(No Model.)

C. L. REDFIELD.

FEED DEVICE FOR MATRIX MAKING MACHINES.

No. 416,744. **Patented Dec. 10, 1889.**

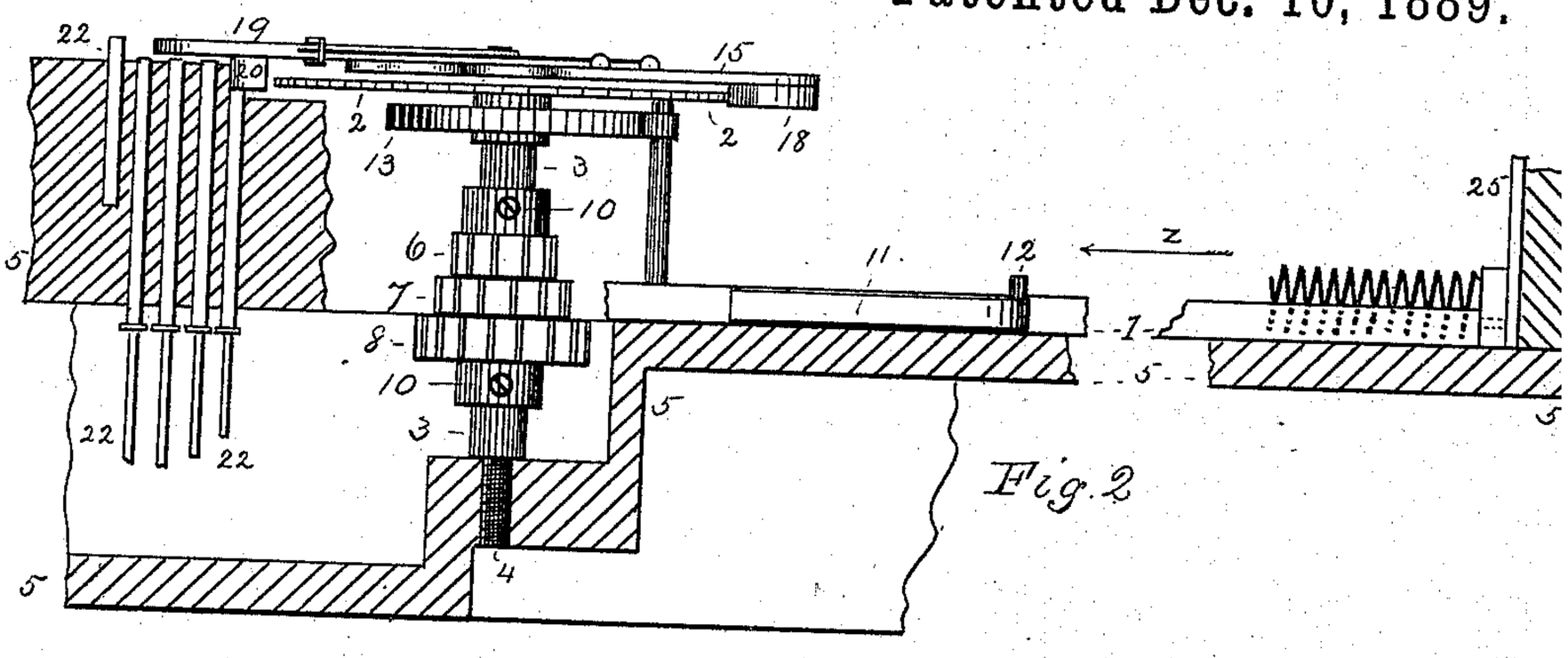


Fig. 2

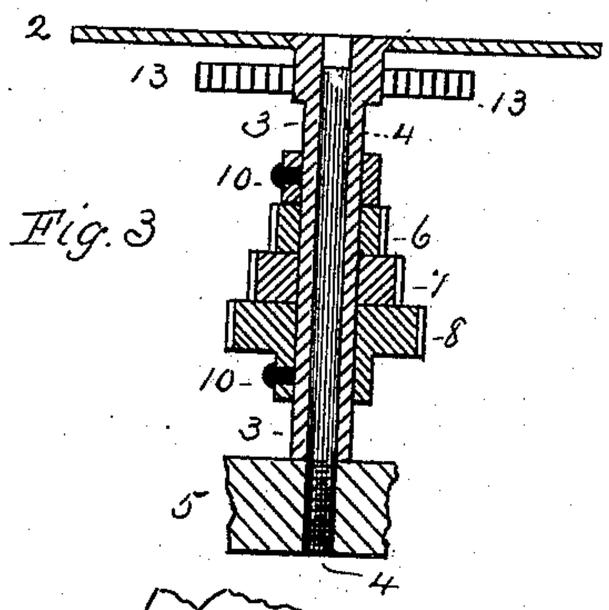
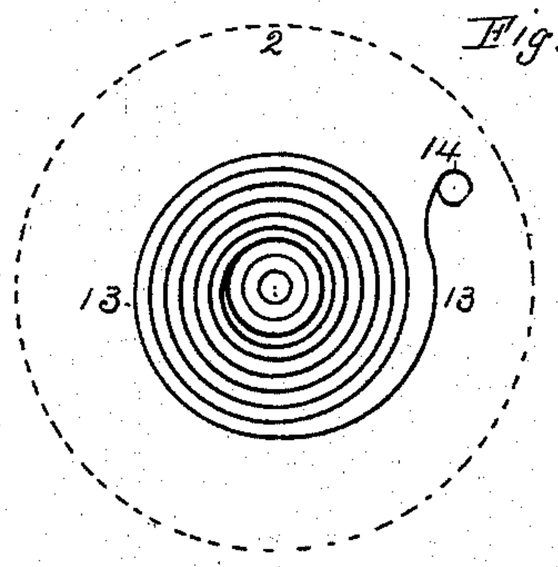


