(Model.)

W. SELLERS.

Mechanism for Operating the Slide Rests of Lathes.

No. 238,254. **Patented March 1, 1881.**

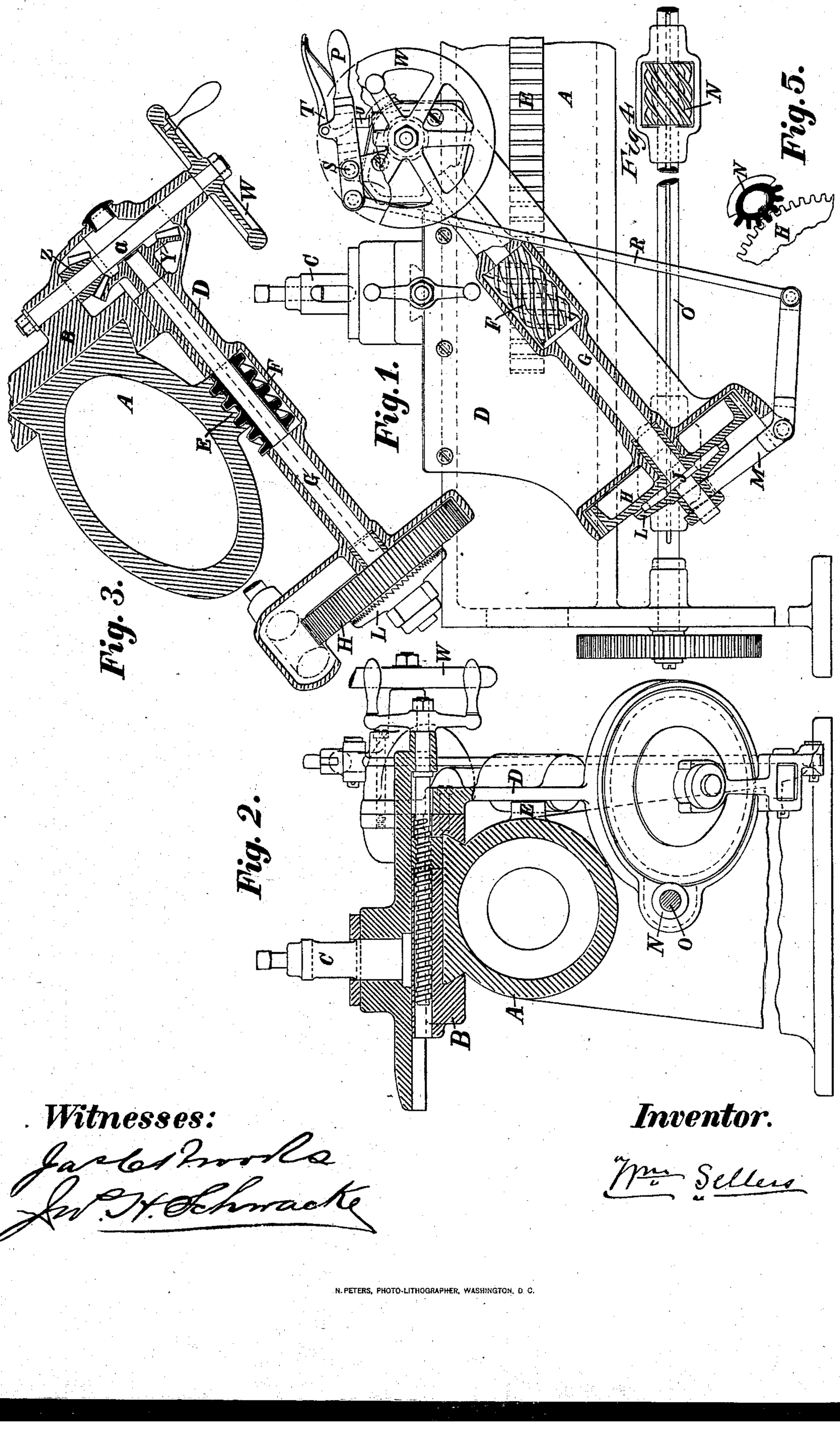

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Witnesses:

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MECHANISM FOR OPERATING THE SLIDE-RESTS OF LATHES.

