

(No Model.)

2 Sheets—Sheet 1.

Z. R. MACOMBER.

WINCH.

No. 253,733

Patented Feb. 14, 1882.

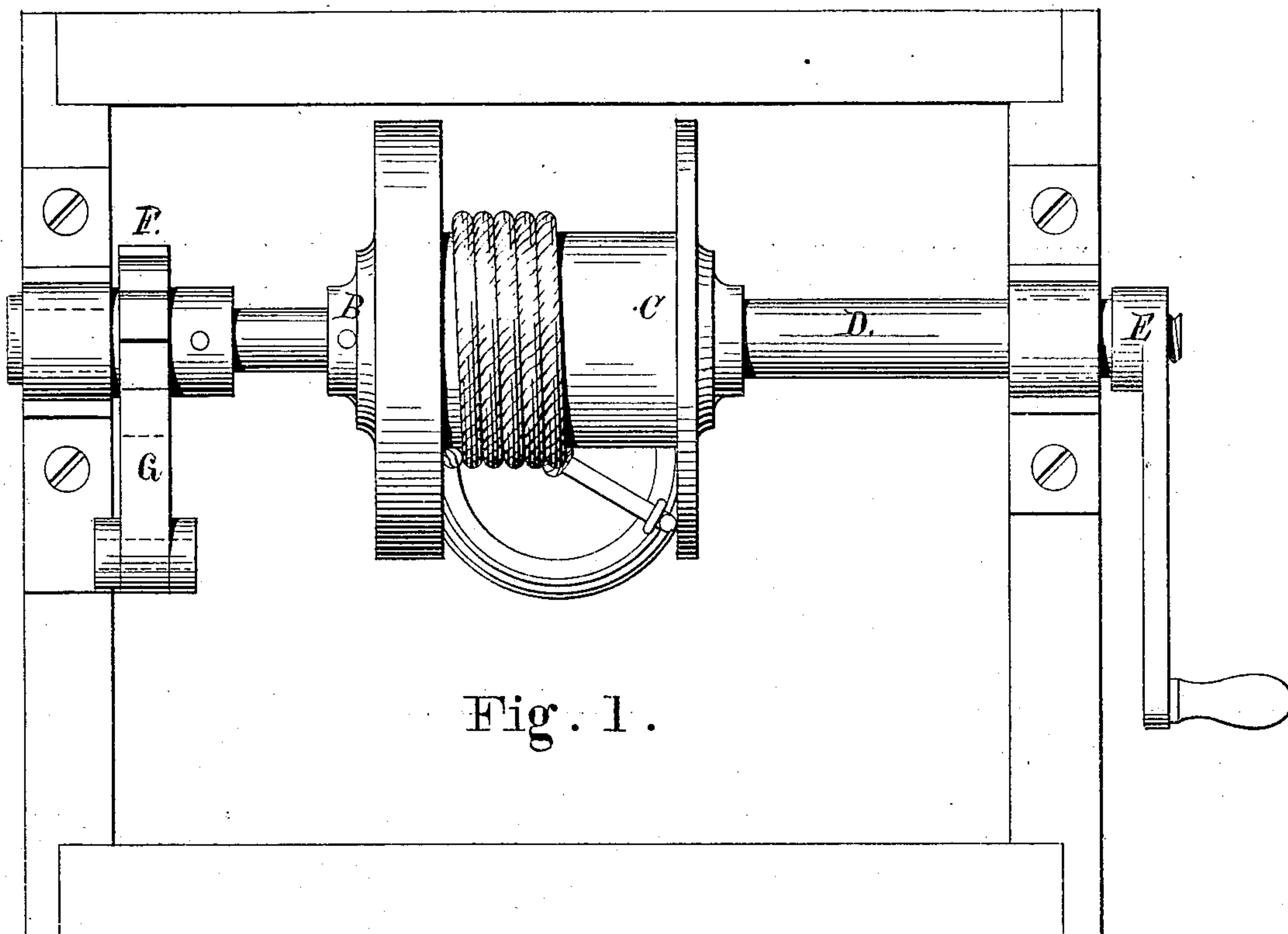


Fig. 1.

