

J. B. Mignault,

Making File-Blanks,

N^o 53,025.

Patented Mar. 6, 1866.

Fig. 1.

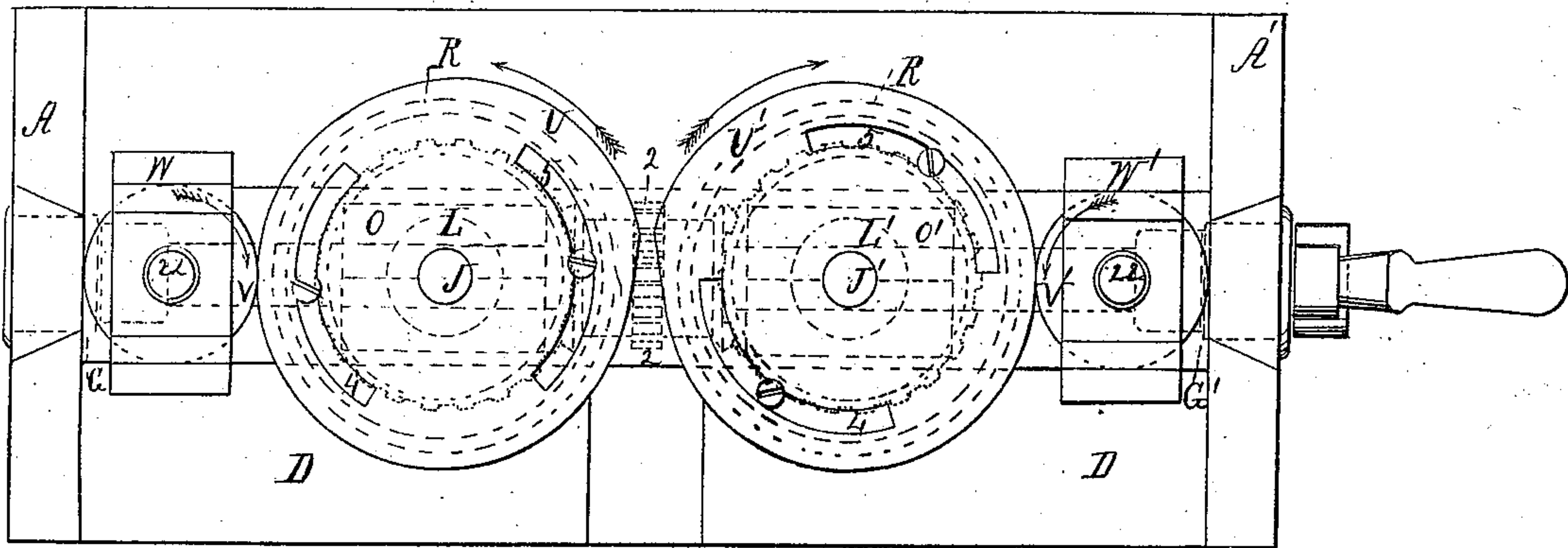


Fig. 2.

