

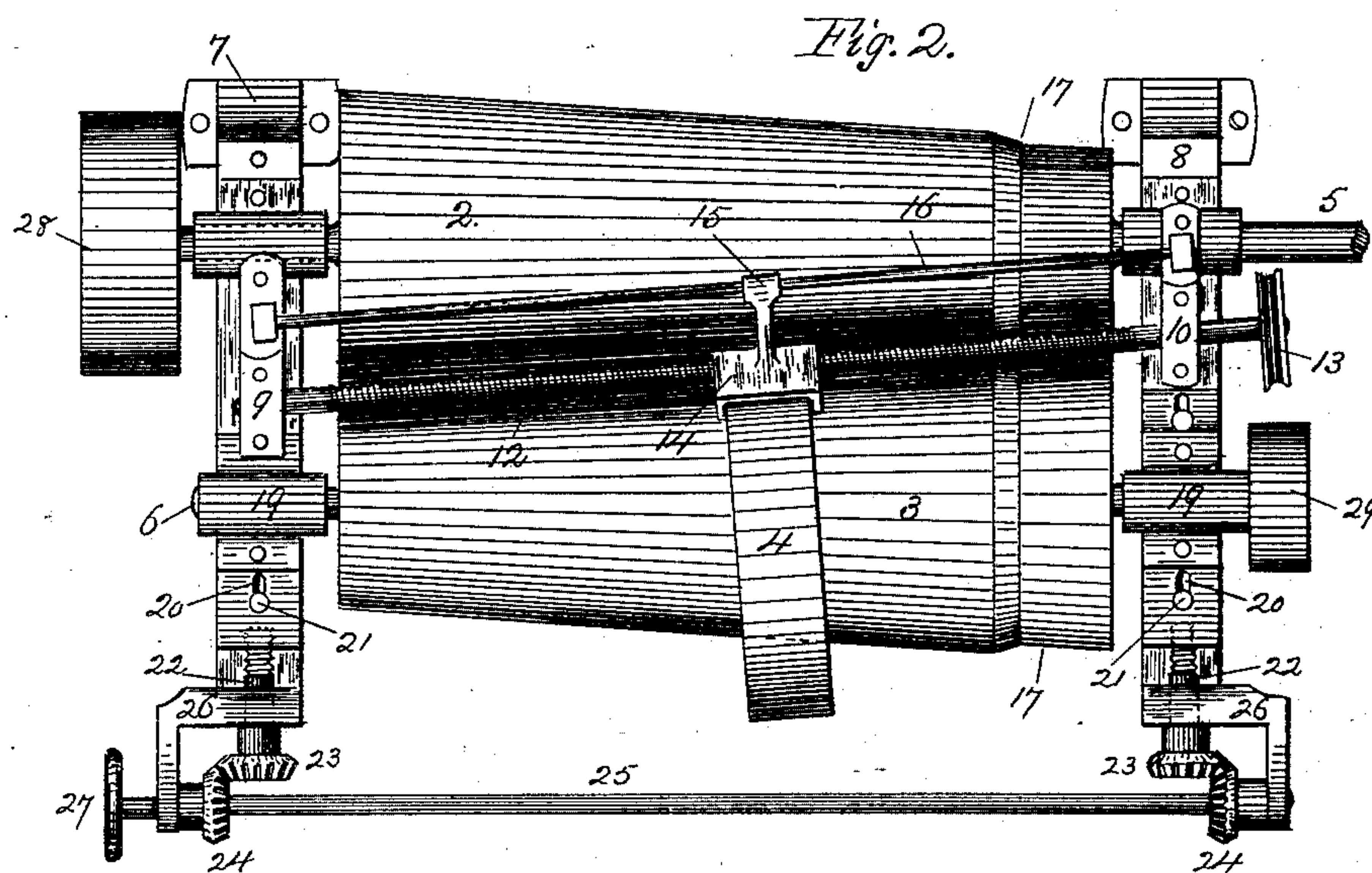
