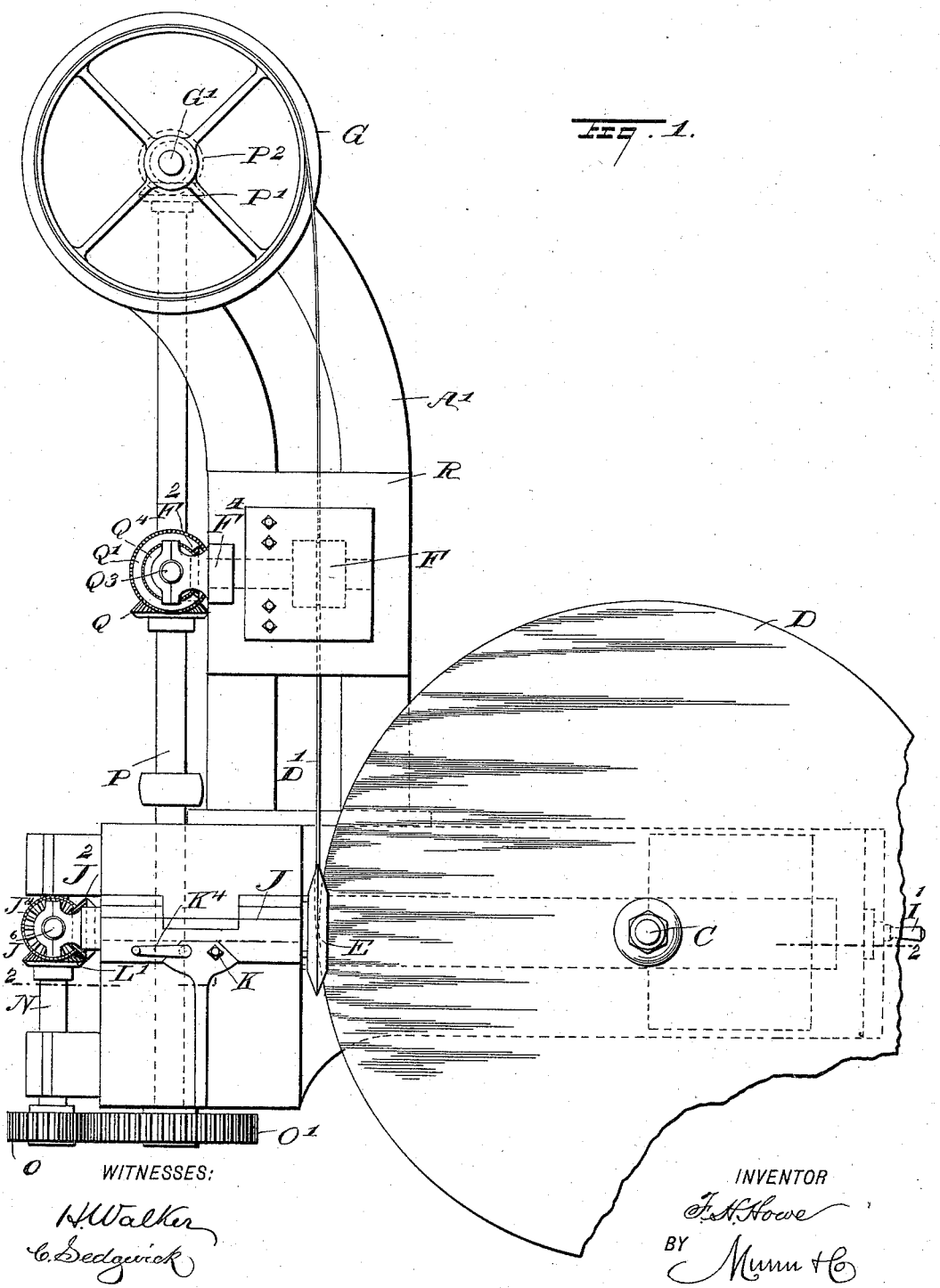
(No Model.) 2 Sheets—Sheet 1.

