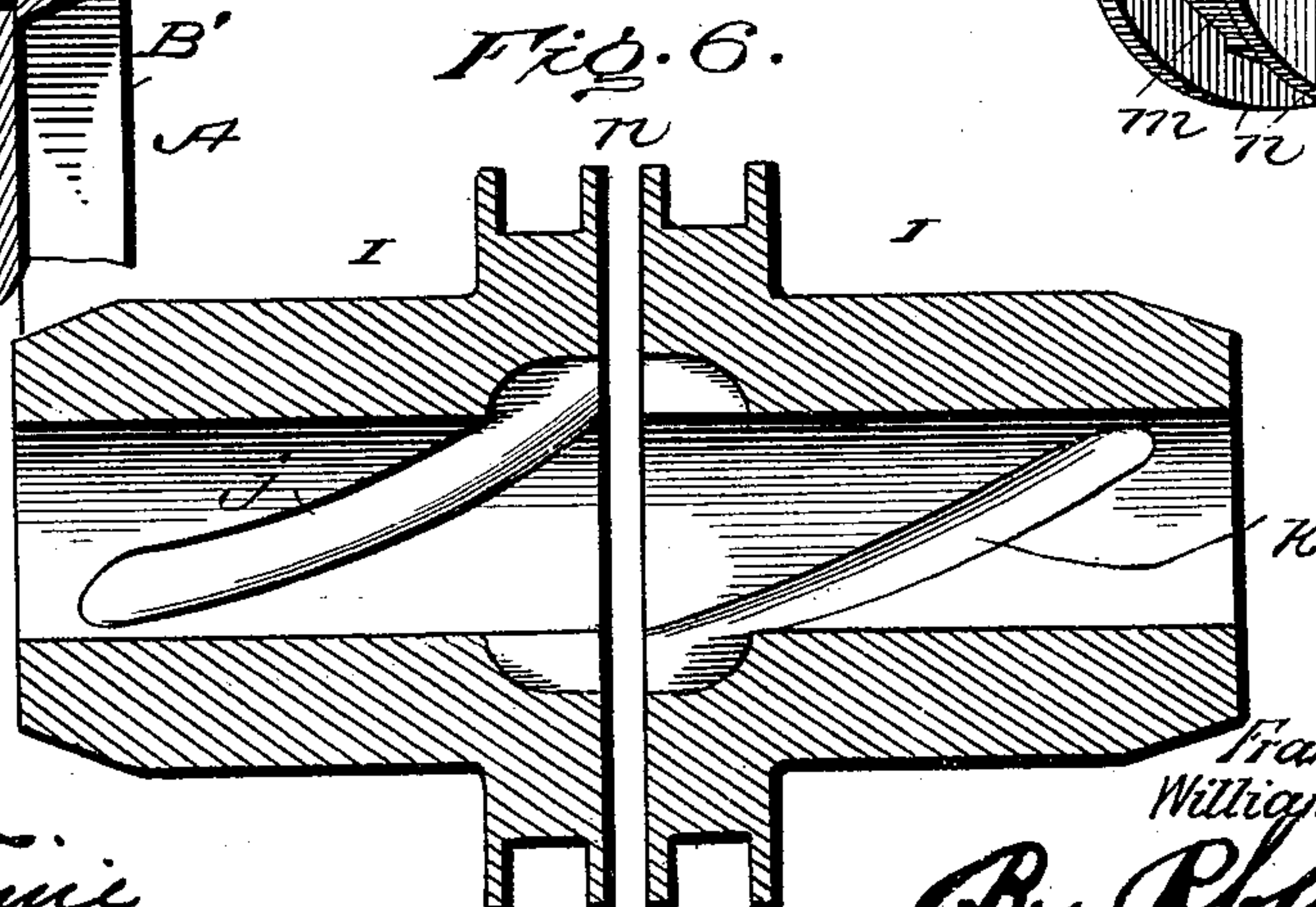
