

P. RADEMANN.
Scroll-Sawing Machine.

No. 215,241.

Patented May 13, 1879.

Fig. 2

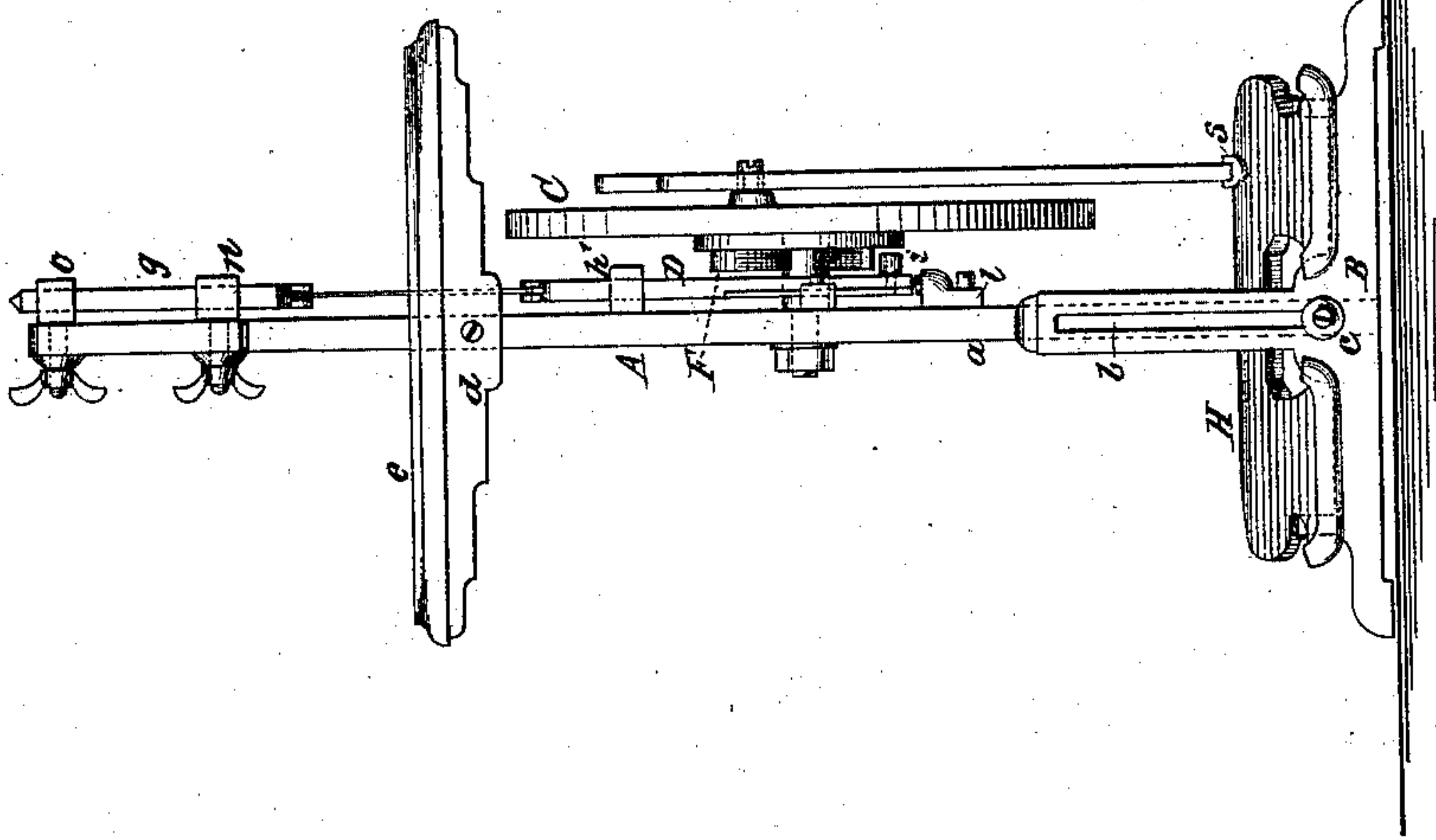
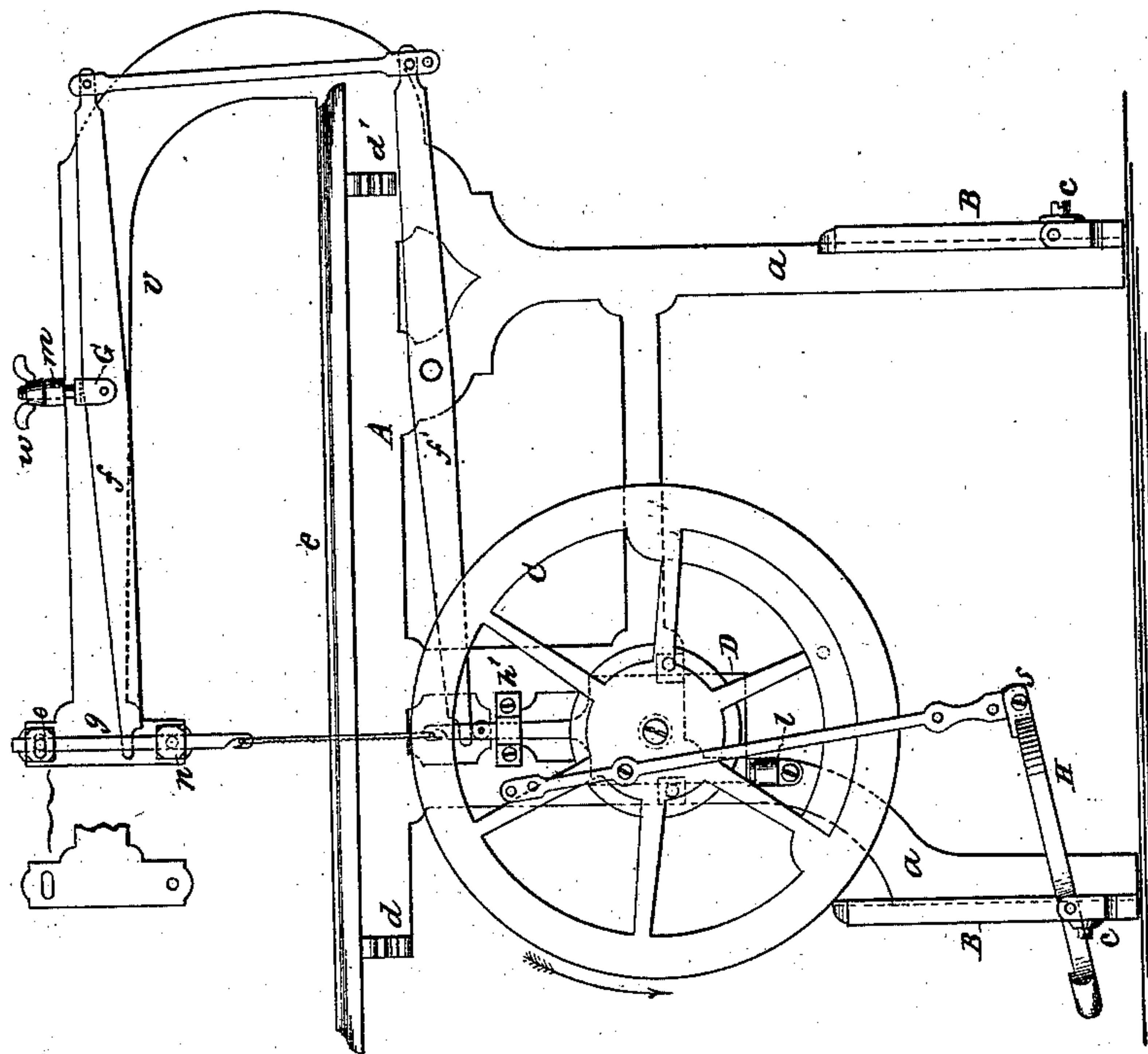


