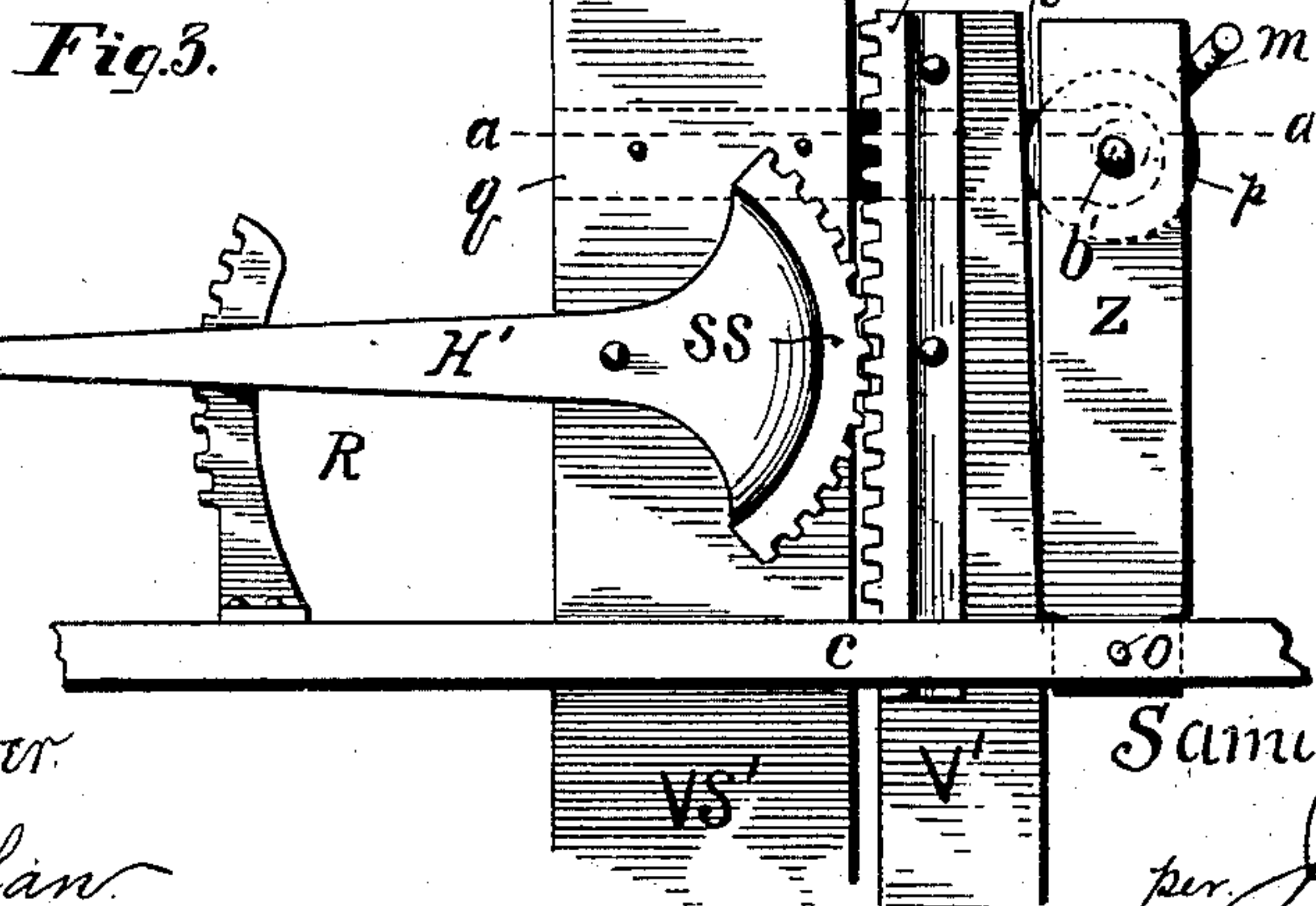
