2 Sheets—Sheet 1.

J. MACKENZIE.

Sewing Machine.

No. 22,255. Patented Dec. 7, 1858.

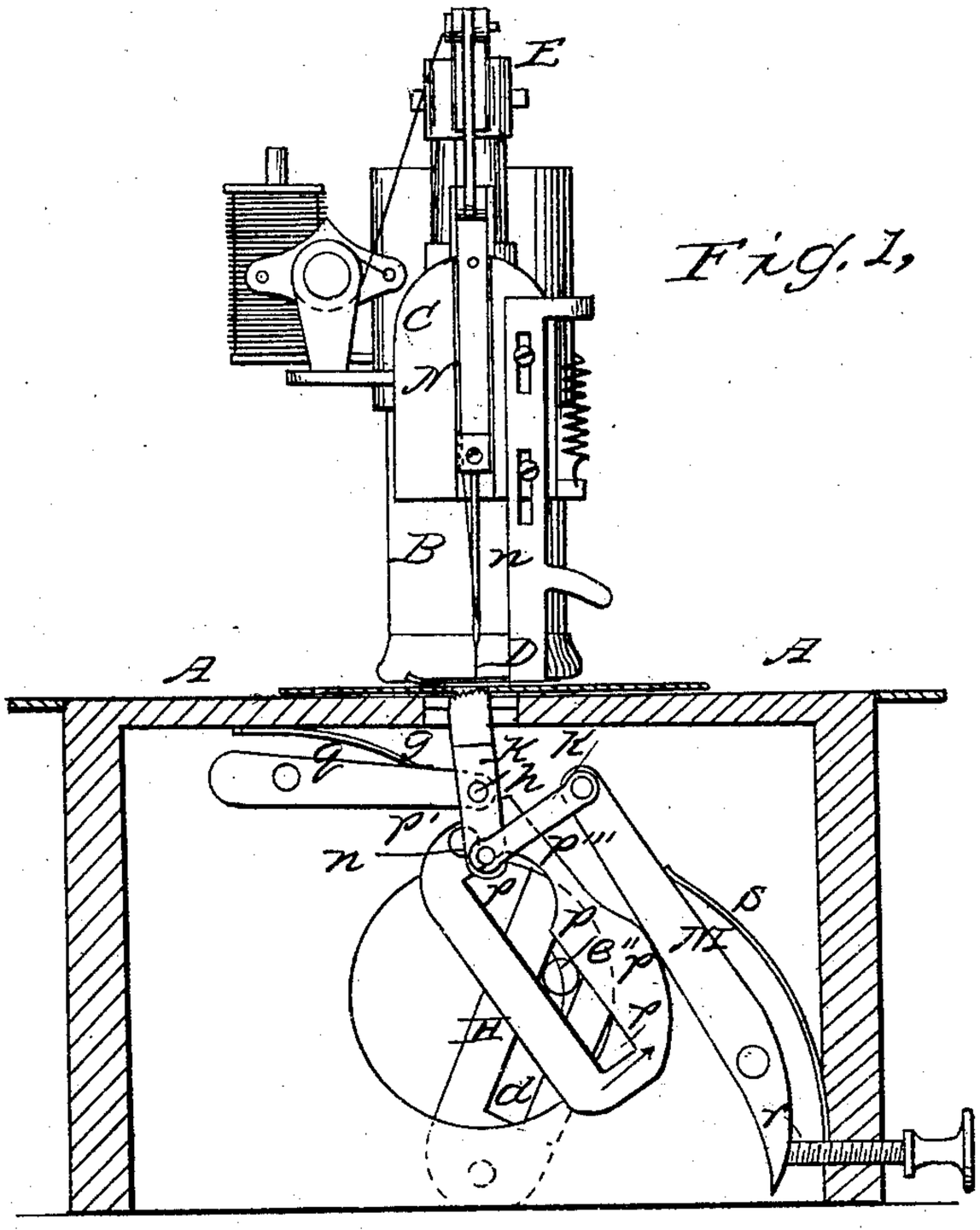


Fig. 1.