Fig. 1



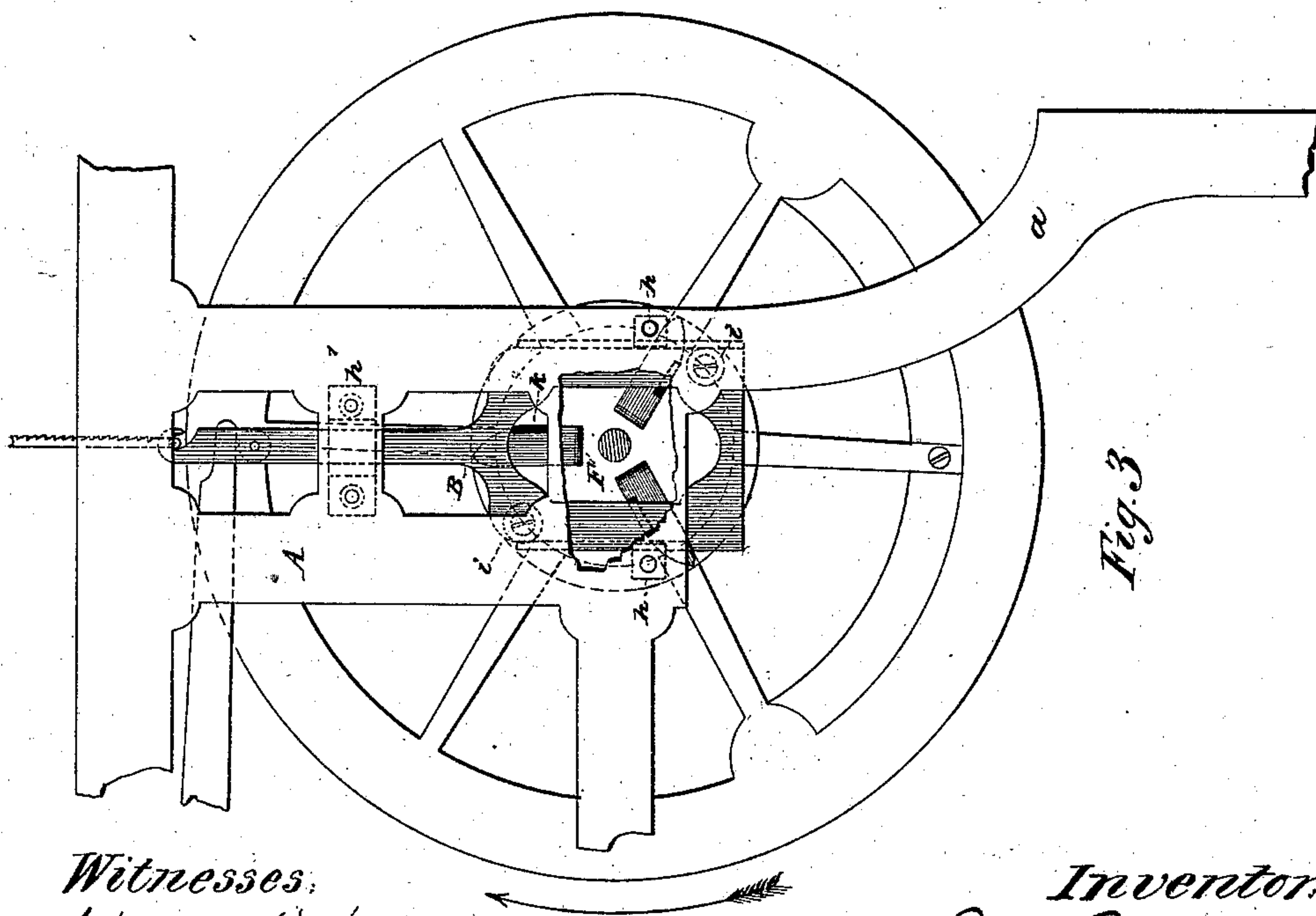
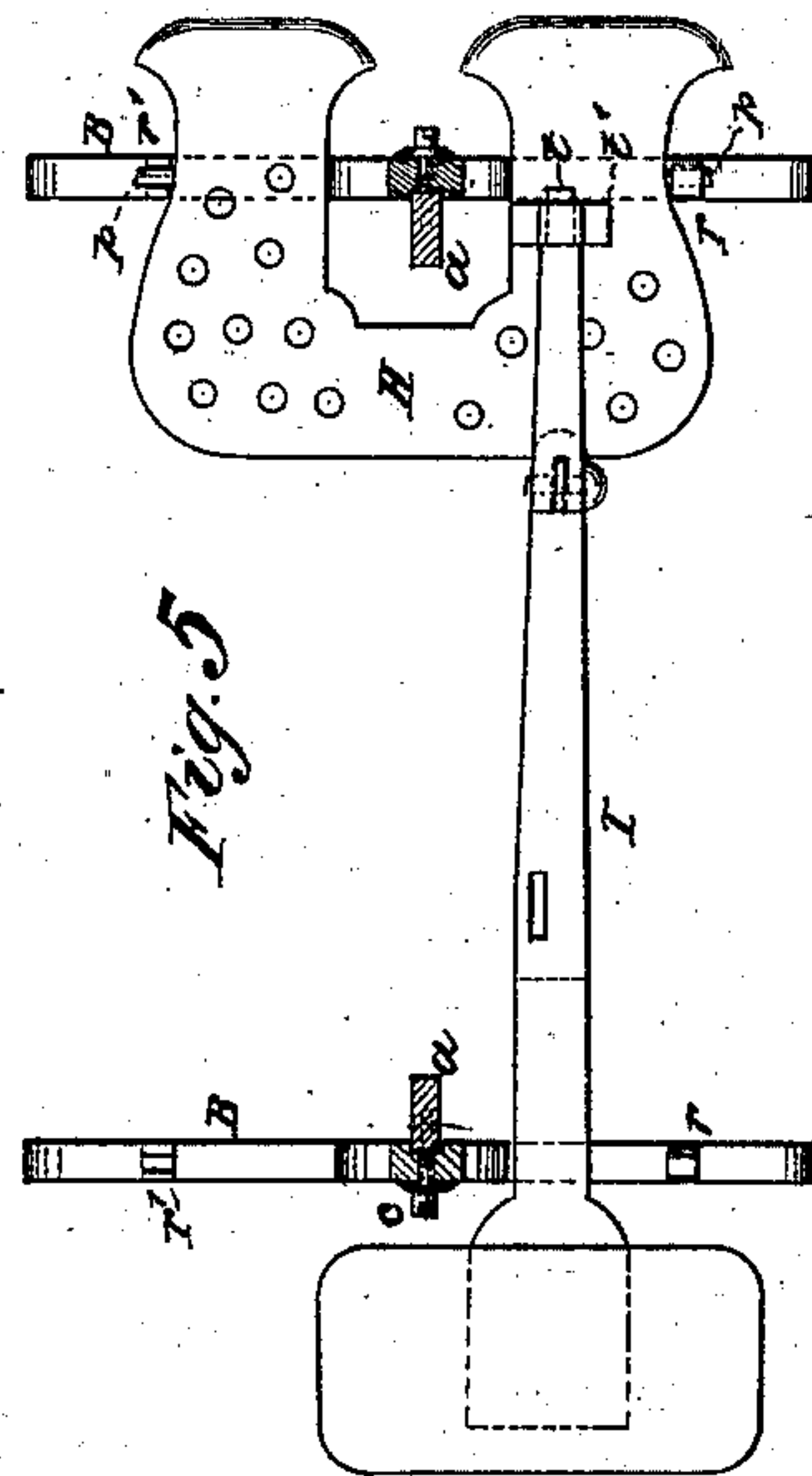
