

(No Model.)

G. KAFFENBERGER.
PAPER WINDING MACHINE.

No. 424,608.

Patented Apr. 1, 1890.

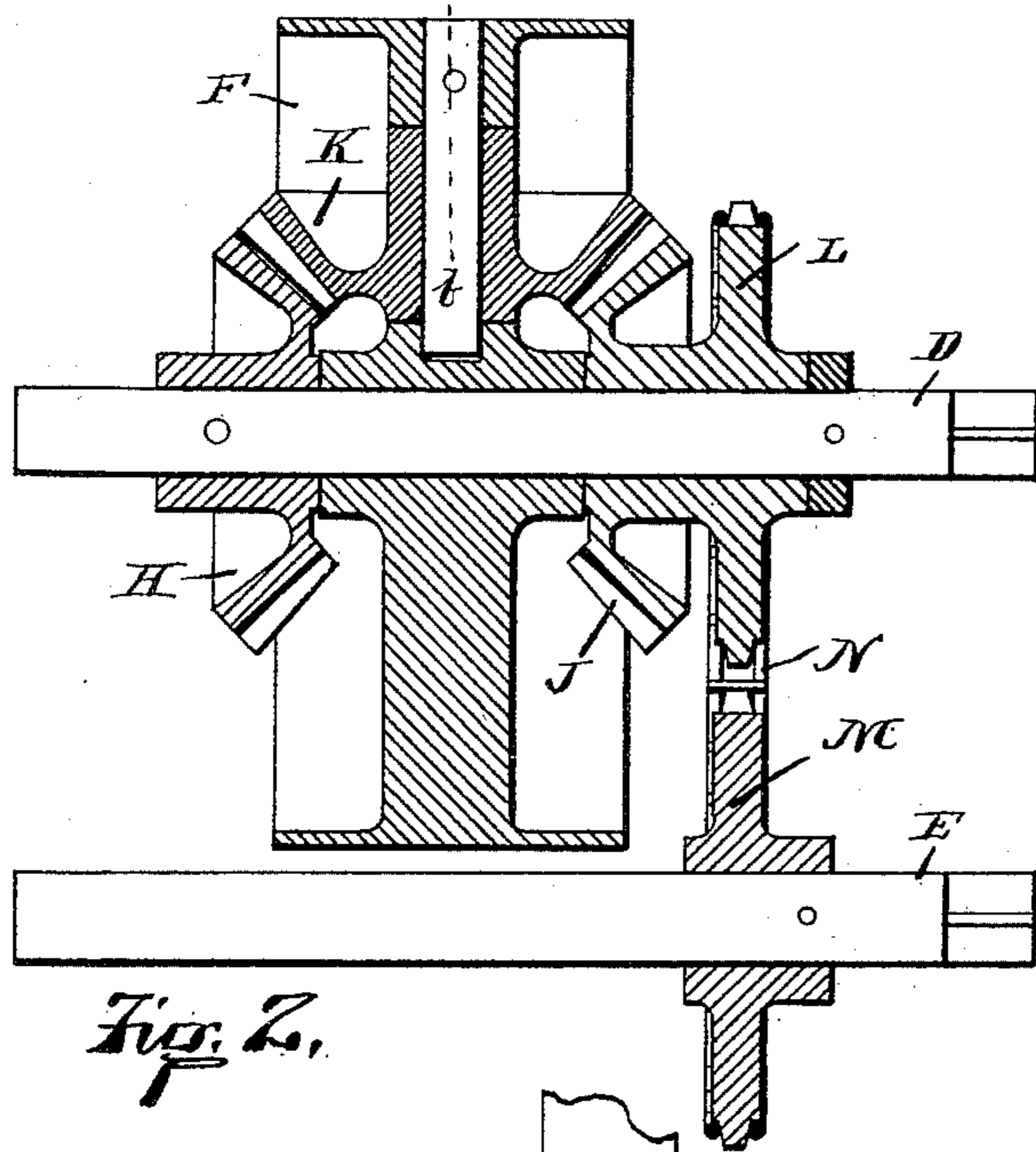


Fig. 2.

