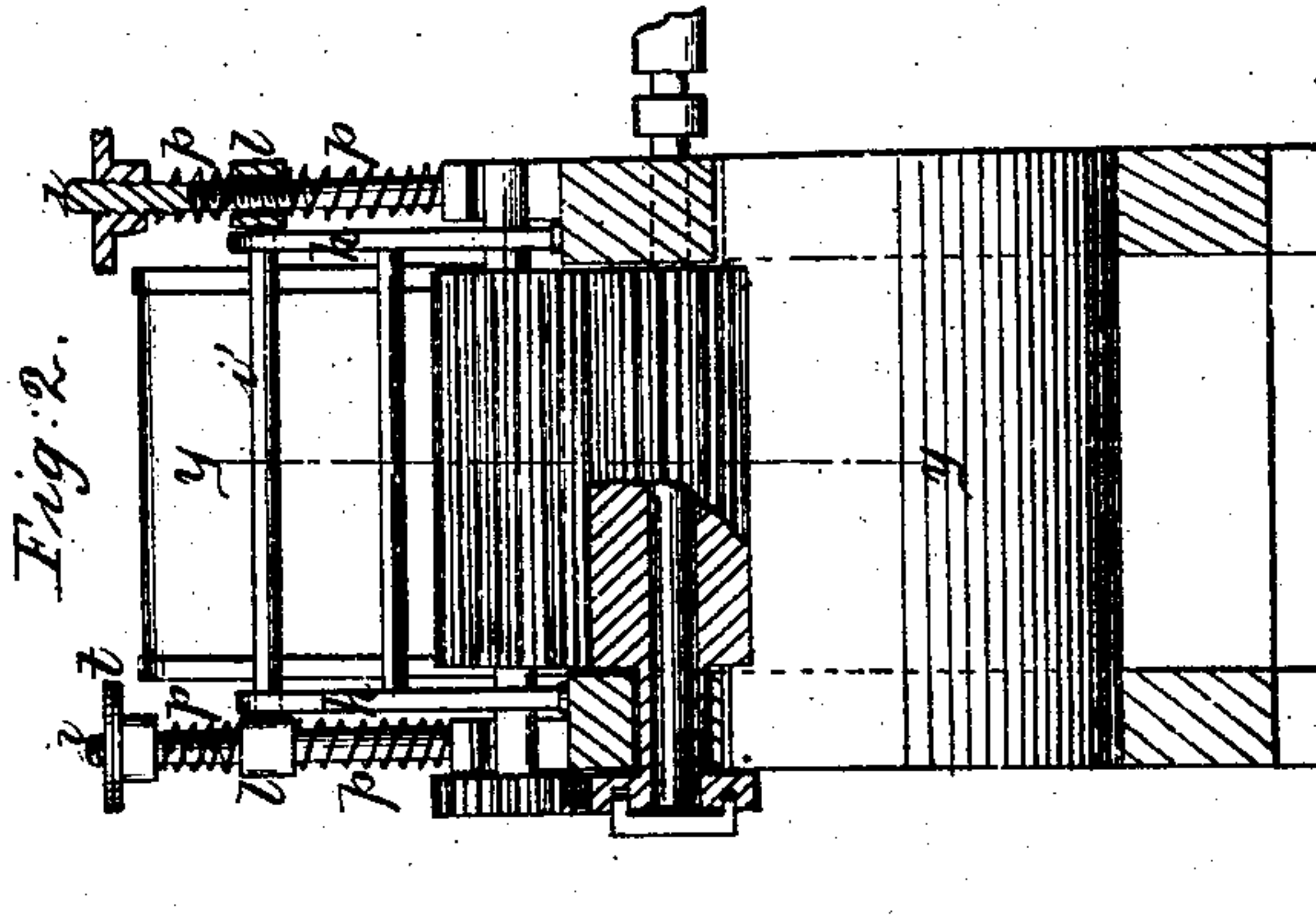