F. H. HOWE.

MACHINE FOR FORMING WIRES FROM METAL DISKS OR PLATES.

No. 526,230. Patented Sept. 18, 1894.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

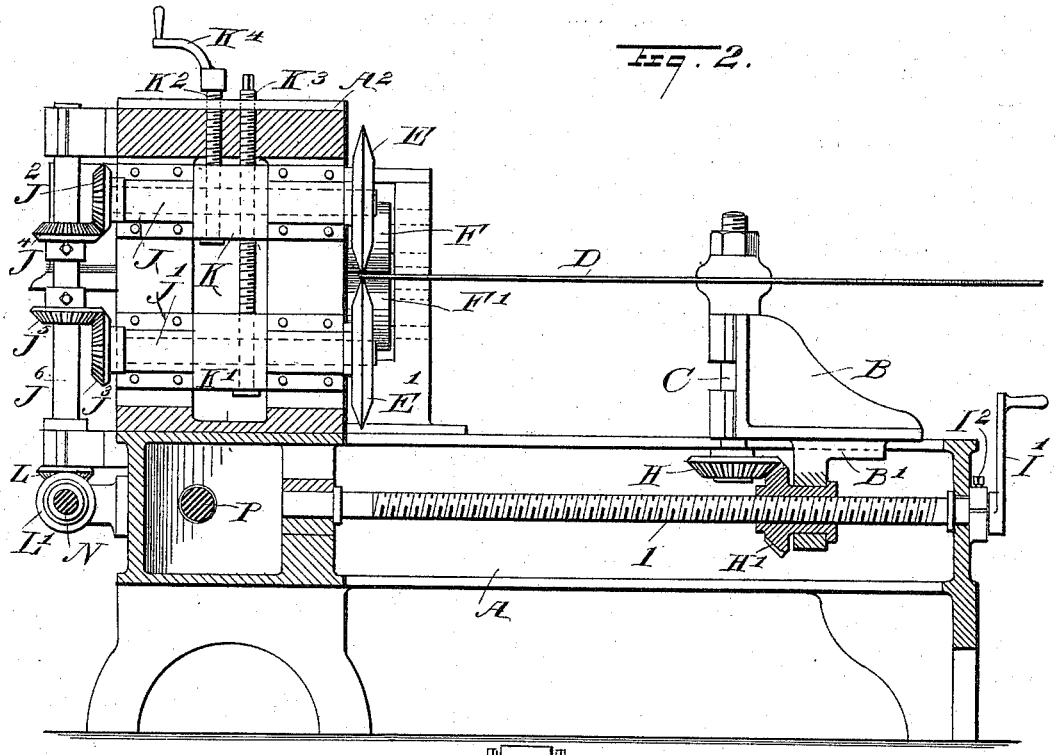
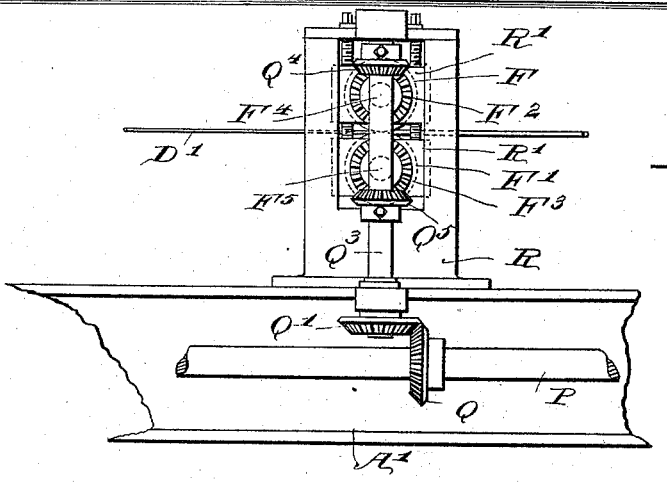


Fig. 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

FRANK H. HOWE, OF PORT TOWNSEND, WASHINGTON.