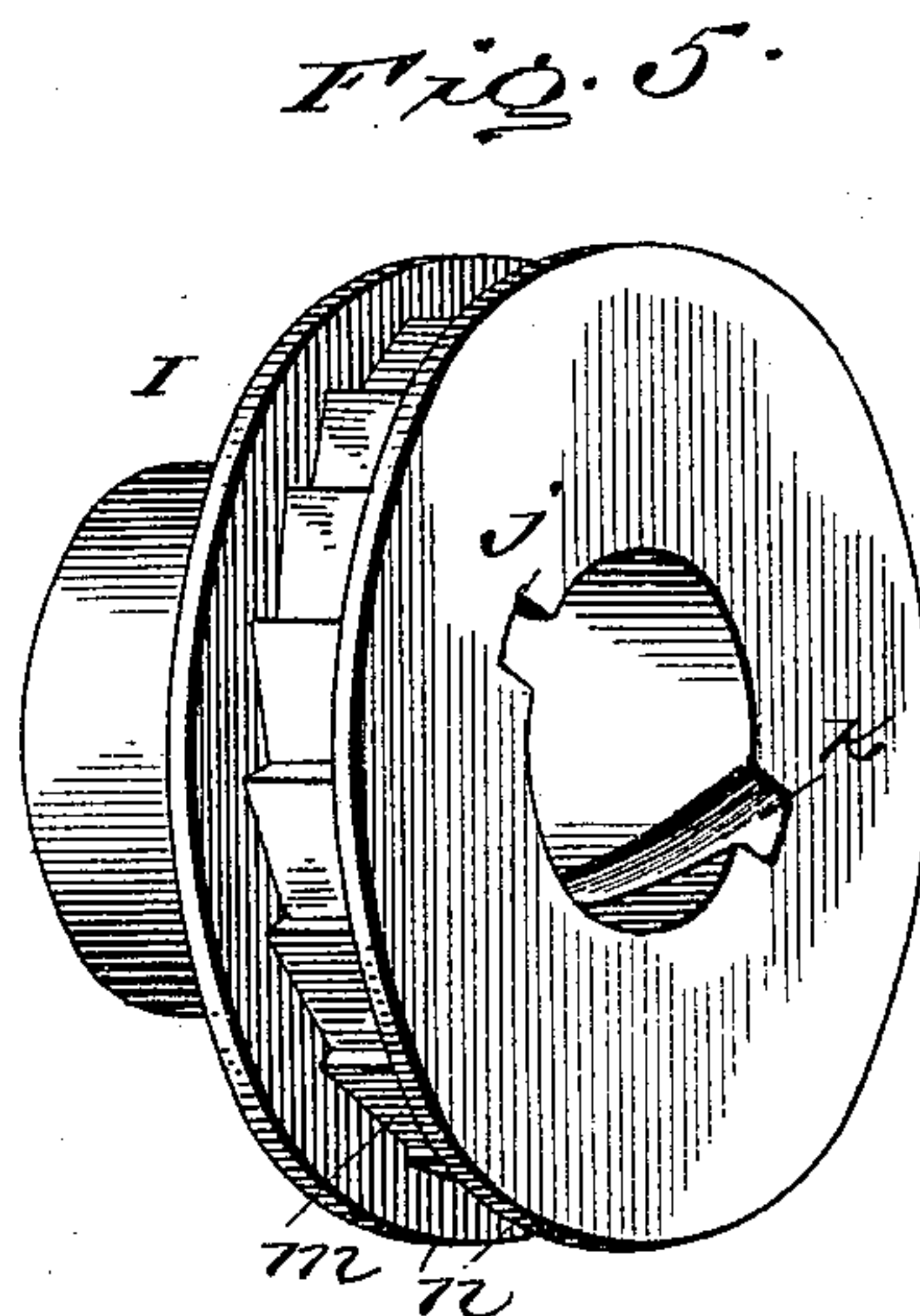
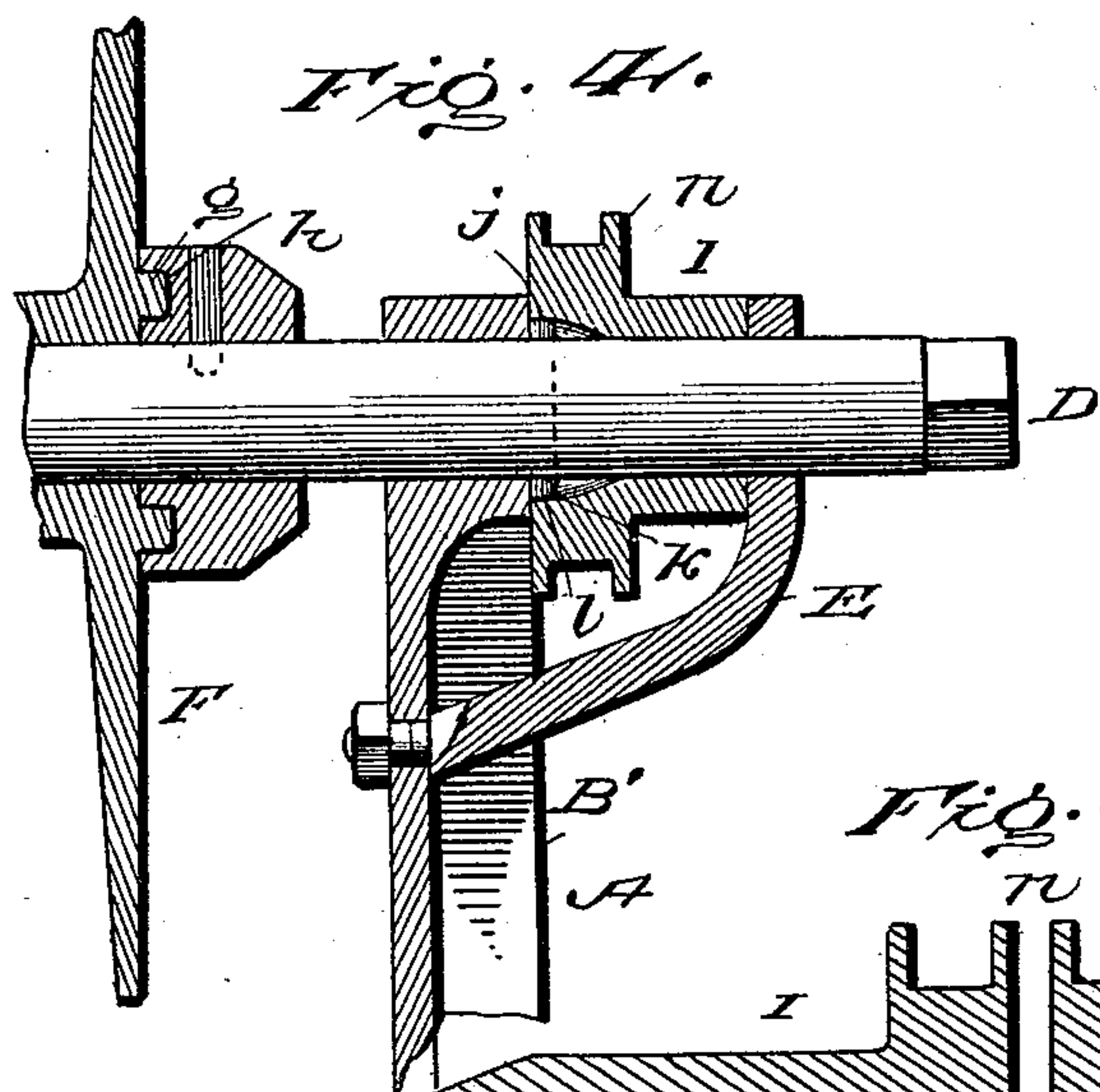