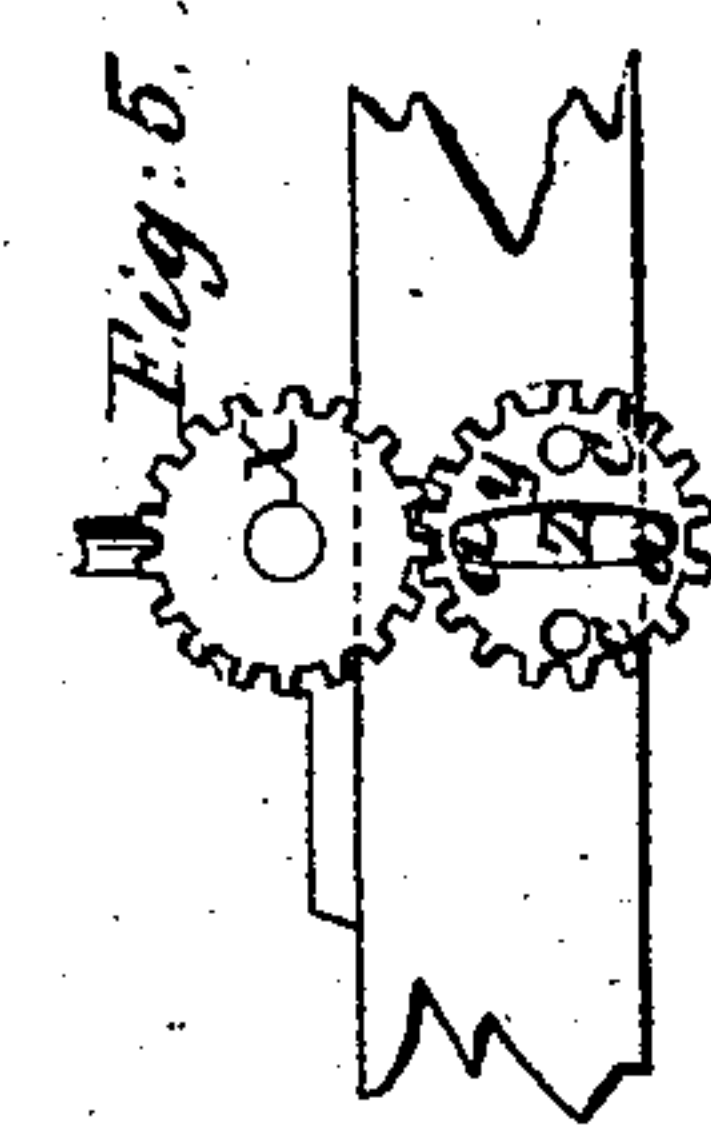
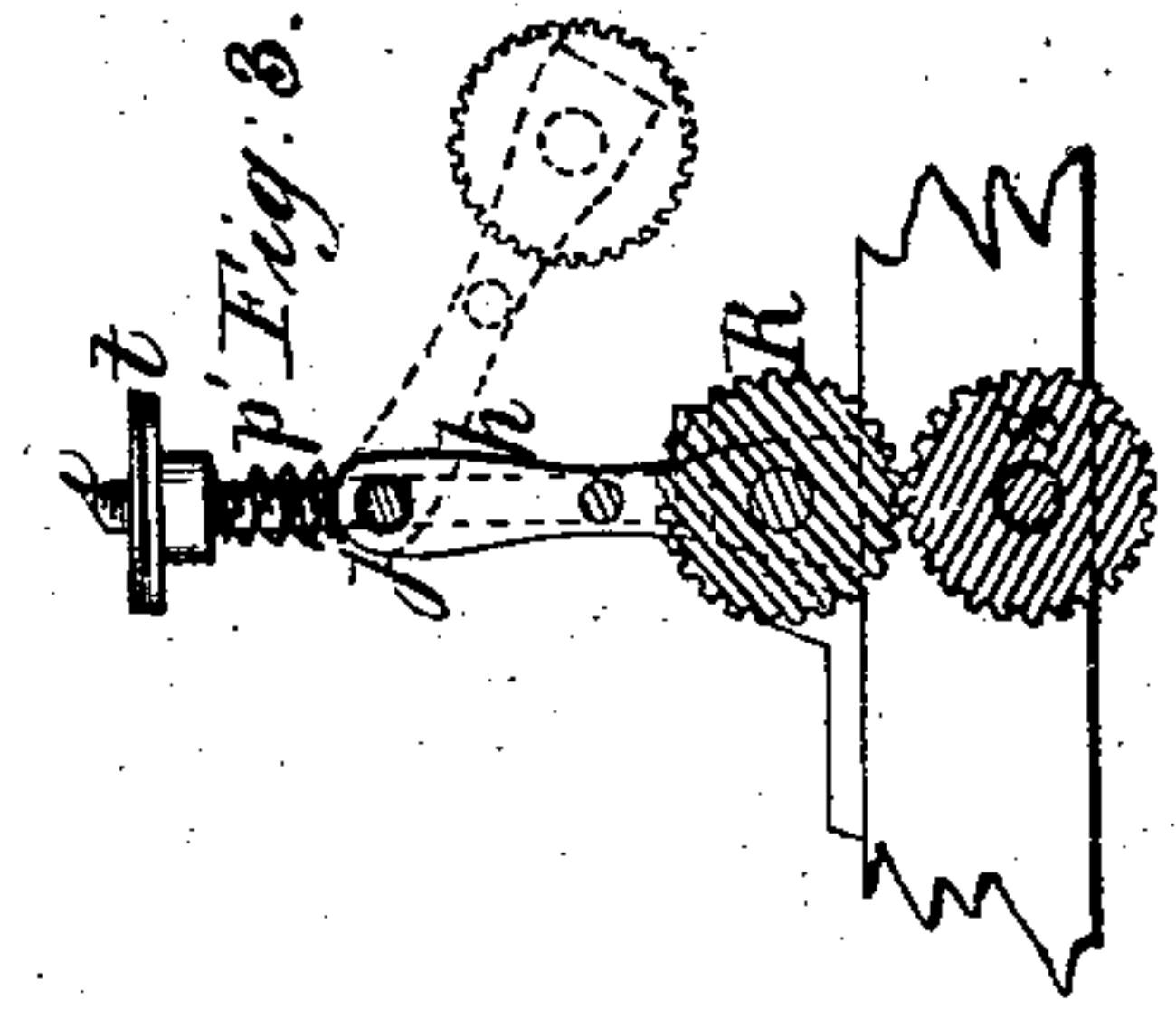