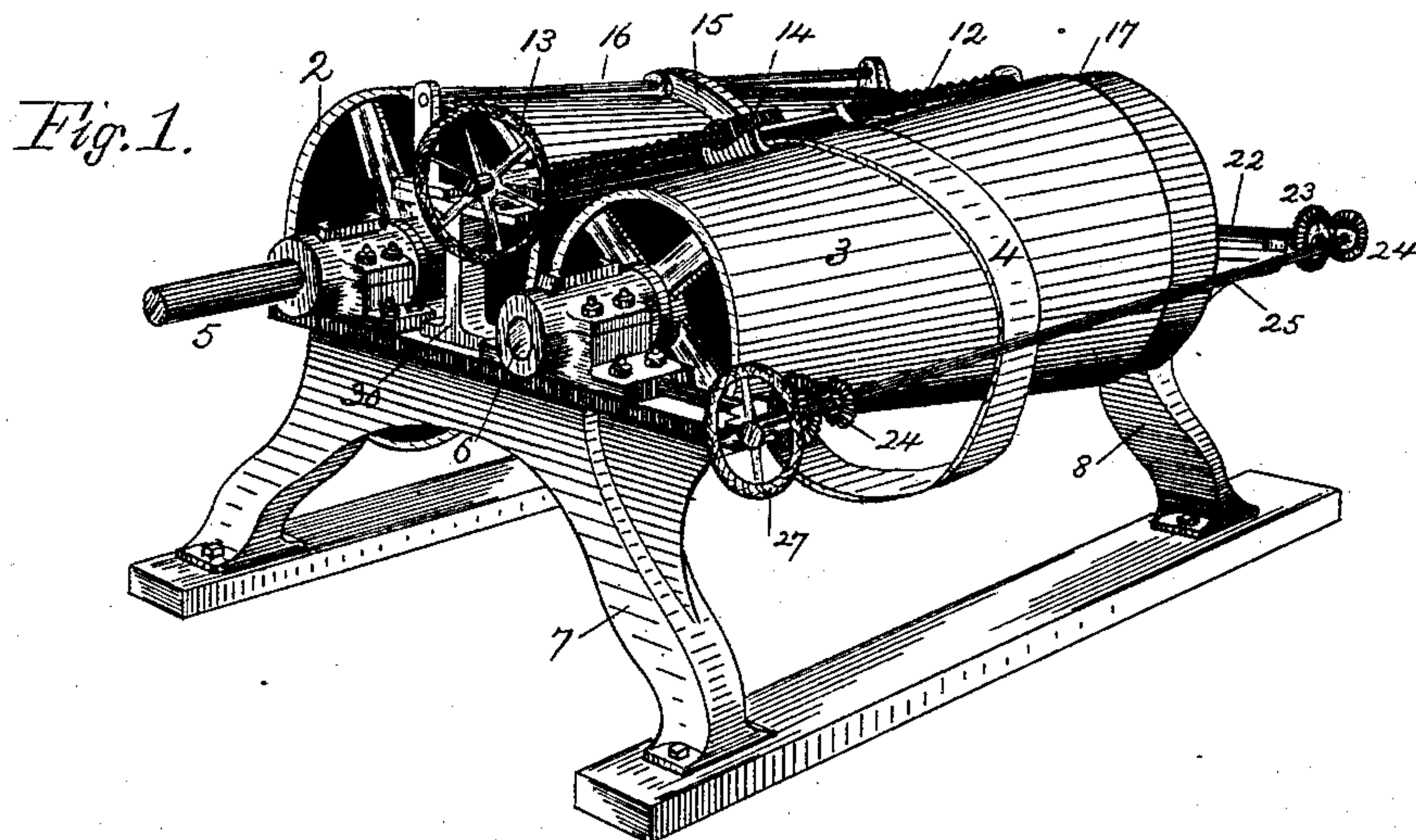
(No Model.)

