

D. L. Hill

Making Weavers' Flyer-Guides.

No. 41,297.

Patented Jan. 19, 1864.

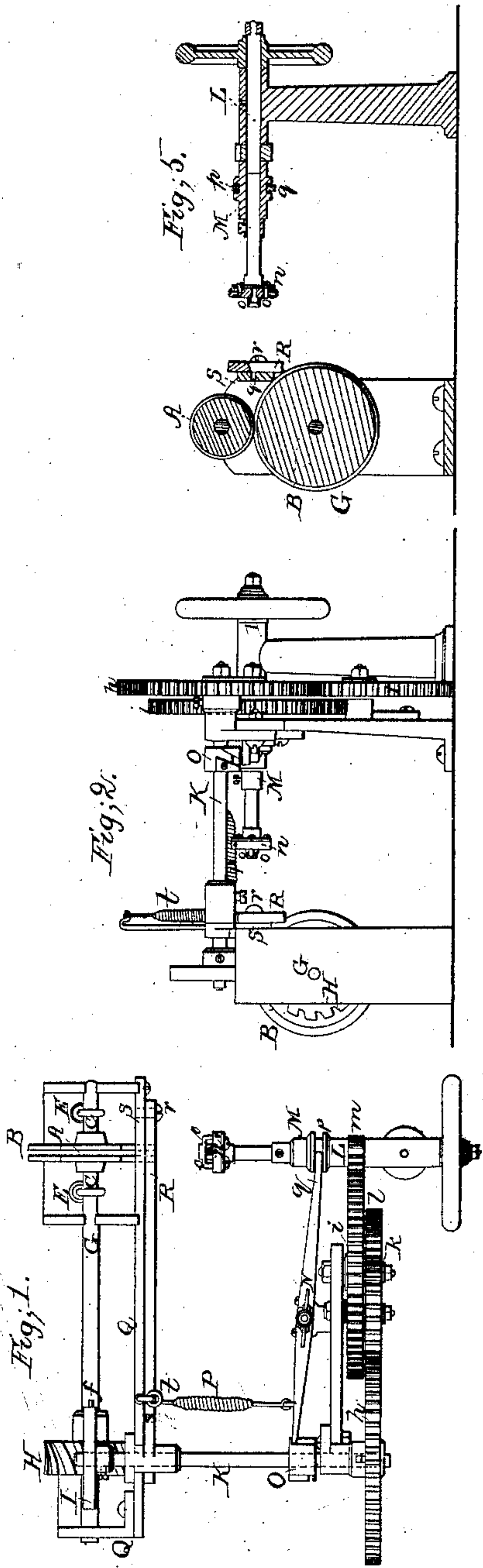


Fig. 2.

Fig. 1.