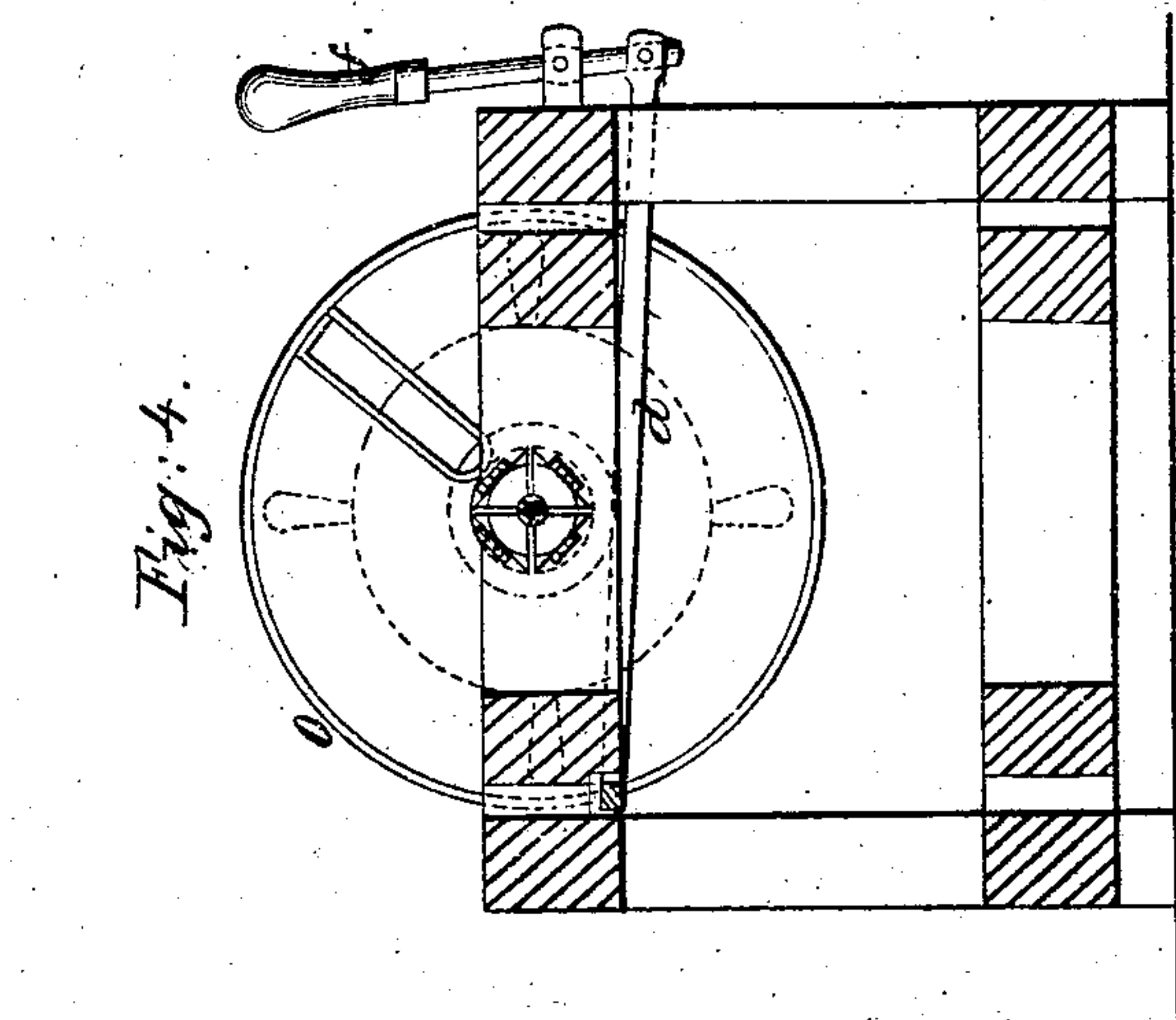
