

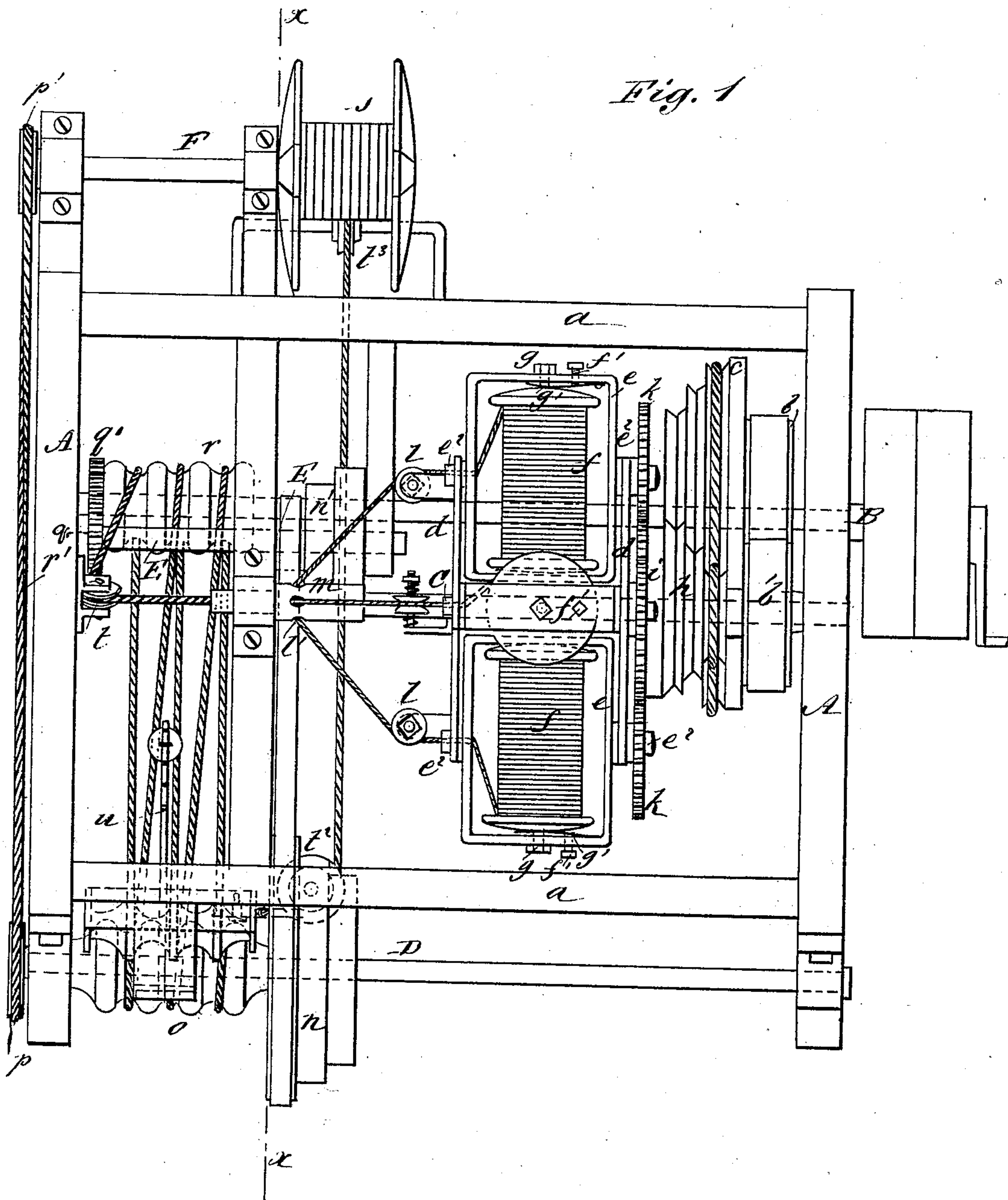
(No Model.)

2 Sheets—Sheet 1..

J. HARRIS.
ROPE MACHINE.

No. 255,976.

Patented Apr. 4, 1882.