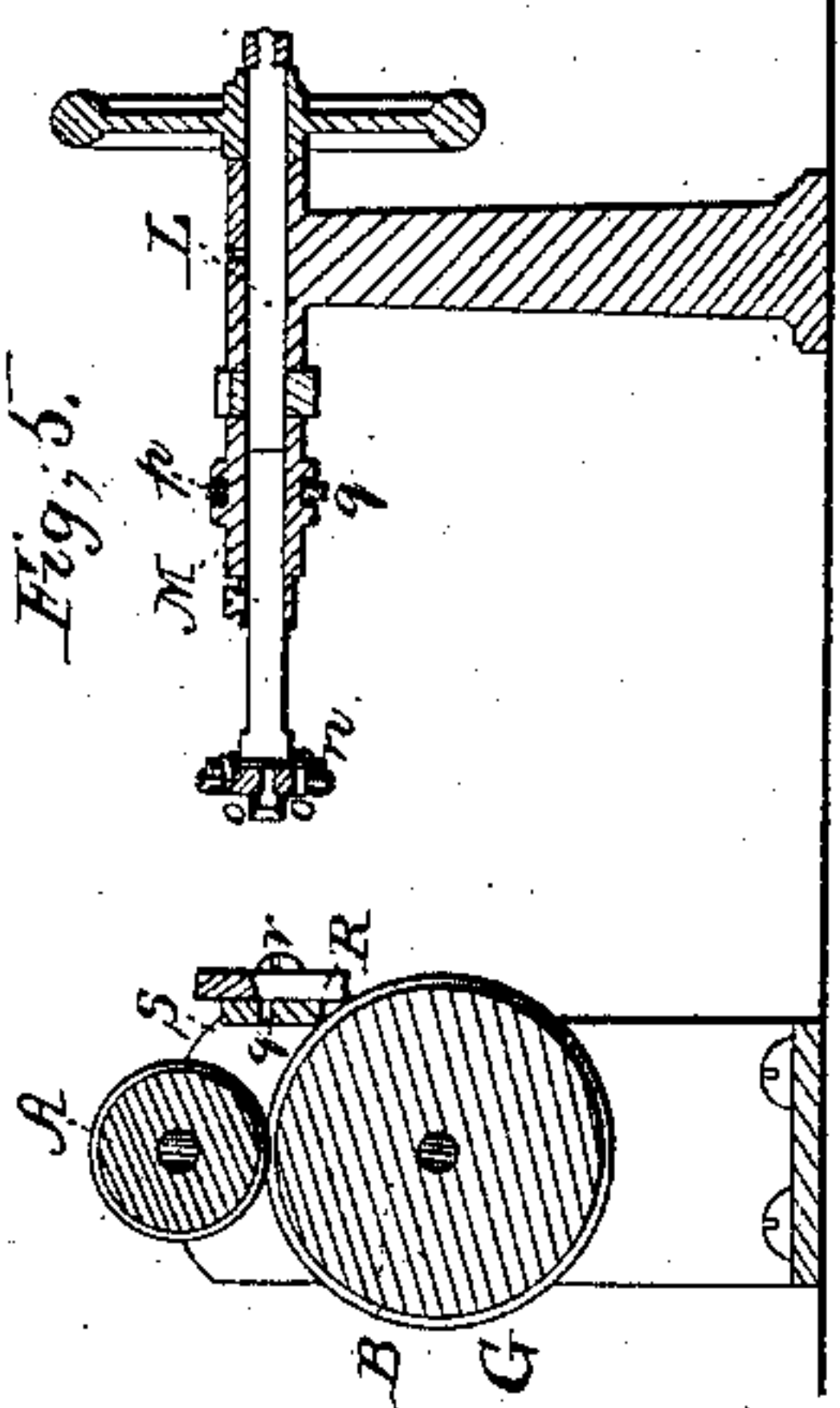


Fig. 5.

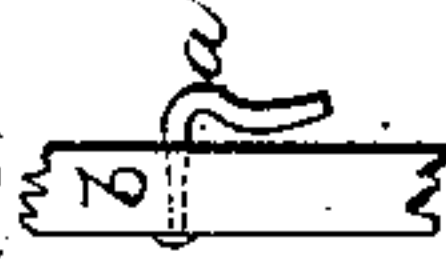
Fig. 6.



Fig. 7.



Fig. 8.



*Fig. 9.
Enlarged*



Fig. 3.