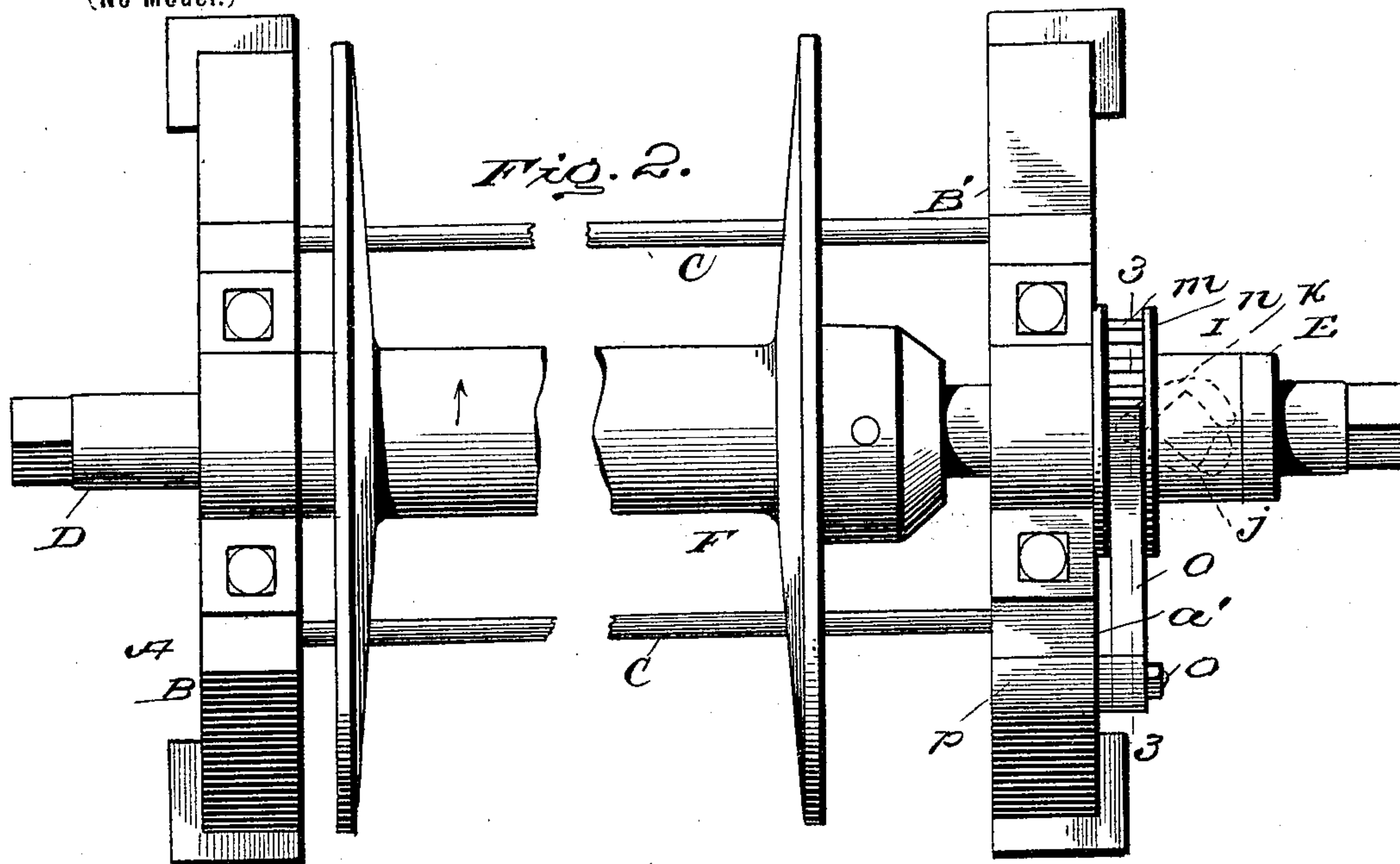
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2 Sheets—Sheet 2.

