(No Model.)

W. P. SCATES & J. F. WOODS.

STONE CHANNELER.

No. 448,928. Patented Mar. 24, 1891.

Fig. 1.

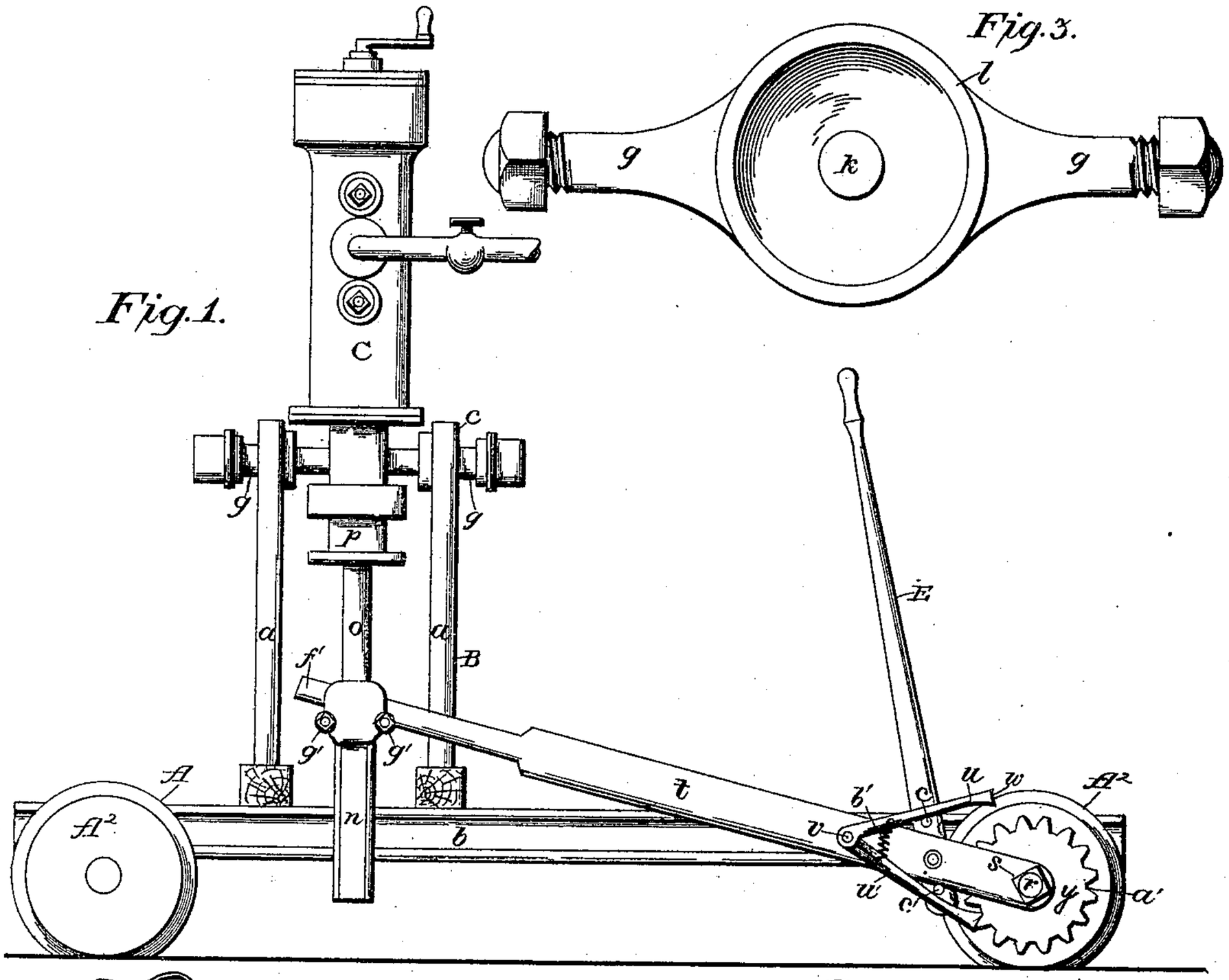

Fig. 3.

Fig. 2.

