

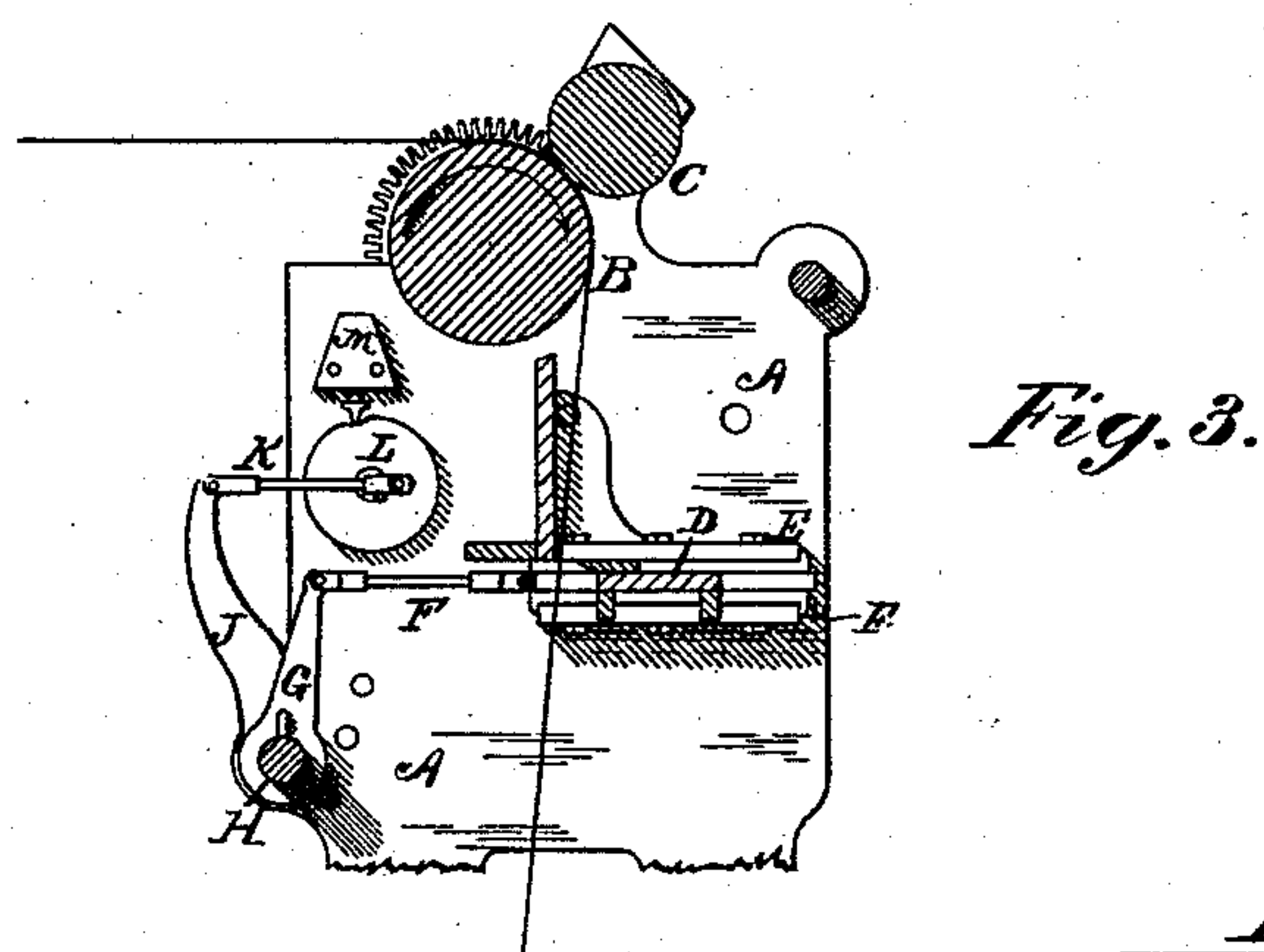