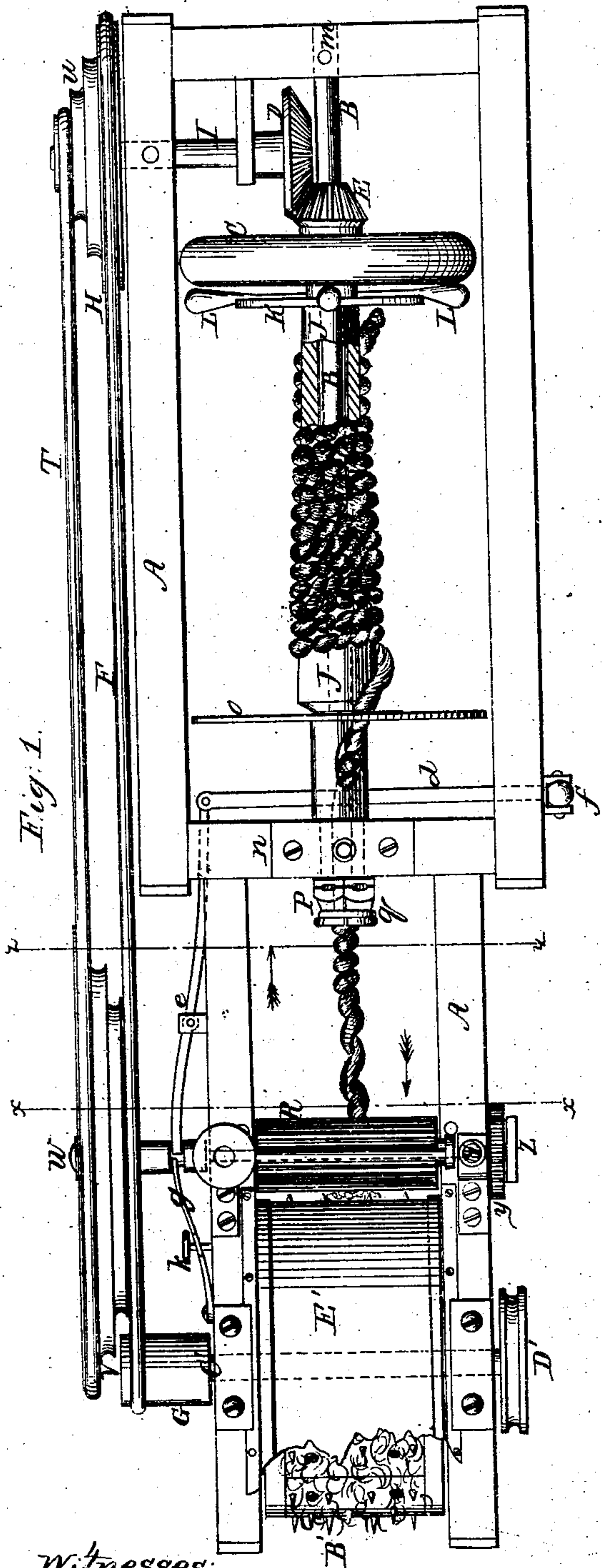