Fig. 3

Fig. 5



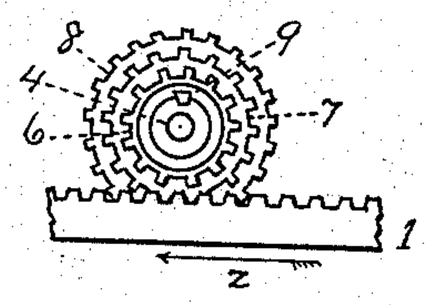


Fig. 4

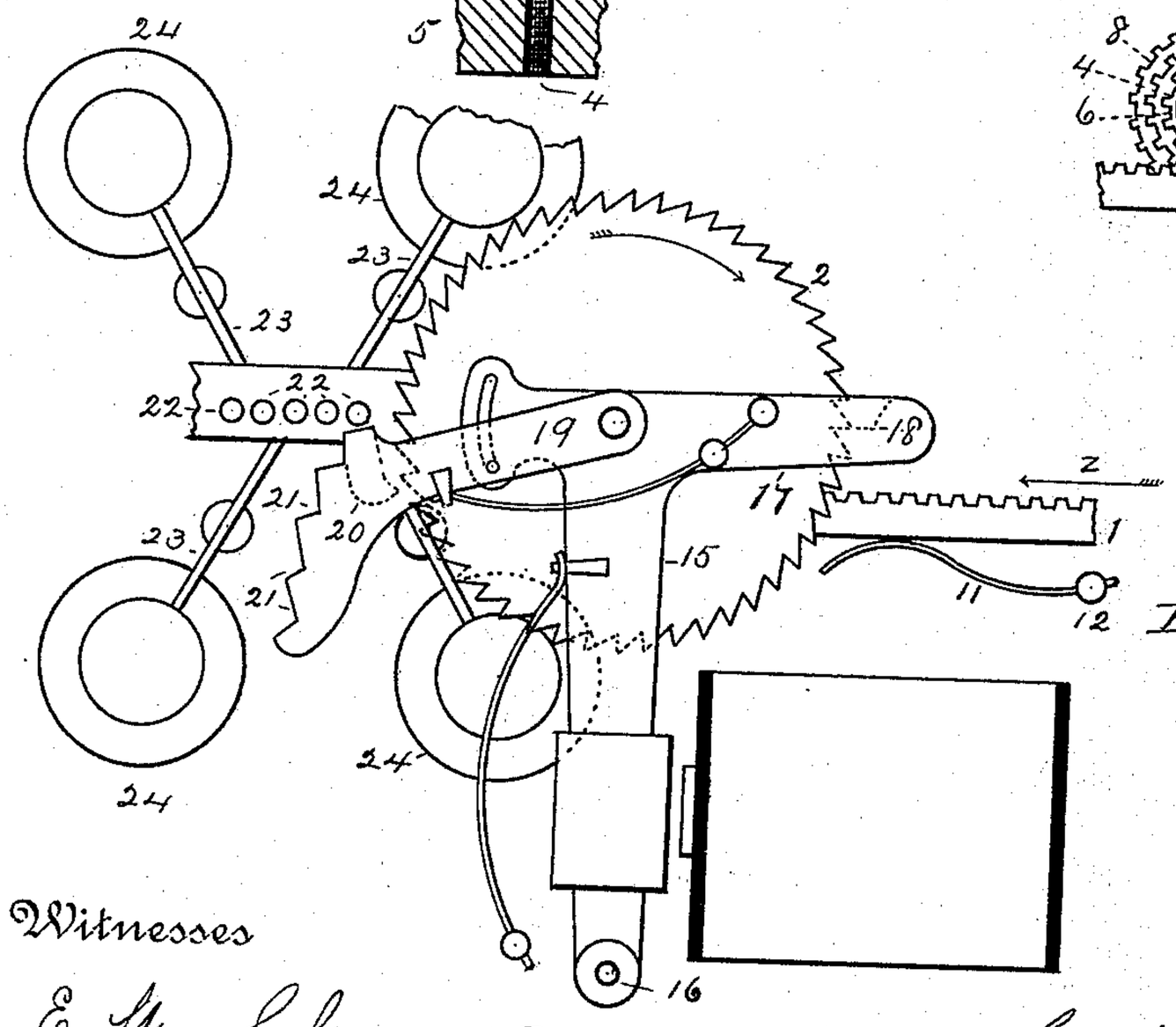


Fig. 1

Witnesses

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UNITED STATES PATENT OFFICE.

