

No. 672,058.

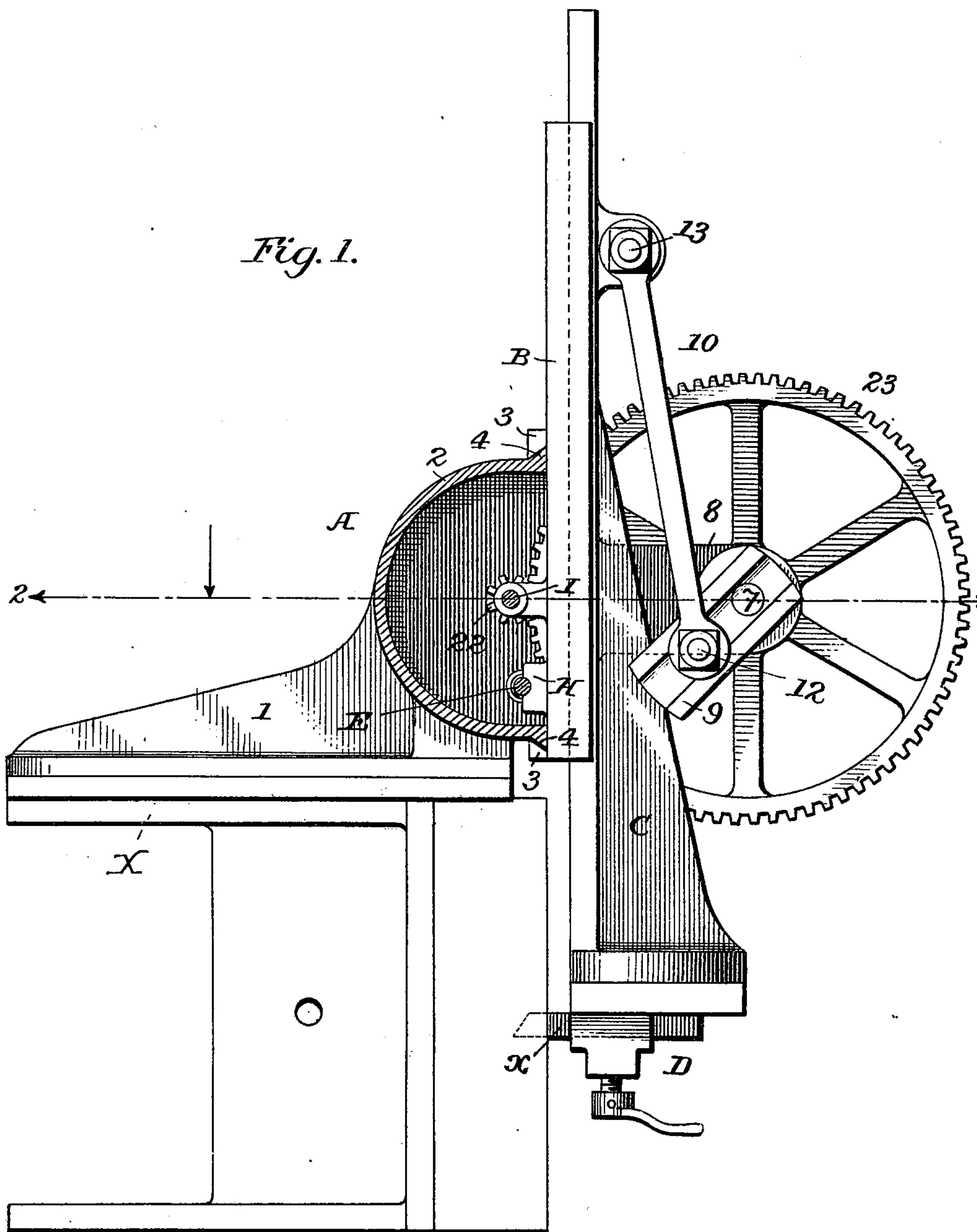
Patented Apr. 16. 1901.