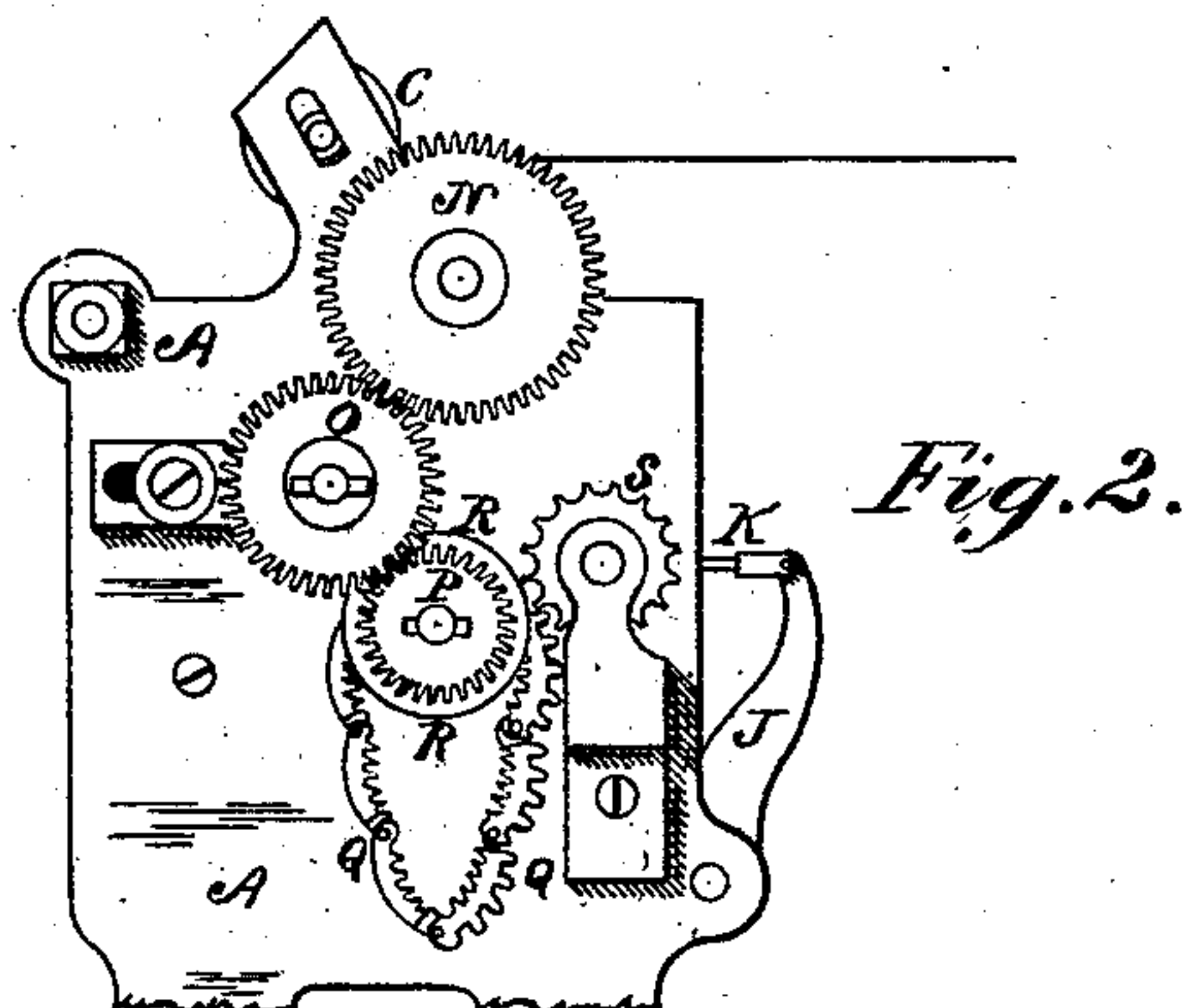