G. F. EVANS.

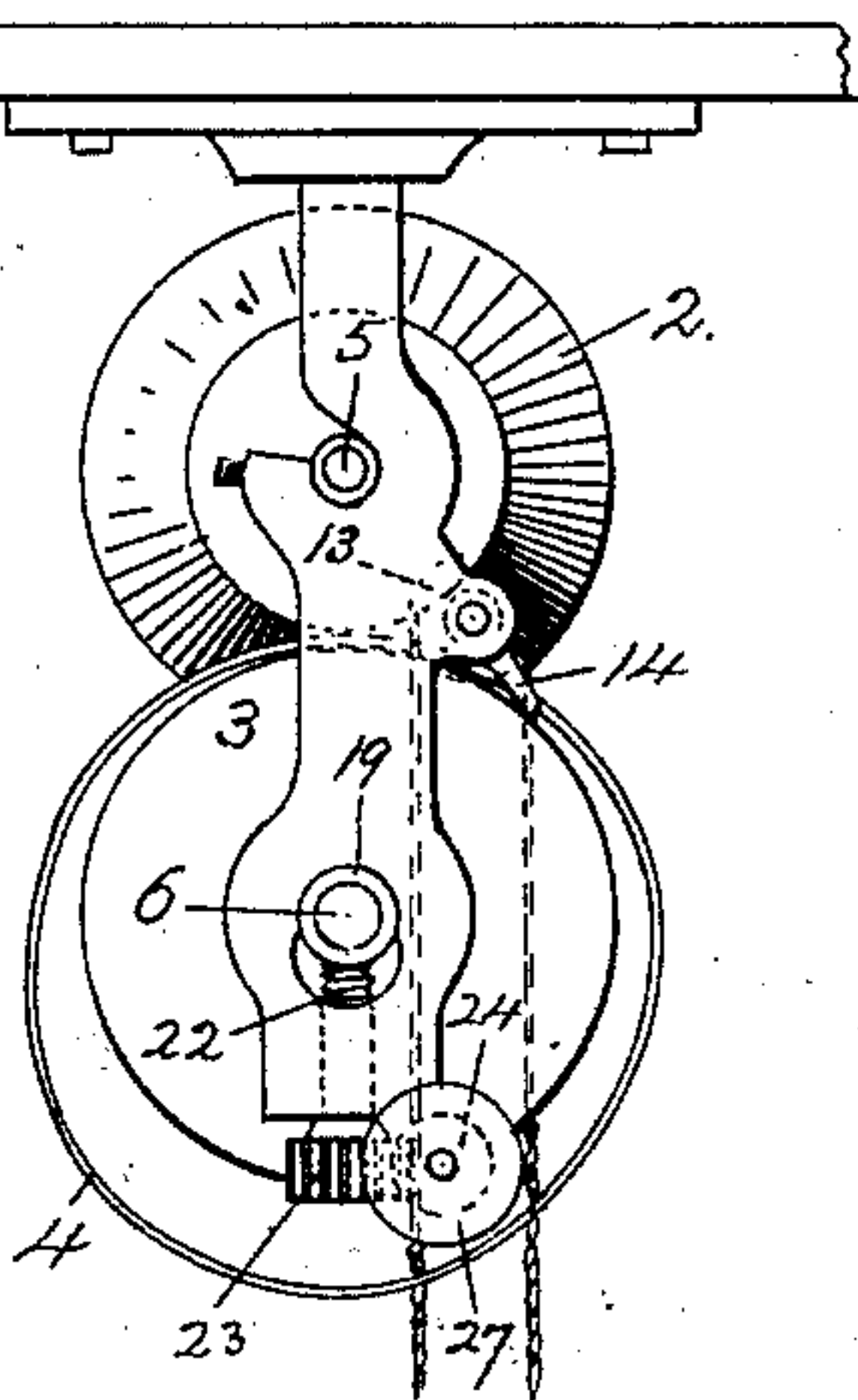
DEVICE FOR TRANSMITTING MOTION.

No. 374,296.

Patented Dec. 6, 1887.



*Fig. 3.*



Witnesses.  
J. C. Long  
W. H. Eadie

Inventor.  
G. Frank Evans.  
J. Curtis, atty.



# UNITED STATES PATENT OFFICE.

G. FRANK EVANS, OF SOMERVILLE, MASSACHUSETTS.

## DEVICE FOR TRANSMITTING MOTION.

SPECIFICATION forming part of Letters Patent No. 374,296, dated December 6, 1887.

Application filed July 25 1887. Serial No. 245,217. (No model.)

*To all whom it may concern:*

Be it known that I, G. FRANK EVANS, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Devices for Transmitting Motion; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in a device for transmitting motion, more particularly that shown and described in Letters Patent of the United States numbered 299,231, and issued on May 27, 1884.

The said device may be applied to wood-planing machines, or metal-working machines, or to any machine which receives power through belt-gearing.

The aim of my invention is to effect three essential objects—first, in the mechanism, hereinafter described, by which the endless belt can be speedily adjusted endwise and its position between the surfaces of the pulleys controlled; secondly, in the stop-motion provided for such belt by means of the construction and form of the peripheries of said pulleys; and, thirdly and lastly, in the instrumentalities, hereinafter described, whereby one pulley is made movable toward or away from the other in a direction at right angles to the shaft of the fixed or non-adjustable pulley.

The drawings represent in Figure 1 a perspective view of a device embodying my improvements. Fig. 2 is a plan of the same. Fig. 3 is an elevation in part, showing its application to a hanger and the means by which adjustment of the belt endwise of the pulleys is effected.