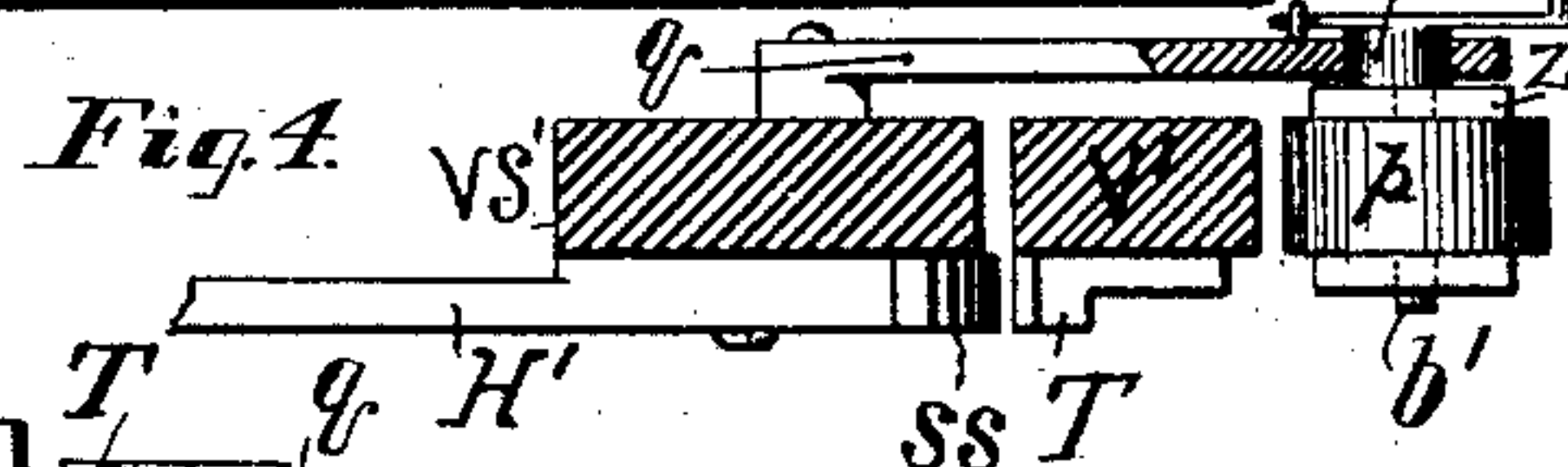
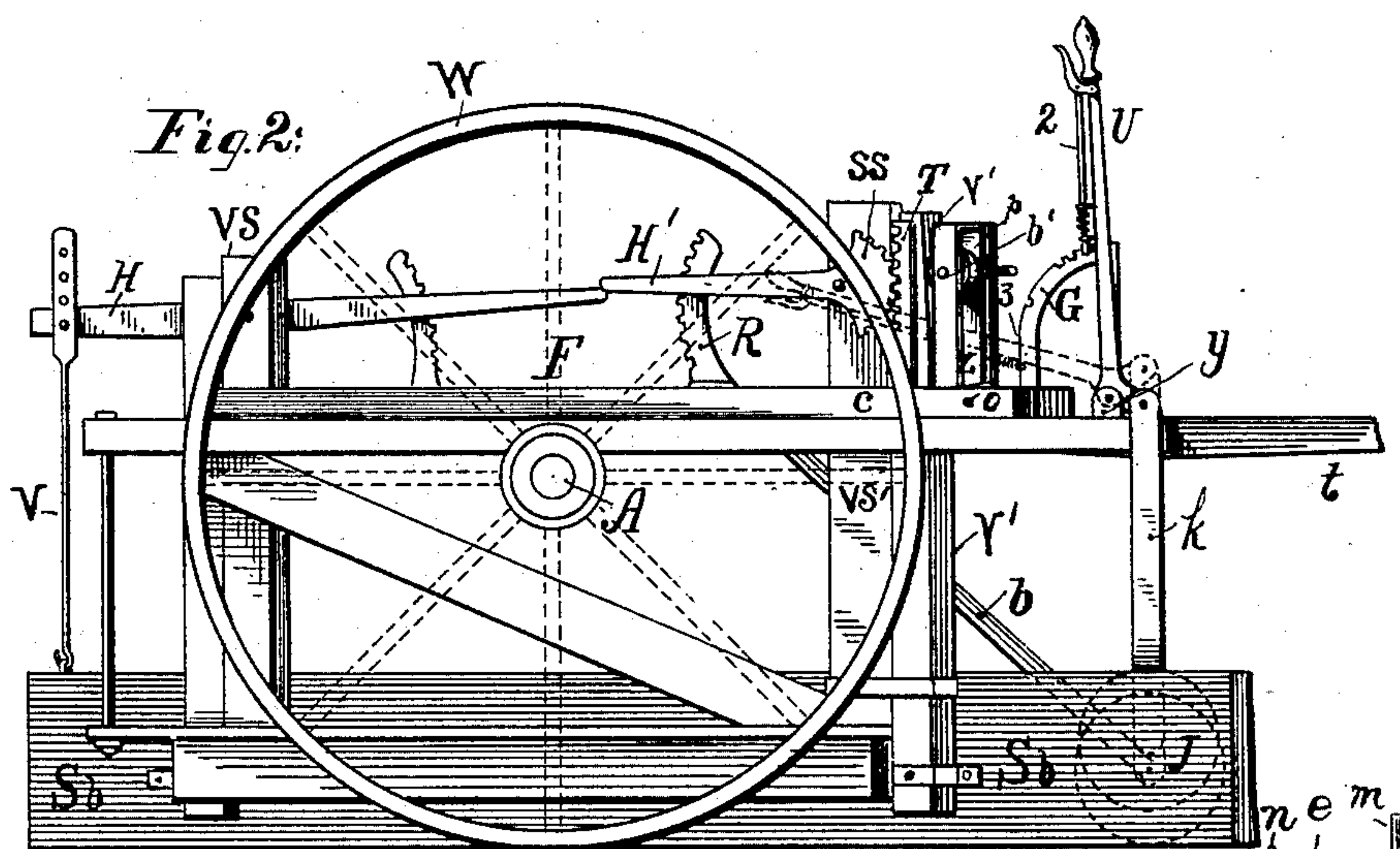