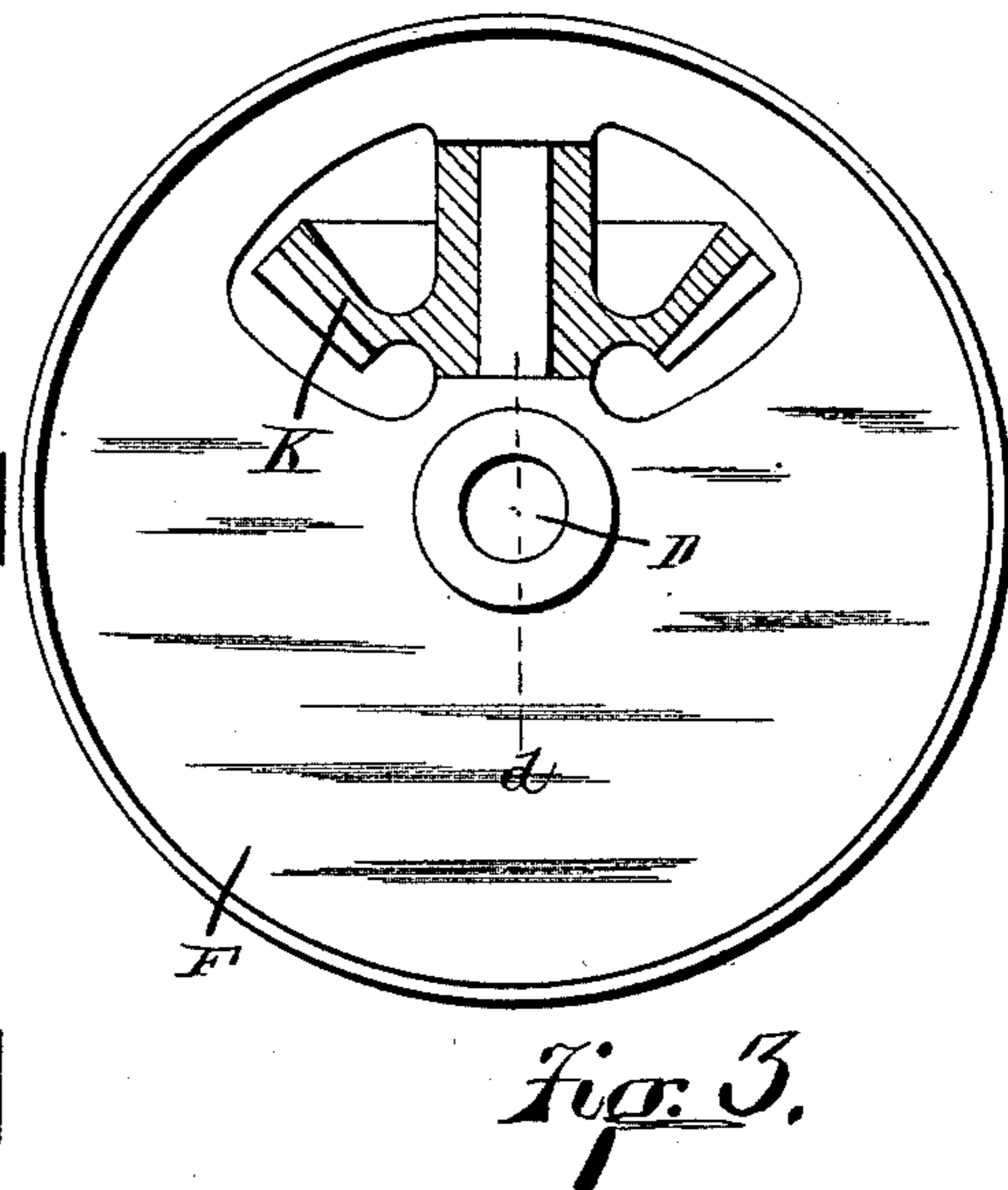


Fig. 3.

