

S. Mc G. Hunter,

Coiling Springs,

N^o 63,521.

Patented Apr. 2, 1867.

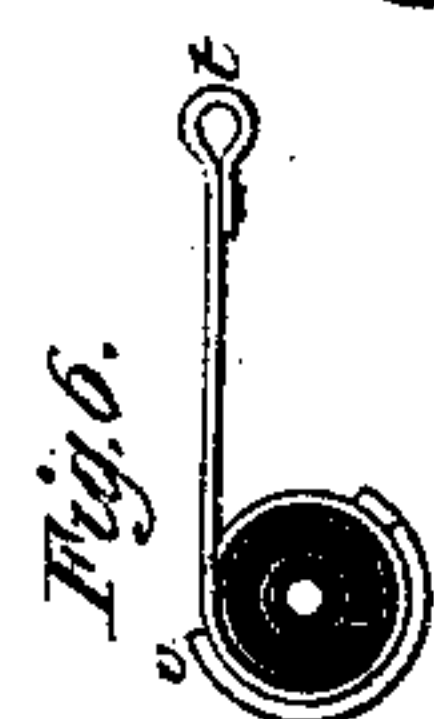
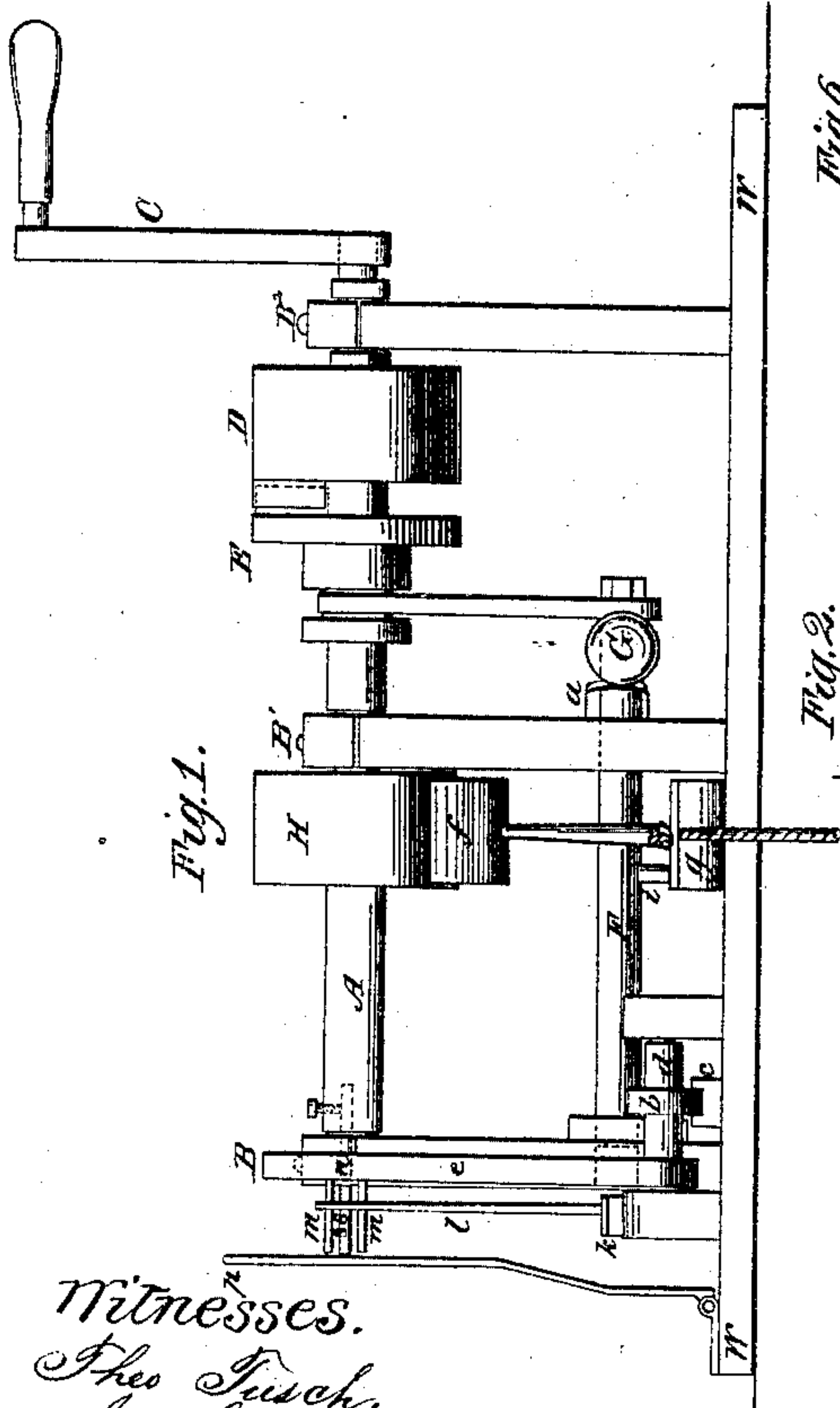