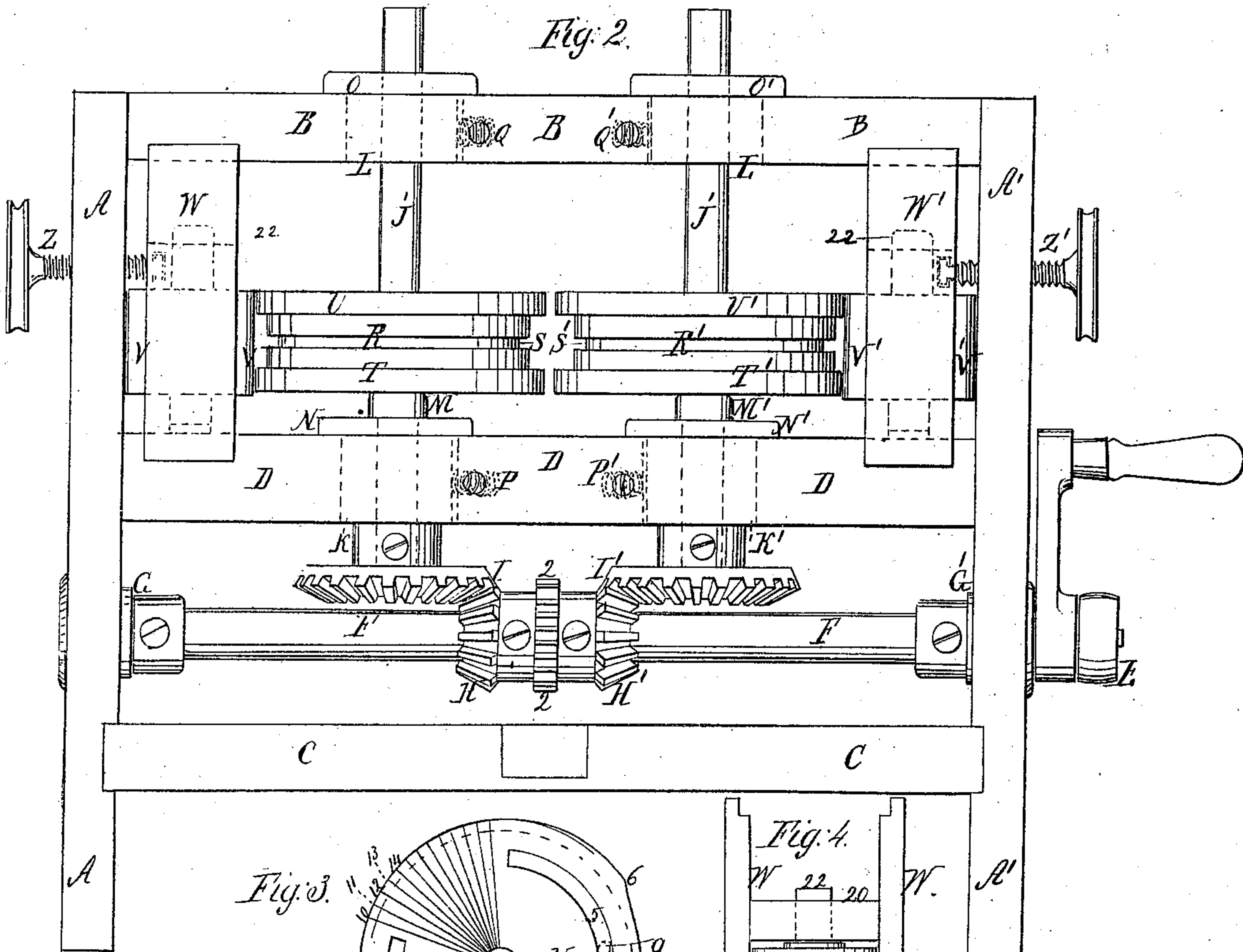


Fig. 3.