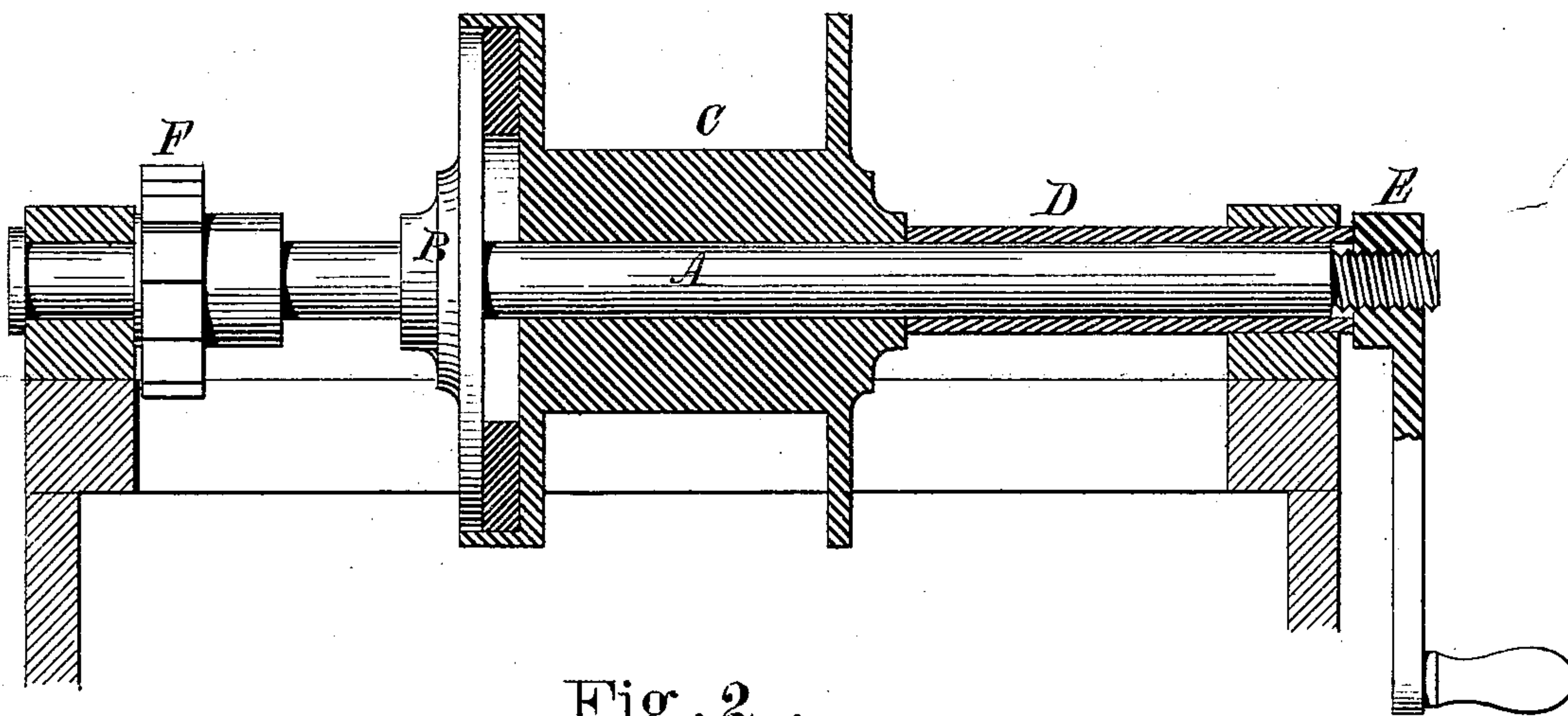


Fig. 2.

WITNESSES:

Henry J. Miller
Wm L. Cook

INVENTOR:

Zebedee R. Macomber,
by Joseph A. Miller & Co
Attys

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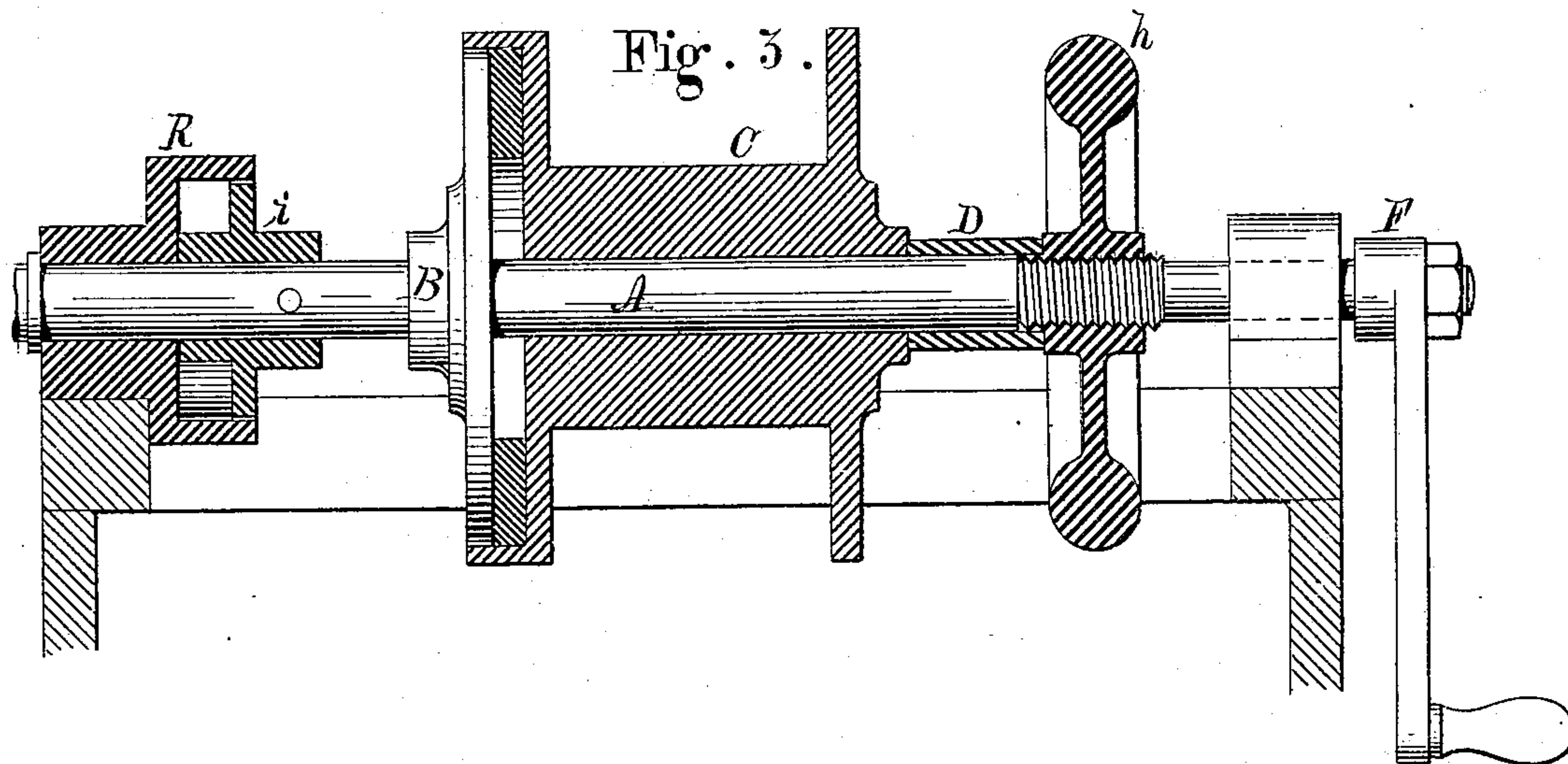


Fig. 4.