WITNESSES:

C. Neveu
E. Sedgwick

INVENTOR:

J. Harris
BY *Mum & Co*
ATTORNEYS.

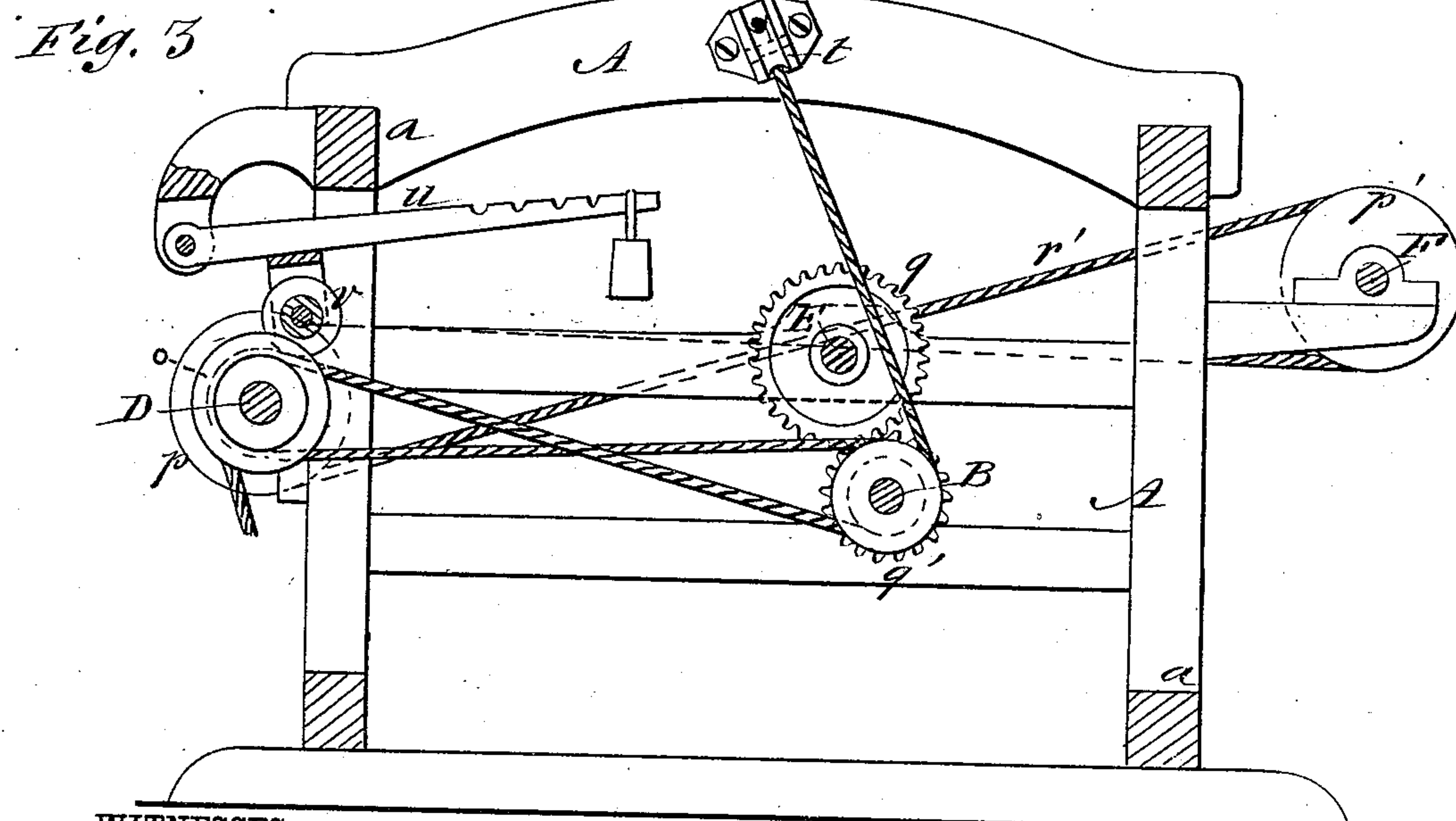
