

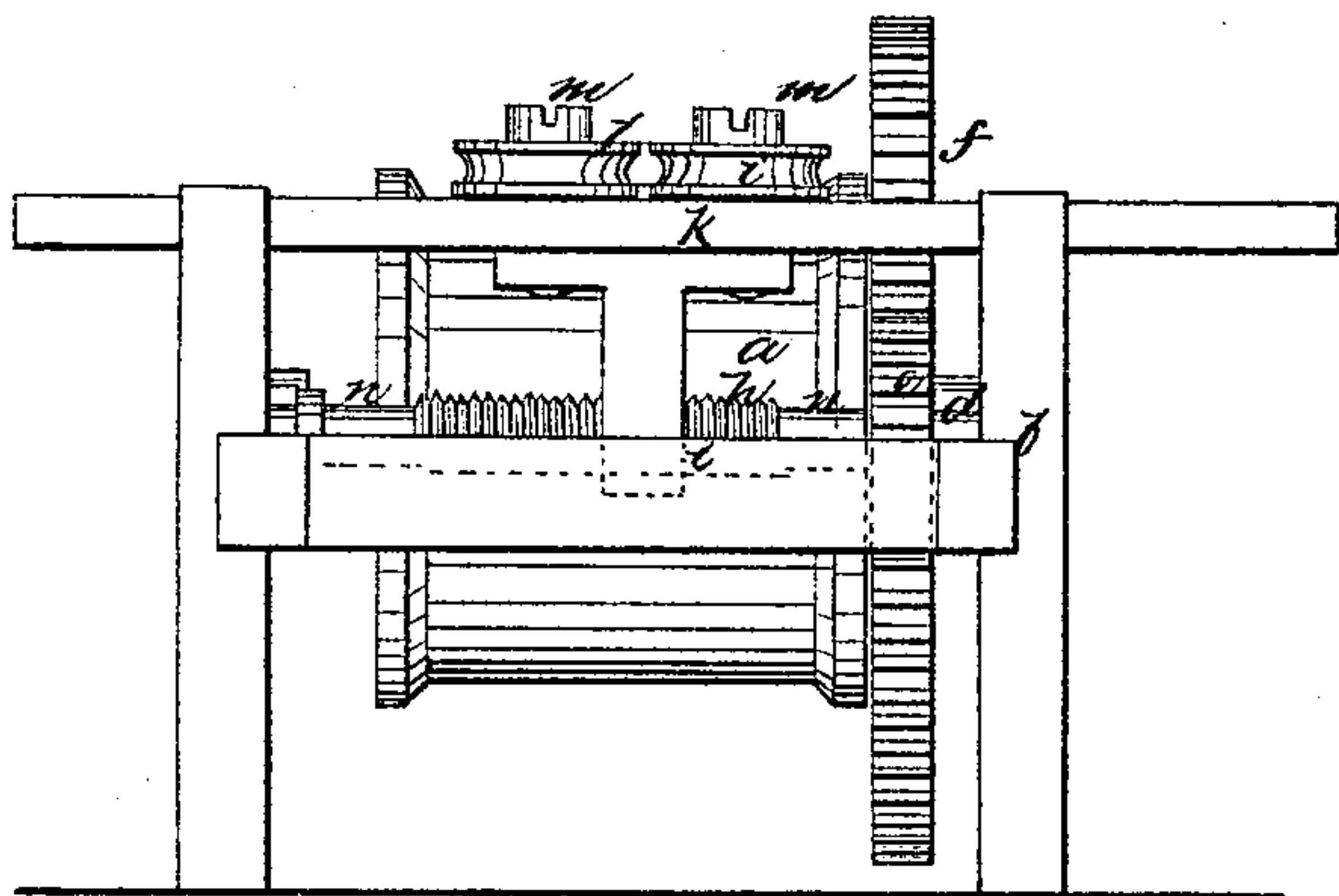
*E. Reynolds,*

*Windlass Rope-Guide.*

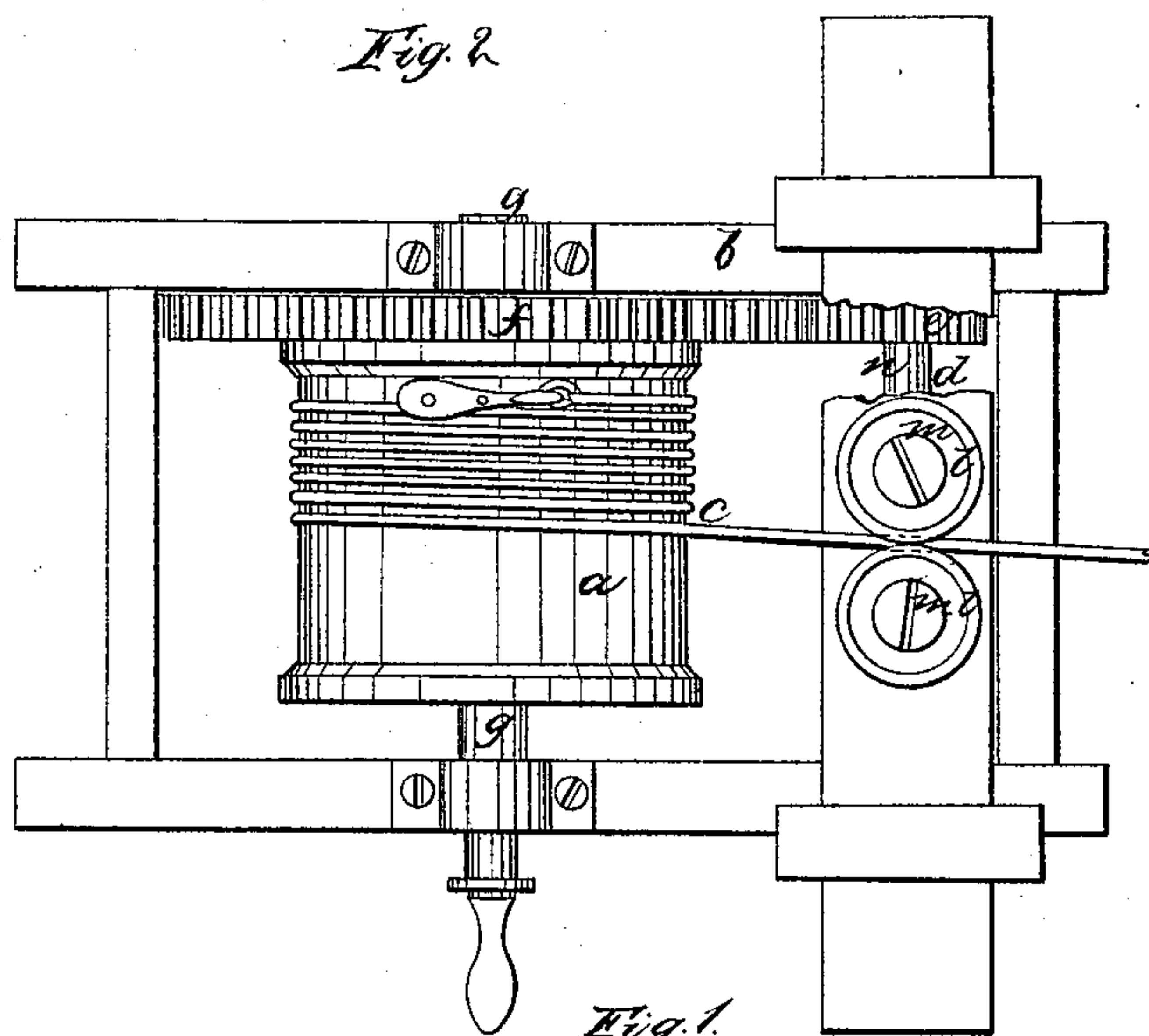
*N<sup>o</sup> 41,171.*

*Patented Jan 5, 1864.*

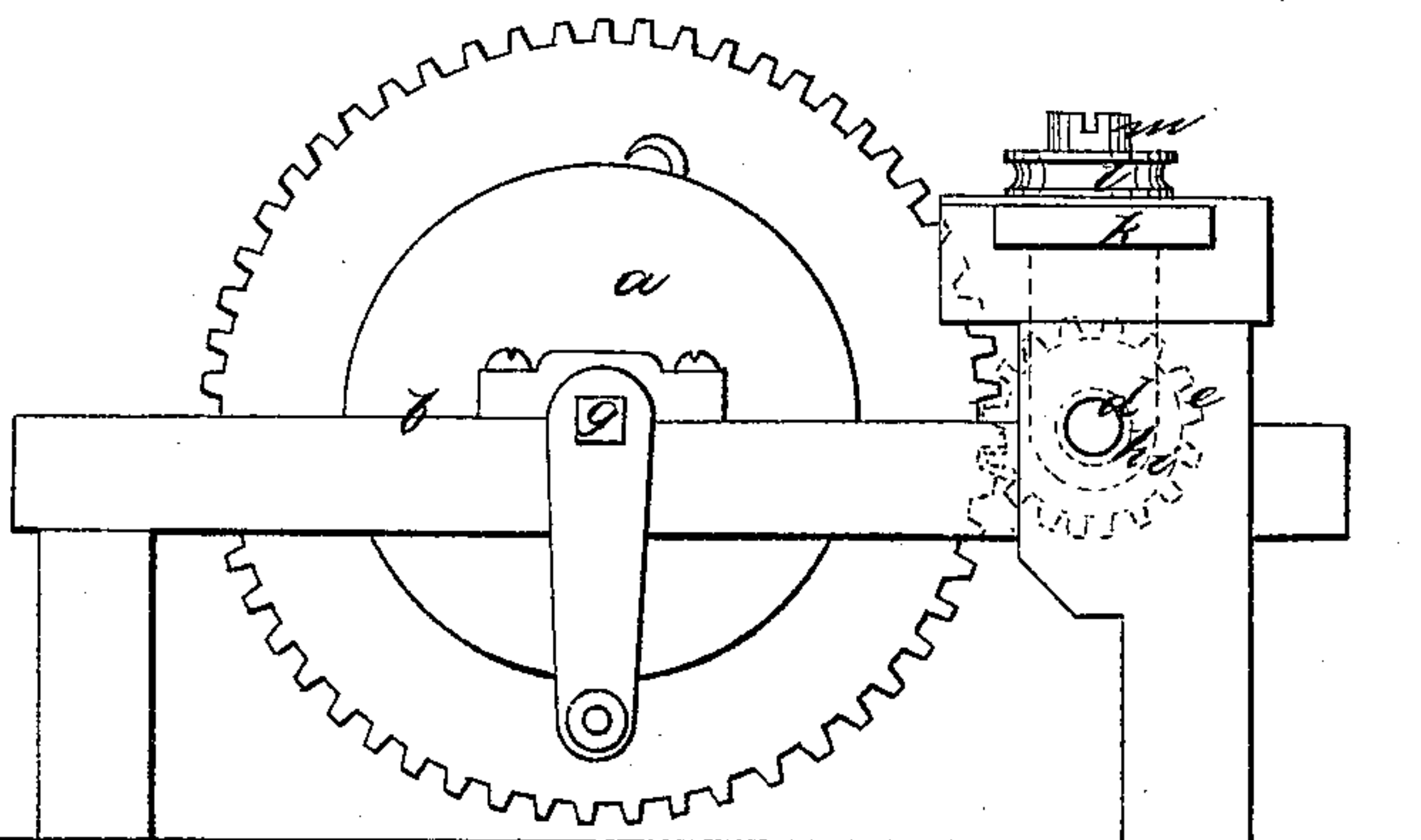
*Fig. 3.*



*Fig. 2.*



*Fig. 1.*



*Witnesses.*  
*J. B. Crosby*  
*Francis Gould*

*Inventor.*  
*Edwin Reynolds*



# UNITED STATES PATENT OFFICE.

EDWIN REYNOLDS, OF MANSFIELD, CONNECTICUT.

## IMPROVEMENT IN WINDLASSES.

Specification forming part of Letters Patent No. 41,171, dated January 5, 1864.

*To all whom it may concern:*

Be it known that I, EDWIN REYNOLDS, of Mansfield, in the county of Tolland and State of Connecticut, have invented a Traverse Guide for Windlasses; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention consists in an arrangement of mechanism for guiding the rope as it is wound upon a windlass-barrel in such manner that the winding rope shall not override or impinge against that portion of the rope previously wound upon the drum.

