(No Model.) 2 Sheets—Sheet 1.

M. FLATHER.

MECHANISM FOR ADJUSTING LENGTH OF STROKE IN METAL PLANERS AND SHAPERS.

No. 564,064. Patented July 14, 1896.

Fig. 1.

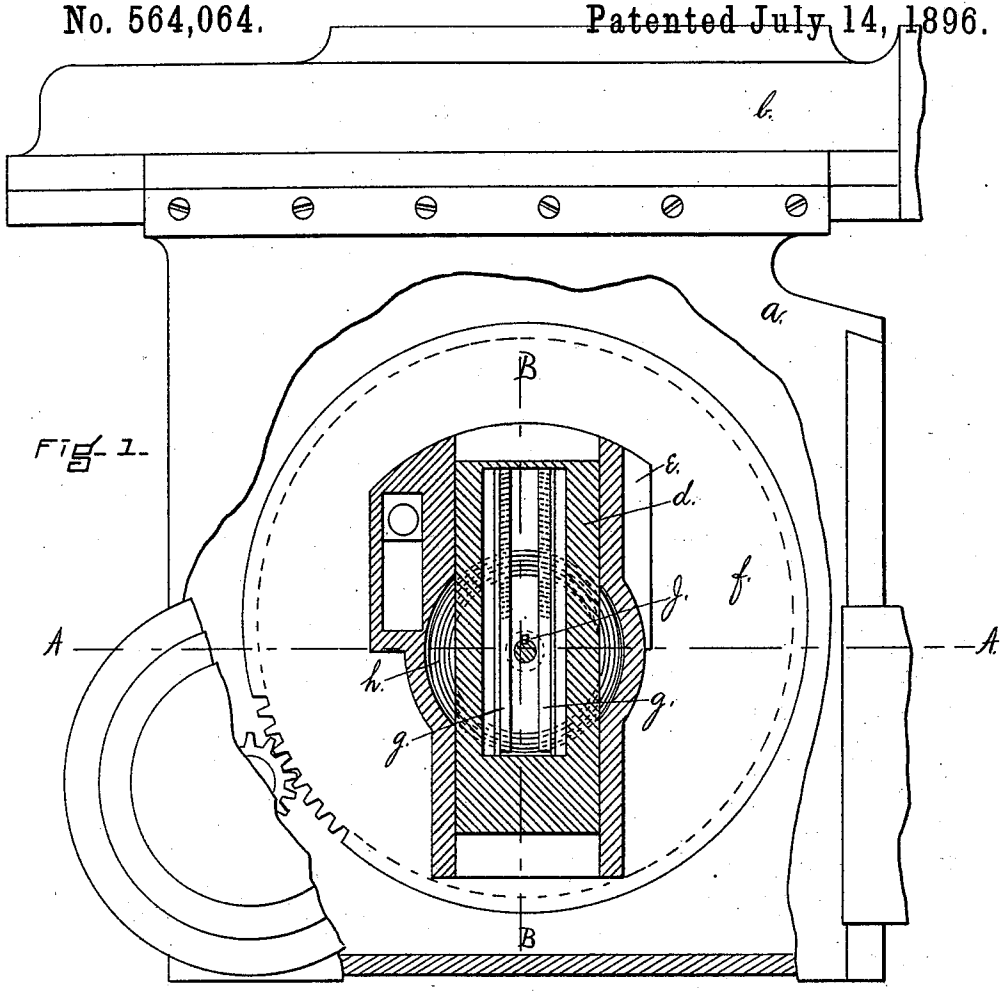


Fig. 6.

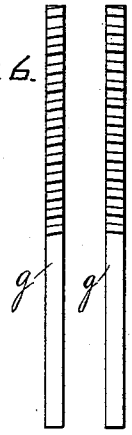


Fig. 7.

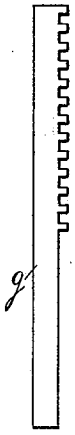


Fig. 4.

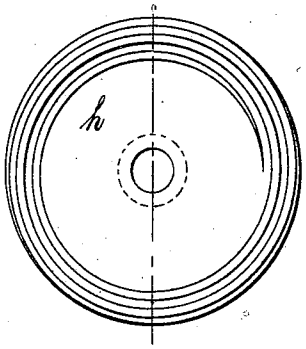
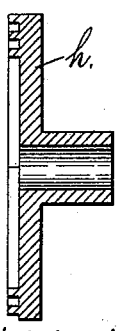


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

M. FLATHER.

MECHANISM FOR ADJUSTING LENGTH OF STROKE IN METAL PLANERS AND SHAPERS.

