

R. L. Nelson.
Changing Feed.

N^o 74578

Patented Feb. 18, 1868

Fig. 2

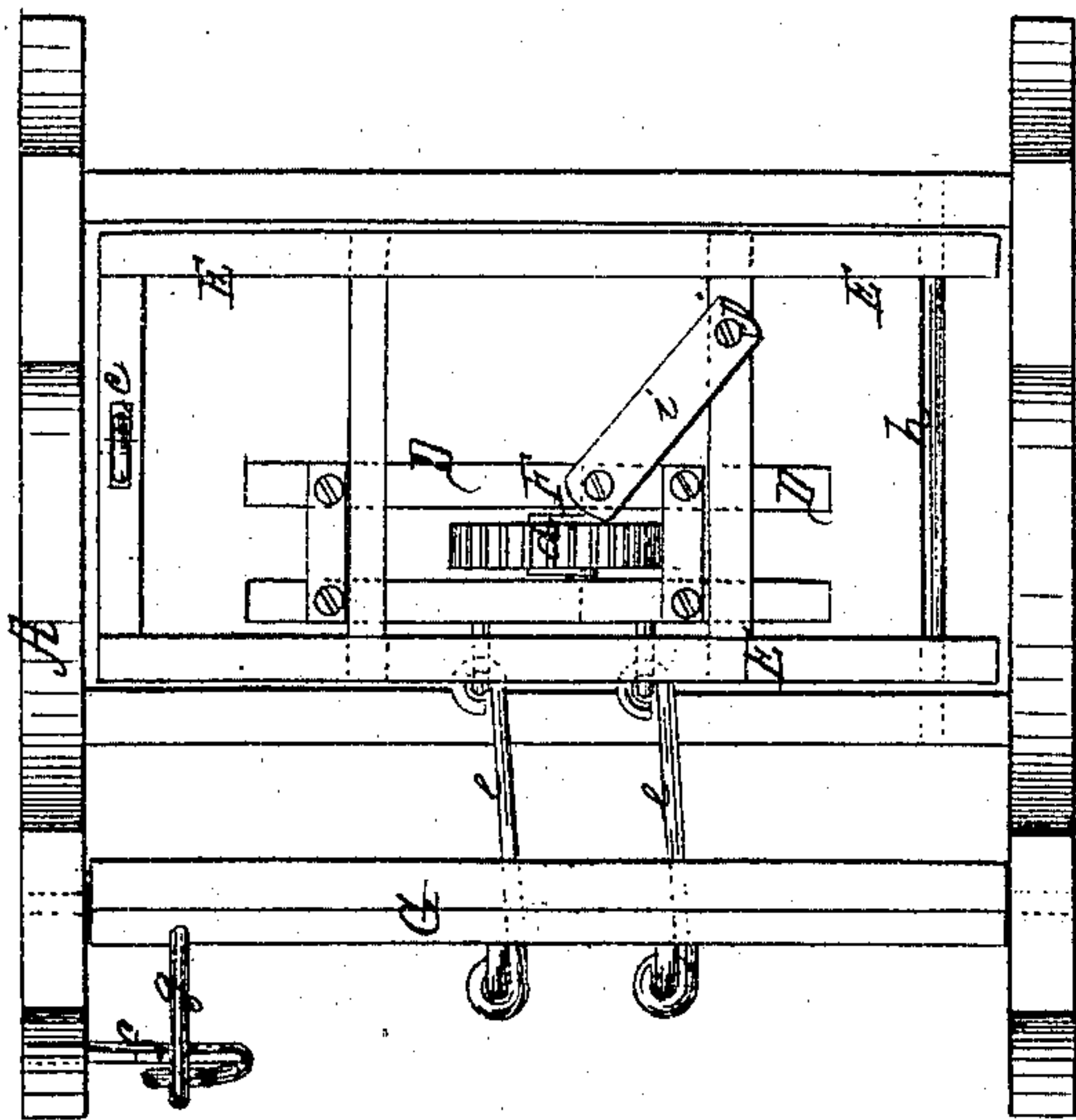


Fig. 4