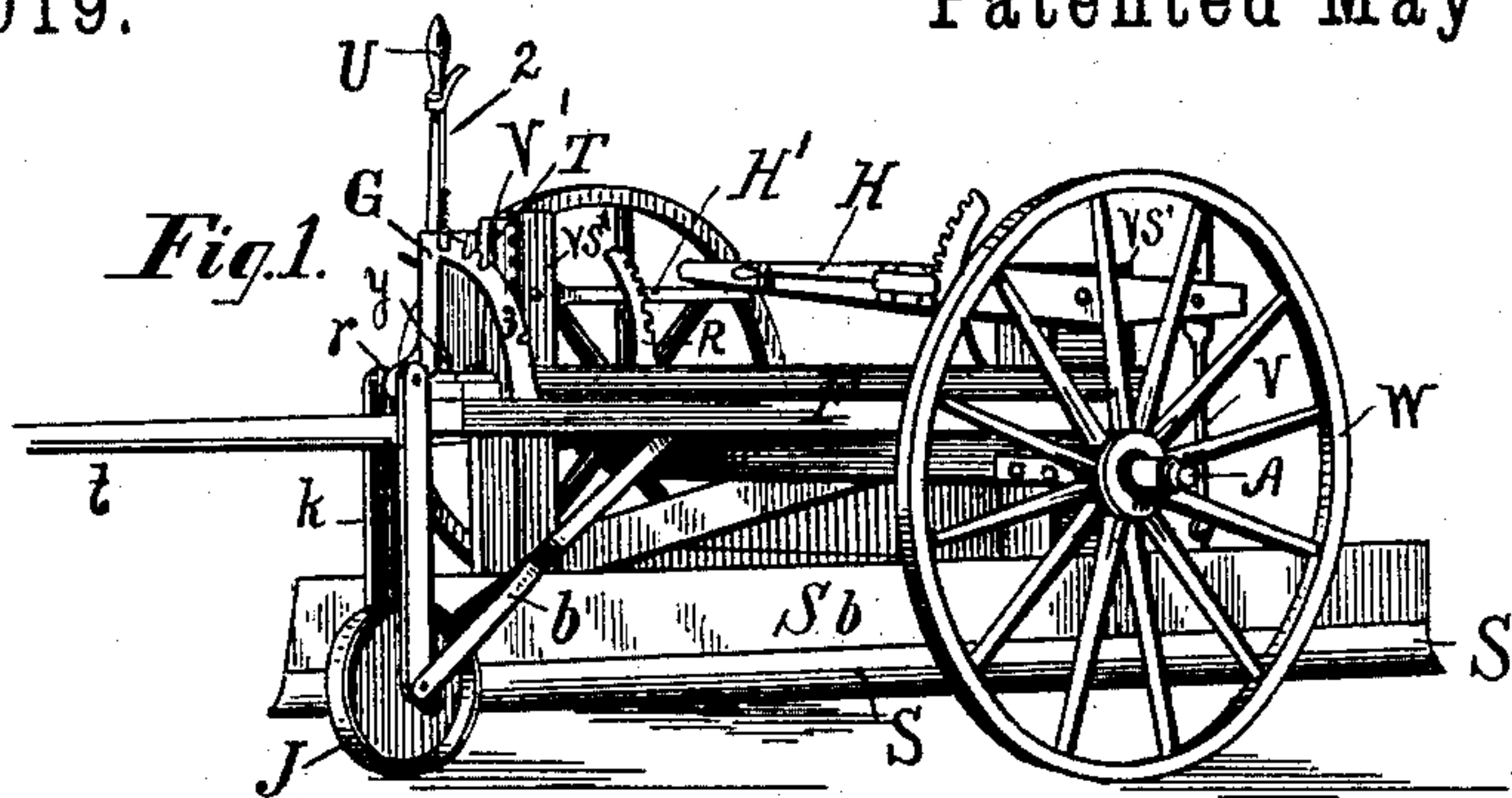