MACHINE FOR FORMING WIRES FROM METAL DISKS OR PLATES.

SPECIFICATION forming part of Letters Patent No. 526,230, dated September 18, 1894.

Application filed December 4, 1893. Serial No. 492,704. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. HOWE, of Port Townsend, in the county of Jefferson and State of Washington, have invented a new and Improved Means for Forming Wires or Rods, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved means for forming rods or wires for metallic disks, in a very simple and comparatively inexpensive manner.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2—2 of Fig. 1; and Fig. 3 is an end view of the drawing rollers and mechanism for operating the same.

The improved machine is provided with a suitably constructed bed A, on which is mounted to slide longitudinally the head B, in which is journaled the vertically disposed shaft or arbor C, carrying at its upper end a metallic disk D, from which the wire or rod is to be formed. The edge of the disk D is adapted to be cut into a strip D′ by two revoluble cutters E, E′, located one above the other and adapted to cut the periphery of the disk D into a strip as the disk is revolved and fed forward toward the revoluble cutters E E′ as hereinafter more fully described. The strip D′ thus cut off from the periphery of the disk D is passed between two drawing rollers F and F′, which press the strip into a rod or wire of any desired cross section, the said wire being wound up on a spool G secured on a vertically disposed shaft G′ journaled in the outer end of an extension A′ of the bed A.

In order to give the necessary motion to the several parts, the following devices are provided: On the lower end of the shaft C is secured a bevel gear wheel H in mesh with a bevel gear wheel H′ mounted to rotate in a suitable bearing B′ attached to the under side of the head B. The gear wheel H′ forms a nut screwing on a screw rod I, mounted to rotate in suitable bearings in the bed A, as is plainly shown in Fig. 2, the outer end of the screw rod being provided with a crank arm I′ for conveniently turning the said screw rod to return the head B to its outermost position after the disk has been cut into a strip and a new disk is placed on the shaft C. Ordinarily, however, the screw rod I is securely locked in place by a set screw I^2 or other suitable means, so that the screw rod does not revolve, and when the disk D is rotated a like motion is given to the shaft C and the gear wheels H, H′, so that the latter travels forward on the screw rod I and carries the head B with the shaft C and disk D in the same direction, as the edge of the disk diminishes in size by the cutters E, E′ cutting off the strip from its peripheral edge. The feed of the head B depends on the pitch of the thread on the screw rod I, which latter is changed according to the width of the strip to be cut from the peripheral edge of the disk D. The cutters E, E′ are located one above the other and are secured on longitudinally extending shafts J, J′ respectively, mounted to rotate in suitable bearings attached to slides K, K′ respectively, held vertically adjustable in suitable guide-ways formed in a frame A^2 supported on one end of the bed A. Screw rods K^2 and K^3 engage the slides K, K′ respectively and serve to adjust the said slides vertically so as to bring the cutting edges of the cutters E, E′ in proper position with relation to one another, so as to cut the strip D′ properly from the disk D.

The outer ends of the shafts J, J′ carry bevel gear wheels J^2, J^3 respectively in mesh with like gear wheels J^4, J^5 respectively, secured on a vertically disposed shaft J^6 journaled at its upper end in bearings attached to the frame A^2 and at its lower end in bearings on the bed A.

On the extreme lower end of the shaft J^6 is secured a bevel gear wheel L, in mesh with a bevel gear wheel L′, secured on a transversely-extending shaft N, mounted to rotate in suitable bearings on one end of the bed A. The forward end of the shaft N is connected by a pinion O with a gear wheel O′, secured on a transversely extending main shaft P journaled in suitable bearings on the bed A and its extension A′. The extreme rear end of