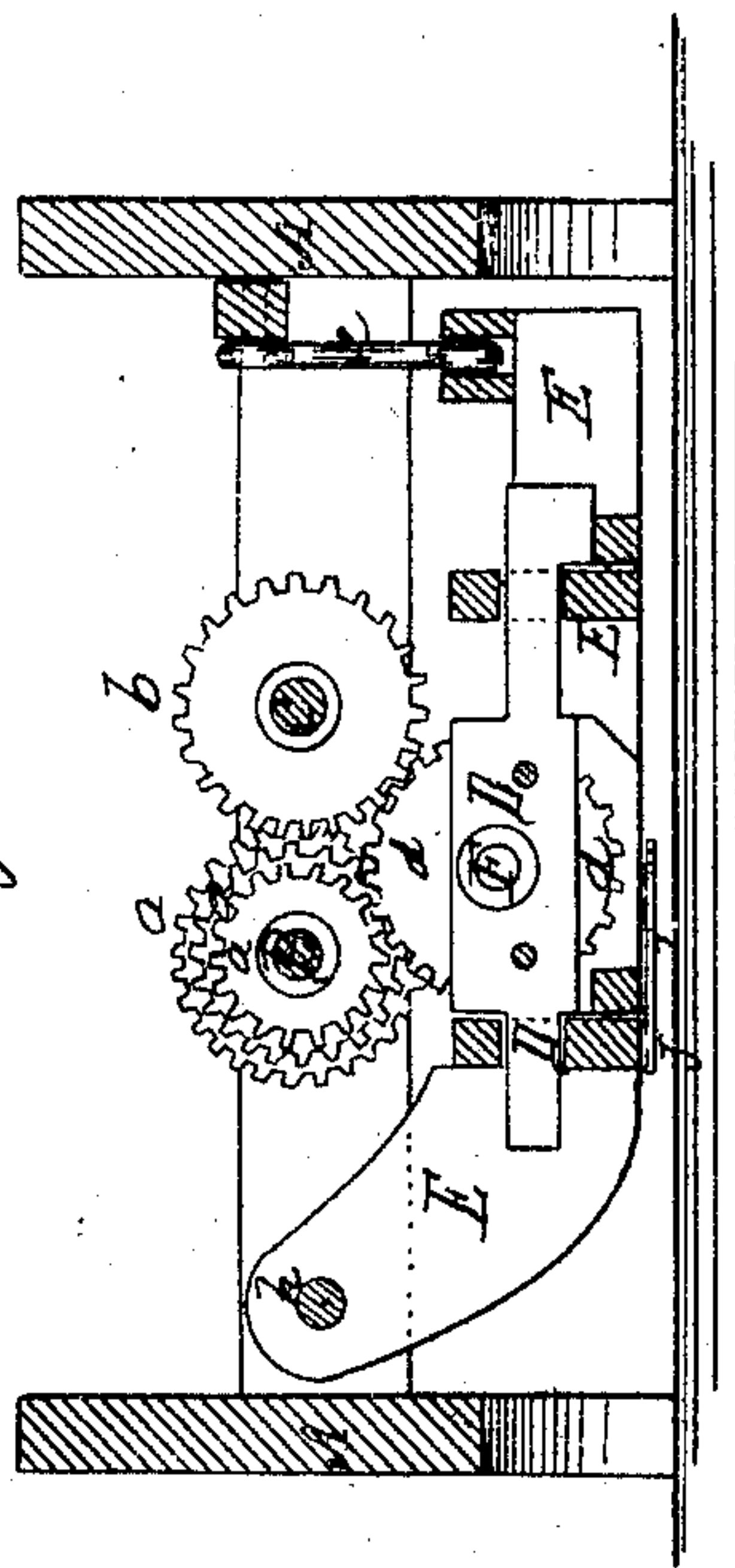


Fig. 1