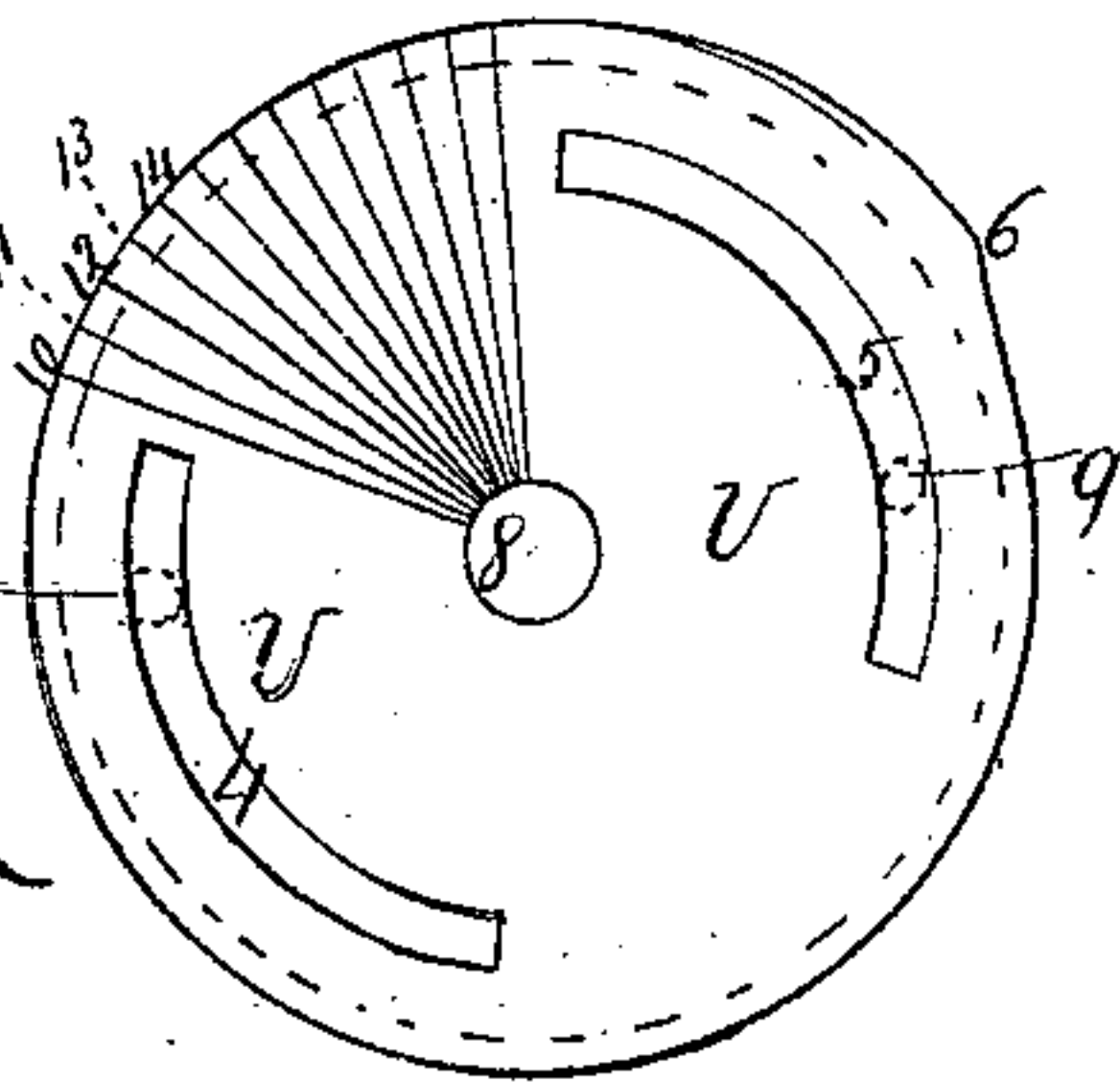