C. L. GADFIELD.
PORTABLE SHAPER.

(Application filed June 16, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses

J. H. Kel
James W. Stearns

Inventor
Clement L. Gadfield
by *Foster & Freeman*
Attorneys

No. 672,058.

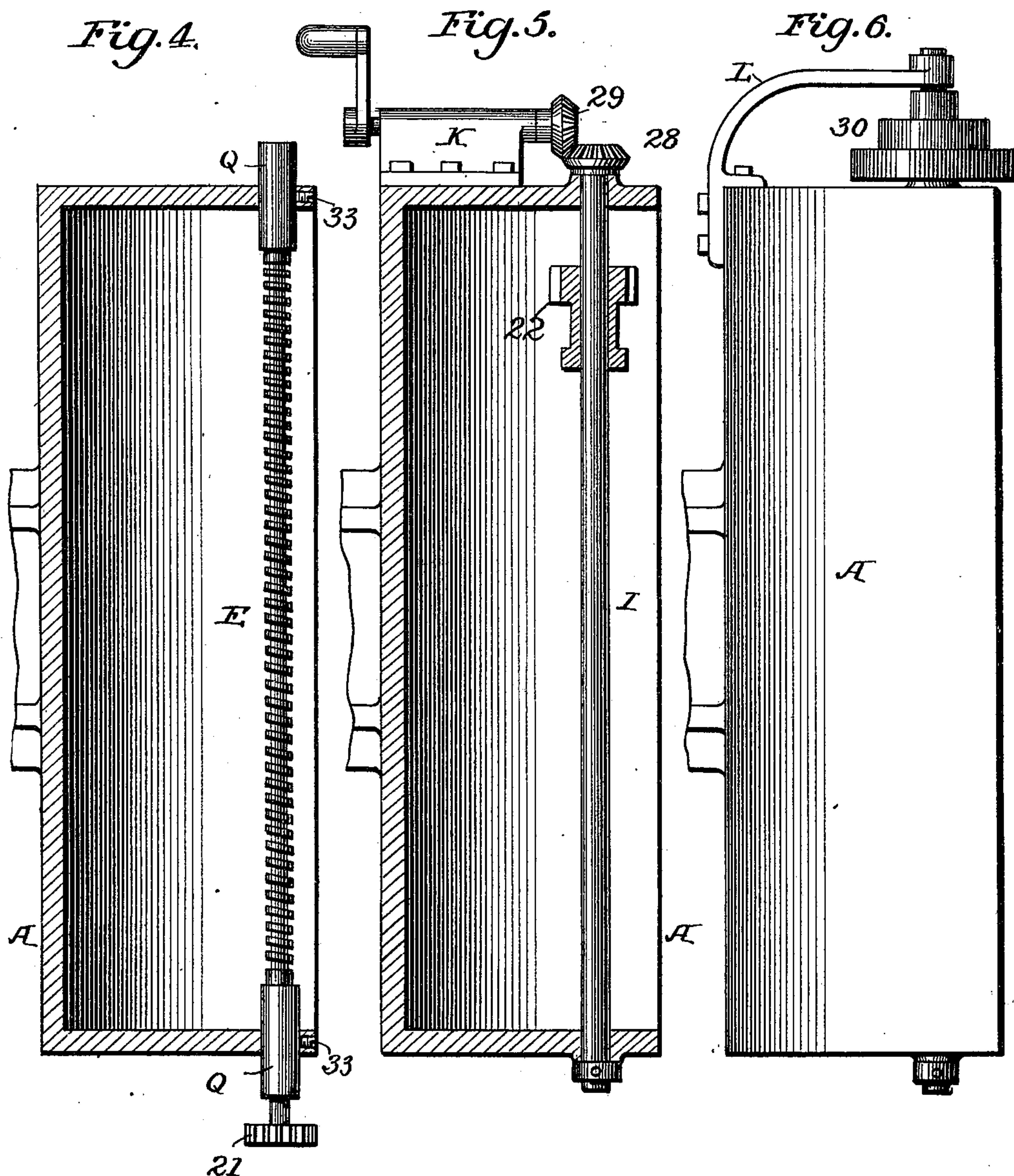
Patented Apr. 16, 1901.