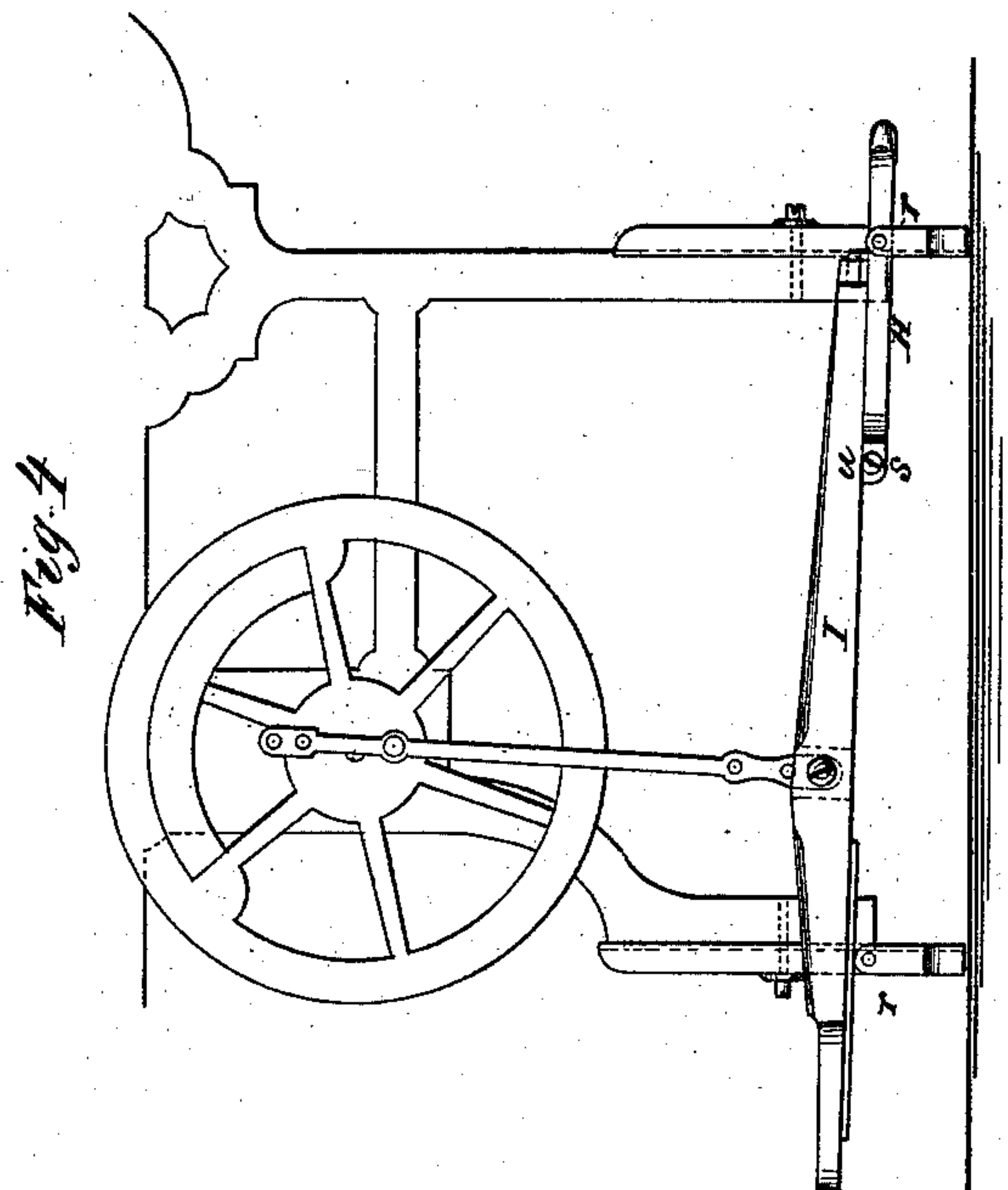
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UNITED STATES PATENT OFFICE.