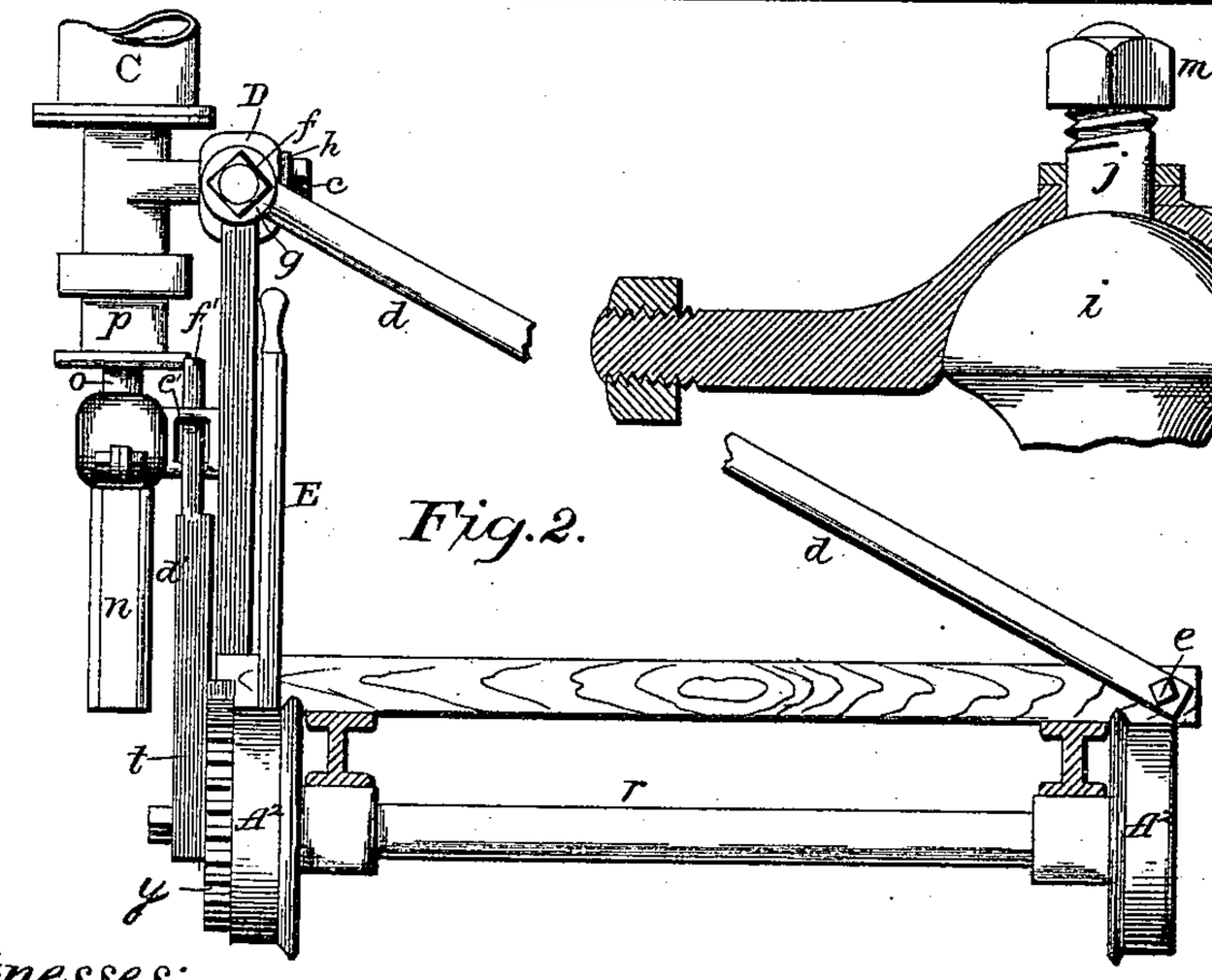

Fig. 4.

Witnesses:
E. P. Ellis
Alex. Scott

Inventor
Wm. P. Scates,
Jas. F. Woods,
per Lehmann & Pattison,
attys.

UNITED STATES PATENT OFFICE.

WILLIAM P. SCATES AND JAMES F. WOODS, OF KNOXVILLE, TENNESSEE.

STONE-CHANNELER.

SPECIFICATION forming part of Letters Patent No. 448,928, dated March 24, 1891.

Application filed August 2, 1889. Serial No. 319,595. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM P. SCATES and JAMES F. WOODS, citizens of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented certain new and useful Improvements in Stone-Channelers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to an improvement in stone-channeling machines; and it consists in certain novel features of construction and arrangement of parts, which will be fully described hereinafter.

The object of our invention is to channel rock at any desired angle from the truck-frame and automatically move the truck at every stroke of the channeler. We attain these objects by means of the peculiar construction and arrangement of the various parts of our device, which will be more fully pointed out and described in the specification and claim.

Reference being had to the drawings accompanying this application and forming part of the same, Figure 1 is a side elevation view of our invention, showing side of truck with lever and drill in place. Fig. 2 is an end view of same, partly in section. Fig. 3 is a detail view showing cap-piece of knuckle-joint. Fig. 4 is a longitudinal sectional view of cap-piece and knuckle.

Similar letters refer to like parts throughout the drawings.

Referring to the drawings, A represents a truck frame or body having a flat upper surface, the same being mounted on two axles that have flanged wheels A^2 rigidly secured to their outer ends, said wheels being adapted to roll on track-rails. An upright metal frame B is secured to the top of truck-frame A. Said frame B consists of two pieces of metal *a*, bent to form vertical uprights on the side *b* of the truck-frame A. Said pieces *a* are bent near their centers to form knees *c* and outward-inclined extension-braces *d*, the ends of both pieces being secured to truck-frame A by bolts *e*. Circular journal-openings *f* are formed at the knees *c* to admit the ends of trunnions *g*, that support the drilling-cylinder C by means of the swivel-joint D, that is secured to the rear side of drilling-cylinder C. The inner half of swivel-joint D is formed of metal in convexed form *i* and provided with a projecting screw-bolt *j*, that is adapted to pass through a central opening *k*, formed in the concave cap-piece *l*, which is adapted to loosely fit over the convexed portion *i*, and the outer end of screw-bolt *j* is provided with a nut *m*, which when screwed down binds the concaved and convexed parts closely together; but when the screw-nut *m* is loosened the drilling-cylinder C may be revolved in a vertical plane or placed at any desired angle in said plane, being limited in the degree of adjustment only by the lever *t*, which is connected therewith.