In the drawings, 2 3 represent two oppositely-disposed conical or tapering pulleys suitably mounted, and between which is gripped an endless belt, 4, which loosely girdles one of the pulleys. Shafts 5 6, which support the latter, are journaled (see Fig. 1) in two housings or standards, 7 8, securely affixed upon the floor of a building.

If desired, hangers may be substituted, and the entire device can then be suspended from the ceiling of a room.

My improvements relate, first, to operative mechanism by which the endless belt can at any time, even when the pulleys are running, be shifted endwise or longitudinally of said pulleys to change the speed, or in order to stop the driven roll 3, which latter result will be more fully hereinafter described.

To effect adjustment in the position of the belt 4, I have secured upon the housings 7 8 two upright posts, 30, surmounted with journal-boxes 9 10. Mounted in said boxes and extending above the pulleys is placed a screw-threaded shaft, 12, furnished at one end with a grooved pulley, 13, or other equivalent actuating device. The boxes 9 10, before mentioned, are so positioned upon their respective standards that the screw-threaded shaft 13 is axially aligned with the parallel adjacent surfaces of the pulleys. Upon this shaft 13 is mounted a sleeve-nut, 14, which engages with and is moved by the rotations of the shaft. Said nut is provided laterally of the shaft, upon the side adjacent to the pulley 3, with an extension, which is apertured to receive and permit the travel of the endless belt 4 there-through. Oppositely disposed I have affixed a short arm, 15, which engages a guide-rod, 16, also mounted upon the upright posts 30. Said guide-rod is parallel with the screw-shaft 13, and serves to support and steady the sleeve-nut as it travels endwise upon the shaft in the act of adjusting the endless belt.

The second feature in my improvements is to effect a stop-motion for the belt without separating the surfaces of the pulleys. To effect this I have reduced a portion of the pulleys. Thus when the belt by means of the screw-rod and its co-operating parts is transferred to said portion the friction ceases and the driven pulley 3 stops at once. As shown in the drawings, two adjacent ends of the pulleys are cut away or reduced in diameter, thereby forming an annular recess, 17. An easy bevel exists between the active surfaces of the pulleys and the inactive or reduced portions, in order to facilitate movement of the endless belt between the pulleys when the driven one is to be actively employed.



The third feature of my invention consists in the mechanism by which the driven pulley 3 is moved transversely of its length, in lieu of in direction of its length, as hitherto practiced. To this end I have adjustably mounted the boxes 19 19, which support said pulley. Said boxes are slotted at 20 20, and are removably secured in position by bolts 21 21. To actuate said boxes and move them equally, when adjustment of the pulley is effected, I have disposed two short shafts, 22 22, at right angles to the longitudinal axis of the pulley and screw-threaded one end, which enters and engages the journal-box. The opposite ends are furnished with miter-gears 23, meshing with similar gears, 24, fixed upon the rod, 25. The latter is supported in bearings in the arms 26, which are bolted to the housings 7 8. A hand-wheel or pulley, 27, serves to rotate the rod 25. In the event of the device being employed upon a hanger a belt or cord may connect the pulley 13 with a second one upon the floor, (not shown,) and thus the position of the endless belt, by means of the sleeve-nut, can readily be controlled. (See Fig. 3.)

In Fig. 2 the pulley 2 is mounted upon the shaft 5, actuated from some prime motor; or it may be operated by means of the pulley 28 by a belt. The pulley 29 upon the shaft 6 is intended, by means of a belt, to actuate and transmit the power to any desired point where it may be desired. Other mechanical means

may be employed, however, in conveying power in lieu of the belt.

I claim—

1. In a device for transmitting motion from one conical or tapering pulley to another by pressure of said pulleys upon a band arranged to pass between them, the pulleys 2 3, reduced in diameter at adjacent portions to form the annular recess 17, combined with an endless band which loosely encircles one pulley and is adapted to enter said recess when motion is not to be transmitted, substantially as herein specified.

2. In combination with the pulley 2 in fixed bearings, the pulley 3 in movable bearings, and the endless band 4, which passes therebetween, the horizontal slotted boxes 19, the short shafts 22, having screw-threaded ends engaging and moving said journal-boxes, the miter-gears 23 on the other ends of said shafts, and the shaft 25, carrying additional miter-gears 24 meshing therewith, by which the pulley 3 is adjustable in paths of movement transversely of the axis of support of the pulley 2, to increase or diminish the grip upon the band, as herein stated.

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

G. FRANK EVANS.

Witnesses:

H. E. LODGE,  
W. H. ELLIS.