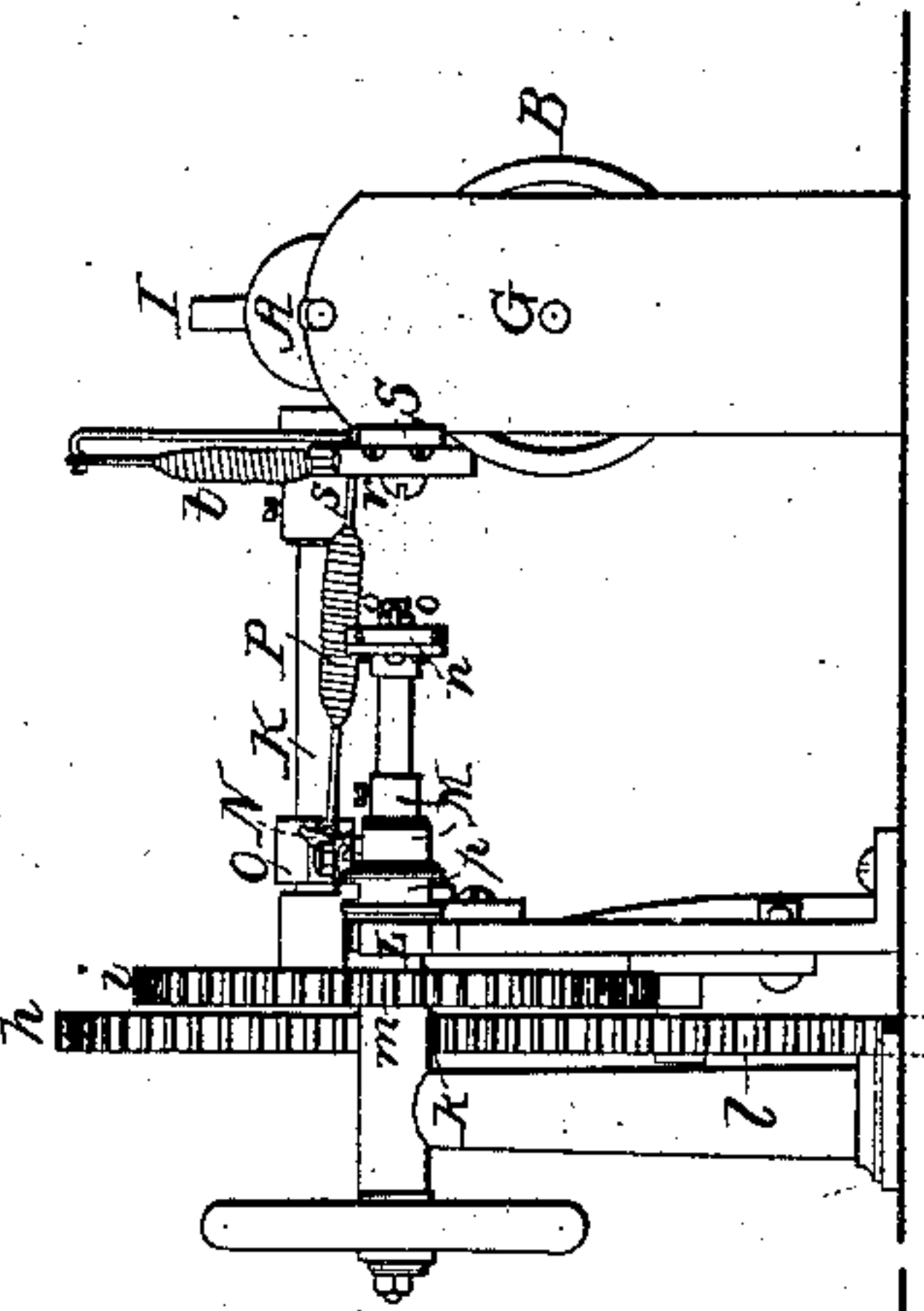