C. L. GADFIELD.
PORTABLE SHAPER.

(Application filed June 16, 1898.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses

J. G. Hinkel
James W. Shuman

Inventor
Clement L. Gadfield
by *Foster Freeman*
Attorneys

No. 672,058.

Patented Apr. 16. 1901.

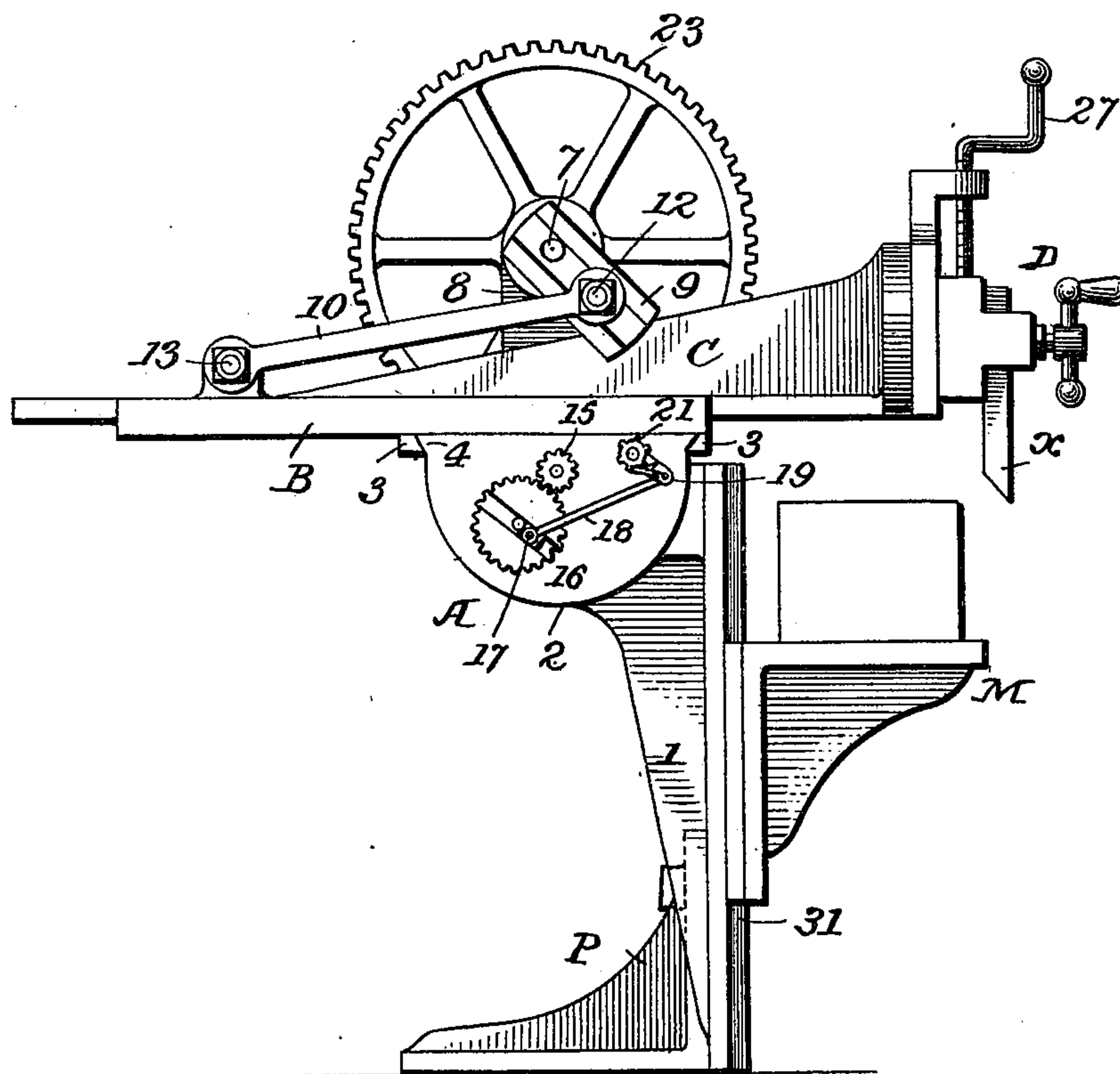
C. L. GADFIELD.
PORTABLE SHAPER.