Figure 1 of the accompanying drawings represents a side elevation of a windlass-barrel, showing my invention as applied thereto. Fig. 2 shows a top view, and Fig. 3 an end elevation, of the same.

*a* denotes the windlass drum or barrel; *b*, the frame-work upon which the axis of the barrel runs; *c*, the windlass-rope. Upon one end of the frame *b* is placed a cross-shaft, *d*, running in bearings on the frame, and carrying a pinion-wheel, *e*, which meshes into and is driven by a gear, *f*, fixed on the windlass-shaft *g*, so that the rotation of the windlass or drum *a* imparts rotation to the shaft *d*. Upon this shaft a screw-thread, *h*, is formed, said screw-thread bearing a nut, *i*, which extends down from a sliding bar, *k*, as seen in Fig. 3. The bar *k* extends across the top of the frame, or so as to slide laterally in ways or bearings made in the upper ends of two of the vertical posts of said frame. Upon the top surface of the bar, and so as to come in or nearly in a horizontal plane with the upper surface of the windlass-barrel, are placed two sheaves, *l l*, which turn loosely on pins or shafts *m m*. The rope *c*, in its passage to the windlass-drum *a*, is made to pass through or between these sheaves, as seen in Fig. 2, the grooves in the sides of the sheaves encircling or nearly encircling the rope.

Now, as the windlass-barrel is turned to wind the rope upon it, the shaft *d* and its thread *h* are rotated, and the nut *i*, the bar *k*, and the sheaves *l l* are moved laterally in the direction in which the rope is being laid onto the windlass, and the movement of the sheaves guides the lay of the rope on the surface of

the windlass-drum, as will be readily understood. The relation between the pitch of the screw-threads and the rotation of the screw-shaft is so regulated that the lateral movement of the nut *i* and the sheaves *l* at each revolution of the windlass shall slightly exceed the diameter of the windlass-rope. Thus if the rope is of an inch diameter the sheaves may be made at each revolution of the windlass to move an inch and a sixteenth, and by this means the rope is so guided upon the drum that the adjacent coils thereof do not touch each other, but are regularly wound at such distance apart as to completely prevent any overlapping or impingement of such contiguous or adjacent and successively wound coils or portions of the rope. The lateral movement of the sheaves continues until the rope fills or covers the windlass-barrel.

The reverse rotation of the drum *a* carries back the traverse bar and sheaves until the rope is entirely unwound. In order to prevent any accidentally continued or subsequent rotation of the screw-shaft after the rope has covered or has been unwound from the drum from stripping the threads of the screw-shaft, or otherwise injuring the mechanism, the opposite ends of the shaft *d* are left plain, as seen at *n* in Fig. 3, and of such diameter that the nut *i* can move over them without contact. Undue rotation of the shaft forces the nut upon one or the other of these cylindrical portions *n*, when the lateral movement of the sheaves ceases until the shaft is rotated in the opposite directions.

My invention has been made principally with reference to elevators where great care is generally necessary in guiding the windlass-ropes, and where much injury and wear will continually occur from the friction and overlapping of the successive coils as they are being wound upon the drum. Particularly is this the case with wire ropes, where from the incompressibility of the material the strands of the rope are soon worn through by this overlapping, and the rope is spoiled or rendered unfit or unsafe to use. The coils being kept separate and distinct by my invention, all wear of the rope from this cause is prevented, and the strength of the rope is preserved.

I would here remark that instead of applying the sheaves as described in the drawings, other devices may be used for guiding the rope

upon the windlass; and I do not intend to confine my invention to the precise arrangement of parts shown, but to vary the same as circumstances may require.

What I claim is—

1. The application of a sheave or sheaves mounted upon a traverse bar or guide to a windlass-rope, so that impingement of the successive coils of the rope is prevented, in the manner and for the purpose substantially as described.

2. The combination and arrangement of the

drum *a*, screw-shaft *d*, nut *i*, traverse bar *k*, and sheaves *m*, substantially as specified.

3. Regulating the total extent of traverse of the nut *i* or the screw-shaft in the manner substantially as set forth.

In witness whereof I have hereto set my hand this 17th day of October, A. D. 1863.

EDWIN REYNOLDS.

In presence of—

J. B. CROSBY,

FRANCIS GOULD.