SPECIFICATION forming part of Letters Patent No. 238,254, dated March 1, 1881.

Application filed October 19, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM SELLERS, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Mechanism for Operating the Slide-Rests of Lathes; and I hereby declare the following to be a full and accurate description thereof, reference being had to the accompanying drawings, which form part of this specification.

In the construction of all slide-lathes it is necessary to convert the rotary motion of the lathe-spindle into a rectilinear movement to traverse the slide-rest, and for this purpose a great variety of gearing devices have been employed, those in most common use being the screw and nut or the worm, worm-wheel, and rack. The former is objectionable when used for turning alone, on account of the loss of time involved in gearing the nut into the screw, while the worm and worm-wheel, although they avoid this objection, rapidly deteriorate and are soon rendered useless unless exceptionally well lubricated, which it is often difficult to provide for, and both systems absorb a great deal of power in transmission.

It is the object of my present invention, while retaining the greatest facility for engaging and disengaging the feed, to increase the durability and decrease the friction of the gearing required to transmit motion from the spindle to the slide-rest of lathes; and to this end my invention consists in combining two spiral pinions, a spur-wheel, and a rack in such manner that one spiral pinion drives the wheel, while the other gears into the rack, the wheel and one spiral pinion being secured to one and the same shaft.

In the annexed drawings, which form part of this specification, Figure 1 represents an elevation, partly in section, of an arrangement embodying my present invention. Fig. 2 is an end view of Fig. 1, partly in section. Fig. 3 shows a section through Fig. 1, on the line *x x*. Fig. 4 represents the spiral pinion on the splined driving-shaft, and Fig. 5 is a section showing the manner in which the spiral pinion engages with the spur-gear.

Similar letters refer to similar parts.

A is the bed or shear of the lathe. B is the main casting of the saddle, provided with a tool-holder, C, in the usual manner. D is the front of the saddle carrying the feed-gear. E is a rack on the side of the bed, and F is a multi-threaded screw or spiral pinion secured on the shaft G, which revolves freely in suitable bearings in the front D. The shaft G is placed at such an angle that the threads or teeth of the spiral pinion F shall fit and engage with the straight teeth in the rack E, the straight rack-teeth being tangent to the curved teeth of the spiral pinion.

On the lower end of the shaft G is the spur-wheel H, which turns freely in its bearing in the front D, and also in the shaft G. It is held in place by the collar J, and is driven by the spiral pinion N, which is carried on and driven by the splined shaft O, to which it is secured by a feather that allows it to slide freely along the shaft O, while compelling it to turn with the shaft, which is driven, in the usual way, from the live head. The wheel H has in its lower face a number of V-shaped teeth, which engage with similarly-shaped teeth on the sliding clutch L, which is secured by a feather to the shaft G, and is moved along it by the lever M, the forked end of which fits within a recess or groove turned in the hub of the clutch L.

The latch-lever P, pivoted at S, is coupled with the lever M by the rod R, and is provided with a spring-latch, T, which, when the clutch-teeth are in gear, as shown, rests upon the pin U, and thus securely holds the clutches in gear. In this position the wheel H is secured to the shaft G by the clutch L, which will thus drive the spiral pinion F, and so impart motion to the lathe-saddle. When the spring-latch T is pressed down so as to clear the pin U, the latch-lever P can be pushed down, and thus will separate the clutches, the spur-wheel H continuing to revolve, but without driving the spiral pinion F. In this position the pinion F may be turned and the saddle moved along the bed by means of the hand-wheel W and the bevel wheel and pinion Y and Z, which are keyed to the shafts G and *a*, respectively.

It will be evident from the shape and number of teeth in the clutches that no time will be lost in throwing the feed in gear, which can

be done instantly and at any time by raising the latch-lever P until the latch T rests upon the pin U.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination, a spiral pinion traveling on a splined driving-shaft parallel to the traverse of the saddle, a spur-wheel geared therewith and revolving freely upon an inclined shaft carried by the saddle, a clutch to engage and disengage this spur-wheel and the inclined shaft, and a spiral pinion keyed upon this inclined shaft meshing with a rack upon the shear, the combination being and operating substantially as and for the purposes set forth.

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Witnesses:

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