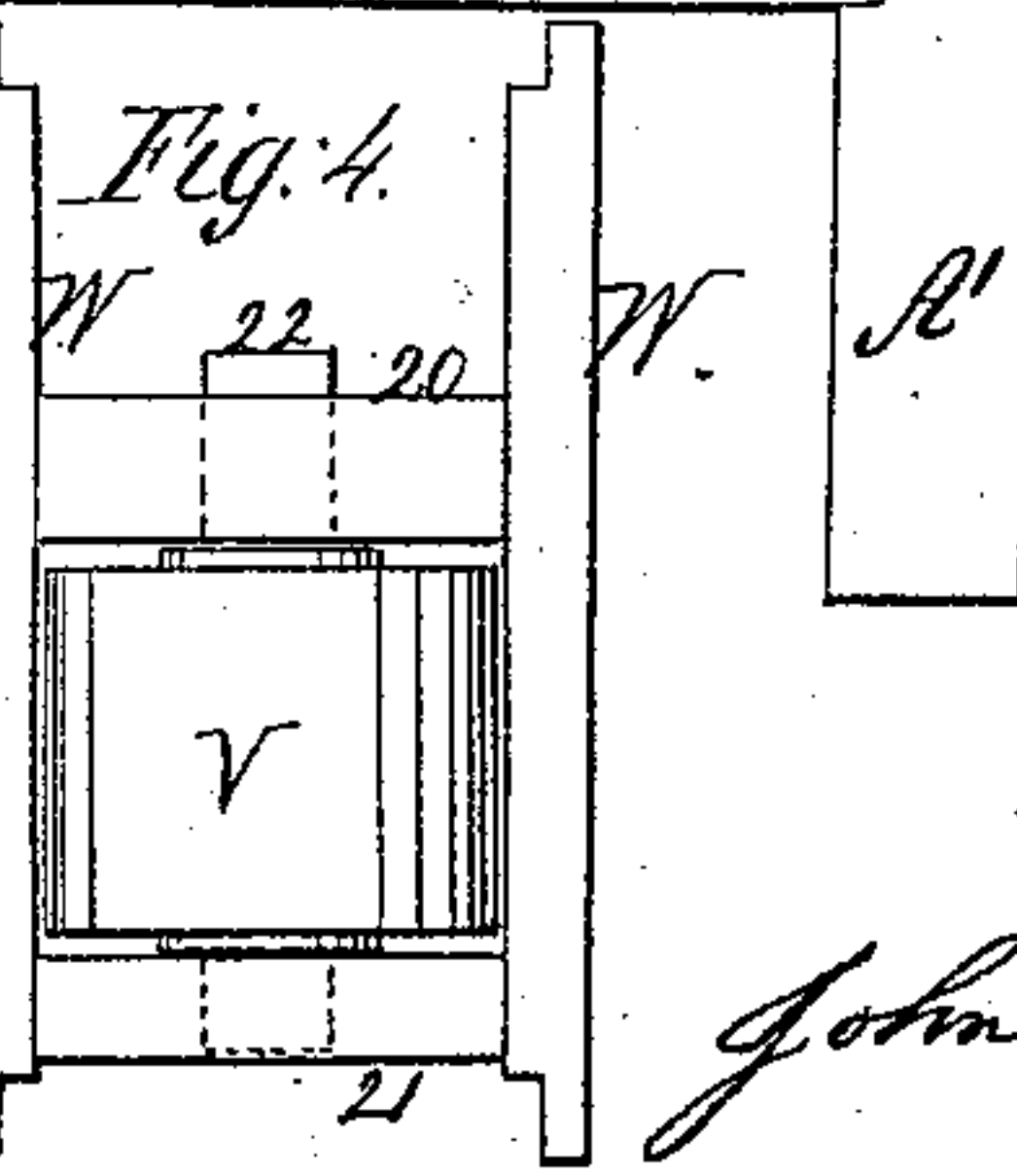


