J. W. Evans.

Spring Packing Mach.

No. 87,332. Patented Mar. 2, 1869.

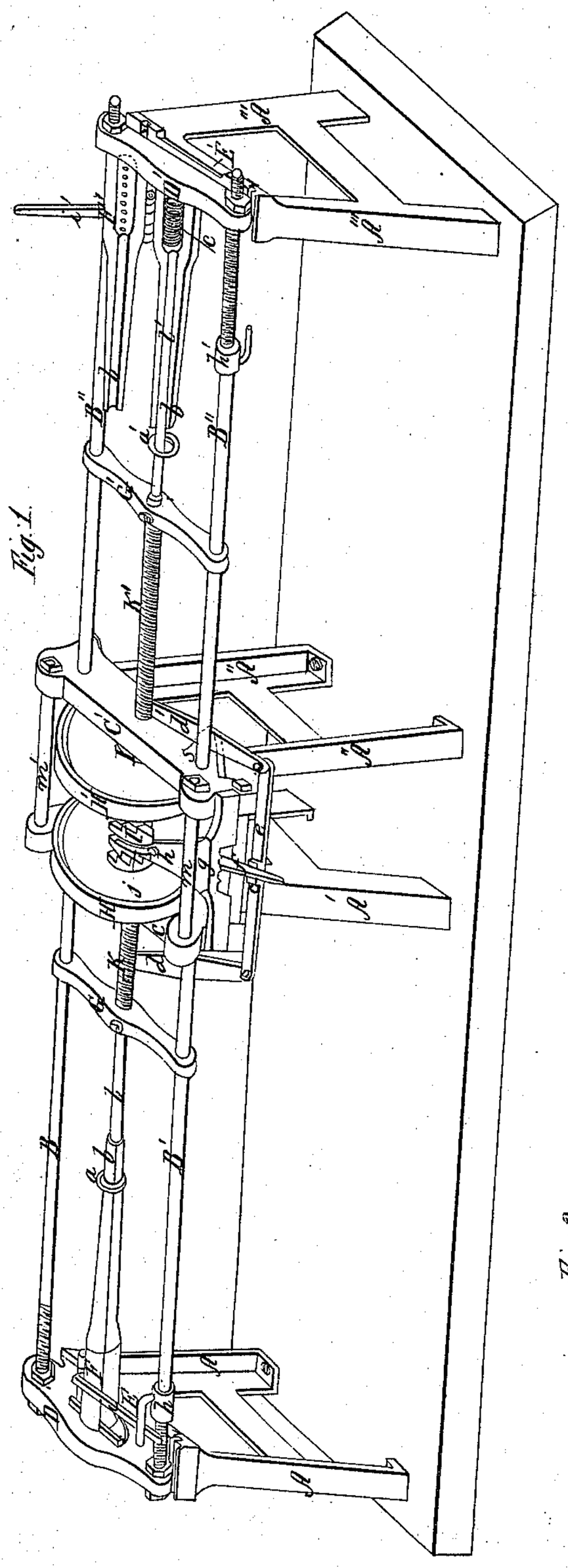

Fig. 1.

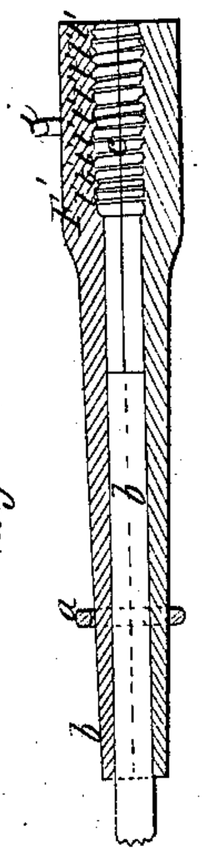

Fig. 3.

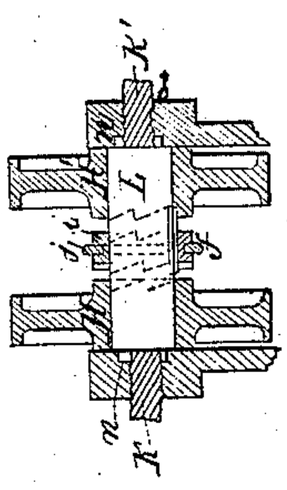

Fig. 2.

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JAMES W. EVANS, OF NEW YORK, N. Y.

Letters Patent No. 87,332, *dated March* 2, 1869.

IMPROVED MACHINE FOR PACKING COILED 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, JAMES W. EVANS, of the city of New York, in the county and State of New York, have invented a new and useful Machine for Packing Wool or other Fibrous Material into Coiled-Metal Springs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same letters indicating similar parts, making a part of this specification, in which—

Figure 1 is a perspective view of my machine.