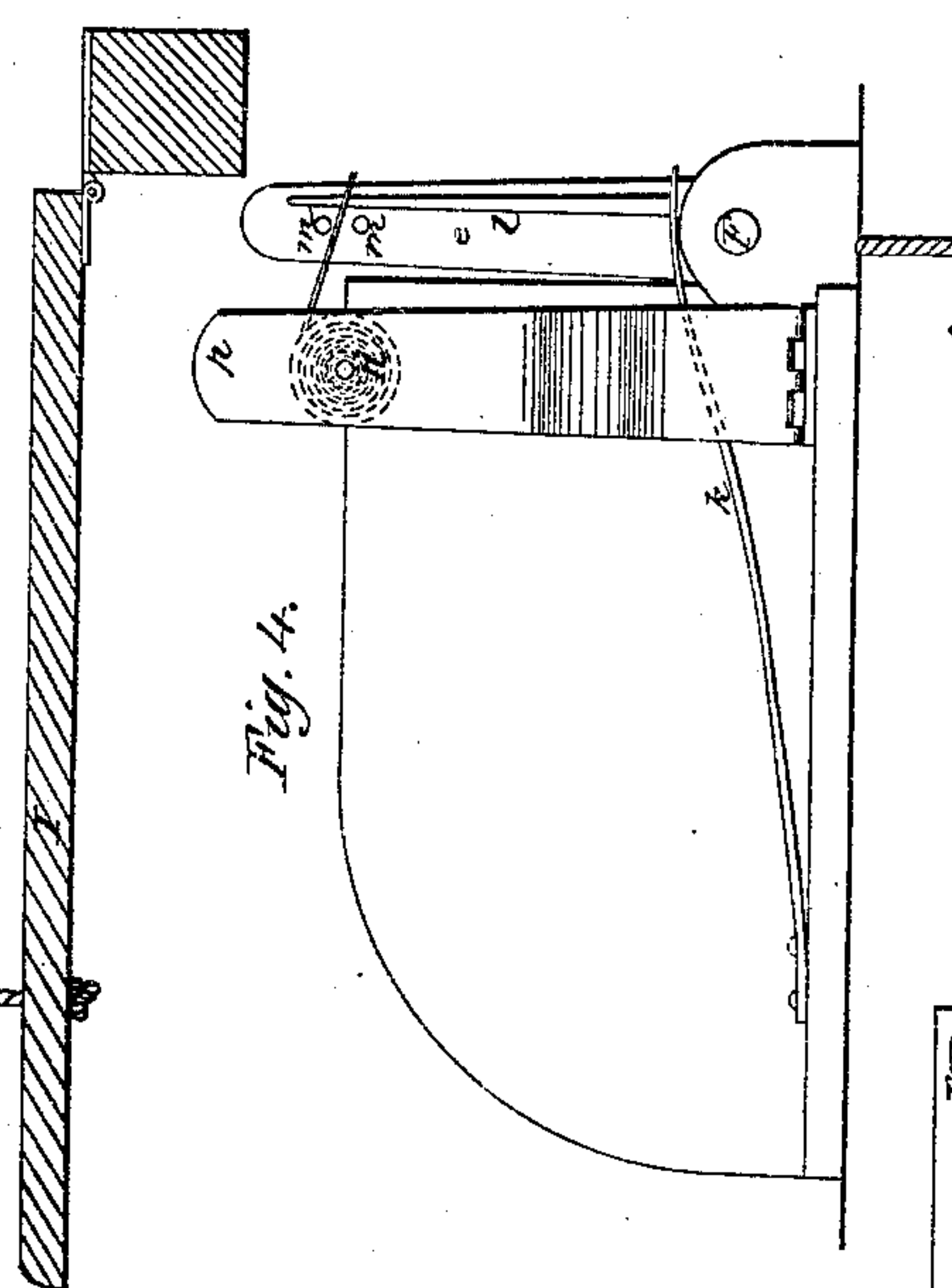
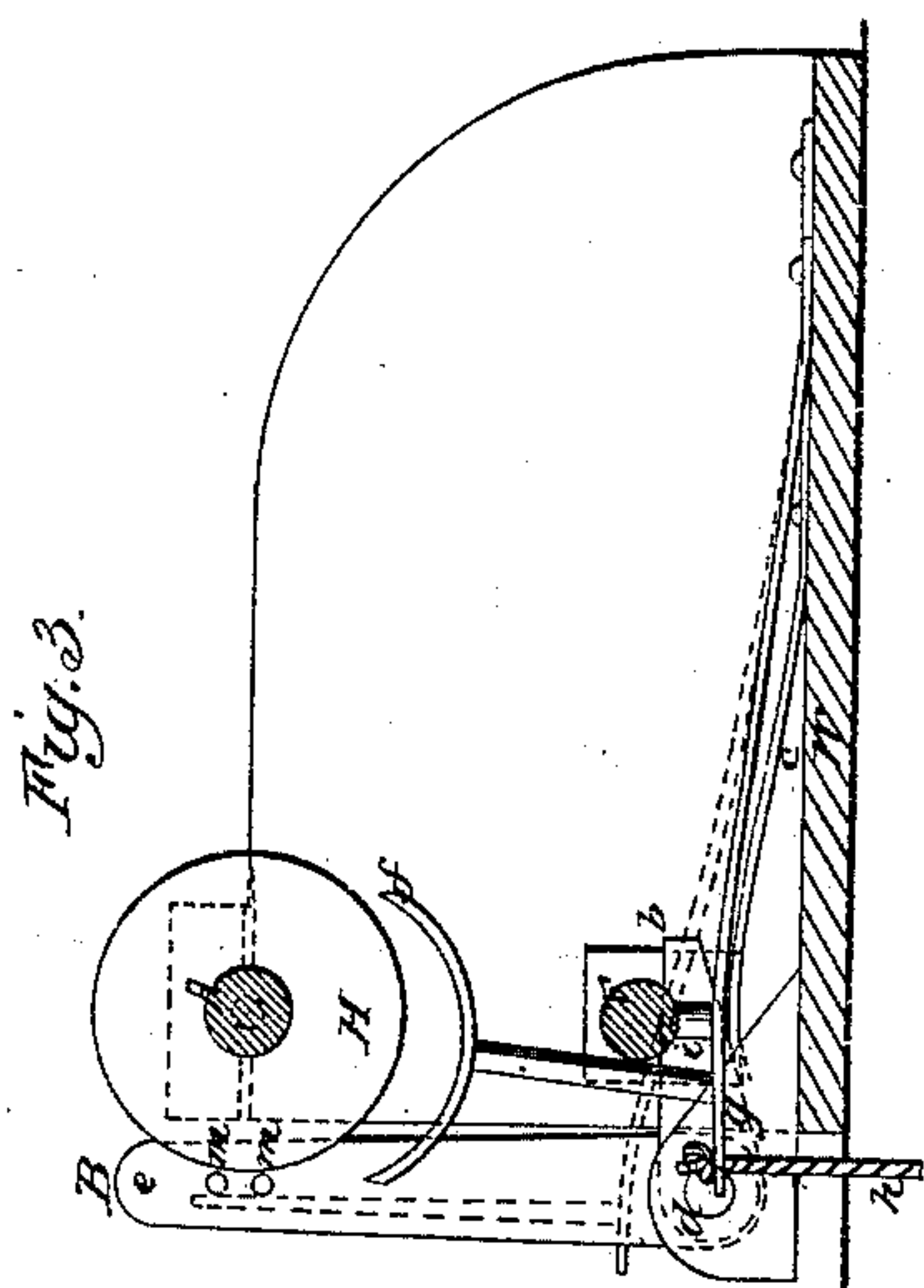


