

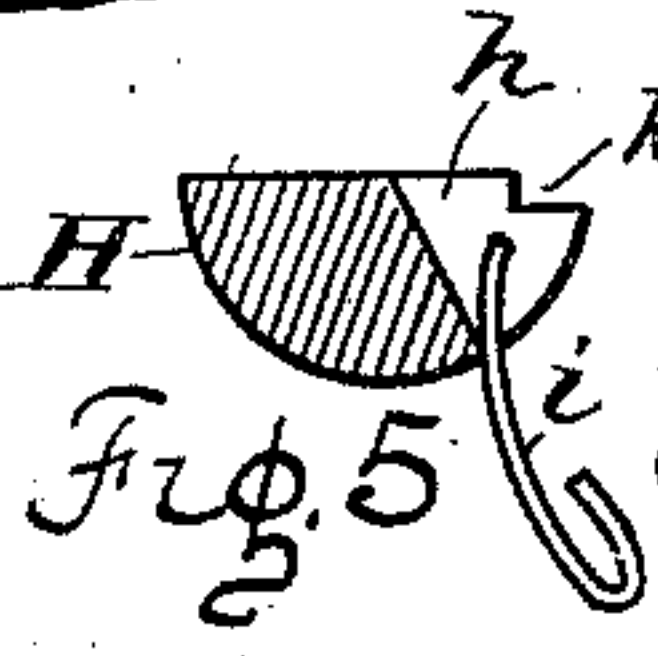
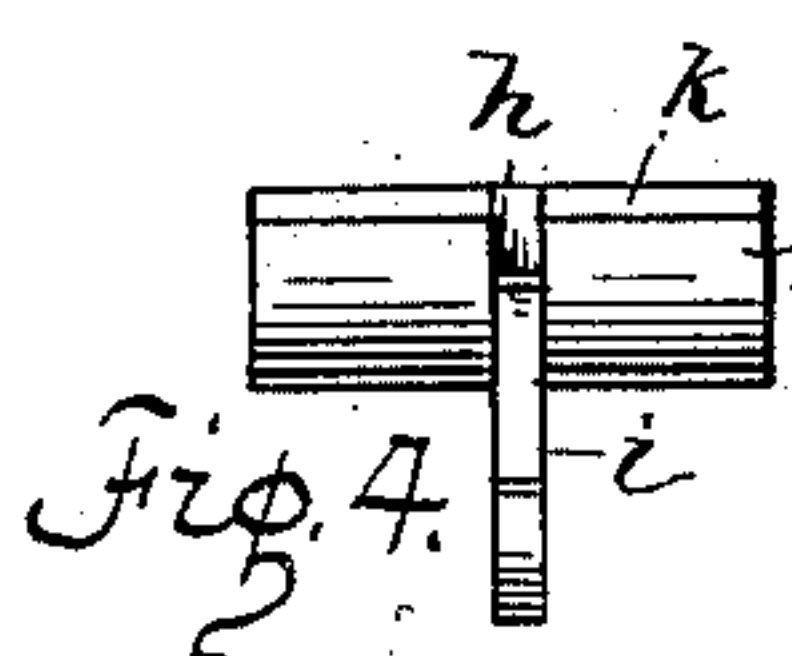