H. R. Hildreth.

Mach. for Picking Hair Rope.

N^o 89,405.

Patented Apr. 27, 1869.



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Letters Patent No. 89,405, dated April 27, 1869.

IMPROVEMENT IN MACHINE FOR PICKING HAIR-ROPE.

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, H. R. HILDRETH, of Lynn, in the county of Essex, and State of Massachusetts, have invented a new and useful Improvement in Machine for Picking Curled-Hair Rope; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a machine for untwisting and picking hair-rope, thereby rendering it suitable for use in upholstering, or other purposes; and

It consists in a machine, constructed as hereinafter described, for untwisting the rope and picking the hair at one and the same time, thereby saving much valuable time and greatly reducing the cost of the article.

In the accompanying plates of drawings—

Figure 1 represents a top or plan view of the machine, with parts broken away for the purpose of showing the picking-cylinder and the unwinding-shaft.

Figure 2 is a vertical transverse section of fig. 1 through the line *z z*.

Figure 3 is a vertical section of fig. 2 through the line *y y*, showing the feed-rolls.

Figure 4 is a transverse section of fig. 1, looking from the line *z z*, in the direction of the upper arrow.

Figure 5 is a detailed view of the gearing on the ends of the feed-rolls, showing the coupling on the end of the lower feed-roll shaft, for stopping the motion of the rollers.

Similar letters of reference indicate corresponding parts.

It is probably well known that the curled hair used in upholstery is composed, for the most part, of long hair, (manes and tails of horses and cattle,) which is subjected to a heating-process and twisted into rope, and that this process is what curls the hair.

To render it available for the purposes to which it is applied, (upholstering,) the hair-rope must be untwisted and picked so that it will lie loose like wool.

In carrying out my invention, I construct a machine of suitable dimensions and of suitable materials for drawing the hair-rope from a loose drum, on which it is wound, and untwisting it by the revolution of the shaft on which the drum is placed, then feeding it between rollers to a picking-cylinder, which separates the hairs and renders it fit for use.

A represents the frame, which may be made of either wood or metal.

B is the unwinding-shaft.

C is a fly-wheel on that shaft.

This shaft is actuated by the bevel-gears D E, to which motion is imparted by the belt or band F from the pulley G on the picker-cylinder shaft, by means of the pulley H and gear-wheel shaft I.

J is the drum or loose sleeve, upon which the hair-rope is wound.

K is a disk-plate on one end of the drum J, to which arms L are attached for turning the drum in winding on the rope.

The rear end of the shaft B is supported on the frame, at *m*, and its front end on the cross-piece *n*.

The forward portion of the shaft B is tubular, with an aperture in its side, through which the rope passes into the tubular portion, as seen in the drawing.

O is a disk-plate on the shaft B, through which the rope passes before it enters the shaft.

On the end of the shaft B, there is a clasp, P, formed of two or more sections, which are hinged to a collar on the shaft.