PETER RADEMANN, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN SCROLL-SAWING MACHINES.

Specification forming part of Letters Patent No. **215,241**, dated May 13, 1879; application filed March 6, 1879.

To all whom it may concern:

Be it known that I, PETER RADEMANN, of Jersey City, Hudson county, State of New Jersey, have invented certain new and useful Improvements in Scroll-Sawing Machines, of which the following is a specification.

The present invention relates to the mechanism for imparting a multiplied reciprocatory motion to the saw from the fly-wheel, to the construction of the sustaining-frame of the machine, and also to the devices for adjusting the inclination of the saw, all of which embody novel features, as hereinafter fully set forth.

Figure 1 of the drawings presents a side elevation of my improved machine, and Fig. 2 a front elevation thereof. Fig. 3 is a reverse side elevation of the driving-wheel and the saw-driving mechanism removed from the frame. Figs. 4 and 5 present a side elevation and plan, respectively, of the sectional treadle.

The main portion of the frame consists, as shown in Figs. 1 and 2, of a central web, A, formed of a continuous flat casting, light and strong, and of a neat open scrolled design, and having the overhanging arm *v*, which supports the saw-adjusting devices, formed continuous therewith, as shown. The body of the frame-web terminates in the pendent standards or legs *a a*, which are fitted to the inverted-T-shaped feet or bases B B, which, having a good spread, give a firm support to the frame. The central upright of these feet is formed with a groove, into which the edges of the legs *a a* are socketed, and slots *b* in these uprights permit the fastening-studs *c*, by which the feet are held to the frame, to be moved up or down, thus, as will be readily understood, rendering the frame vertically adjustable on the feet B B, by which the height of the machine may be adjusted to suit different persons, or to suit a sitting or a standing position.

The table *e* is secured to the top of the frame, beneath the overhanging arm, by the cross-bars *d d'*, the rear one of which is scarfed into the edge of the frame, while the front one is grooved to socket over the front end of the frame-web, as shown. It will thus be readily seen that while this form of frame is light, simple, and neat, it has also the advantages of adjustability and cheapness.

The fly-wheel C is driven directly from the

treadle, as shown, and the saw is driven directly from the wheel by an improved form of escapement-cams, which impart a number of strokes to the saw with one revolution of the wheel, and which forms one feature of the invention. The coupled saw-levers *f f'* and the saw-guide bar *g* are driven by the reciprocating driving-bar D, which works in the guides *h h'* on the frame, the ends of the saw being attached, as shown, directly to the hooked stem of the driving-bar D and to the hooked end of the guide-rod *g*.

The lower part of the driving-bar D is swelled into an open square, and is fitted with two projections or rollers, *i i*, arranged at diagonally-opposite corners, as shown in Fig. 3, and these rollers are alternately struck by a series of radial cam-ribs, F, on the hub of the fly-wheel, which, as the wheel revolves, impart a number of reciprocations to the driving-bar, thus causing the bar to make three double strokes with one revolution of the wheel. A more multiplied motion may be obtained by fitting the hub of the wheel with a greater number of cam-ribs; but the three shown are preferred.

It will be noted that the rollers *i i* are so arranged relatively to the cam-ribs that the ribs first strike the rollers near their inner ends and retire from the rollers at their outer ends, which are rounded off, as shown.

By this arrangement it will be seen that the greatest leverage is obtained at the commencement of the up-and-down strokes, where the greatest power is required to start the saw through the work, which is an important advantage over other movements of this class, which generally have the leverage reversed, being least at the beginning and greatest at the termination, which is not well adapted for the purpose of a saw.

It will also be seen, on reference to Fig. 3, that the acting face of each of the cam-ribs is fitted with a small cushion of leather, *k*, at the point where the ribs first strike the rollers, which renders the contact elastic and noiseless. Cushions *l*, Fig. 1, are also fitted on the frame above and below the driving-bar, to form elastic stops for limiting its movements, these cushions being preferably formed of rubber socketed in lugs on the frame.