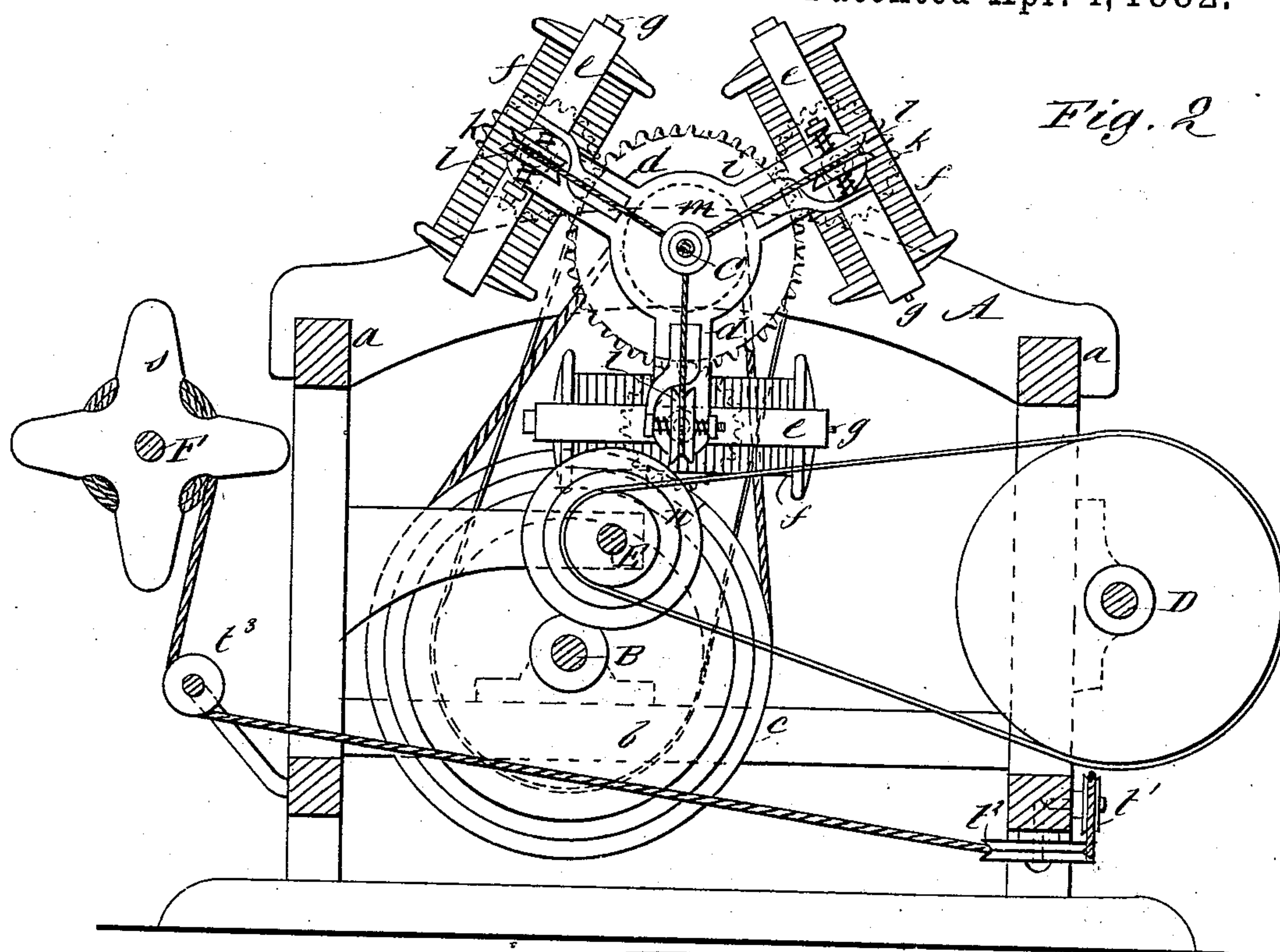
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UNITED STATES PATENT OFFICE.