(No Model.)



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UNITED STATES PATENT OFFICE.

FRANCIS T. MADDRIX AND WILLIAM E. GODMAN, OF CRISFIELD,
MARYLAND.

DREDGE-WINDER.

SPECIFICATION forming part of Letters Patent No. 619,591, dated February 14, 1899.

Application filed May 24, 1898. Serial No. 681,638. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS T. MADDRIX and WILLIAM E. GODMAN, citizens of the United States, residing at Crisfield, in the
5 county of Somerset and State of Maryland, have invented certain new and useful Improvements in Dredge-Winders; and we do hereby declare the following to be a full, clear,
10 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.

This invention relates to certain new and useful improvements in oyster-dredge winders, and particularly to the means ordinarily employed therein for throwing the clutch
15 mechanism into and out of operation to rigidly connect the spool or drum with the winding shaft when winding up the dredge-rope and to release the spool to enable it to rotate freely on and independent of said shaft
20 when the dredge encounters an obstruction and its progress is suddenly arrested.

The particular object of our invention is to provide a winding apparatus of this character
25 which is simple in construction and relieved of the cumbersome and complicated devices in common use and which embodies simple and effective means for throwing the clutch mechanism into and out of operation without
30 liability of the same being broken or rendered inoperative when the drum and shaft are subjected to violent shocks or a strong reverse pull arising from the sudden stoppage of the dredge and the undue tension exerted
35 thereby on the winding-rope.

A further object is to provide a clutch-operating sleeve in which the cam-slots ordinarily employed are dispensed with and cam-grooves on the interior of the sleeve substituted therefor, whereby the pin coacting
40 therewith is shielded from injury by extraneous shocks or blows and a stronger and much more durable form of sleeve also provided which is not liable to break or split under
45 strain; and, further, to provide the said sleeve with ratchet-teeth having circumferential limit-flanges at opposite sides thereof adapted to prevent twisting of the pivoted stop-pawl under torsional strain or lateral or sidewise
50 movement thereof when the parts become

loose from wear or long use, and thus add to the safety and efficiency of the apparatus.

With these and other objects in view our invention consists in certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully
55 described, and specifically set forth in the appended claim.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective
60 view of a dredge-winder embodying our invention. Fig. 2 is a top plan view of the same. Fig. 3 is a cross-sectional view on line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal
65 sectional view through the winding-shaft, clutch-head, and cam-groove sleeve. Fig. 5 is a perspective view of the cam-groove sleeve on an enlarged scale, and Fig. 6 is a longitudinal section thereof.

Referring now more particularly to the
70 drawings, wherein like letters of reference designate corresponding parts throughout the several views, A represents the frame of the winding apparatus, which may be of any approved construction, but preferably consists,
75 as shown in the present instance, of a pair of parallel supporting-standards B B', suitably connected and braced by longitudinal rods or bars C.

The winding-shaft D is mounted to revolve
80 and to slide longitudinally in bearings on the upper ends of the standards and in a bracket E, projecting from the standard B', and is provided at one end with the usual crank-handle
85 E' and carries a loose winding spool or drum F, having at one end clutch teeth or lugs g. Rigidly secured to the shaft is a clutch-head G, formed on its meeting face with corresponding lugs or recesses h, which are adapted
90 to engage the said lugs on the spool and rigidly connect the latter to the shaft when it is desired to wind in the dredge-rope. This operation is effected by sliding the shaft longitudinally in the bearings in which it is
95 mounted. Arranged on the projecting end of the shaft, between the standard B' and bearing-bracket E, is a sleeve I, formed on its interior with spiral grooves j k, which open
100 through the head or inner flanged end of the sleeve and thence extend toward the outer

end thereof. Extending into these grooves are the projecting ends of a pin *l*, which passes through and is rigidly connected to the shaft, and the function of these projecting ends of the pin is to traverse the grooves and slide the shaft longitudinally in its bearings, so as to withdraw the clutch-head *g* from engagement with the clutch teeth or lugs on the end of the winding-spool in the manner herein-
 10 after described. The sleeve is enlarged at its inner end and formed with external ratchet-teeth *m*, extending entirely around its circumference, and arranged on opposite sides of said teeth are circumferential limit-flanges
 15 *n*. A pawl *O*, pivoted to a shaft *o*, mounted in a sleeve *p* at one side of the standard *a'*, is provided to engage the ratchet-teeth on the sleeve and prevent said sleeve and the shaft from rotating in a reverse or backward direc-
 20 tion when the progress of the dredge is arrested. In operation this pawl lies between the two flanges at opposite sides of the ratchet-teeth and is prevented thereby from becoming twisted through torsional strain or moving
 25 laterally or sidewise and slipping out of engagement with the teeth when the parts become loose from wear or long use.