Fig. 2.

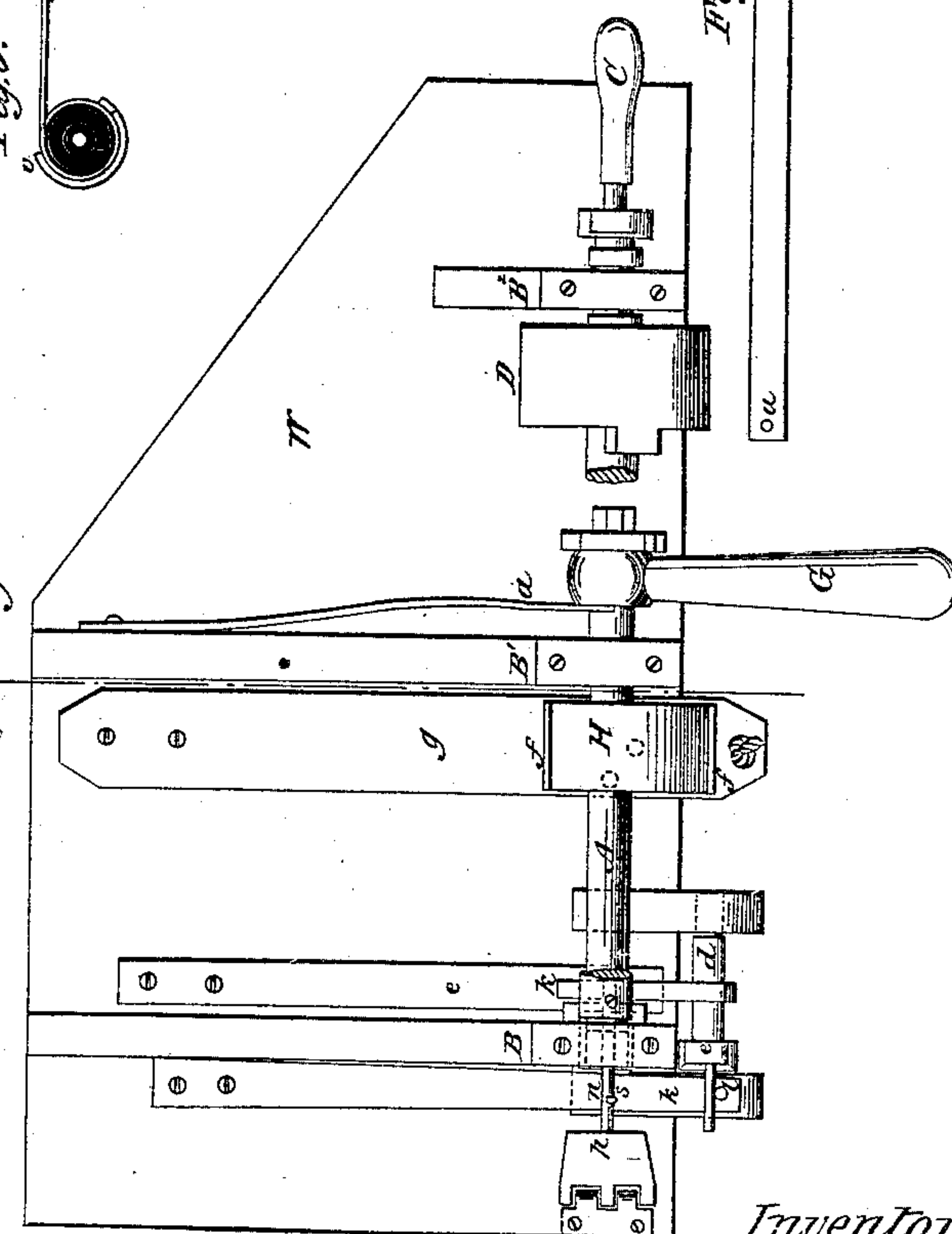


Fig. 5.



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SWIFT McG. HUNTER, OF TERRYVILLE CONNECTICUT.

Letters Patent No. 63,521, dated April 2, 1867.

IMPROVED MACHINE FOR COILING SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SWIFT McG. HUNTER, of Terryville, in the county of Litchfield, and State of Connecticut, have invented a new and improved Machine for Coiling Springs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of the machine.

Figure 2 is a plan or top view.

Figure 3 is a vertical transverse section taken in the plane of the line *x x*, fig. 2.

Figure 4 is a view of the end on which the spring is coiled.

Figure 5 is a detached view of a spring before it is coiled.

Figure 6 is a detached view of a spring after it is coiled.

Similar letters of reference indicate like parts.

This relates to an improved machine for coiling clock and other similar springs. Heretofore all springs of this kind have been coiled by hand, making it a tedious and laborious operation, but this improvement is designed to coil springs by steam or other power at a great saving of time and labor.

A suitable frame is mounted upon a work-bench, *W*, upon which is hung a horizontal shaft, *A*, having bearings at each end and near the middle in standards *B B¹ B²*. The shaft is provided with a crank, *C*, on the right-hand end, which crank, however, is designed merely for temporary use at one stage of the operation of coiling a spring, and not as the motor, as hereafter explained. For the purpose of turning the shaft to coil springs, a driving-pulley, *D*, is fitted loosely on the shaft *A*, to be made fast and put in gear by a shifting clutch, *E*, which clutch is worked by a sliding bar, *F*, that passes through the standards *B* and *B¹* near the bottom. For throwing the clutch *E* in gear with the pulley *D*, a handle, *G*, is provided, or any other suitable device may