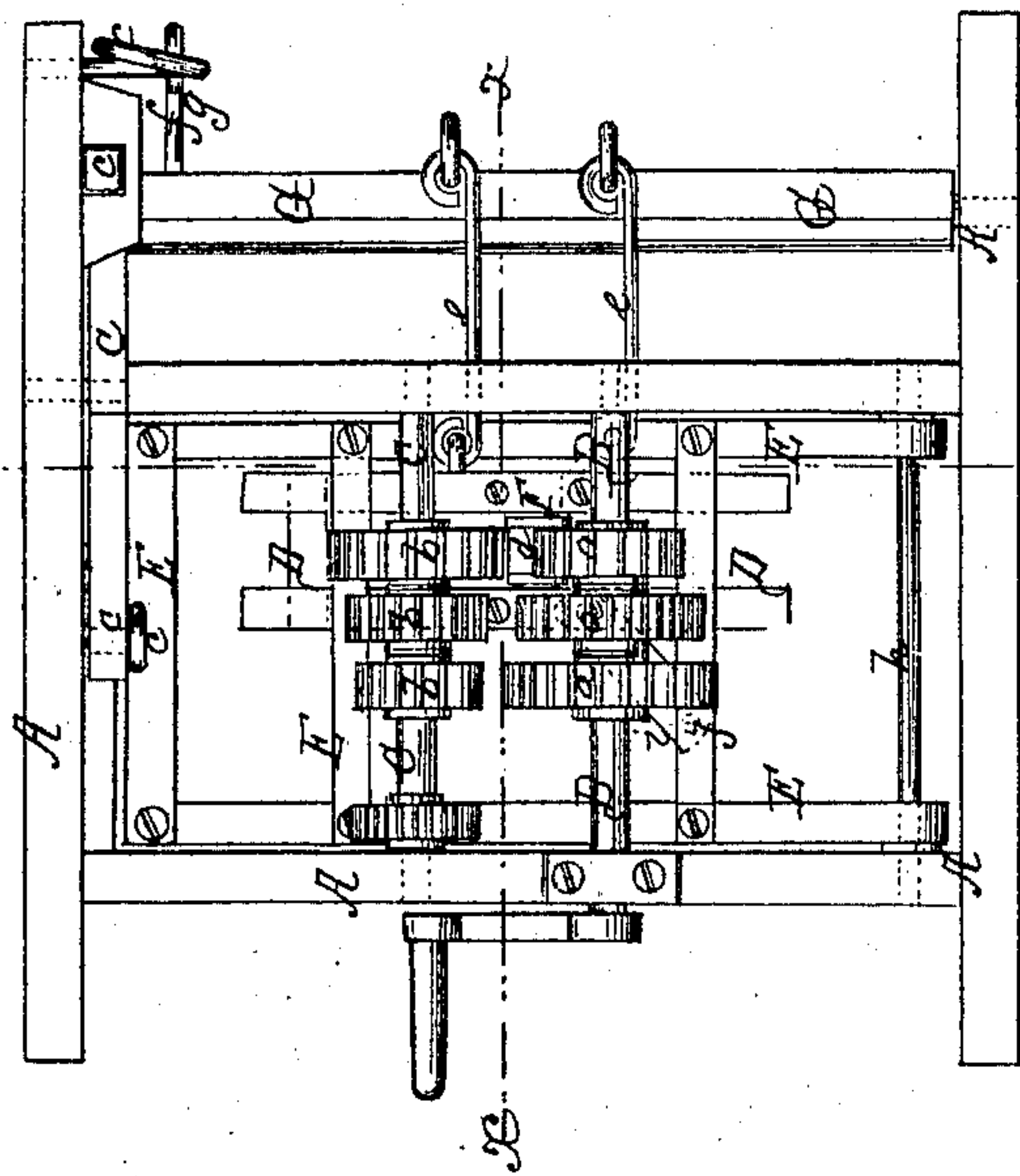
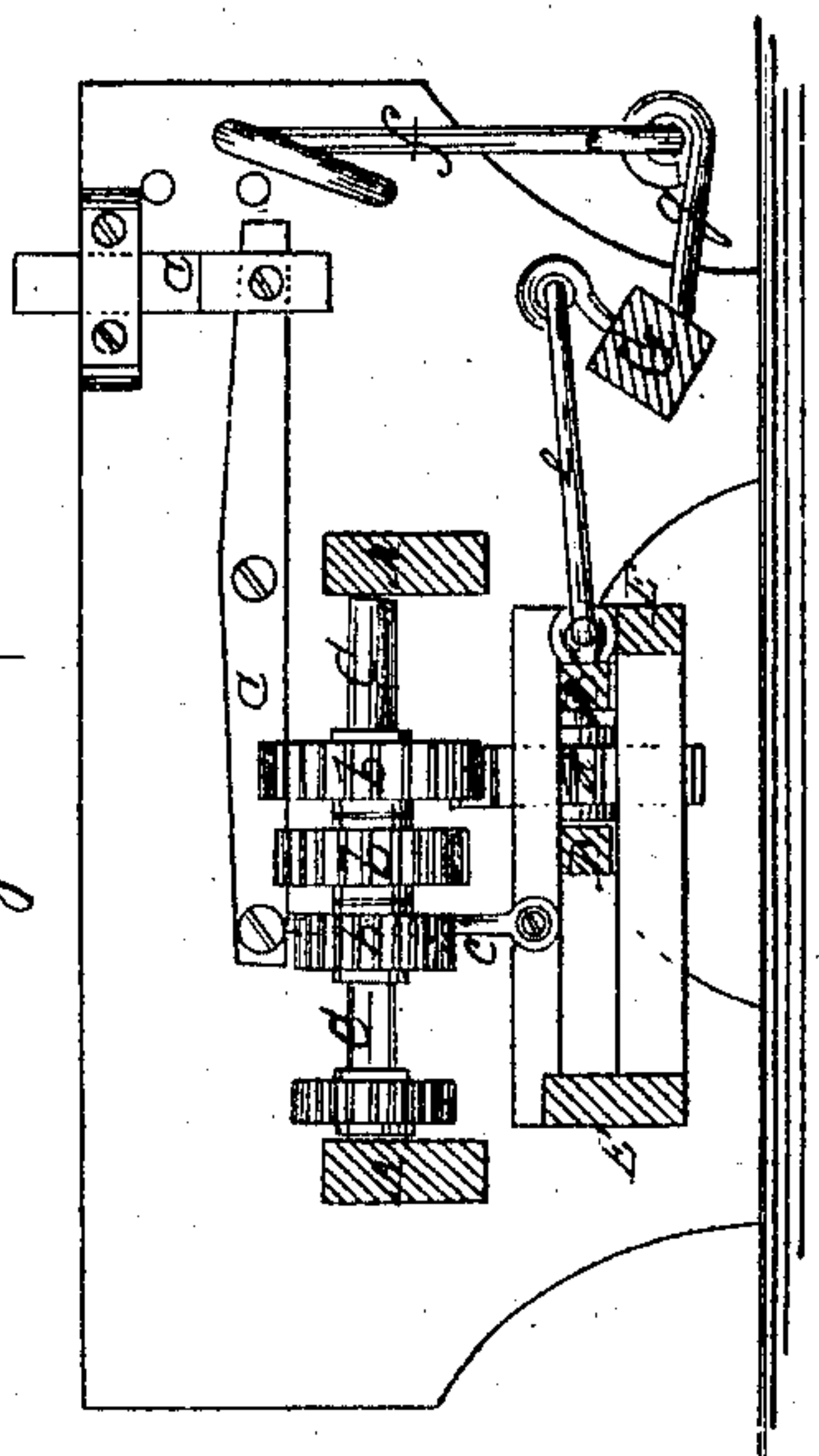