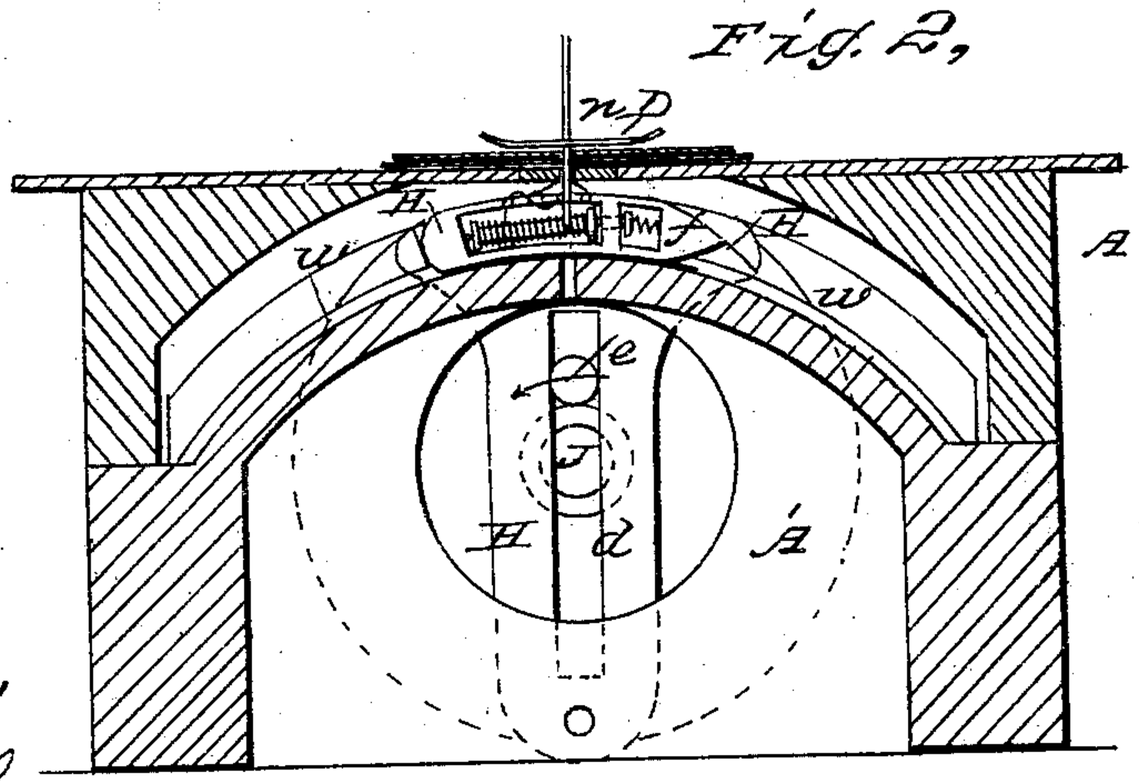


Fig. 2.

WITNESSES:

C. D. Childs

W. J. Dodge

INVENTOR:

John Mackenzie

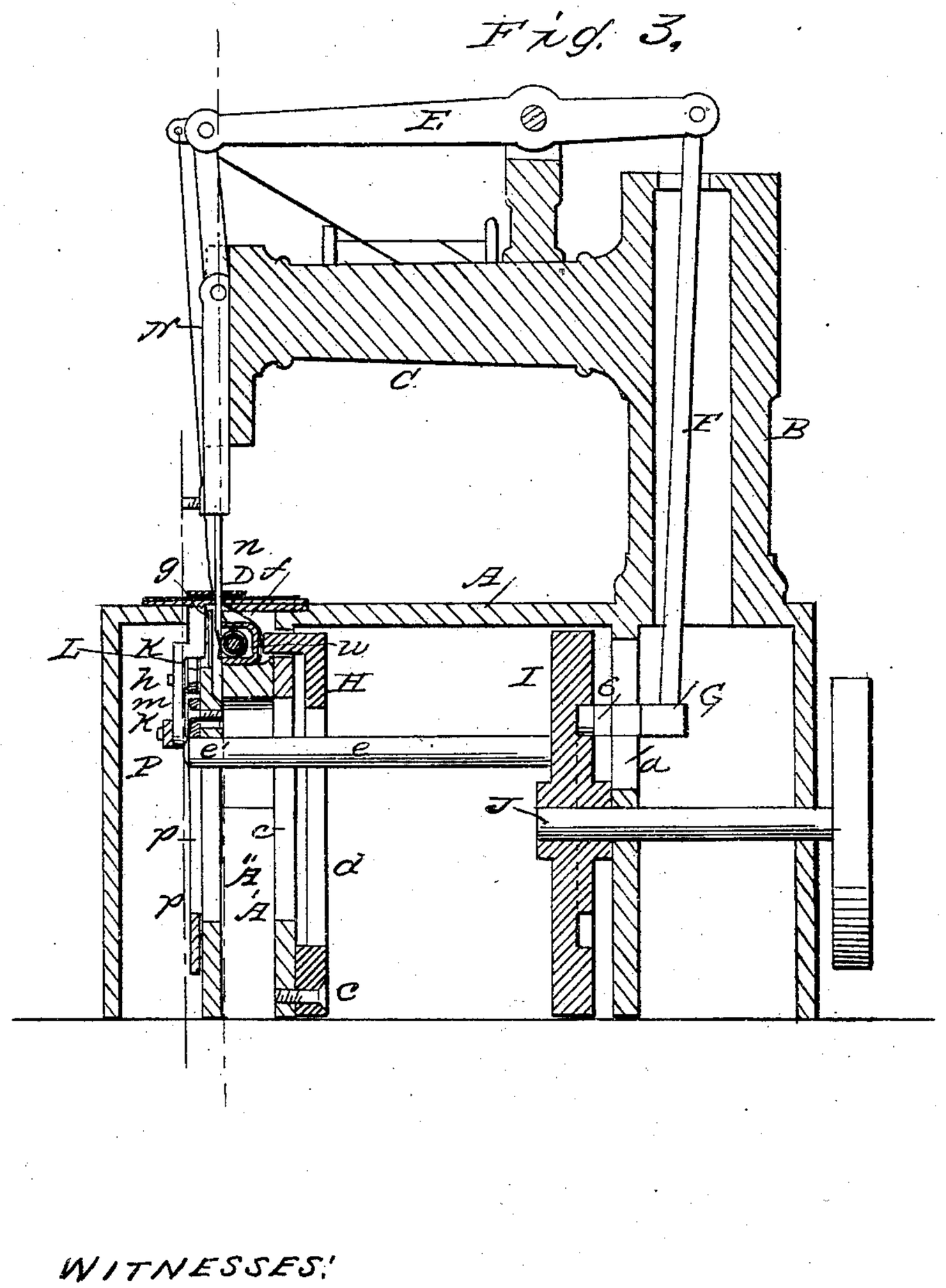
2 Sheets—Sheet 2.

J. MACKENZIE.

Sewing Machine.

No. 22,255. Patented Dec. 7, 1858.

Fig. 3.



WITNESSES:

E. D. Childs

W. J. Dodge

INVENTOR:

John Mackenzie

UNITED STATES PATENT OFFICE.

JNO. MACKENZIE, OF CLEVELAND, OHIO.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **22,255**, dated December 7, 1858.

To all whom it may concern:

Be it known that I, JOHN MACKENZIE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front view of a machine with the front part of its bed-plate removed to show the shuttle and feed motions. Fig. 2 is a vertical section of the same in a vertical plane close to the needle and parallel with the feed movement; but in this view all the needle mechanism is omitted. Fig. 3 is a vertical section, taken at right angles to Figs. 1 and 2, in a plane close to the needle.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a certain combination and arrangement of mechanical devices to provide for the operation of the feeding-dog by the elongation of an eccentric pin which drives the shuttle.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the cast-iron stand, upon the upper horizontal surface of which the cloth or other material is laid to be sewed, having attached to it a stand, B, from which projects a stationary arm, C, to which is attached the pressure-pad D, and which contains the guide for the needle-bar N. This needle-bar derives motion from a lever, E, connected by a rod, F, with a slide, G, which works in a vertical slot, *a*, in the table, and carries a stud, *b*, working in the groove of a cam, I, on the driving-shaft J. This cam may also constitute a fly-wheel.