(No Model.)

S. PENNOCK.
ROAD GRADER.

No. 318,019.

Patented May 19, 1885.



WITNESSES:

N. H. Loubser.
John Nolan.

INVENTOR

Samuel Pennock,
per Joshua Rosey, atty.

UNITED STATES PATENT OFFICE.

SAMUEL PENNOCK, OF KENNETT SQUARE, PENNSYLVANIA, ASSIGNOR TO
THE S. PENNOCK & SONS COMPANY, OF SAME PLACE.

ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 318,019, dated May 19, 1885.

Application filed February 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL PENNOCK, a citizen of the United States, residing at the borough of Kennett Square, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Road-Graders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention is an improvement in that class of road-grading machines in which a scraper is connected to a frame-work upon wheels—such, for example, as the graders shown and described in my Letters Patent (reissue) No. 10,023, of January 31, 1882, and 15 No. 270,693, of January 16, 1883.

The invention comprises two distinct features, one of which relates to devices for raising and lowering the scraper, and the other— 20 applicable to what are known as “two-wheel” road-graders—to the combination, with the usual small supporting-wheel at the front of the machine, of means for elevating said wheel out of contact with the ground in order to permit the same to evade sods, stones, or other 25 large obstacles in the roadway, or when the latter is generally very rough or uneven, (when otherwise the lifting of the wheel by running over sods, &c., would raise up the scraper, and thus cause it to temporarily skip its work, so to say,) and for lowering the wheel when the 30 obstacles have been passed, and for retaining the same in the different positions.

In the accompanying drawings, Figure 1 is an oblique perspective view from the near side of a two-wheel road-grader in which my present improvements are embodied. Fig. 2 35 is an off-side elevation thereof. Fig. 3 is a side elevation, enlarged, of the mechanism for imparting vertical movement to the scraper, and Fig. 4 is a section thereof, as on the line *a a*, Fig. 3, but with the rack and segment thrown out of gear.

45 The same letters of reference always mark the same parts.

50 S is the scraper, secured to the diagonal bar S^b, which bar is connected to the vertically-movable end bars, V V', that are in turn connected to hand-levers H H', respectively, pivoted on the standards *vs vs'*, which constitute part of the main frame-work F, which is fast-

ened to and rests upon the axle A of the wheels W. Either end of the scraper-bar, or both ends simultaneously, may be raised or lowered by operating said levers. One of these, 55 H, is shown connected with the scraper-bar in the usual manner. The other, H', has a different arrangement for operating that end of the scraper, which forms the first above-mentioned feature of my present invention. 60 Its object is to provide a means for adjusting the vertical bar V' and its operating-lever H' with relation to each other, in order to avoid the necessity of the operator, who stands upon the usual platform at the rear of the machine, (not seen in the drawings,) giving a wide sweep of said lever in order to raise and depress the bar, and consequently the scraper, under extreme conditions—in other words, whereby the lever may be adjusted with relation 70 to the vertical bar, as required by the character of the roadway or the contour thereof, so that it will be necessary to turn the lever in but a comparatively short arc, and thus the operator will have better control of the same. I may here state that these devices now 75 to be described are a modification of devices for a like purpose which are described in a certain application for Letters Patent which I have just filed for improvements in road- 80 graders, and which was executed by me on the 21st day of January, 1884. The end of the short arm of lever H' is provided with a toothed segment, S S, Figs. 2, 3, and 4, whose teeth or cogs engage with those of a rack, T, upon the 85 vertical bar V', whose lower extremity is connected to the scraper-bar S^b. Bar V' is adapted to slide freely in a slot in one of the pieces *c* of the supporting-frame F, in such a manner that it is also capable, under circumstances 90 hereinafter explained, of being moved a short distance to and fro, the lower end of bar V' having also a pivotal attachment to the scraper-bar. When the rack is released, (by means of the devices hereinafter to be described,) it 95 may be thrown out of gear with the segment, whereupon bar V', and with it the scraper, falls, the latter resting upon the ground. Lever H' is then rotated to the desired position, in which it is retained by an ordinary spring- 100 catch, that locks into one of the teeth of a curved rack, R, and the rack T is then drawn

forward by the devices above referred to into its former position—*i. e.*, into engagement with the segment S S.