Fig. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

JOHN B. MIGNAULT, OF CHELSEA, MASSACHUSETTS.

IMPROVED MACHINE FOR ROLLING FILE-BLANKS.

Specification forming part of Letters Patent No. 53,025, dated March 6, 1866.

To all whom it may concern:

Be it known that I, JOHN B. MIGNAULT, of Quebec, Canada, a subject of Great Britain, now residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Machines for Rolling File-Blanks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

Figure I is a top view of the machine. Fig. II is a front elevation. Fig. III is a plan of one of the cams or shapers; Fig. IV, elevation of one of the friction-rollers.

My invention is intended for rolling file-blanks or other metallic articles of irregular form—such as bayonets, tapered spikes, &c.—its construction being such as to produce a great variety of forms, either curved or tapered, by the use of one pair or set of rollers, the required form being given to the article by means of rotating cams or shapers attached to the ends of the rollers. The cams or eccentrics are adjustable upon the rollers, and a slight difference in their position changes the form of the rolled article, while the rollers themselves are cylindrical and always revolve upon their true centers.

In the drawings the ends of the frame of the machine are represented at A A', connected near the bottom by the horizontal cross-bar C, and at the top by the bar B. There is also a horizontal bar, D, framed into the uprights A, and dividing the space that contains the rolling apparatus from that containing the driving shaft and gears. The machine is driven by the main horizontal shaft F, provided with a pulley at E, and having its bearings G G in the uprights A A'.

To the center of the shaft F two miter-gears, H H', are affixed. Above them are two miter-gears, I I', which are secured to the vertical shafts J and J'. The lower ends of these shafts have their journals at K K' in the cross-bar D, the upper ends being supported in the journals L L' in the cross-bar B. Upon the shafts J and J' are the collars M M', which rest upon the movable bearings N K and N' K'. The projecting parts N N' rest upon the cross-bar D, and can be moved laterally to the right or left. The bearings O L and O' L' in the top bar, B,

have a similar and corresponding motion. These four bearings are forced outward to the right and to the left by the spiral springs P Q and P' Q'.

The rollers R and R' are each firmly affixed to the shafts J and J'. Both rollers are true circles, and the central groove, S S', in which the file-blank is formed, is also a true circle, the groove being of uniform depth throughout.

Two cams or shapers, U T and U' T', are attached to each of the rollers R and R' upon opposite sides, all of the cams being of precisely the same form or outline at the periphery. One of the cams is represented in plan at Fig. III, having circular slots 4 and 5, to receive the screws 9 9, which pass through the cam and enter the single hole tapped in each end of the roller to receive it. The aperture 8, at the center of each cam is of precisely the same diameter as the shafts J and J'.

The dotted line in Fig. III shows the position of the circular roller R, the greatest deviation from the circular form being at the point marked 6 on the cam.

As before mentioned, the four cams are all of exactly the same shape; but the position of the pair of cams attached to the roller R is the reverse of the pair attached to the opposite roller, R'. This relative position of the pairs of cams is shown in Fig. I.

It will be observed that the cams can be turned and set in any required position upon the rollers by means of the screws 9 9, the correspondence of each pair being insured by setting any one of the numbered radial lines 10 11 12, &c., to match the same lines and numbers upon the opposite cam.

Two sliding frames, W W', are placed outside of the rollers R and R', and are so fitted that they may be set in any required fixed position by the adjusting-screws Z Z', which pass through the uprights A A'. The top and bottom of the frames traverse upon the horizontal cross-bars B and D. In each of these frames there is a friction-roller, V, the axis 22 having its bearings in the cross-pieces 20 and 21.

The peripheries of the cams are held in contact with the friction-rollers by the action of the spiral springs Q P and Q' P'.

The rollers revolve in opposite directions, and as the friction-rollers V V' do not yield laterally in the direction of the uprights A A',

the eccentricity of the cams causes the circular rollers R R' to approach or recede from each other in accordance with the varying distance of the periphery from the center of the cam.

The eccentric movement must be of less extent than the depth of the teeth in the wheels H and I; otherwise they would be thrown out of gear.

The steel that is to be rolled is adapted to the size of the groove S in the usual manner, and may be fed by hand, or the bars may be fed automatically, in which case motion is communicated to the proper feeding apparatus by the wheel 2.

When it is desirable to finish the file-blank at one heat I place in the rear of the machine a second pair of rollers constructed in the same manner as those herein described, with the exception that they are at right angles with the front pair. This second set of rollers receive the file-blank from the front set, one fin-

ishing the flat and the other the edge of the file.

It will be perceived that two or more short files may be rolled at each revolution by giving a suitable shape to the cams for this purpose.

What I claim, and desire to secure by Letters Patent, is—

1. A pair of circular rollers placed opposite to each other and having cams or shapers affixed to their ends for the purpose of governing the distance of the rollers from each other.

2. The rollers R R', constructed as herein set forth, in combination with the fixed friction-rollers V V', upon which the peripheries of the cams are held in contact.

JOHN B. MIGNAULT. [L. S.]

In presence of—

JOHN M. BATCHELDER,
FRANKLIN HUNT.