H is the shuttle-driver, arranged to vibrate on a fixed pin, C, secured to the lower part of a vertical partition, A′, in the stand A, and containing a slot, *d*, to receive an eccentrically-arranged pin, *e*, that is secured to the cam or fly-wheel I in such a manner as to be parallel with the shaft J. The revolution of this pin *e* with the driving-shaft produces the vibratory motion of the shuttle-carrier, which gives the necessary movement to the shuttle *f* in its arched raceway *w*. The same pin *e*, by being elongated in a forward direction beyond the shuttle-carrier, as shown at *e′* in Fig. 3, is made to drive the feed apparatus.

K is the feeding-dog, having a serrated face, and working through a slot, *g*, in the top of the stand A. This dog is made in the form of a lever, whose upper end constitutes the serrated face. This lever is connected by its fulcrum-pin *h* with a lever, L, working on a stationary fulcrum-pin, *j*, secured in a vertical partition, A″, in the stand, and it has its lower end connected by a rod, *k*, with the upper end of a lever, M, which works on a fixed fulcrum, *l*, secured in the partition A″.

P is a plate containing a slot, *p*, and arranged to swing on a pin, *m*, which attaches it to the partition A″, said pin being arranged not far below the top of the stand A, and the slot *p* being radial to the pin *m*, except that it is curved on one side near the top, as shown at *p‴* in Fig. 1. The said slot receives the elongation *e′* of the eccentric pin *e*, and by the revolution of the said pin in the said slot the said plate is caused to derive a vibratory motion. The upper edge, *p′*, of the plate P constitutes a cam, with which the lever L is held in contact by a spring, *q*, and the side of the plate next the lever M has a cam-like projection, *p″*, toward which the upper arm of the latter lever is forced by a spring, *s*, as far as is permitted by an adjustable-screw, *r*, which screws through one side of the stand A and stops the lower arm.

The operation of the feeding apparatus is as follows: The pin *e* rotates in the direction of the arrow shown upon it in Figs. 1 and 2, and its elongation *e′* causes the plate P to vibrate on the pin *m*. As the pin *e* passes below the center of the shaft J it causes the plate P to move in the direction of the arrow shown on it in Fig. 1, by which movement the cam-like edge *p′* is caused to raise the lever L, and thus lift up the dog K, through the slot *g*, to make it bite the cloth, which is confined vertically by the pressure-pad, and before the said pin *e* arrives at the curve *p‴* of the slot the projection *p″* on the plate comes into contact with the lever M, and causes the said lever, through its connecting-rod *k*, to move the dog K, on its fulcrum *h*, in the direction of the arrow shown upon it, and thus to move the cloth. As the pin *e′* arrives at the curve *p‴* the plate P is allowed to be moved back by the pressure

of the spring *q* upon the lever L, which also depresses the dog and throws it out of contact with the cloth, so that it will not carry the cloth back again. As the projection *p'''* on plate P leaves the lever M the spring *s* moves it back again as far as permitted by the screw *r*, and thus carries back the dog in the opposite direction to that in which it fed the cloth. The screw *r* is screwed in or out to regulate the feed by regulating the movement of the lever M.

I do not claim, broadly, working the feed apparatus and the shuttle-driver by the same eccentric pin projecting from a revolving wheel, or its equivalent; nor do I claim giving the feed-dog such a movement as is herein described; but—

What I claim as my invention, and desire to secure by Letters Patent, is—

Combining the lever-like feed-dog K with the revolving eccentric pin *e*, which operates the shuttle by means of the vibrating slotted double cam-like plate P, and the two levers L and M, the connecting-rod *k*, and the springs *s s*, the whole being arranged and operating as described to produce the movements of the feed-dog.

JOHN MACKENZIE.

Witnesses:
SAM G. BALDWIN,
GEORGE B. TIBBITS.