be used; and for throwing it out of gear, a side spring, *a*, is fastened at one end to the standard *B¹*, while the free end is attached to the sliding bar *F*. When the clutch is engaged with the pulley *D*, it is held in place by a latch, *b*, which is thrown up by the spring *c* against the sliding shaft *F* and catches in a notch on the under side, to be released for the purpose of allowing the clutch to be thrown out of gear, as hereinafter explained. The latch *b* is fastened at one end to a horizontal rock-shaft, *d*, on which is also fastened a vertical arm, *e*, which rises in front of the standard *B*. The arm *e* has two small pins, *m m*, projecting from it near the upper end. On the shaft *A* is a brake-wheel, *H*, acted on by a brake, *f*, that is pressed up against it by a spring, *g*, which spring is connected by a rope or rod, *h*, with a treadle, *I*, under the bench *W*; and on the lower side of the sliding bar *F* is a projection, *i*, the uses of which are all hereinafter explained. Outside of the standard *B* is a spring, *k*, fig. 4, on the free end of which is a vertical pin, *l*, that rises alongside of the vertical arm *e* and in front of the pins *m m*. In the left end of the shaft *A* is fixed an arbor, *n*, which projects outside of the standard *B*, upon which is a small peg or hook, *s*. A hinged metal flap, *p*, is placed so as to bear up against the end of the arbor *n*, when required, or it may pass over the end of the arbor by means of the hole made near its upper end, as shown in fig. 4 of the drawings. The springs to be coiled are flat steel ribbons, sometimes made with a hole or slot in one end, as shown at *r*, fig. 5, and sometimes with a loop on the end, as shown at *t*, fig. 6, by which the springs are attached. On the opposite end of the spring is a small hole, as shown at *u*, fig. 5, which hole is necessary for connecting the spring with the arbor and holding it while it is coiled.