JOHN HARRIS, OF COLUMBUS, NEBRASKA.

ROPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,976, dated April 4, 1882.

Application filed June 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN HARRIS, of Columbus, in the county of Platte and State of Nebraska, have invented a new and useful Improvement in Rope-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my improvement is to dispense with the long rope-walks and buildings heretofore required in rope-making, and thus save the expense of such establishments. Further, the object is to manufacture rope more rapidly and of better quality than can be done by ordinary machines.

The invention consists in a machine which combines a laying-shaft, twisting-fliers, and take-up mechanism in compact form, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of the machine. Fig. 2 is a vertical transverse section on line *x x* of Fig. 1; and Fig. 3 is a transverse section on the same line, looking in reverse direction.

A A are the end frames of the machine, tied by longitudinal rails *a*, so as to form a substantial support for the mechanism.

B is the driving-shaft, sustained lengthwise of the machine in suitable boxes at the lower part of the frame, and carrying pulleys *b c*, the pulley *c* being a grooved cone.

C is the laying-shaft, sustained in boxes at the top of the frame, and driven from shaft B by a belt from pulley *b* to a pulley, *b'*, on shaft C. The shaft C is fitted with carriers consisting of three-armed spiders *d d*, which carry the fliers *e e e* and spools *f f f*. The fliers *e* are rectangular frames of metal sustained at their mid-length on the spider-arms by gudgeons *e'*. Lengthwise of the fliers are fixed the spindles *g*, that sustain the spools, and springs *g'*, fixed on the flier and bearing on the ends of the spools with a pressure adjustable by set-screws *f'*, prevent the spools from turning too freely on their spindles.

On the laying-shaft C is a loose cone-pulley, *h*, driven by a belt from the cone-pulley *c* on shaft B, and connected with a toothed wheel, *i*, also loose on shaft C. The pinions *k* are fixed on the inner gudgeons *e'* of the fliers, and engage the wheel *i*. By these means the shaft

C and cone-pulley *h*, connected with gear *i*, are driven in the same direction from shaft B, the pulley *h* and gear *i* being driven from large cone-pulley *c* at a greater speed than shaft C. This greater speed of gear *i* causes the fliers mounted in the arms secured to the shaft C to revolve in the opposite direction.

On the outer spider-arms there are fitted adjustable tension-plates *l* for the yarn. The end of shaft C is formed as a tubular journal, *m*, with side apertures, *l'*, for the strands from the respective bobbins. The outer gudgeons *e'* are tubular, for allowing the yarn to pass to the tension devices *l*, from whence the strands go to the journal *m*, within which they are laid.

The take-up mechanism is as follows: D is a shaft mounted at one side of the frame. *n* is a cone-pulley, *o* a grooved roller, and *p* a grooved pulley, all fast on said shaft. E is a shaft fitted above the driving-shaft B. *n'* is a cone-pulley on shaft E, belted to pulley *n*. *q* is a gear-wheel fixed on shaft E, and engaging a pinion, *q'*, that is fixed on the driving-shaft; and *r* is a grooved roller loose on shaft E. F is the reel-shaft, provided with reel *s* and a pulley, *p'*, that connects by a belt, *r'*, with pulley *p* on shaft D. The shafts D E are thus driven from the main shaft at a slow speed, according to the proportion of the gearing *q q'*, which will be varied to suit the size of the rope. The belt *r'* will slip on the pulleys *p p'* as the coils of rope accumulate on the reel.

There is a pulley, *t*, fixed on the end frame, A, directly in line with shaft C, over which the rope passes to the grooved roller *r* on shaft B, and from thence to the grooved roller *o* on shaft D. The rope passes back and forth on rollers *r o*, and finally goes over friction-rollers *t' t' t'* to the reel *s*.

Above the grooved roller *o* is hung a weighted lever, *u*, carrying a grooved roller, *v*, the projections of which bear on the rope in the grooves of roller *o*. The pressure thus given increases the friction of the rope on roller *o*, so that slipping is prevented and the rope kept under tension.

The reel *s* will be preferably constructed with one end and the body removable from the shaft, so as to facilitate removal of the rope.

In operation, the several strands as they pass from the spools are given the required backward twist, and are then laid together by the revolution of shaft C. The machine can
5 be readily constructed and arranged to make any size rope with either a right or left hand twist.

With this machine the work of rope-making can be carried out without extensive rope-
10 walks and extensive buildings, and with a less number of hands.

What I claim as new is—

1. The combination, with the shaft B, pulleys *b b'*, the belt connecting said pulleys, the
15 pulleys *c h*, and the belt connecting them, the

laying-shaft C, the spider *d*, the flier *e*, provided with gudgeons *e²*, and spindle *g*, of the gear-wheels *i k*, whereby the fliers and spiders are given opposite motions, as described.

2. The shafts B C, pulleys *c h*, gears *i k*, 20 spiders *d*, gudgeons *e²*, fliers, *e*, spindles *g*, tension-plates *l*, tubular journal *m*, pulleys *t t' t² t³*, rollers *o r*, shaft E, gear *q q'*, pulleys *p p'*, shaft F, and connecting-straps, as set forth, and combined for operation, as described.

JOHN HARRIS.

Witnesses:

C. B. STELLMAN,

H. J. HUDSON.