

(No Model.)

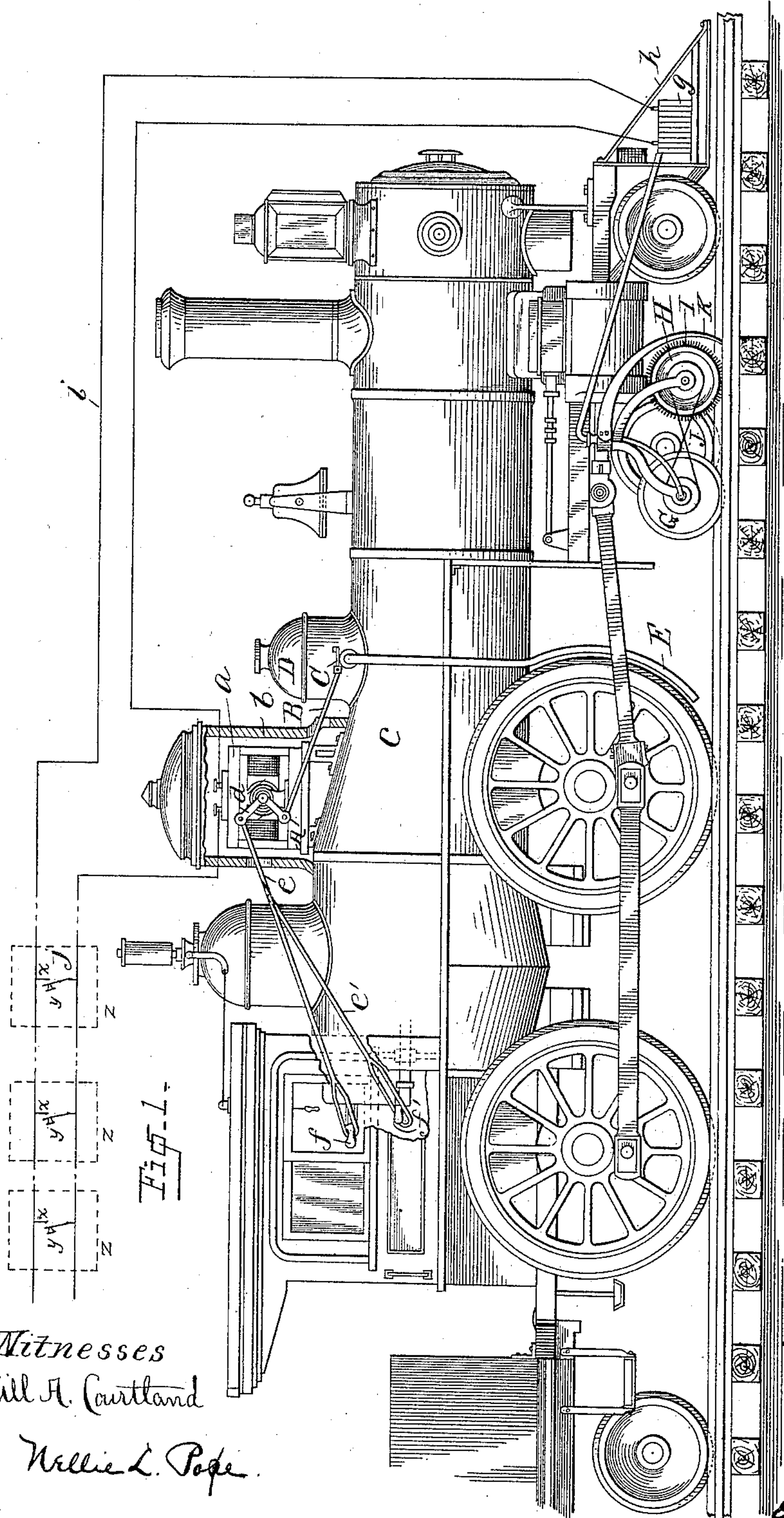
3 Sheets—Sheet 1.

E. DEMING.

AUTOMATIC SAFETY ELECTRIC SYSTEM FOR LOCOMOTIVES.

No. 452,871.

Patented May 26, 1891.



Witnesses
Will A. Courtland

Willie L. Pope.

Inventor
EDWARD DEMING
BY HIS
ATTORNEY

Edw. P. Thompson

(No Model.)