No. 564,064. Patented July 14, 1896.

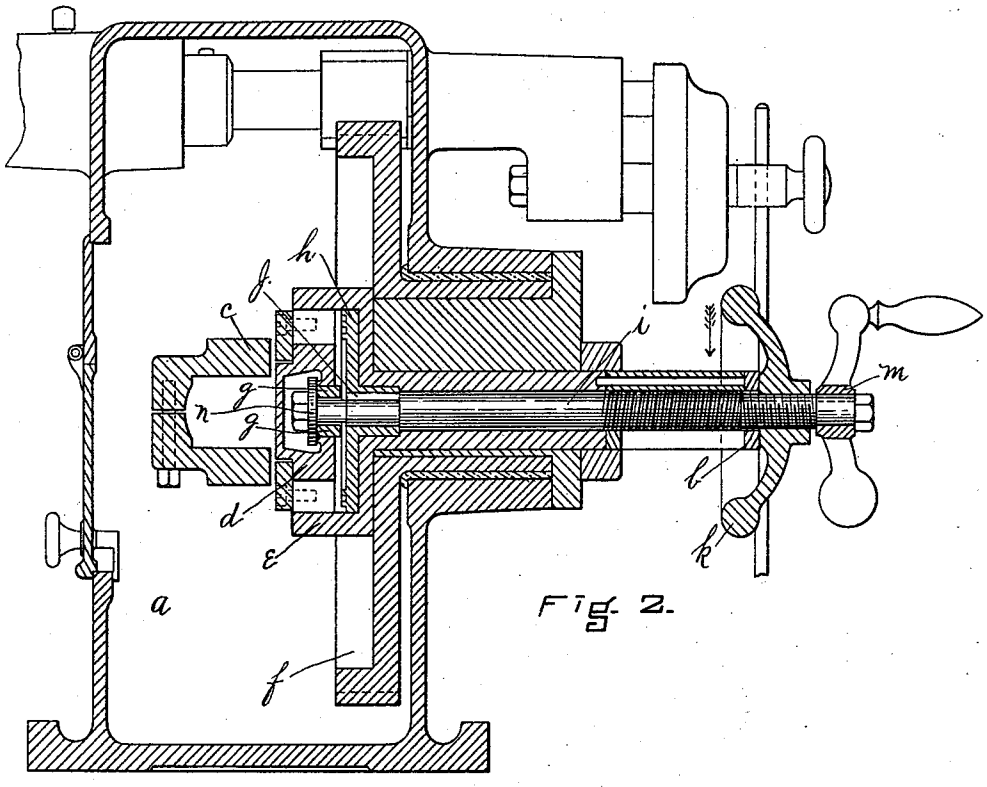

Fig. 2.

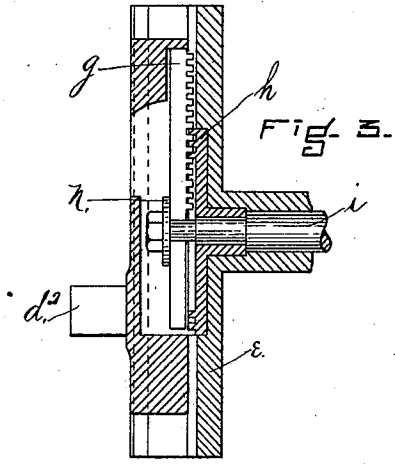

Fig. 3.

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UNITED STATES PATENT OFFICE.

MARK FLATHER, OF NASHUA, NEW HAMPSHIRE.

MECHANISM FOR ADJUSTING LENGTH OF STROKE IN METAL PLANERS AND SHAPERS.

SPECIFICATION forming part of Letters Patent No. 564,064, dated July 14, 1896.

Application filed January 27, 1896. Serial No. 577,093. (No model.)

To all whom it may concern:

Be it known that I, MARK FLATHER, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Mechanism for Adjusting the Length of Stroke in Metal Planers and Shapers, of which the following is a specification.

My invention relates to an improvement in the mechanism for adjusting the length of stroke of the ram which carries the cutting-tool in a metal planing or shaping machine. Among the different methods employed is the one shown in the patent issued to me July 30, 1895, No. 543,598, in which a rack and pinion are employed, but the same has the following objection: In changing the length of stroke or cut it is necessary to stop the planer or shaper, loosen the check-nut, change to the desired length of stroke or cut, and then tighten the check-nut, all of which has to be done while the planer or shaper is not in operation, thereby causing considerable loss of time, especially when the surface being planed varies in length.