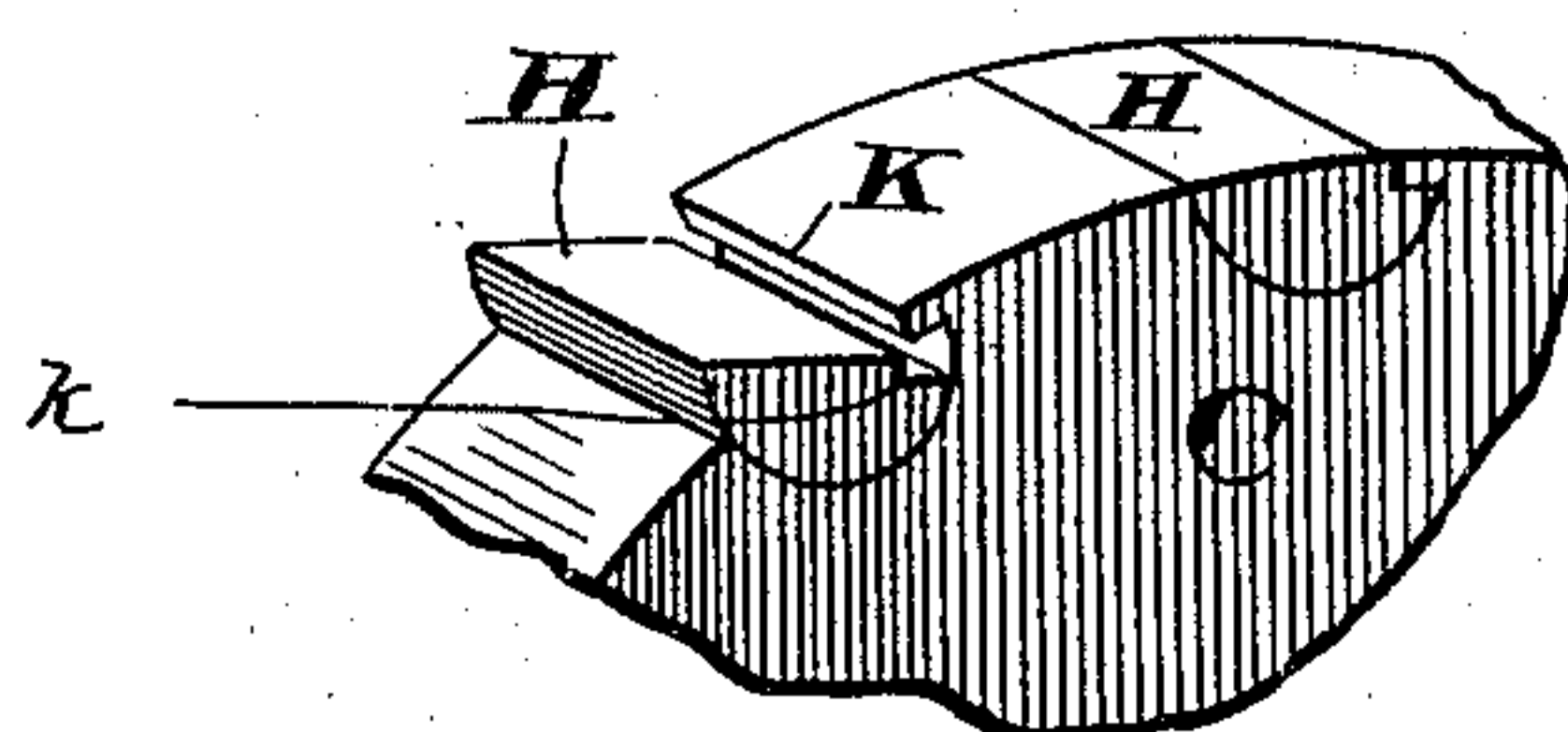
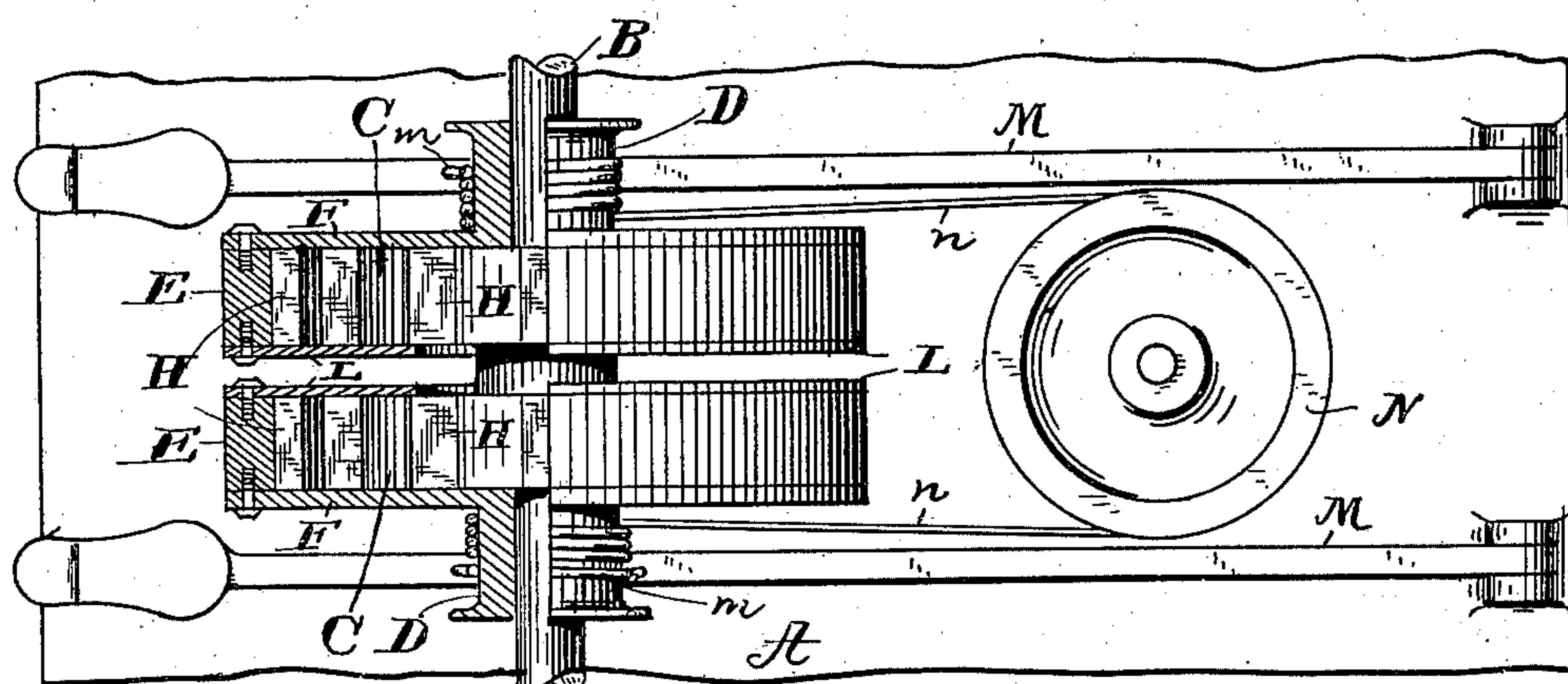