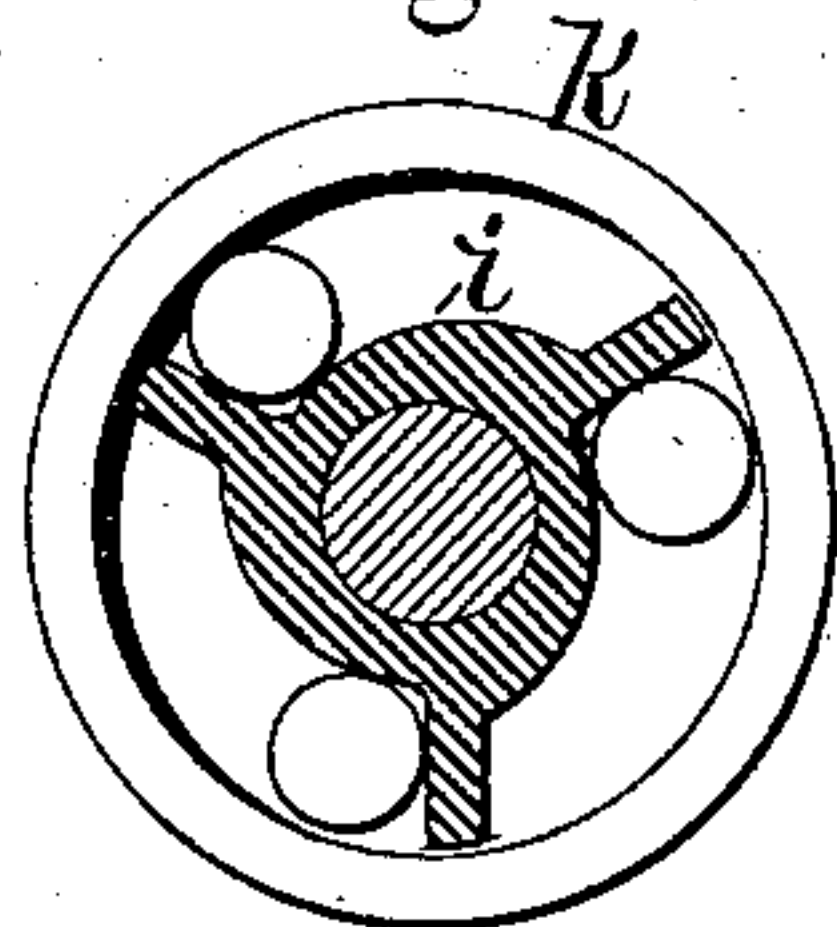
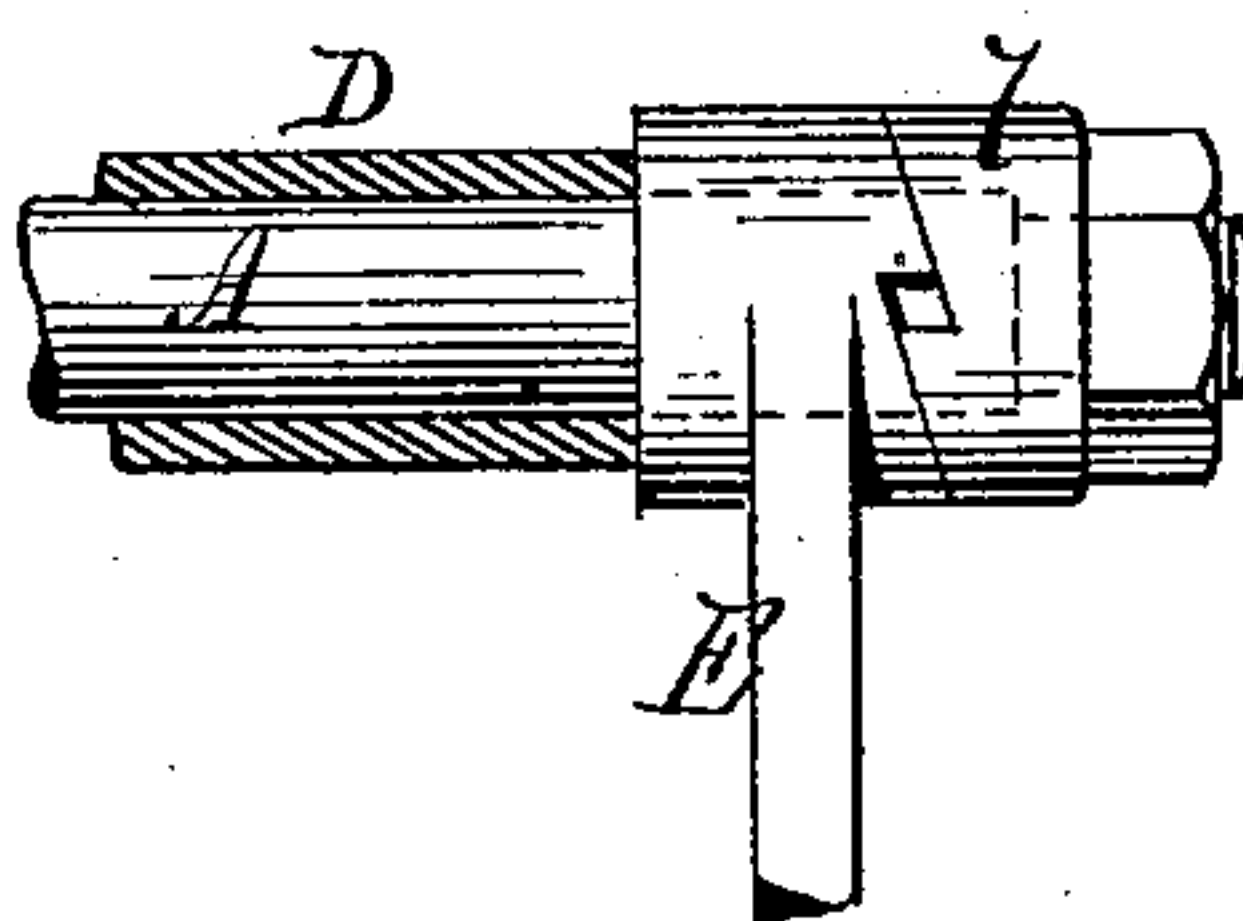


Fig. 5.