(Application filed June 16, 1898.)

(No Model.)

4 Sheets—Sheet 4.

Fig. 7.



Witnesses

J. G. Hinkel
James W. Stearns

Inventor

Clement L. Gadfield
by Foster & Freeman

Attorneys

UNITED STATES PATENT OFFICE.

CLEMENT L. GADFIELD, OF MILLERSBURG, OHIO.

PORTABLE SHAPER.

SPECIFICATION forming part of Letters Patent No. 672,058, dated April 16, 1901.

Application filed June 16, 1898. Serial No. 683,613. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT L. GADFIELD, a citizen of the United States, residing at Millersburg, in the county of Holmes and State of Ohio, have invented certain new and useful Improvements in Portable Shapers, of which the following is a specification.

My invention relates to shapers; and it consists in constructing the parts thereof so that the shaper may be portable and applied to a cylinder or other structure a portion of which is to be planed, and also provided with means whereby valves or other articles may be supported upon the shaper to be planed thereby, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is an elevation showing my improved shaper applied to planing the valve-face of the cylinder of an engine. Fig. 2 is a sectional plan on the line 2 2, Fig. 1. Fig. 3 is an end view of the frame; Fig. 4, a detached view of the feed screw-shaft and bearing; Fig. 5, a view illustrating an attachment for turning one of the shafts. Fig. 6 is a view illustrating the means of driving the shaft by a belt. Fig. 7 is a view illustrating the device arranged for operating upon a valve or other article.

The main frame A of the device is provided with a hollow shell 2, semicylindrical in shape, with closed ends and with a bracket 1 of any suitable character, perforated, as at 1^a, for the passage of bolts, or constructed to permit the application of clamps by which it may be secured or clamped to the end of a cylinder the valve-face of which has to be planed or trued, or by means of which it may be attached to any other suitable support.

Upon the open face of the shell 2 travels a carrier B, having dovetailed ribs 3 3 for engaging beveled guides 4 4 upon the shell, and provided also with dovetailed ribs 5 at right angles to the ribs 3 and upon the opposite face between which ribs 5 is applied the tool-carriage C, at the lower end of which is any suitable tool holder or retaining device D.

The proper intermittent motion of the carriage C is imparted from a shaft 7, turned in a bracket 8, attached to the carrier B, the shaft 7, provided with a crank-arm 9, to which is

adjustably connected the wrist-pin 12 of a connecting-rod 10, pivoted at the other end to a stud 13 upon the carrier.

The slow traverse of the carrier B upon the shell 2 is effected through the medium of any suitable feed devices—as, for instance, by means of a feed screw-shaft E—with which engages an arm or lug H, extending from the back of the carrier B.

Any suitable means may be employed for imparting a slow or intermittent motion to the feed-screw E. For instance, the said screw is driven from a shaft I, having at the end a pinion 15 engaging with a cog-wheel 16, upon which is an adjustable wrist-pin 17 for a connecting-rod 18, extending to a lever 19, carrying a reversible pawl 20, the end of which engages a ratchet-wheel 21 upon the end of the screw-shaft E. By turning the pawl 20 from one position to another it may be brought to engage either side of the wheel 21 to turn the screw-shaft E in either direction. Rotation is imparted to the shaft I from the shaft 7 by means of the gear 23 on the shaft 7 engaging a pinion 22, carried by the shaft I, turning therewith but sliding thereon, being carried by a bracket 25, extending from the carrier B.