The trunnions *g*, that form the bearings for cylinder C and rest in the openings *f* in the knees *c*, permit the drilling-cylinder C to be shifted to any desired angle from a vertical to a horizontal plane, so as to permit the drill *n* to penetrate the rock at the desired angle and channel out a recess. The drill *n* is inserted in the socket *o*, which is secured to the piston *p* in the usual manner. When the drilling-cylinder C is supported in a vertical position by trunnions *g* and swivel-joint D, the drill *n* will stand in a line with the outside face edge of truck-frame A and will move forward or backward as the truck-frame is moved.

To one of the truck-wheels A^2 on the same side as the drill *n* is secured rigidly a ratchet-wheel *y*, said ratchet-wheel being secured to the outer face of said truck-wheel A^2, and to the outer end of truck-axle *r* is loosely secured by nut or screw-bolt *s* one end of the lever *t*, and a short distance outward the inner ends of pawls *u* are loosely held to said lever by means of screw-bolts *v*, the free ends of said pawls being formed with inward curves *w*, adapted to engage with the teeth *a'*, formed in the periphery of ratchet-wheel *y*. The two pawls *u* are held toward each other by the coiled spring *b'*, that is secured by its ends to said pawls. A vertical lever E is pivoted a short distance from its lower end to the lever *t* between the pawls *u*, and bearing-pins *c'* are inserted in said lever E, adapted

to bear against said pawls alternately. When the top of hand-lever E is moved toward the drill *n*, the top pawl *u* will be disengaged from the teeth of wheel *y*, and the coiled spring *b'* will draw the pawl *u'* against the teeth of wheel *y*. When the lever E is turned in opposite direction, the lower pawl *u'* is forced away from teeth of wheel *y* by the bearing-pin *c'*. The opposite end of lever *t* is contracted in size and formed to fit loosely in the slotted plate *d'*, the slot *e'* being formed of sufficient length to permit the free end *f'* of lever *t* to work freely in said slot at any angle, said slot being curved, if desired, to permit the drill to move away from the truck to work in a horizontal position.

The slotted plate *d'* is provided with clip-bolts *g'*, by which it is secured to the drill *n*. Motion is imparted to drill *n* through the drill-cylinder C, which causes the drill *n* to move in a vertical plane. The top of hand-lever E is thrown back by the operator away from the drill, which removes the bearing-pin *c'* from the under face of pawl *u* and permits its free end to engage with the teeth on wheel *y*, the opposite pawl *u'* being forced away from said wheel *y* by the bearing-pin *c* coming in contact with the inner face of said pawl. The upward movement of drill *n* raises the free end of lever *t* to the limit of the upward movement of said lever, thereby causing the pawl *u* to impinge against the teeth of wheel *y* and force it outward, causing the truck A to move slowly backward, carrying the drill *n* in a straight line, whereby said drill is caused to cut a straight channel in the rock. When the top of lever E is forced over toward the drill *n*, the bearing-pin *c'* forces the pawl *u* away from the wheel *y*, and the bearing-pin *c* is removed from pawl *u'*, the tension of spring *b'* drawing the free end of said pawl against the wheel *y* at its toothed periphery. As the drill *n* descends at every stroke, the ratchet-wheel *y* is turned inward and the truck A moved slowly forward, thus feeding the drill forward to cut a channel. By this construction I am enabled to feed the drill and truck forward and backward at equal regular steps surely and economically, thereby dispensing with extra help and broken irregular feed, time and labor being saved, as with the construction described the labor of two extra hands is dispensed with, as the machine when set will move in the line directed and cut accurately with automatic feed.

This construction of feed is adapted to work on drills of other construction.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

In a stone-channeling machine, a supporting-frame, supporting-wheels, a cylinder mounted thereon, a piston-rod carrying a cutter, a ratchet upon one of the shafts of the said supporting-wheels, a lever pivoted at one end upon the said shaft and its opposite end being loosely connected with the piston-rod, a pawl upon the lever for turning the ratchet-wheel in one direction, a second pawl upon the lever for turning the ratchet-wheel in the opposite direction, and a lever which when turned in one direction disengages one pawl from the said wheel and allows the other pawl to engage it, and vice versa when turned in the opposite direction, the parts combined to operate in substantially the manner shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

his
WILLIAM × P. SCATES.
mark
JAMES F. WOODS.

Witnesses:
W. M. ASHMORE,
C. T. SISK.