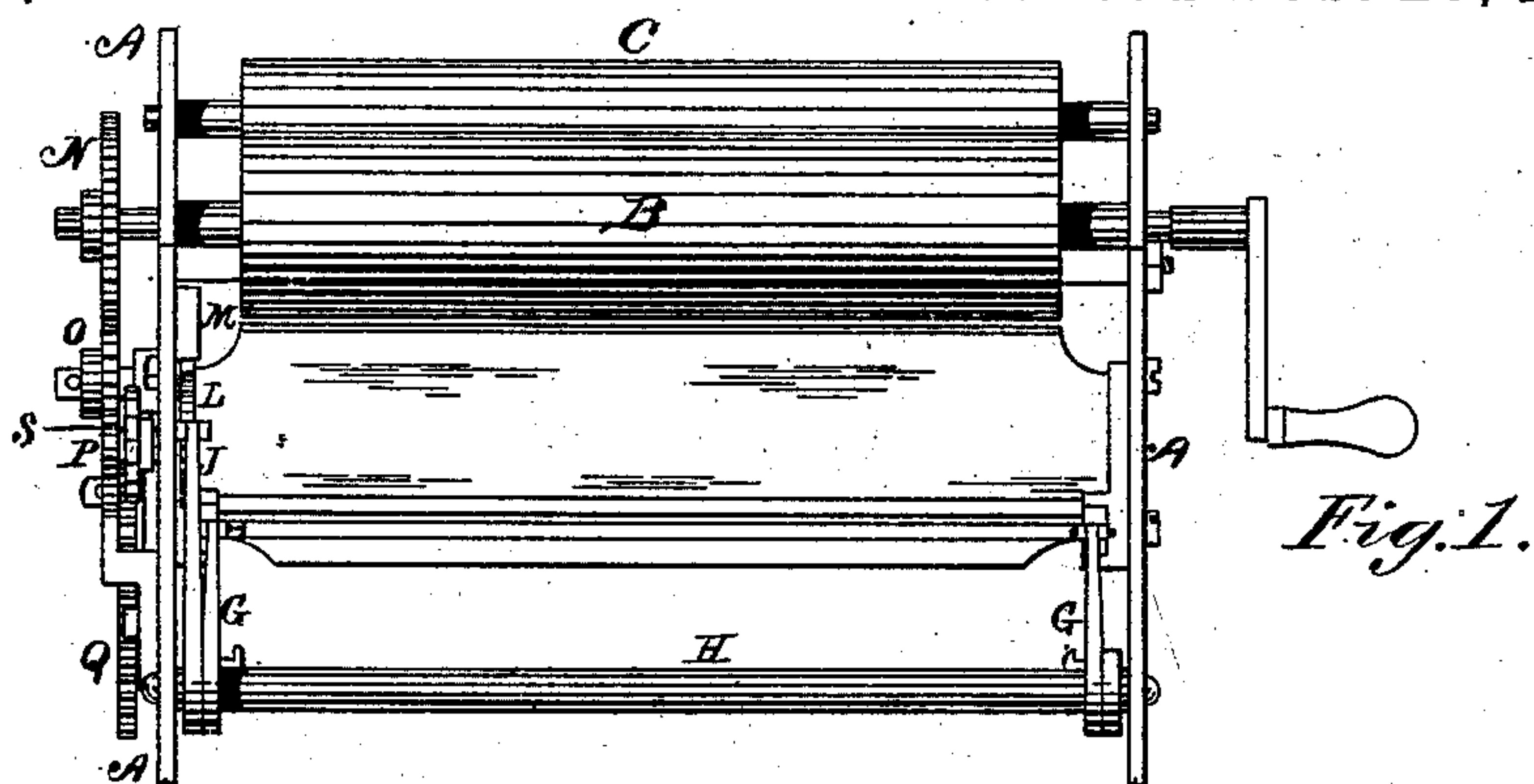
(No Model.)