The operation is as follows: When it is desired to haul in the dredge and wind up the rope on the spool, the shaft is slid inwardly to cause the teeth or recesses formed on the clutch-head *g* to engage with the clutch teeth or lugs on the adjoining end of the spool, whereby said spool is rigidly connected to the shaft and
 30 then said shaft is rotated, through the medium of its crank-handle, in a direction to wind up the rope on the spool, the pawl acting to prevent the shaft and spool from moving backwardly in a reverse direction when sudden
 40 shock or strain follows upon the dredge-rope. During this operation the opposite ends of the pin on the shaft project into the terminal ends of the cam-grooves in the sleeve nearest to the inner end of said sleeve, the said sleeve
 45 being thereby rigidly fixed to cause it to rotate with the shaft. When, however, the progress of the dredge is suddenly interrupted by contact of the latter with an obstruction on the bed of the stream and unusual violent
 50 jerks and backward strain are transmitted to the shaft, the backward or reverse movement of the shaft consequently thereupon will cause the projecting ends of the pin *l* to traverse the cam-grooves of the sleeve, and thereby move
 55 the shaft longitudinally and withdraw the clutch-head *G* from engagement with the clutch teeth or lugs on the spool, leaving the latter free to revolve and unwind or play out the rope to relieve the tension falling thereon.
 60 During this operation the pawl *O* serves to prevent the sleeve from moving backwardly, thus rendering the sliding movement of the shaft positive under all conditions. The slight reverse movement of the shaft which
 65 takes place and which is necessary to throw the clutch mechanism out of operation is lim-

ited and is not sufficient to cause injury to the men at the crank.

From the above description, taken in connection with the accompanying drawings, the construction and mode of operation of our invention will be clearly understood, and it will be seen that it provides a strong and durable apparatus in which all liability of a sudden and forcible undue reverse rotary movement of the winding-shaft is obviated by the particular construction and arrangement of the cam-grooves in the sleeve, the coacting pin on the shaft, and the pawl engaging the ratchet-teeth on said sleeve and held from lateral or sidewise movement by the limit-flanges. By providing the sleeve with spiral grooves instead of slots, as heretofore employed, it is obvious that the sleeve is rendered stronger and much more durable and is less liable to be broken under the sudden and severe shocks which the shaft and connections sustain when the progress of the dredge is arrested by an obstruction.

We are aware of the fact that dredge-winders provided with sleeves similar to that shown and described herein, but provided with a single inclined slot or two reversely-arranged slots, have been heretofore employed to throw the clutch mechanism of the winder into and out of operation; but this form of sleeve is open to serious objections, as the sleeve is materially weakened by the formation of slots therein and is liable to break under sudden strain. By the provision of a sleeve having cam-grooves arranged as hereinbefore described the objections incident to the slotted sleeve are entirely overcome.

We are also aware of the fact that a sleeve provided with a single diagonal cam-slot with ratchet-teeth at one end thereof has heretofore been combined with a longitudinally-movable shaft in a dredge-winder and a coacting pawl on the arrangement of the sleeve and pawl. It will also be seen that the sleeve and shaft should be held rigidly against backward or reverse rotation. By providing the sleeve with two cam-grooves and with the ratchet-teeth and limit-flanges on the exterior thereof, designed to coact with the pawl, the objections which have been pointed out are entirely obviated.

It will of course be understood that changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus fully described our invention, what we claim as new and useful, and desire to secure by Letters Patent, is—

In a dredge-winder, the combination with a frame, of a winding-shaft mounted in bearings therein to rotate and to slide longitudinally, a winding spool or drum mounted loosely on said shaft and provided at one end with clutch teeth or lugs, a clutch-head fixed

to the shaft and adapted when the shaft is
slid longitudinally to be engaged with or dis-
engaged from the teeth of the spool to hold
the same rigidly in engagement with the shaft,
5 a sleeve loosely mounted on said shaft adja-
cent to the clutch-head and provided on its
interior with spiral grooves and on its exte-
rior with an annular series of ratchet-teeth
and circumferential limit-flanges arranged
10 at opposite sides thereof, a pin fixed to the
shaft and having its opposite ends project-
ing into and adapted to traverse the grooves

in the sleeve, and a pawl pivoted to the frame
and engaging the ratchet-teeth on the sleeve
and adapted to prevent backward rotation of 15
said sleeve, substantially as and for the pur-
pose described.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

FRANCIS T. MADDRIX.

WILLIAM E. GODMAN.

Witnesses:

A. R. CROCKETT, Jr.,

A. I. DAUGHERTY.