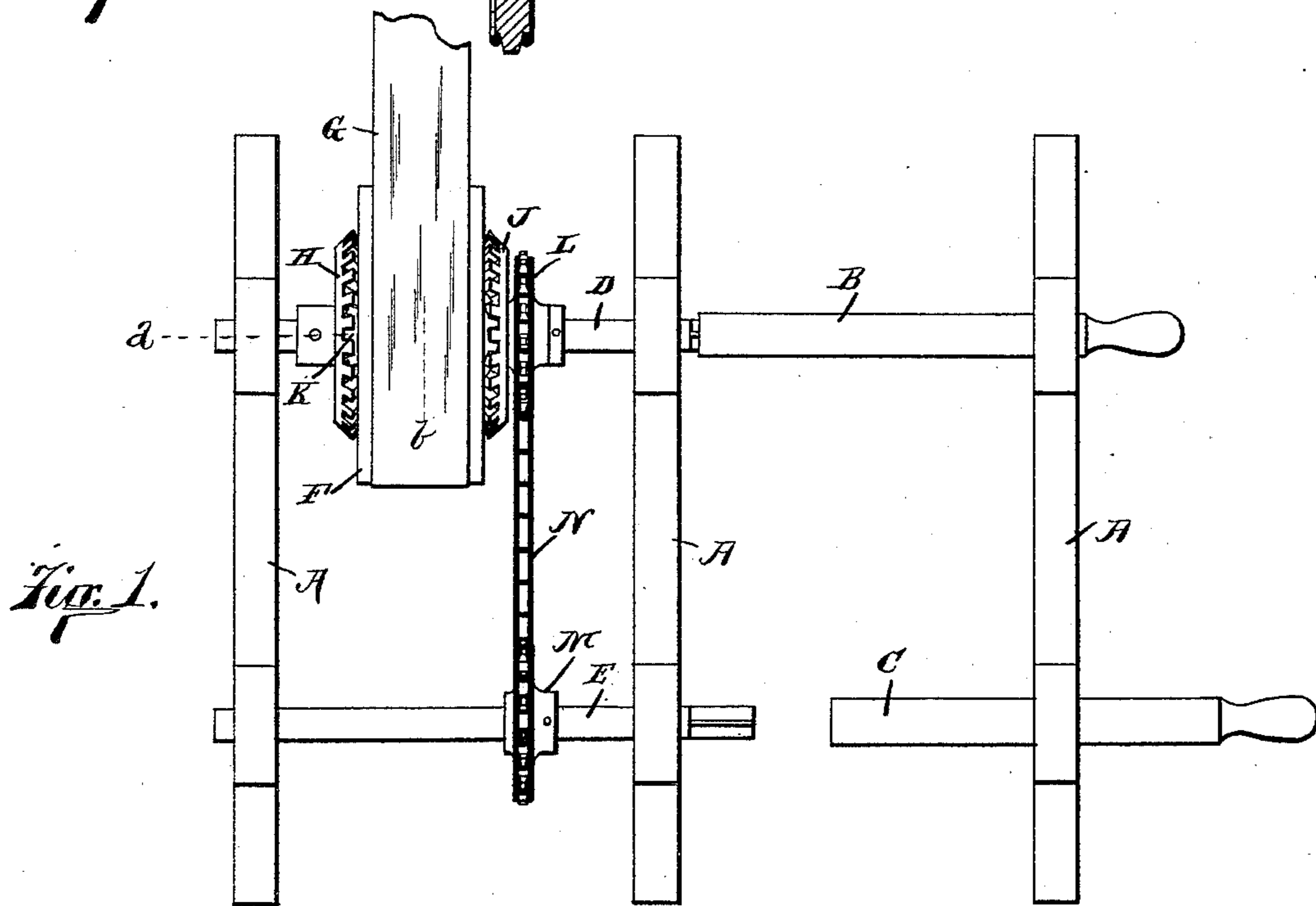


Fig. 1.

Witnesses:
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UNITED STATES PATENT OFFICE.

GUSTAV KAFFENBERGER, OF CLEVELAND, OHIO, ASSIGNOR TO THE CENTRAL PAPER AND FIBER COMPANY, OF SAME PLACE.