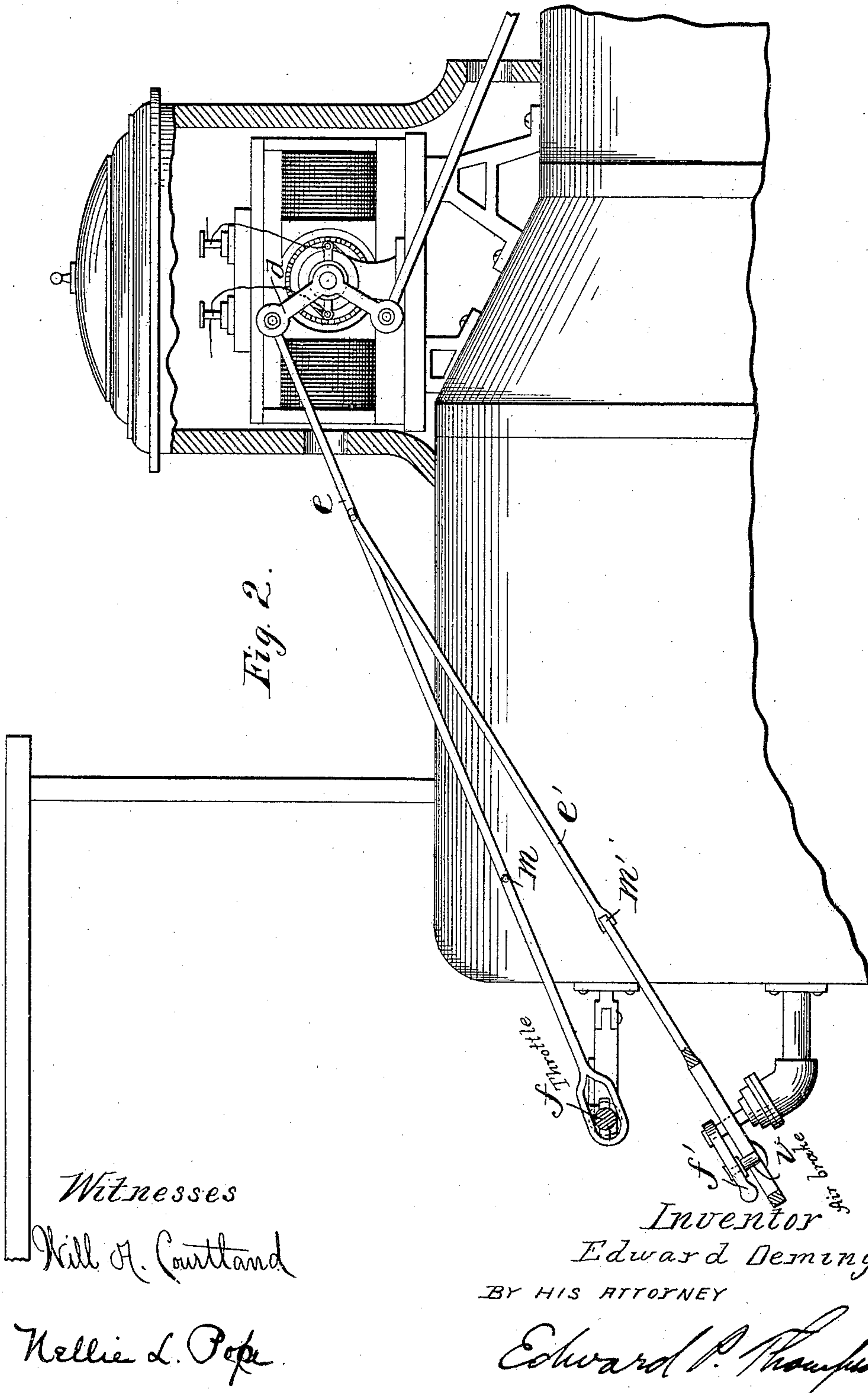
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