Fig. 3



Witnesses
Alex. F. Roberts
J. H. B. Langdon

Inventor
R. L. Nelson
Per Murray & Co.
Attorneys

United States Patent Office.

R. L. NELSON, OF MEXICO, NEW YORK.

Letters Patent No. 74,578, dated February 18, 1868.

IMPROVEMENT IN DEVICE FOR CHANGING FEED.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, R. L. NELSON, of Mexico, in the county of Oswego, and State of New York, have invented a new and improved Device for Changing Feed; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of my improved feed-changing device.

Figure 2 is an inverted plan view of the same.

Figure 3 is a vertical longitudinal section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 4 is a vertical transverse section of the same, taken on the plane of the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new device for changing the feed of saw-mills or other suitable machines, and consists in the general combination of the devices by which the desired result is obtained; also in a new manner of arranging the gear-wheels, and in a new method of moving the shifting-gear, and of throwing it in gear with the driving and driven gears.

A, in the drawing, represents a frame of suitable construction, made of suitable material and of suitable dimensions. In the frame A are the bearings for two parallel shafts, B and C. The shaft B is the driving-shaft, receiving motion from suitable mechanism, while the shaft C is to receive its motion from B. Upon each shaft B and C are mounted square-faced gear-wheels, of various diameters, the diameters of those on the shaft B gradually decreasing towards one end of the shaft, while those on the shaft C gradually increase towards the same direction, so that the larger wheels, *a*, on the shaft B, are opposite the smaller wheels, *b*, on C, and *vice versa*. It will be noticed that the space left between the edges of the opposite wheels, *a b*, has a curved form. This is produced by arranging the diameters of the wheels so that a regular difference of motion is produced between the first and last gears of the two shafts. Thus, for example, if the shaft B makes one hundred revolutions per minute, its largest wheel will cause the shaft C to make two hundred revolutions in the same time. The next largest wheel will cause one hundred and forty revolutions of the shaft C, the last eighty, and thus the same difference of sixty revolutions is produced between every two pair of wheels *a b*. If the wheels are thus arranged, a line drawn through the faces of any set will be curved as shown, while, if they are arranged without regard to a regular difference of motion, the lines will be either straight or irregular.

The other parts of this machine may be connected with gears arranged in the above-described manner or otherwise, and I do not confine them to any particular arrangement of gears. Under or over the shaft B C is arranged a sliding frame, D, which moves between suitable guides in a frame, E, and in which a shaft, F, which is parallel with the shafts B and C, has its bearings. The frame E is pivoted at one end to the frame A, while its other end is connected with suitable levers, *e e*, by means of which the free end can be raised or lowered at will. The shaft F carries a gear-wheel, *d*, as is clearly shown in fig. 4. The sliding frame D is, by means of jointed bars *e e*, connected with a rock-shaft, G, which can be turned by means of a bar, *f*, that is pivoted or jointed to a crank, *g*, projecting from the said rock-shaft, as shown in fig. 3. As the rock-shaft G is turned, the frame D is moved longitudinally in the frame E, the shaft F always remaining parallel with the shafts B C; thereby the wheel *d* can be brought in line with any desired opposite pair of wheels, *a b*, and when, then, the frame E is turned, such pair of wheels *a b* may be connected by means of the wheel *d*, and the desired number of revolutions may be imparted to the shaft C. It is of importance that the wheel *d* should first come in gear with the driving-shaft, and then with the shaft to be driven. For this purpose the pivoting-pin *h*, on which the frame E turns, is nearer to the shaft B than to C, and when thus the frame E is swung towards the shafts B C, the wheel *d* will first come against the wheel *a*, and when it is actually in gear with the same, it will also come in gear with the wheel *b*. The so-called dead-gear is thus perfectly avoided. The frame D is, when a curved line is produced by the edges of the gears *a b*, connected by a pivoted bar, *i*, with the frame E, so that it will, when drawn by the action of the bar *f*, describe the required curve around the pivoting-pin *j* of the bar *i*, as is indicated in fig. 2.

I claim as new, and desire to secure by Letters Patent—

1. So arranging the gear-wheels *a b* on two parallel shafts, B C, which are to be connected for changing

the feed of certain mechanism, that the line drawn over the faces of the wheels on either shaft will be a curved line, as set forth.

2. Hinging the swinging frame E, in which the shifting-gear *d* is held, so that the shifting-gear will first come in gear with the driving-shaft, and then with the shaft that is to be driven, as set forth.

3. The sliding frame D, in which the shaft F, that carries the shifting-gear *d* has its bearings, when connected, by means of jointed bars *e*, with the rock-shaft G, substantially as and for the purpose herein shown and described.

4. The arrangement and combination of the shafts B C, carrying the gear-wheels *a a* and *b b*, respectively, with the wheel *d* on the shaft F, sliding frame D, hinged frame E, levers *c c*, bars *e e*, and rock-shaft G, all made and operating substantially as herein shown and described.

R. L. NELSON.

Witnesses:

L. F. ALFRED,

L. M. HANCHETT.