WITNESSES:

Henry J. Miller
Wm. L. Cook

INVENTOR:

Zebedee R. Macomber.
by Joseph A. Miller & Co
Attys

UNITED STATES PATENT OFFICE.

ZEBEDEE R. MACOMBER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF
ONE-HALF TO WILLIAM H. BARRON, OF SAME PLACE.

WINCH.

SPECIFICATION forming part of Letters Patent No. 253,733, dated February 14, 1882.

Application filed November 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, ZEBEDEE R. MACOMBER, of the city and county of Providence, State of Rhode Island, have invented a new and useful
5 Improvement in Winches; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 The object of this invention is to so construct a winch or hoist that when power is applied to raise a weight the barrel will be clamped so as to revolve and wind the rope, chain, or cable, and when the power is suddenly re-
15 versed the barrel will be free to unwind.

The invention is applicable to well-curbs, hoists, windlasses, capstans, and all devices where a drum is used to wind on rope, chain, or cable.

20 Figure 1 is a top view of a well-curb, showing the barrel, the driving-head, the shaft provided with a ratchet-clutch, and the crank for turning the same. Fig. 2 is a sectional view. Fig. 3 is a sectional view of a modification of
25 the device, showing a hand-wheel by means of which the barrel is held against the driving-head, and by which the same can be released. Fig. 4 is a sectional view of a roller-clutch constructed to prevent the rotation of the shaft in
30 one direction. Fig. 5 is a view, partly in section, of the end of the driving-shaft, showing a modification of Fig. 2. In this case the crank is loose on the shaft, and is forced against the sleeve by means of a cam.

35 In the drawings, A is the driving-shaft. B is the driving-head secured to the driving-shaft.

C is the barrel, loose on the driving-shaft.

D is a sleeve surrounding the driving-shaft.

40 E is the crank, secured to the driving-shaft by a screw-thread.

F is a ratchet-wheel secured to the driving-shaft, and G is a pawl.

The operation is as follows: The driving-
45 shaft being held by the pawl and ratchet against rotation in one direction, the shaft can be rotated only in the opposite direction. As soon as the crank E is turned in this direction it is brought to bear against the end of the
50 sleeve D as it turns on the screw-thread, and

the sleeve D forces the barrel C against the driving-head B. The whole will now turn together and raise the bucket or other weight. When the bucket or other device—such as an anchor—is to be released the crank is turned
55 backward. The pawl and ratchet F G will hold the shaft so that the crank will turn on the screw-thread sufficiently to release the barrel from frictional contact with the driving-head, and the barrel is free to revolve.

60 In place of the pawl and ratchet any other clutch that will hold the shaft in one direction may be used. Figs. 3 and 4 represent such a clutch. i is a cam fixed on the shaft A, and K a sleeve fixed on the bracket or forming part
65 of the same. Three balls or rolls are inserted, and the shaft is now free to turn in one direction only.

The crank may be fixed to the driving-shaft A, or a pulley may be used, and the device for
70 forcing the barrel against the driving-head may be operated by means of the wheel h, as is shown in Fig. 3. In this case the shaft may run continually in the same direction, and the barrel be released to run down the rope, cable,
75 or chain, when it can be readily connected with the weight hoisted. The crank can also be secured loose on the driving-shaft and provided at one side with a cam-face bearing against the cam l, so as to bear against the
80 sleeve D when turned in one direction, and releasing the same and the barrel when turning in the opposite direction. In this case the backward motion of the crank cannot be so readily turned off from the shaft.

85 By the use of either of these devices a simple, durable, and convenient winch is produced in which the rope, chain, or cable is allowed to unwind, and is controlled by the friction between the barrel and driving-head, which can
90 be regulated to suit any emergency in paying out cable, dropping anchor, or lowering a bucket.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

95 1. The combination, with the driving-shaft, of a device for holding said shaft against rotation in one direction, a driving-head secured to said shaft, a barrel loose on the shaft, a crank mounted upon the shaft and having
100

movement at times independent of the rotation of said shaft, and a sleeve surrounding the shaft and operated by the crank for pressing the barrel against the driving-head in locking frictional contact and releasing it from
5 said locking contact, substantially as described.

2. The combination, with the driving-shaft, of a device for holding it against rotation in one direction, a driving-head fixed upon the
10 shaft, the barrel C loose upon the shaft, the sleeve D, having a longitudinal movement up-

on the shaft, a device for moving said sleeve endwise and against the barrel, and thereby moving the barrel into locking frictional contact with the driving-head, and means for
15 turning the shaft in one direction, substantially as described.

ZEBEDEE R. MACOMBER.

Witnesses:

J. A. MILLER, Jr.,
HENRY J. MILLER.