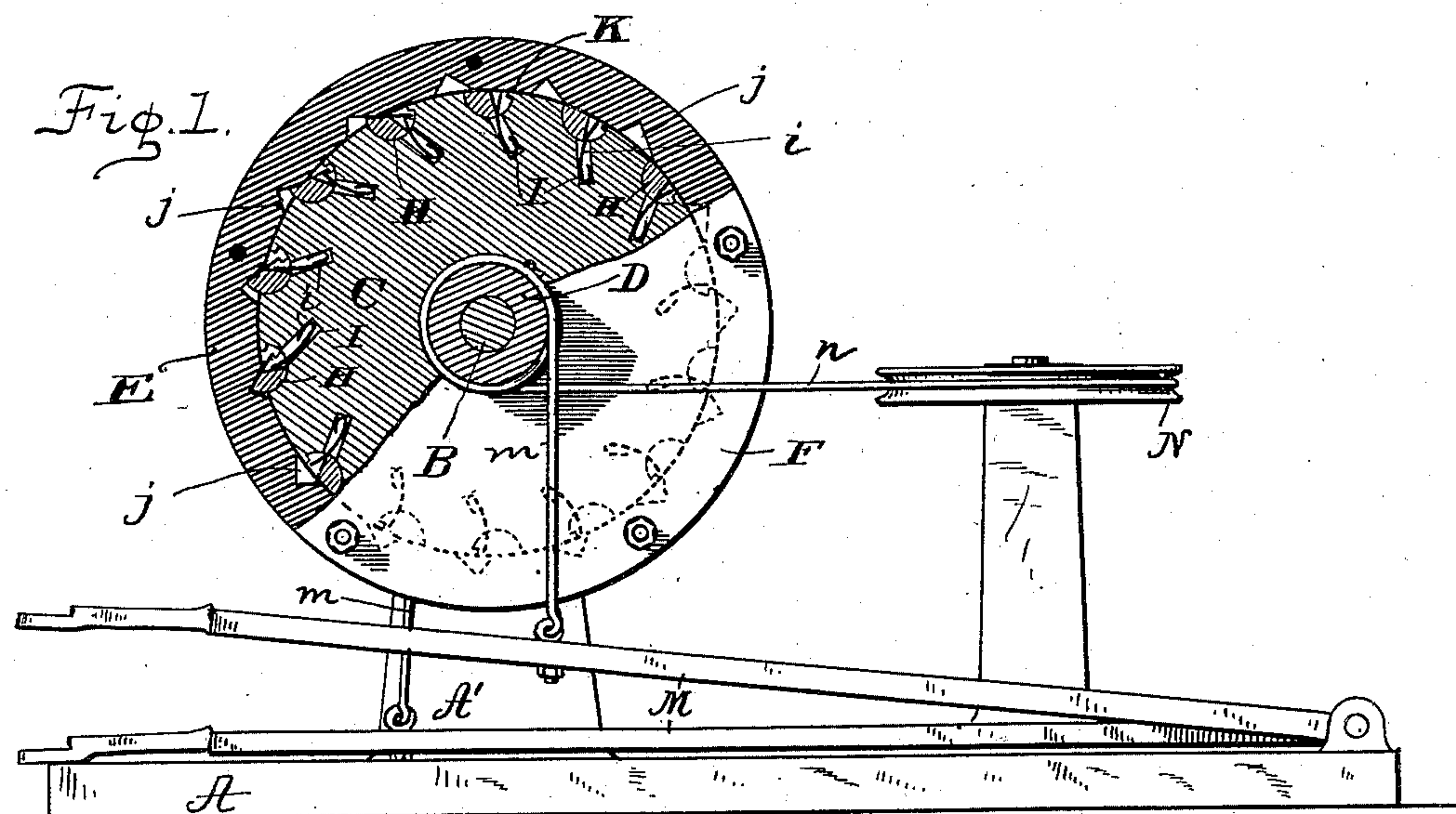
No. 644,805.