Q is an elastic band around this clasp, by which the sections are made to clasp the rope with a force sufficient for untwisting it, as it is drawn into the machine by the feed-rollers.

R represents the upper feed-roller, and

S, the lower feed-roller.

These rollers are grooved or serrated so that they may more readily hold and draw the rope from the drum, and in contact with the picking-cylinder.

The feed-rolls are actuated from the shaft I by the belt T on the cone-pulleys U and V.

The cone V is on the shaft *w*, which passes through the lower feed-roller S.

Motion is imparted to the upper feed-roll R by means of gear-wheels *x y* on the ends of those rolls outside the frame, as seen in the drawing.

z is a coupling or clutch on the end of the shaft *w*.

This coupling has two pins, *a a*, which enter holes, *c c*, in the gear *y*, thus coupling them together when they are in operation.

When, from any cause, it becomes necessary to stop the feed, the shaft *w* is given a longitudinal motion by the shipping-bar *d* and lever *e*, which are operated by the attendant by means of the hand-lever *f*, seen in fig. 4.

When the feed-rollers are in motion, (or operating,) the shaft *w* is held in position, so that the feed-roller will be coupled, as seen in the drawing, by means of the spring *g*.

The tension of this spring is increased or diminished by the regulating-screw *k*.

The upper feed-roller R is suspended on arms *h h*, from the rod *i*, which is attached at each end to the slides *l l* (one of which is seen in section) on the stands *i i*.

The arrangement is such that the roll may be swung out, as seen in red color in the drawing, fig. 3, in case it should be found necessary to remove any obstruction from the hair, or for any other purpose.

When the roll is down, as represented in the drawing, it is held in place by small catches at the ends of the arms *h*.

p represents spiral pressure-springs on the stands *i*, which bear upon the slides *l l*, (and consequently upon the roll,) with a constant pressure, the tension of

which springs is increased or diminished by the screws *t t* on the stands *i i*.

B' represents the picker-cylinder provided with the requisite number of teeth and attached to the driving-shaft *G'*.

D' represents the driving-pulley.

In operating with the machine, the end of the hair-rope is attached to the disk *K* on the drum *J*, and the rope is wound on by revolving the drum.

The other end of the rope is passed through the disk *o*, which, as seen in fig. 4, has a long slot through it, so that the end will conform in position to the diameter of the coil around the drum.

It is then passed into the shaft *B*, and through the clasp *P*.

The shaft *B* is revolved so as to untwist the rope as it is drawn from the clasp, so that when it enters between the feed-rollers the strands become quite loose and the hair expands by its own elasticity or spring.

When in this condition, the picker receives it, and, separating the hairs and pulling them asunder, delivers it at the end of the machine in a light elastic pile ready for use.

The picking-cylinder is covered by the removable cap *B'*.

There being no bed-piece, or other teeth, the hairs are not broken, but merely pulled from the feed-rollers, and as soon as liberated from the picker they assume the curled form, which renders it so valuable for upholstering-purposes.

The attendant stands at the side of the machine, with his hand on the lever *f* and regulates the feed, as circumstances may require.

In picking hair-rope by hand, fifteen or twenty pounds are a good day's work.

With this machine, fifty pounds an hour can be prepared for use, and in a superior manner, as the operation is more perfectly performed than it can be by hand.

I claim as new, and desire to secure by Letters Patent—

1. A machine for untwisting and picking hair-rope, constructed substantially as shown and described, that is to say, with a loose drum on a revolving shaft, into and from which the rope passes to a clasp, or compressor, *P*, or its equivalent, arranged and operating substantially as specified, for the purposes set forth.

2. The combination and arrangement of the clutch *z*, gear-wheel *y*, shaft *w*, roller *s*, spring *g*, arm *e*, rod *d*, and lever *f*, substantially as described, for the purpose specified.

3. In combination with the spring-clasp *P*, shaft *B*, and drum *J*, the feed-rolls *R S*, and picking-cylinder *B'*, arranged substantially as described, for the purposes set forth.

H. R. HILDRETH.

Witnesses:

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