this shaft P carries a bevel gear wheel P′ in mesh with a bevel gear wheel P^2 secured on the lower end of the shaft G′ carrying the spool G. On the shaft P is also secured a bevel gear wheel Q, see Figs. 1 and 3, in mesh with a bevel gear wheel Q′, fastened on the lower end of the shaft Q^3, mounted to rotate in suitable bearings attached to a frame R carrying the drawing rollers F, F′, previously mentioned. On the shaft Q^3 are secured the bevel gear wheels Q^4, Q^5 in mesh with similar wheels F^2, F^3 respectively, secured on the shafts F^4, F^5 respectively, carrying the drawing rollers F, F′ respectively. The shafts F^4, F^5 are mounted to rotate in suitable bearings R′ held adjustably in the frame R, so as to bring the drawing rollers into proper relation with each other, and also to permit of conveniently changing the form of the drawing rollers according to the desired cross section to be given to the wire or rod. The drawing rollers F, F′ are formed with registering peripheral grooves, through which the strip passes to be formed into the rod or wire of the desired cross section. It is understood that the drawing rollers F, F′ are located between the cutters E, E′ and the spool G, but if necessary, two or more sets of such drawing rollers may be employed to give the desired shape to the strip cut from the disk D and also to exert sufficient pull on the strip to rotate the disk D, so as to permit the cutters E, E′ to cut the strip from the disk. It is understood that the power of the drawing rollers thus serves to draw the edge of the disk between the cutters to permit the latter to cut the strip, at the same time causing the disk D to revolve, so that the feed mechanism for the disk is automatically actuated, as before described, and the disk is proportionately fed forward. It will be seen that by this arrangement the disk D is cut into a continuous strip formed into a wire or rod of any desired cross section.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a wire or rod forming machine, the combination with a rotary spindle carrying a disk from which the wire or rod is to be formed, and cutters for cutting a strip from the said disk, of drawing rollers between which the strip passes and by which the disk carrying spindle is rotated, and a feed mechanism for feeding the disk to the cutters, said mechanism being operated by the rotary movement of the said spindle substantially as described.

2. In a wire or rod forming machine, the combination with a rotary spindle carrying a disk from which the rod or wire is to be formed, and rotary cutters for cutting a strip from the said disk, of drawing rollers between which the strip passes and by which the disk carrying spindle is rotated, gearing for simultaneously operating the said drawing rollers and cutters, and a feed mechanism for feeding the disk to the cutters, said mechanism being operated by the rotary movement of the disk carrying spindle, substantially as described.

3. In a wire or rod forming machine, the combination with the cutters, of a sliding head, a spindle mounted in said head and carrying a disk from which the wire or rod is to be formed, a gear wheel on the lower end of the spindle, a screw rod adapted to be locked stationary, and a gear wheel mounted in the sliding head and forming a nut through which the screw rod passes, substantially as described.

4. In a wire or rod forming machine, the combination with the cutters, of a sliding head, a spindle mounted in the head and carrying a disk from which the wire or rod is to be formed, a gear wheel on the lower end of the spindle, a screw rod provided with a crank arm at one end, means for locking the screw rod stationary, and a gear wheel mounted in the sliding head and forming a nut through which the screw rod passes, substantially as described.

5. In a wire or rod forming machine, the combination with a spindle mounted to rotate and adapted to carry the disk from which the wire or rod is to be formed, and a feed mechanism for the disk carrying spindle, of cutters for cutting a strip from the disk, drawing rolls engaging the cut strip to press it into a wire or rod, a reel upon which the wire or rod is wound, and means for simultaneously operating the cutters, drawing rolls, and reel, substantially as described.

6. In a wire or rod forming machine, the combination with a main shaft, of cutters, drawing rolls, a reel, and gearing for operating the cutters drawing rolls, and reel from the main shaft, substantially as described.

7. In a wire or rod forming machine, the combination with a main shaft, of rotary cutters, drawing rollers, a reel, gearing for operating the cutters, drawing rollers, and reel from the main shaft, a rotary spindle carrying a disk from which a strip is to be cut to form the rod or wire, and a feed mechanism operated by the rotary movement of the said spindle, for feeding the disk to the cutters, substantially as described.

FRANK H. HOWE.

Witnesses:
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JOHN N. SCOTT.