PAPER-WINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 424,608, dated April 1, 1890.

Application filed October 2, 1889. Serial No. 325,786. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV KAFFENBERGER, a citizen of the United States, residing at Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in Paper-Winding Machines, of which the following is a specification.

This invention pertains to improvements in machines for winding webs or lines of paper or other material into spools or rolls.

If two rolls of paper be wound from webs drawn from a single roll, as when a single roll of wide paper is slitted into two narrower webs to be wound as separate rolls, the two narrow rolls being formed must draw at equal speeds from the wide roll which supplies them. Many winding-machines have been contrived for the purpose indicated; and the object of my improvements is to avoid as far as possible that complication of moving parts which is productive of dissimilar degrees of friction, which interferes with equality of strains upon the two winding-shafts.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a plan of an ordinary paper-winding machine provided with my improvements; Fig. 2, a diametrical section through the pulley, &c., in the plane of lines *a*; Fig. 3, a face view of the pulley, the planet-gear appearing in section in the plane of line *b*. Figs. 2 and 3 are to about double the scale of Fig. 1.

In the drawings, A indicates the usual framing of a paper-winding machine, arranged to furnish supports for the various shafts; B, one of the usual winding-shafts on which paper or the like is to be wound by the rotation of the shaft; C, a second similar winding-shaft, both winding-shafts being shown as being removable from the machine, as is customary; D, an extension of the winding-shaft B, this extension being virtually a permanently-mounted portion of the winding-shaft B, to and from which that winding-shaft is connected and disconnected as desired; E, a similar extension for the winding-shaft C; F, a pulley mounted for free rotation on the ex-

tension-shaft D; G, the belt by which rotary motion is given to the pulley F from any suitable source of power; H, a bevel-gear fast on the extension-shaft D to one side of the pulley; J, a similar bevel-gear loose on the same extension-shaft, but at the other side of the pulley; K, a planetary bevel-gear carried by the pulley, gearing into the two bevel-gears H J, the planetary gear being free to rotate on its axis; L, a sprocket-wheel fast on the bevel-gear J; M, a sprocket-wheel fast on the extension-shaft E, and N a sprocket-chain engaging the two sprocket-wheels.

When the pulley is rotated, the planetary gear acts virtually as a dog, which tends to rotate the two gears H J at the speed of the pulley. The result of this is that extension-shafts D and E both tend to be driven in the same direction and at the same speed, the winding-shafts B and C rotating the same; but the planetary gear K thus acts as a fixed dog only so long as the resistance offered by the bevel-gears H J is equal. Should the resistance offered by bevel-gear H preponderate over that offered by gear J, then the planetary gear will rotate to a proper extent upon its axis and impart a preponderating rotary motion to gear J until the resistance offered by the two gears becomes equal, when the planetary gear will proceed again to act as a mere driving-dog. When all the parts are moving at normal speed, the only friction in the apparatus is that due to the journals of the shaft, which is obviously equal upon each of the two winders.

The function of the pulley F is to transmit planetary motion to the dog-gear K, and a toothed gear would be the obvious equivalent of the pulley F, and the function of the wheels L and M and chain N is to transmit rotary motion in a common direction from bevel-gear J direct to shaft E, and belting or toothed gearing could be employed as an obvious equivalent.

I claim as my invention—

In a winding-machine, the combination, substantially as set forth, of two parallel shafts mounted for rotation and adapted to receive paper or other material to be wound, a pulley mounted for free rotation on one of

said shafts, a bevel-gear fixed on the shaft of
said pulley to one side of said pulley, a bevel-
gear loose on the shaft of said pulley to the
opposite side of said pulley, a planetary bevel-
5 gear carried by said pulley and engaging the
two previously-mentioned bevel-gears, a
sprocket-gear fast on said second mentioned
bevel-gear, a sprocket-wheel fast on the shaft

on which said pulley is not mounted, and a
sprocket-chain connecting said two sprocket- 10
wheels.

GUSTAV KAFFENBERGER.

Witnesses:

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