One important object of my invention is to provide a machine which may be used to plane the valve-seat of an engine without the necessity of removing the cylinder and valve-chest from their support. In order to do this, one head of the cylinder (indicated by X) must be removed, the piston-rod disconnected from the connecting-rod of the crank, and the piston and its rod removed from the cylinder. The cover of the valve-chest and also the valve must be removed, and the engine will then be ready to receive the machine. The bracket 1 is then placed upon the end of the cylinder from which the head has been removed, and a bolt or rod is passed through one of the openings 1^a, the cylinder, and the stuffing-box for the piston-rod and secured in such manner as to firmly clamp the bracket to the cylinder. The carrier B can then be placed in position upon the shell, and by proper adjustment the tool can be set to plane the valve-seat, as shown in Fig. 1, and then

by turning the shaft 7 by means of a crank-handle J or otherwise the carriage C may be reciprocated and the screw-shaft E gradually or intermittently turned, whereby the tool *x* 5 is carried back and forth over the face to be planed and is gradually at each reciprocation carried farther to one side. The holder D may be of any suitable construction to adapt it to receive any suitable tool and capable of 10 being turned so as to set the tool in any desired position, or, as shown in Fig. 7, it may be provided with an adjusting-screw 27 for shifting the tool.

Power may be applied to turn the shaft I, 15 as by means of beveled gear consisting of the pinion 28, carried by the shaft I, and the wheel 29 by a bracket K, Fig. 5, adapted for application to either end of the machine, the pinion 28 also adapted for application to either 20 end of the shaft I. In like manner the ends of the shaft I and screw-shaft E may project, so that the pinions 15 21 may be applied to either end, according to the necessities of the case, the wheel 16 being shifted accordingly.

25 Power may be applied to the shaft I by providing it with a step-pulley 30, adapted for application to either end and supported at the outer end by a bracket L, adapted to be applied to either end of the shell 2, the 30 same being shown in one position in Fig. 6.

For planing other objects than the valve-faces or other faces of cylinders an adjustable bracket M may be provided with beveled 35 faces or undercut ribs adapted to guides 31 upon the bracket 1, as shown in Fig. 7, and to this bracket M may be clamped any object which it is desired to operate upon. It will be seen that by adjusting the wrist-pin 12 40 the extent of the reciprocating movement of the carriage C may be regulated at pleasure

and that the feed may be regulated by adjusting the wrist-pin 17 upon the wheel 16.

To facilitate the removal of the feed screw or shaft E, its ends are fitted to sleeves or bearings Q, adapted to openings in the ends 45 of the shell and to be secured therein by a screw 33, (dotted lines, Fig. 4.)

When it is desired to secure the frame A to a suitable support, as a bench or plank, I make use of a bracket P, which may be bolt- 50 ed to the bracket 1 and to the bench, as shown in Fig. 7.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention — 55

A portable shaper adapted to plane the valve-seat of an engine without removing the latter from its support, comprising a bracket 1 adapted to seat upon the end of a cylinder from which the head is removed, said bracket 60 having perforations 1^a for the passage of a clamping bolt or rod to extend through the cylinder, an open-sided semicylindrical shell rigidly connected to the bracket, a carrier B supported to travel upon the edges of the 65 open side of the shell longitudinally thereof, a tool-carriage adapted to reciprocate upon the carrier, a tool adjustably supported in the carriage to engage the valve-seat, and means to reciprocate the tool-carriage and 70 move the carrier on the shell, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLEMENT L. GADFIELD.

Witnesses:

SIMON P. WISE,
RALPH C. WISE.