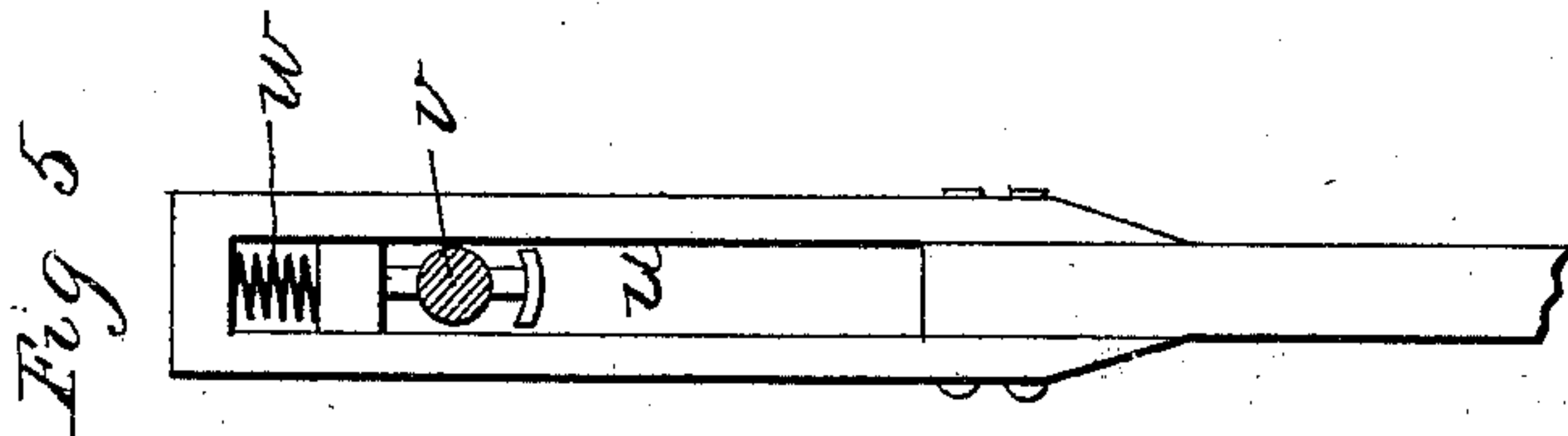
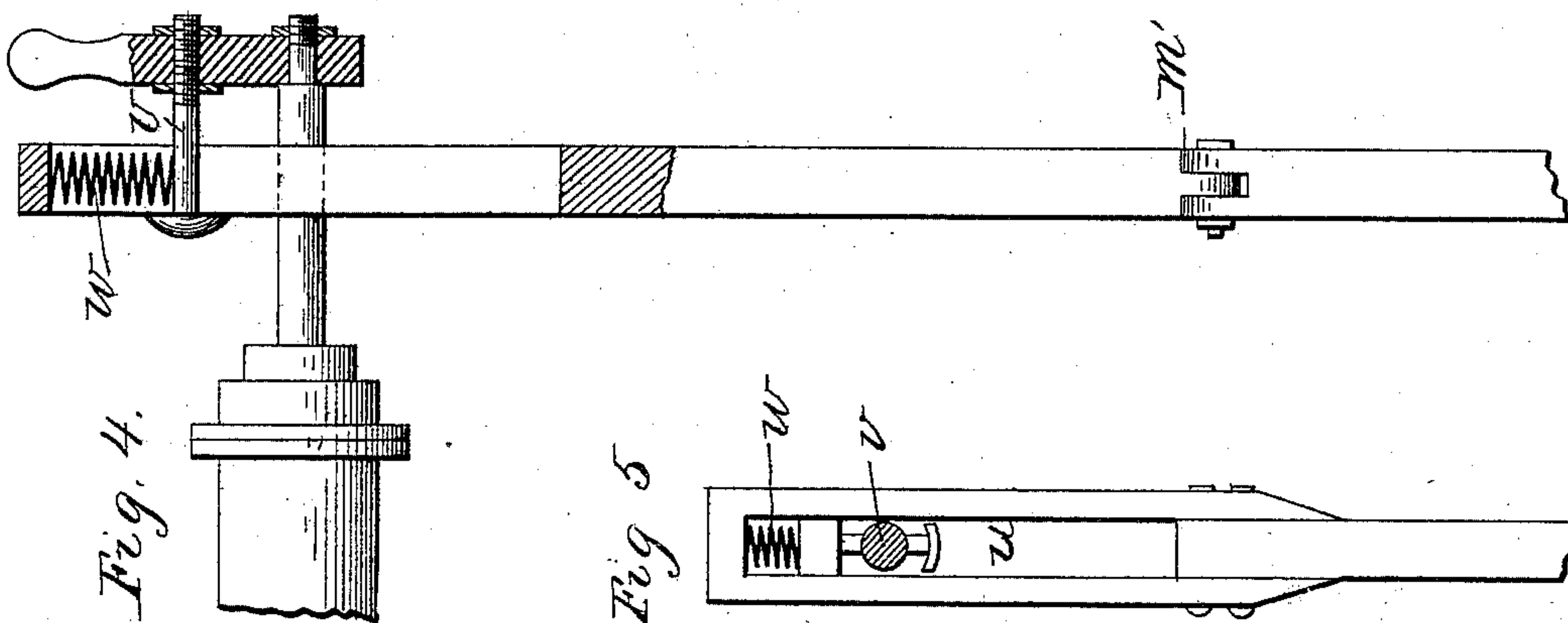
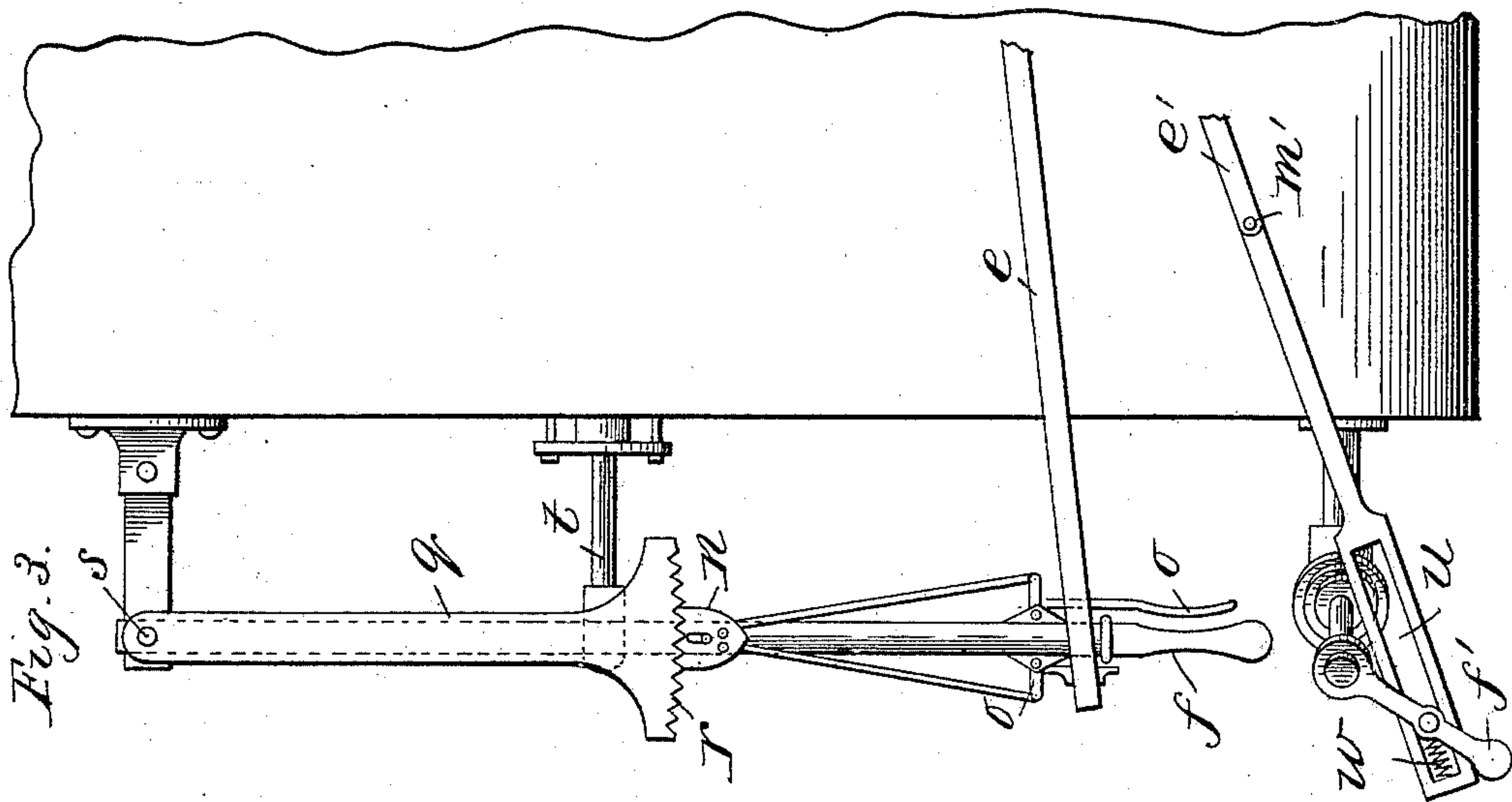
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Patented May 26, 1891.