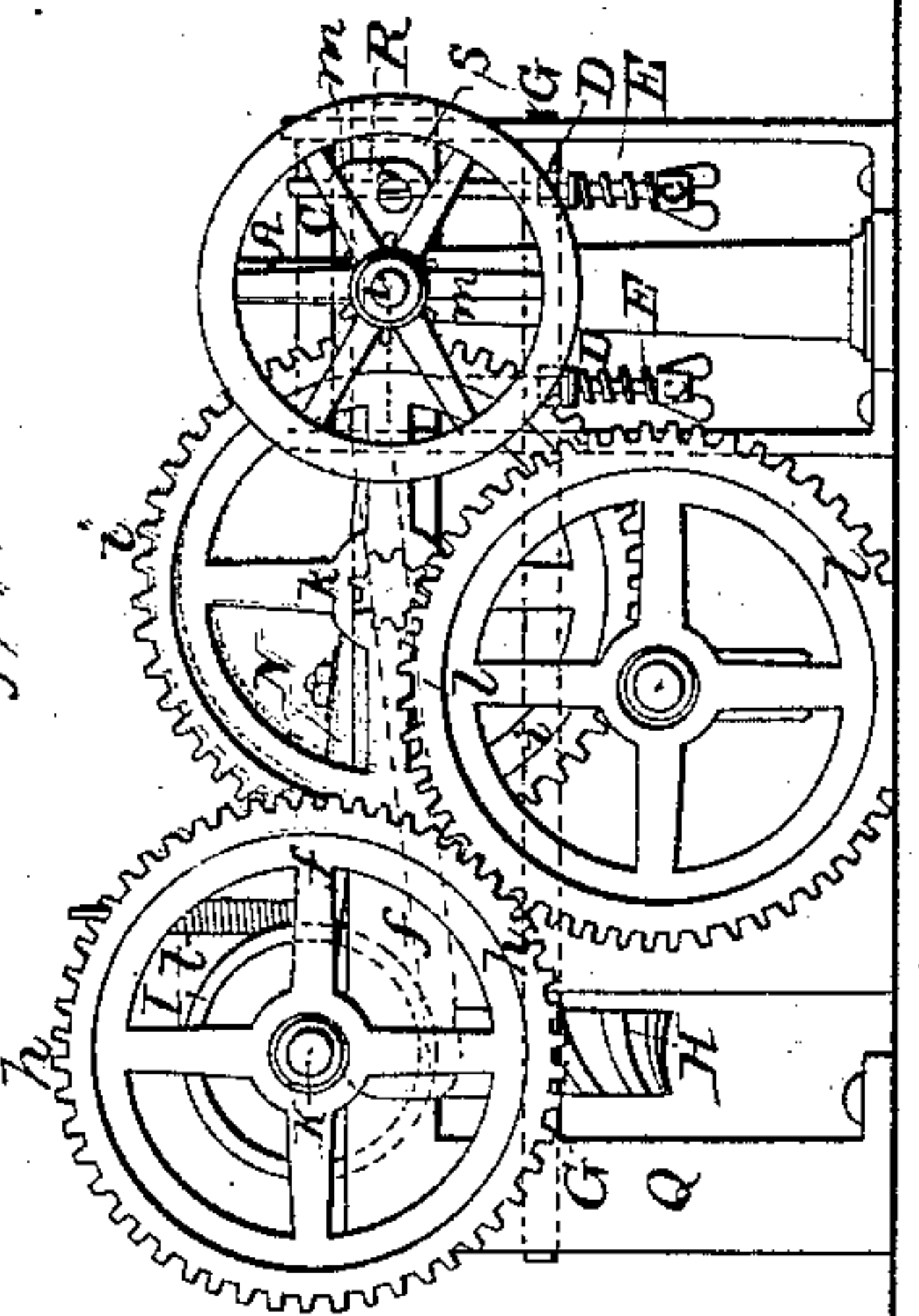