The means for attaining the results just mentioned are as follows: An arm, *q*, secured to the side of the upright *vs'*, to which lever *H'* is pivoted, carries at its free end a shaft or stud, *b'*, that is provided with an eccentric, *e*, and a small friction-wheel, *p*, in a slot in an upright, *Z*, through which also stud *b'* passes. The upright *Z* is pivoted at *O* to the frame-piece *c*. The said stud has a crank, *m*, for turning the eccentric, and it is stopped or retained in the two extreme positions by a stop-pin, *n*. When the eccentric is thrown to the one position—that shown in Figs. 2 and 3—the rack is engaged with the segment, the edge of bar *V'* to which the rack is attached being pressed against by the small wheel *p*. I make use of this wheel in order that the bar may be moved up and down, when the lever *H'* is rotated when the machine is doing work, with as little friction as possible. When the crank—*i. e.*, the eccentric—is thrown in the opposite direction, the upright *Z* is swung out and wheel *p* moves back out of contact with the bar, whereupon the rack may be disengaged from segment S S, all as seen in Fig. 4, and said lever be turned as required, which done, the bar and rack are then thrown back into position by rotating crank *m*, as before.

The other improvement, relating to the raising and lowering of the small supporting-wheel *J* at the front end of the usual frame of a two-wheel grader, is as follows: Said wheel is journaled in the lower extremity of a vertical frame, *k*, between the two sides of which the tongue *t* of the machine passes and is attached to the main frame *F*. Frame *k* is braced by bars *b*, pivoted thereto and to frame *F*, as shown, and is connected at its upper end to the short arm *r* of a hand-lever, *U*, which is pivoted on a lug, *y*, near the apex of the main frame *F*, which, I may state, is of the triangular form common in machines of this class. Now, when lever *U* is in one position—that is, upright—the wheel *J* rests upon the ground; but when for any reason—such as previously explained—it is desirable to elevate the wheel, the long arm of the lever is depressed, whereby the wheel is elevated, as indicated in Fig. 2. Said lever is provided with a spring-controlled catch, 2, engaging with slots 3 in a segmental rack, *G*, secured to the frame of the machine, whereby the lever, and consequently wheel *J*, are retained in the different positions.

I am aware that prior to my invention a caster-wheel has been vertically elevated and lowered by means of the short arm of a lever, and a radius-rod parallel to said short arm, the caster-wheel being secured to the lower side of a socket-piece, the outer end of said arm and rod being pivotally attached to said piece, and also having their inner ends fulcrumed and pivoted, respectively, to a bracket-frame.

I am also aware that a caster-wheel has been raised and lowered by means of a straight lever provided with pendent pivoted pieces on its outer end, in which the wheel is journaled.

Having thus described the construction and operation of my invention, I claim as new and desire to secure by Letters Patent—

1. In a road-grader, the combination of the scraper, a vertically-movable bar, as *V'*, connected thereto and provided with a toothed rack, as *T*, a pivoted hand-lever, as *H'*, provided with a segment, as S S, having teeth or cogs adapted to engage with the teeth or cogs of said rack, together with means, substantially as shown, for throwing the rack and segment out of gear and retaining the same in position, substantially as and for the purpose set forth.

2. The scraper, the vertically-movable bar *V'*, connected thereto, the pivoted hand-lever, the segment S S, the toothed rack *T*, the bar *q*, and the eccentric *e*, with means for rotating the same and holding it in position, together with the friction-wheel *p*, all combined, constructed, and adapted to operate substantially as and for the purpose described.

3. In a road-scraper, the combination, with the main triangular frame, of a lever pivoted at the forward end thereof, and a segmental rack also secured thereto, of a vertical frame depending from the shorter arm of said lever, and in the lower extremity of which is borne a wheel, pivoted steadying-braces extending from the lower end of said vertical frame to the sides of the main frame, and the spring-catch secured to the longer arm of the lever for engaging the rack, whereby the wheel is maintained in position when elevated, substantially as described and shown.

In testimony whereof I have hereunto affixed my signature this 4th day of February, A. D. 1884.

SAMUEL PENNOCK.

Witnesses:

THOS. T. WORRALL,
WILLIAM H. PHILLIPS.