In my improved device the ram may be adjusted to any desired length of stroke from full stroke down to the dead-center without stopping the planer or shaper, thereby enabling the operator to accomplish a greater amount of work in the same length of time.

In the drawings accompanying and forming a part of this specification, Figure 1 represents a side elevation of a section of the bed or frame of a metal planing or shaping machine with a portion of same cut away, so as to show the slide-block, racks, and scroll which are used to adjust the length of stroke of the ram. Fig. 2 is a horizontal cross-section through the line A A. Fig. 3 is a vertical section through line B B. Fig. 4 is an enlarged front elevation of the scroll. Fig. 5 is a sectional elevation through line C C. Figs. 6 and 7 represent front and side elevations of the racks which operate in the scroll shown in Fig. 4.

Similar letters refer to similar parts throughout the several views.

a designates the bed or frame of a metal planing or shaping machine; *b*, the ram which carries the cutting-tool. *c* is the pitman, one end of which is movably attached to the ram, the other end operating on a fulcrum. (Not shown.)

d is a slide-block which has a stud d^2, said slide-block operating in a link-block which slides in a longitudinal slot in the pitman and operates to vibrate said pitman through the medium of quick-return plate *e* and the gear *f*. *g* and *g* represent two racks which are secured to the inner edges of the slide-block *d* and are provided with teeth which mesh into the spiral teeth on the face of scroll *h*, so that when scroll *h* is revolved it will cause the said racks *g g* to move longitudinally and thereby cause the stud d^2 to recede from and advance toward the shaft *i*. Said scroll *h* is movably attached to the shaft *i*, by means of the spline *j*, in such manner as to permit longitudinal movement but causing it to rotate with the said shaft.

k represents a hand-wheel which has a threaded bearing in the shaft *i*, and the inside face of its hub has a bearing on the collar *l*. Said hand-wheel *k* operates to clamp the slide-block *d* to the quick-return plate *e*, as shown in my patent of July 30, 1895, No. 543,598.

m is a handle which is secured to the outer end of the shaft *i*, and is used to revolve the same.

n represents a washer which is attached to the end of shaft *i*, and has a bearing on the outer surfaces of the racks *g g* and the portions of the slide-block *d*, to which said racks are secured, and operates to bind the slide-block *d* to the quick-return plate *e*, through the medium of the shaft *i* and the hand-wheel *k*.

The operation of my improved device is as follows: When it is desired to change the length of stroke of the ram, first loosen the slide-block *d* from the quick-return plate *e* by unscrewing the hand-wheel *k*, then revolve the scroll *h* through the medium of the shaft *i* and the handle *m*, thereby causing the stud d^2 to recede from or advance toward the shaft *i* in a line at right angles to said shaft *i*, then by revolving the hand-wheel *k* in the direction shown by the arrow the slide-block *d* will be clamped in the desired position. The spiral thread on the face of scroll *h* may be either right or left handed and give the same result.

My improved device for adjusting the length of stroke of the ram is not confined to the particular form of mechanism for operating the ram herein shown, but may be applied to any metal planing or shaping machine, wherein a crank or pitman is used to operate or drive the ram which carries the cutting-tool.

I do not confine myself to the particular combination herein shown.

What I claim is—

1. An improvement in the mechanism for adjusting the stroke of ram in metal planers or shapers, consisting of a shaft passing through the center of the driving-gear, a handle or other suitable means for revolving the same on one end, a scroll having spiral threads or grooves on its face on the other end, racks meshing into said threads or grooves on the scroll, said racks being attached to a slide-block which slides in ways attached to or formed in the driving-gear, and suitable connections between the said slide-block and the ram which carries the cutting-tool, all as and for the purpose set forth.

2. An improved device for adjusting the stroke of the ram in metal planing or shaping machines, consisting of a shaft running in a bearing in the center of driving-gear, a handle or other suitable means for revolving the same on one end, a scroll having spiral threads or grooves on its face on the other end, racks meshing into said spiral threads or grooves, said racks being attached to a slide-block which slides in ways attached to or formed in the driving-gear, a washer having a bearing on outer face of the racks and a portion of slide-block, said washer being attached to the inner end of before-mentioned shaft, and a hand-wheel having a threaded bearing on said shaft, all as and for the purpose specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of November, A. D. 1895.

MARK FLATHER.

Witnesses:

R. P. ELLIOTT,

H. H. JEWELL.