CASPER L. REDFIELD, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CHICAGO MATRIX MACHINE COMPANY.

FEED DEVICE FOR MATRIX-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 416,744, dated December 10, 1889.

Application filed March 22, 1889. Serial No. 304,341. (No model.)

To all whom it may concern:

Be it known that I, CASPER L. REDFIELD, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Feed Devices for Matrix-Making Machines, of which the following is a specification.

My invention relates to matrix-making machines using independent dies and requiring variable matrix-carriage movements to properly space the matrix for different dies, and relates more particularly to the feed-controlling mechanism of such machines.

The object of the improvement is to provide means for readily changing the measurements of feed movement by an adjustment of parts connected with an escapement.

The invention consists in the devices and combinations hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the escapement mechanism of a matrix-making machine. Fig. 2 is a side elevation of the same, showing the frame in section. Fig. 3 is a vertical section of the escape-wheel, its supporting-sleeve, pinions, &c. Fig. 4 is a plan view of the pinions and rack. Fig. 5 is a detail of the auxiliary spring.

In said drawings, 1 designates a rack connected to a matrix-carriage that has a spring-tension in the direction of the arrow *z*.

2 is the escapement-wheel, mounted on a sleeve 3, that turns on a post 4, which is secured to the machine-frame 5. On the sleeve 3 are pinions 6, 7, and 8, held by a feather 9 from turning, and held in adjustment vertically by set-screws 10. The adjustability of the pinions enables them to be severally placed in position to be engaged by the rack 1. The rack is pivoted to the carriage 25, so as to permit lateral movement of the outer end, and a spring 11, secured to post 12, bears against the back of the rack to adjust it to the different-sized pinions and hold it to engagement with them. To aid the rack in turning the scape-wheel, especially when a small pinion is being used, there is provided an auxiliary coil-spring 13, having one end attached to the sleeve 3, and the other to a post 14 on the machine-frame, and which tends to rotate the sleeve in the same direction as the rack. Over the scape-wheel is a lever 15, fulcrumed at 16, and carrying on its arm 17 a pawl 18 for holding the wheel against the force of the rack. A second lever 19, pivoted to the former at the wheel-center, carries the pawl 20, that is normally free from the wheel-teeth. The projecting arm of this lever has retreating steps 21, that are engaged by corresponding pins 22, which are operated by the levers 23 and their magnets 24, to raise them in the order desired to serve as stops for their lever-steps 21. The arrangement of the stops and pins is such as to permit a movement of the scape-wheel equal to one tooth for the first step, two teeth for the second, three for the third, and so on through the series. Thus the movements are all exact multiples of the first or minimum movement. To increase or decrease the quantities of the matrix-carriage feed-movements permitted by these escapement movements, the different-sized interchangeable pinions 6, 7, and 8 are utilized. The escapement devices are arranged to provide suitable proportionate spacings of the matrix for dies cut on a given scale. If dies of a different size are substituted, these escapement devices will still control the proportions of movement, while the substitution of the appropriate pinions will afford the proper quantity of movement. If, for illustration, dies of a given scale of sizes are adapted to be used in connection with a feed permitted by engagement of the rack 1 with the small pinion 6, and a proper spacing for the different letters of the set is produced by the stepped lever and stops connected with the escapement, and dies of a larger face are then substituted for the former, the increased measures of feed can be readily provided for by moving a suitable larger pinion, as 7 or 8, into position to engage the rack, and by the longer rack-movement thus occasioned suitably increase the matrix-spacing for the larger dies, while the proportions of measurement of spacing for the varying dies of the set is still regulated by the stepped lever and stops.

Patentable subject-matter disclosed herein and not herein claimed is reserved to be claimed in a pending application for patent

filed by me March 18, 1889, Serial No. 303,657.

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

1. The combination, with the feed-escapement in a matrix-making machine, of pinions of different diameters for turning a scape-wheel, means for shifting their positions vertically, and a pivoted spring-pressed rack for engaging a selected pinion, for the purpose set forth.

2. In combination in a matrix-making machine, a matrix-carriage, a rack pivoted thereto, a spring for holding it in engagement with a pinion, an escapement having means for providing different measures of feed-movement, pinions of varying sizes carried on the scape-wheel shaft, and means for adjusting the pinions severally to the rack, substantially as set forth.

3. In a matrix-feed mechanism, an escape-wheel, a pawl for controlling its movement, a rack and pinion for turning its spindle, and an auxiliary spring for aiding the wheel rotations, having one end attached to a fixed object and the other to the wheel-spindle, substantially as set forth.

CASPER L. REDFIELD.

Witnesses:

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