W. F. HILL.

PAPER CUTTING MACHINE.

No. 272,438.

Patented Feb. 20, 1883.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILBER F. HILL, OF NORTH MANCHESTER, CONNECTICUT.

PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,438, dated February 20, 1883.

Application filed November 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILBER F. HILL, of North Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Paper-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to devices for cutting sheets of paper of any desired length from a continuous strip fed into the cutting mechanism from a roll or from a paper-making machine.

The object of my invention is to provide a mechanism which shall cut the sheets of an exact size to any required length, so as to prevent the waste in subsequent trimming, which is experienced with the cutting devices now in use.

In the accompanying drawings, illustrating my invention, Figure 1 is a rear view of my improved mechanism, or the side upon which the strip of paper enters. Fig. 2 is a view of the left side of Fig. 1, showing the mechanism for regulating the length of the sheet cut off. Fig. 3 is a cross-section through the machine, looking toward the end shown in Fig. 2.

A is the frame of the machine.

B is the roll which feeds the paper to the cutter.

C is a pressure-roll, which holds the paper against the roll B with sufficient force to insure its being carried along uniformly by the feeding-roll.

D is the cutter-bar, which has a reciprocating movement in slides E, attached to the frame A at each end of the cutter-bar. The cutter-bar is moved by the two connecting-rods F F, attached to the cranks G G, which receive their motion from the rocking shaft H.

J is an arm attached to the rocking shaft H. It is connected by the connecting-rod K to a crank-pin on the wheel L, the revolution of which moves the rocking shaft H.

M is a spring-stop resting in a nick in the wheel L for holding it in position when at rest.

N is a gear-wheel upon the shaft of the roll B for communicating motion to the cutting mechanism.

O is an intermediate gear-wheel attached to a bearing upon the frame A and driven by the wheel N.

P is a double-gear wheel, likewise turning on a bearing attached to the frame A. One of the sets of teeth gear into the wheel O, so that the wheel P receives its motion from N through the wheel O. Upon the other set of teeth upon the wheel P runs the geared band Q, the inner side of which is provided with teeth which gear into the teeth of the wheel P. On each side of the set of teeth which drive the band Q are flanges R, so as to hold the band upon the wheel and prevent it from running off at the sides. The band Q is represented in the drawings as being composed of a number of links jointed together in the form of a chain, each link being part of a toothed rim which would fit upon the geared wheel P. A certain number of these links are provided with exterior teeth which gear into the spur-wheel S, which is keyed to the shaft of the wheel L on the other side of the side plate of the frame A, so that the wheels S and L turn together. The exterior teeth on the band Q are intended to turn the wheel S exactly once around, the number of teeth on the band and on the wheel being the same. The other links of the band Q are without exterior teeth, and are of such a thickness that they will pass between the wheels P and S when the interior teeth are engaged with the wheel P. The links of the band Q are removable and detachable from each other, so that the band can be made of any length desired. The links without exterior teeth are made of different numbers of interior teeth, so that by putting different ones and different numbers into the band it can be made longer or shorter, and have different numbers of teeth in the full circuit. This is for the purpose of bringing the links containing the exterior teeth to engage with the wheel S at such number of turns or parts of turns of the wheel P as may be desired, and thus regulate the interval between which the cuts of the paper are made to the extent of the small space represented by one of the interior teeth. In the drawings the wheel P is represented to be geared so that

it will have its circumference move at double the speed of the surface of the roll B, which moves the paper to be cut. If the teeth of P are one-fourth of an inch the paper can therefore
5 be cut to sizes varying by one-eighth of an inch. By varying the length of the band or chain Q all sizes of sheets can be cut, and the degree of difference between the sizes can be
10 made finer by decreasing the size of the teeth on the second set of teeth on the wheel P, or the speed between the wheels N and P can be multiplied to any extent desired.

The operation of my invention is as follows:
15 The paper passes continuously between the rolls B and C, the roll B being driven by any suitable power. This also drives the wheel P continuously. As the links of the band Q which do not have the exterior teeth pass over the wheel P the cutter does not operate; but
20 when the exterior teeth on the band Q come in contact with the wheel S they revolve this wheel and the wheel L once around, which causes the cutter to advance and recede and cut off a sheet from the continuous strip. When
25 the wheel L has made one complete revolution it again is caught and held by the spring M, which enters its notch. This is made in the customary manner, so that it is forced out as the wheel is turned, but is sufficient to hold
30 the wheel from turning accidentally, and insures its correct position when it stops.

What I claim as my invention is—

1. The combination of the gear-wheel N on the shaft of the feeding-roll B, the double-gear wheel P, connected with N by intermediate
35 gearing, the adjustable band Q, having interior and exterior teeth, as described, and the gear-wheel S, which drives the cutting mechanism, substantially as set forth.

2. The band Q, provided with gear-teeth all
40 around its interior side, and exterior teeth upon only a portion of its exterior side, in combination with the gear-wheel P, which drives the said band continuously, and the wheel S, which receives an intermittent mo-
45 tion from the exterior teeth, substantially as described.

3. The band Q, composed of a series of removable links, by which its length is adjustable, said links being all provided with in-
50 terior teeth, and part of which are provided with exterior teeth as a means for communicating an adjustable intermittent movement from one gear-wheel to another, substantially as described.

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Witnesses:

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