Patented Mar. 6, 1900.

J. A. McGEE.
CLUTCH.

(Application filed Sept. 7, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH A. MCGEE, OF BIG SPRING, INDIANA.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 644,805, dated March 6, 1900.

Application filed September 7, 1899. Serial No. 729,761. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MCGEE, a citizen of the United States, residing at Big Spring, in the county of Boone and State of Indiana, have invented certain new and useful Improvements in Clutches, of which the following is a specification.

This invention relates to improvements in pawl-and-ratchet mechanism for transmitting a continuous rotary motion from a sleeve or drum or shaft or the like, which frequently changes the direction of its motion, and to improvements in couplings or clutches.

The object of the invention is to provide a ring or sleeve with internal notches to be engaged by a series of pawls of simple, durable, and efficient construction, such as will be hereinafter fully described and claimed.

I accomplish the object of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation, partially in vertical section, of my invention, illustrating its essential features in a general way as a means for transmitting motion from foot-levers, but without showing its application to any particular kind of a machine. Fig. 2 is a plan view of same; Fig. 3, a detail showing the construction of the pawls and the disk for carrying them; Fig. 4, a side elevation of one of the pawls and its spring, and Fig. 5 a transverse section of the pawl.

Like letters of reference indicate like parts throughout the several views of the drawings.

A is the base or platform on which the operative parts are mounted, A' a standard supporting the horizontal shaft B, and C C are a pair of disks mounted on the shaft B to revolve with said shaft. Surrounding each disk C is a ring or sleeve, and mounted on the shaft B, outside of each disk C C, are the hubs or drums D D, which have a loose fit on said shaft to enable the latter to rotate therein.