The saw-levers *f f'* are pivoted, as shown in

Fig. 1, in the middle, and the tension of the saw is regulated by means of the movable fulcrum-block G, on which the upper lever is pivoted, and which is hung from a supporting-lug, *m*, projecting from the arm *v*. This fulcrum-block is formed, as shown, with a threaded stem, which passes through the lug *m*, and is fitted with the thumb-screw *w*, which bears upon the lug, and by turning which the lever may be raised or lowered, thus adjusting the tension of the saw-blade. This, as will be observed, forms a very simple and effective tension device, and being at the middle of the lever it is within convenient reach of the operator, who can thus manipulate it without rising from in front of the table.

The guide-rod *g* moves in the guide-blocks *n o*, each of which is formed with a threaded shank, which passes through openings in the arm, and are fitted with thumb-screws, as shown, by which the blocks may be held in proper position. The lower block, *n*, is swiveled on its stem in the end of the arm, while the upper block, *o*, is capable of lateral adjustment by means of a slot in the arm through which its stem passes, as shown by dotted lines in Fig. 1, and by this adjustment the saw may be set to work straight, or at more or less of a forward inclination, when it is desired to give the cut of the saw a slight forward thrust, as will be readily understood.

The remaining feature of my invention lies in the construction of the treadle, which is made in interchangeable sections, which fit it for a standing or sitting position. The pivoted section of the treadle H, as shown in Figs. 1, 2, 4, and 5, is a double pedal-plate, of similar form to ordinary sitting-treadles, adapted to receive both feet of the operator when sitting, and it is formed with the short pintles *p p*, Fig. 5, which socket in eyes *r r'* on the feet B of the frame. One of these eyes is continuous, while the other is forked or slotted, as shown in Fig. 5, so that it will be seen that when the pitman is detached from the slotted lug *s* of the treadle the treadle may be readily removed from the eyes by partly tilting it and moving it sidewise from the eyes. It will be seen that the feet of the frame at the back of the machine are fitted with similar eyes, so that by removing the pedal-plate H from the front, and inverting it, it may then be pivoted on the hind feet, as shown in Figs. 4 and 5.

Now, I is a long treadle-lever, which is adapted to couple with the inverted pedal-plate H, so as to extend to the front of the machine to form a standing treadle for the use of one foot when the operator stands. This

long lever I is rigidly coupled with the pivoted pedal-plate H by means of a tenon, *t*, on its end, which enters a loop, *t'*, on the pivoted plate, and a projection, *u*, which enters the slot of the pitman-lug *s*, and is there held by a screw, as shown in Figs. 4 and 5. The pitman of the fly-wheel is then connected with the lever, as shown, being inserted in a slot near its middle, and there held by a stud.

This construction of the treadle is thus simple and cheap, and practically combines two treadles in one, suitable for either heavy or light work, and for sitting or standing positions, according as the machine is raised or lowered.

The combined features of construction described form a very effective machine for scroll-sawing, containing few parts, being light and simple in its action, and provided with ample adjustments.

What I claim as my invention is—

1. The combination, in a scroll-sawing machine, of a rotary driving-wheel, having its hub provided with a series of radial cam-ribs, with a sliding frame or bar communicating motion to the saw, and fitted with points or rollers at opposite sides, arranged so as to be struck by the inner ends of the revolving cam-ribs, whereby a multiplied reciprocatory movement is imparted to the saw-frame with greater leverage at the commencement of the stroke, substantially as herein shown and described.

2. The combination of the sliding saw-frame D with the cam-ribs F of the driving-wheel, fitted with cushions at the point where driving contact is first made with the saw-frame, substantially as set forth.

3. The combination of the driving-wheel provided with the cam-ribs F and the reciprocating frame D with the elastic stop *l*, substantially as shown and described.

4. The combination, in a scroll-saw, of the sliding guide-bar *g* with the swiveled guide-block *n*, and the laterally-adjustable guide-block *o*, substantially as and for the purpose set forth.

5. A scroll-saw frame formed of a central frame-web, A, in combination with the inverted-T-shaped feet B B, fitted with a groove to receive the edges of the frame-web, and with slots and fastening-screws to permit the vertical adjustment of the frame, substantially as herein shown and described.

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