Fig. 4.



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UNITED STATES PATENT OFFICE.

DAVID L. HILL, OF LOWELL, MASSACHUSETTS.

IMPROVED MACHINE FOR MANUFACTURING FLIER-GUIDES.

Specification forming part of Letters Patent No. 41,297, dated January 19, 1864.

To all whom it may concern:

Be it known that I, DAVID L. HILL, a resident of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Machine for Manufacturing Blanks for Flier-Guides; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a top view. Figs. 2 and 3 are side elevations of it. Fig. 4 is a front elevation. Fig. 5 is a section taken through the cutter-mandrel and the feed-rollers. Fig. 6 is an inner side view of the shear of the machine and the bar to which it is applied.

The machine makes the blank from a piece of wire, one end of which is to be passed between the feeding-rollers of the machine in order that the wire may be fed along by them to the cutter-mandrel as fast as may be requisite. The form of the blank to be made by the machine is given in an enlarged scale in Fig. 7, while *a*, Fig. 8, represents the blank as inserted within and riveted to the leg *b* of a spinning-machine flier and bent down in the form of a hook, or in that form which it usually has.

The machine separates the wire into convenient lengths for the guides and reduces or turns down each of the lengths slightly tapering or cylindrical at or near one end thereof, or cylindrical and tapering, as shown in Fig. 7 at *c d*, or forms a round tenon on the part previously to its separation from the wire.

In the drawings, A and B denote two grooved feed-rollers, the upper of which is pressed down toward the lower by means of hooks C C D D and springs E E, applied to the shafts of the said rollers. The shanks of the hooks C C extend, respectively, through those of the hooks D D and below them receive the springs and have screws to receive the screw-nuts *c c*, the whole being arranged as shown in the drawings.

The shaft G of the lower or larger feed-roller carries a gear, H, made like a worm-gear and so as to operate with a wheel, I, which is carried by another shaft, K, and has two studs, *f f*, projecting from its periphery. By the rotary motion of the wheel I each stud in succession is brought to act against one of the teeth of the gear H, so as to cause a partial revolution of such gear and its shaft. The

said shaft K is operated by a train of gears, *h i k l m*, applied to it, and a driving-shaft, L, arranged as shown in the drawings.

The cutter-mandrel M is so applied to the shaft L as to be revolved thereby and be capable of being moved longitudinally either toward or away from the bite of the feed-rollers. To the inner end of the cutter-mandrel a cutter-head, *n*, carrying one or more cutters, *o o*, is affixed, the said head and the cutters being so formed that while the head may be in revolution and a piece of wire is in the act of being pushed endwise into it it will reduce the wire at its end either to a cylindrical or a tapering form, or to both, as hereinbefore described, or, in other words, make a round tenon on such wire.

The cutter-mandrel is provided with a groove, *p*, extending around it. The fork *q* of a lever, N, enters this groove, while the opposite end of the lever enters the groove of a cam, O, carried by the shaft K. A side view of the cam O is given in Fig. 9. The said cam serves to move the lever *n* one direction—viz., such as will cause it to move the cutter-mandrel and the cutter-head thereof toward the feed-rollers. A spring, P, applied to the lever and to the frame Q of the machine, produces a quick movement of the lever in an opposite direction, so as to occasion a withdrawal of the cutter head and its cutters from the wire after having performed the office of reducing it and preparatory to the separation of the blank from the wire, which is next to be effected by means of a lever-shear, R, arranged as shown in the drawings. The said shear R operates with a plate or bar, S, through a hole, *q'*, of which the wire passes from the bite of the feed-rollers. The shear R lies flatwise against the inner side of the plate S and turns at or near one end on a fulcrum, *r*, extending from such plate. A cam-plate, *s*, carried by the shaft K, serves to depress the shear, which is to be elevated by a spring, *t*, arranged as shown in the drawings.

In the operation of this machine the wire is fed along with an intermittent movement, a piece or blank being reduced or turned and separated from it prior to each movement produced by the feed-rollers. The machine is automatic, and in its essential elements consists not only of machinery for feeding the wire along or delivering it with an inter-

mittent movement and holding it firmly while the reduction of it may be in the process of being effected, machinery for turning down or tenoning the wire substantially in manner as described, and machinery for separating from the wire the part to constitute the guide-blank, but of machinery for producing the advance and retreat of the mechanism or cutters by which the tenoning of the wire or blank is produced.

Therefore, what I claim as my invention is—

The above-described machine or combination, consisting of the feed-rollers A B, or machinery by which the wire is fed along or delivered with an intermittent movement, and held firmly while its reduction is in the act of being effected, the cutter-mandrel M and its

cutter-head *n*, and one or more cutters, *o*, or machinery for turning down or tenoning the wire, substantially as described, the shear R and its plate S, or machinery for separating from the wire the part to constitute the guide-blank, and finally the cam O, groove *p*, lever *n*, and spring P, or mechanism for producing the advance and retreat of the mechanism or cutters by which the tenoning of the wire or blank is effected, the whole being to operate substantially in the manner and for the purpose as hereinbefore described.

DAVID L. HILL.

Witnesses:

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