E represents the rings or sleeves surrounding the disks, and each ring is attached to its adjacent hub D by the plate F, whereby the rotation of the hub or drum will rotate the ring around the disk which it encircles.

The face of the disk C is provided with a series of half-round transverse grooves, into which the half-round pawls H are seated.

Passing into the disk, preferably from a point midway of the ends of the grooves and at their bottoms, are the sockets I, in which the springs *i* are seated, with one end bearing against the pawl in a manner, as shown, to cause the edge of the pawl opposite that of contact with the spring to project beyond the periphery of the disk. To accommodate the spring, the pawl H will be slotted, as shown at *h*, and the end of the spring will rest in this slot.

The inner face of the ring E will be provided with a series of detents or notches *j* to engage the pawls in a manner to cause the disk to be rotated when the ring is turned in an opposite direction to the pressure of the springs against the pawls. When the ring moves back in the other direction, the pawls are pressed into their seats out of the way. The distances between the pawls and between the notches are different, and a series is used in each case in order that at any position of the ring and disk some of the pawls will be in engagement with a notch to prevent lost motion.

It will be noted that the spring-pressed edge of each pawl is rabbeted, as shown at *k*. This is to make room for the ledge K on the disk, the purpose of which is to keep the pawl from protruding from its seat in that direction, as it might do in case its spring should become broken or the pawl itself should be broken in two under a heavy strain. Should it protrude from its seat on the wrong side, an engagement with the notches might cause a lock.

Plates L may be bolted to the rings against the inner sides of the disks to exclude dust and prevent the displacement of the pawls.

The above-described mechanism can be applied to lathes, sewing-machines, bicycles, and various mechanisms and hub and spindle of any wheel requiring such movement, all of which would require some special adaptation for transmitting the initial movement to the drums and rings. The drawings show a typical construction embodying the use of a pair of treadle-levers M, which are connected with the drums by the cables or belts *m*, one end of the cable being attached to the lever and the other end to the drum. In order to raise the levers into position to be pressed down

by the feet, a cable *n*, passing around the idler-pulley *N* and having the ends of said cable attached to the opposite drums, may be used. The cable will wind onto one drum
5 and off of the other, and under proper tension will alternately raise the depressed levers.

To adapt the invention to such constructions as a bicycle, the hub of the bicycle-wheel would have the ratchet-notches, and as the
10 wheel must revolve in one direction the disk carrying the pawls would be the part to which the driving-drum was fastened and would have motion of rotation in alternate opposite directions.

15 The relative diameters of the disk and the drum may vary to suit the conditions of use as to multiplication of power or speed, and only one disk and ring, or any number greater than one, may be used without departing
20 from the spirit of this invention.

What I claim as new, and wish to secure by Letters Patent of the United States, is—

1. The combination with a shaft of a disk mounted thereon, said disk having transverse
25 half-round seats in its periphery with deeper indentations or sockets intermediate the ends of the seats, half-round pawls in said seats, springs in said sockets to press the pawls and a revoluble ring or sleeve closely surround-
30 ing the periphery of said disk having notches

to be engaged by the pawls, substantially as described and shown.

2. The combination with a shaft of a disk mounted thereon to revolve therewith, said disk having transverse half-round seats in its
35 periphery with deeper indentations or sockets intermediate the ends of the seats, half-round pawls in said seats, springs in said sockets to press the pawls and a ring or sleeve having motion of rotation around the disk in
40 alternate opposite directions and having notches to engage the pawls, substantially as shown.

3. The combination with a ring having inside notches a disk having transverse peripheral grooves with a flange projecting into the
45 groove along one edge and deeper indentations or sockets intermediate the ends of the seats, half-round pawls seated in the grooves and springs in the sockets to press the pawls
50 out on the unflanged side of the groove into engagement with the notches of the ring, substantially as specified.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this
55 17th day of August, A. D. 1899.

JOSEPH A. MCGEE. [L. s.]

Witnesses:

JOSEPH A. MINTURN,
CHAS. A. FAILLES.