Witnesses
Will H. Courtland

Nellie L. Pope.

Inventor
Edward Deming
BY HIS ATTORNEY

Edward P. Thompson

UNITED STATES PATENT OFFICE.

EDWARD DEMING, OF BROOKLYN, ASSIGNOR OF TWO-THIRDS TO ADOLPH KAUFMANN AND ISAAC STERN, OF NEW YORK, N. Y.

AUTOMATIC SAFETY ELECTRIC SYSTEM FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 452,871, dated May 26, 1891.

Application filed September 18, 1890. Serial No. 365,377. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DEMING, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Automatic Safety Electric Systems for Locomotives, (Case 1,) of which the following is a specification.

My present invention relates to a device for automatically applying the brakes of a railway-train and closing the throttle-valve of the locomotive.

The object of the invention is to provide for the safety of passengers and freight during transportation by railway-trains.

The invention is described in all its details by reference to the accompanying drawings.

Figure 1 is an elevation partly in section and certain parts broken away. The figure shows in elevation a complete locomotive, such as is used in connection with an invention set forth in another application filed September 20, 1890, Serial No. 365,628. The trolley at the lower part of the locomotive is described in said other application, and consists of two wheels G and H, the one being arranged to make electrical contact with a surface rail or conductor and the other being provided with a rotary brush I for clearing the track. A belt J, crossed upon itself, engages the two wheels, so that when the wheel G rotates by friction in one direction the wheel H rotates in an opposite direction and keeps the surface conductor clean. The rod K, projecting over the wheel H and reaching nearly to the rail, is to throw off any unusually-large objects, such as stones, &c. Fig. 2 is an enlarged elevation of a portion of Fig. 1. Figs. 3, 4, and 5 are enlarged views of mechanical details of those parts located within the cab of the locomotive.

The system involving my invention consists of the combination of an electric motor *a*, located in a casing *b* on top of the boiler *c* of the locomotive, a crank *d* upon the shaft of the motor, a rod *e*, pivoted at one end to said crank and at the other end to the handle *f* of the throttle-valve, a second rod *e'*, pivoted to the first at its one end and at its other end to the handle *f'* of the air-brake valve, a battery *g*, located in the cow-catcher *h*, and an

electric circuit *i*, passing from said battery through said motor and including open circuit-closers *j*, having terminals *x* and *y*, said circuit-closers being in parallel, which are supposed to be located upon the respective cars forming the same train with the locomotive, the said cars being represented by the dotted squares *z*.

The details are as follows: The rods *e* and *e'* each has a pivot-joint *m* and *m'*, respectively, to allow for flexibility. In order that the throttle may be operated, in practice it must first be released. The catch *n* must be moved outward toward the extremity of the handle *f*. The rod *e* has an opening through which pass both the crank-lever *o* and the handle *f*. When the rod *e* is pulled to the right, it first turns the crank-lever *o*, which raises the catch and releases the handle *f* from being locked, and then it pulls the handle *f* to the right, all being performed in a similar manner and as effectually as if done by hand. The crank-lever *o* corresponds to the crank-lever *o'*, which is operated by the engineer's hand. The piece *q*, with the teeth *r*, is stationary, while the catch *n* has teeth engaging the former teeth and is attached to the handle *f*, which is pivoted at the fulcrum *s*. The movement of the handle *f* to the right moves the valve-rod *t*, which closes the throttle-valve, thereby cutting off the steam from the steam-cylinders of the locomotive.

The rod *e'* has a hole *u*, through which passes a projection *v* from the handle *f'*, which is adapted to apply the automatic brake, such as an air-brake. Between this projection and the end of the rod *e'* is a spring *w*, by which the motion is communicated gradually.

Supposing that for some important reason it is desired that the conductor or brakeman must stop the train in the shortest possible time. Instead of signaling to the engineer, and losing thereby time and risk of the engineer not hearing the signal, or his being incapacitated at the time by sleep, sickness, or drunkenness, or, instead of applying the brakes simply by means of the ropes usually provided in the cars and connected to the brake system, he, the conductor or brakeman, or even a passenger, closes one of the circuit-closers *j*, which causes a current to pass from

the battery *g* through the motor *a*. This motor operates the rods *e* and *e'*, which respectively turn off the steam and apply the brake. The circuit-closer *j* should be maintained closed until either the train stops or
5 until its speed has been slackened to such an extent as to satisfy the condition of closing it at all. When the circuit-closer is opened again, the engineer may at the proper time
10 start the train in the usual manner.

It is evident that the motor may be provided with a crank to operate the handle of the sand-box, so as to increase the traction, and thereby assist in stopping the train. This
15 construction is shown in Figs. 1 and 2. The crank *A* of the motor is pivoted to the connecting-rod *B*, which in turn is pivoted to the handle *C* of the sand-box *D*. When the handle *C* is pulled to the left, the sand issues
20 from the pipe *E* upon the track.

I claim as my invention—

In a locomotive, the combination, with the throttle-valve, of a stationary piece *q*, provided with teeth *r*, a handle *f*, provided with a movable catch *n*, having teeth engaging with
25 said former-named teeth, a lever-crank carried by said handle and connected to said catch, an electric motor, and a rod *e*, provided with a hole through which pass said lever-crank and said handle, said rod being con-
30 nected to a crank upon the shaft of said motor.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 10th day of September, 1890.

EDWARD DEMING.

Witnesses:

E. G. DUVALL, Jr.,

EDWARD P. THOMPSON.