Figure 2 is a vertical sectional view of the central portion of the machine detached.

Figure 3 is an enlarged vertical sectional view of the clamp F.

It has been found that the efficiency of metallic spiral springs is increased by filling the cores of the same with cylinders of rubber, compressed wool, or other suitable elastic material.

The design of this machine is to compress and pack such materials into such springs.

The working-parts of the machine are mounted upon a suitable frame, consisting of four pairs of legs, A A′ A″ A‴, and the connecting-rods B B′ B″ B‴.

The legs of each pair are connected at the top by cross-bars, E E′ and C C′, cast solid with the legs.

The cross-bars C C′ of the two central pairs of legs are made broad and heavy, and are themselves connected by the rods M M′.

The rods B are, at one end, screwed into the bars C C′, and at the other end they pass through the head-blocks D D′, which are made adjustable on the rods B, by means of nuts on each side, as shown, and are bolted to the cross-bars E E′ by bolts, the ends of which are held in dovetailed slots *v*, in the cross-bars.

L is a hollow shaft, with end-bearings *n n′*, mounted in the cross-bars C C′, having an interior screw-thread, carrying the long screw-plunger K, which passes through the cross-bars C C′ and the said hollow shaft L, thus constituting the said plunger and shaft a male and female screw.

At the termination of the thread at each end of the plunger, and connected with it, is a cross-head, G G′, that slides on the rods B B′.

H H′ are two loose pulleys, on the shaft L.

i is a movable clutch, working on said shaft, and made to revolve the same, by a feather on the shaft.

f is a clutch-shifter, pivoted at *p*, on the bar *g*, which is bolted to the cross-bars C C′, the forked end *j* working in an annular groove in the clutch, and the lever-end, *f*, resting on the notch *a‴* in the bar *e*.

Connected with each of the head-blocks D D′ is a sectional clamp, F F′.

The lower sections of these clamps are made fast to the head-blocks D D′, and the upper sections are hinged to the lower ones, permitting the opening and closing of the clamps.

In these clamps are recesses *c*, designed to hold the spiral springs to be packed.

On the inner surface of these recesses are spiral ribs, or threads, *t*, or the points *t′*, or their equivalents, designed to fit in between the coils of the spring, serving to prevent the collapse of the spring while being packed.

d d′ are trip-levers, pivoted on ears *s*, cast on the cross-bars C C′, the said levers being connected at the outer end by the bar *e*.

The two sections of the clamps F F′ are held together by means of the arms *i i′* and the sliding hooks *h h′*, and the tubes *b* and *b′* are held by the rings *a a′*.

The pulleys H′ H′ are to be driven, in the ordinary way, by belts, one of the belts being crossed, giving the one pulley motion in a direction reverse to the other.

Connected with each of the clamps F is a tube, *b*, terminating, at one end, in the recess *c*, the same being made in sections, corresponding with the sections of the clamps.

These tubes are designed to receive and hold the rubber, or other material, preparatory to its being packed into the spring.

The operation of this machine is as follows:

One of the clamps F′, with its tube *b′*, being open, and the plunger *l* being withdrawn from it and from the tube, the rubber cylinder, or other material, fashioned into suitable form and length, is laid in the tube *b′*, and the spring to be packed is placed in the recess *c*. The clamp is then closed and fastened, the ribs and pins *t*, on the inner surface of the recess, fitting in between the coils of the spring. The clutch I is then thrown into the pulley H′.

The motion thus given to the shaft, or female screw L, will force the end, *l′*, of the plunger K′, into the tube *b′* of the clamp, thus crowding the rubber forward, and packing it in the spring.

While the plunger is thus entering one of the clamps, the operator charges the other with the rubber and a spring, and fastens it closed.

The cross-heads G G′ are so adjusted to the trip-levers *d d′*, that, at the instant one end, *l′*, of the plunger K, has reached the spring and crowded the wool into it, the opposite cross-head G, acting against the trip-lever *d′*, has thrown the clutch out from the pulley, thus arresting the motion of the plunger.

The operator then shifts the clutch into the opposite pulley, which reverses the motion of the plunger, forcing it into the other clamp, and packing the spring confined in it.

A spring is thus conveniently packed at each movement of the plunger.

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

1. The clamp F, tube *b*, and plunger K, when combined and operating as and for the purposes specified.

2. The plunger K K′, in the hollow shaft L, the pulleys H H′, the clutch I, the clutch-shifter *f*, the trip-levers *d d′*, and the cross-heads G′ G′, combined and operating substantially as and for the purposes specified.

3. The adjustable head-block D, with the clamp F, tube *b*, and plunger K, combined and operating substantially as and for the purpose specified.

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Witnesses:

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