In order to operate my coiling machine, the spring is put upon the arbor *n* by hooking it on the peg *s*, through the hole in the end at *u*, after having passed it through or between the projecting pins *m m* and over the rod *l*. The hinged flap *p* is pressed up against or passes over the end of the arbor *n*, to keep the spring in place when coiling in the usual way. A few turns are given to the shaft *A* by the crank *C*, to start the coil. The brake *f* is released from the wheel *H* by depressing the treadle *I*, which draws down the spring *g*. The clutch *E* is engaged with the driving-pulley *D* by moving the sliding bar *F* out with the handle *G*, which movement carries the projection *i* over the spring *g* and keeps the brake *f* from contact with the wheel *H*. The moment this is done the spring *c* forces up the latch *b* to catch in a notch under the sliding bar *F*, by which means the clutch *E* is held in connection with the pulley *D*. The pulley *D* turns the shaft *A*, and coils the spring upon

the arbor *n* until it draws upon the vertical pin *l*, which passes through the hole *r* in the ribbon, and is prevented from slipping off by the pins *m m* upon the arm *e*, between which it passes. When the spring is sufficiently coiled it draws the pin *l* and arm *e* toward the standard *B*, thereby pulling over the rock-shaft *d*, thus releasing the latch *b* from the sliding bar *F*, which is instantly thrown back by the action of the side spring *a*, disengaging the clutch *E* from the driving-pulley *D*, slipping the projection *i* from the spring *g*, which then presses the brake *f* up against the wheel *H* and stops the motion of the shaft *A*, preventing it from turning back until the coil of the spring on the arbor *n* is secured by slipping on the enclosing segment of a ring, *v*, shown in fig. 6, by which coil springs are held in place till used. When this ring has been placed on the coil spring, the brake *f* is depressed a little, to allow the shaft *A* to make a few back turns by the recoil of the spring, until it runs out enough to fill the ring and secure itself within it; when it is taken off the arbor and the same operation is repeated on other springs. When the loop *t* is used upon the end of the spring the pin *l* may be dispensed with, the loop pressing against the pins *m m*, to draw over the bar *e* and rock-shaft *d*.

My invention is not confined to the particular devices as arranged and described for effecting the purposes thereof, as the devices may be varied in construction without departing from the principle of my invention and yet be substantially the same in operation.

Having described the construction and operation of my machine, what I claim as new, and desire to secure by Letters Patent, is—

1. I claim the upright arm *e*, with its holding pins *m m*, in connection with the rock-shaft *d*, the latch *b*, and the spring *c*, arranged and operating as described, in combination with the sliding bar *F*, the shaft *A*, and the clutch *E*, substantially as herein set forth.

2. I claim also the upright holding-rod *l*, in combination with the spring *k*, the arm *e*, and the arbor *n*, arranged and operating substantially as herein described.

3. I claim also the sliding bar *F*, in combination with the spring *g*, stud *i*, and brake *f*, and the brake-wheel *H* on the driving-shaft *A*, arranged and operating substantially as described.

SWIFT McG. HUNTER,

Witnesses:

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