(No Model.) 4 Sheets—Sheet 1.

E. MYERS.

LATHE FOR TURNING IRREGULAR FORMS.

No. 256,032. Patented Apr. 4, 1882.

Fig. 1

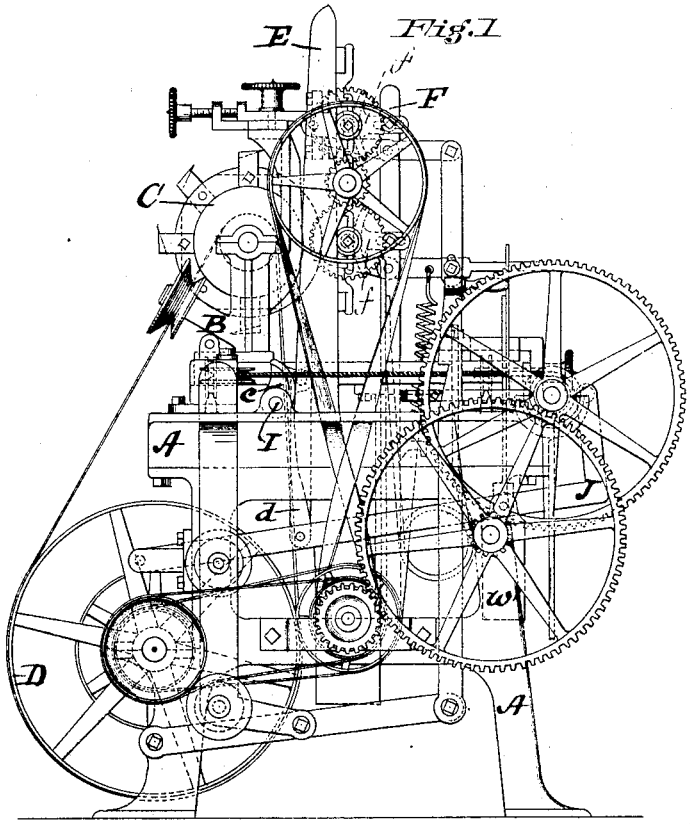

Fig. 6

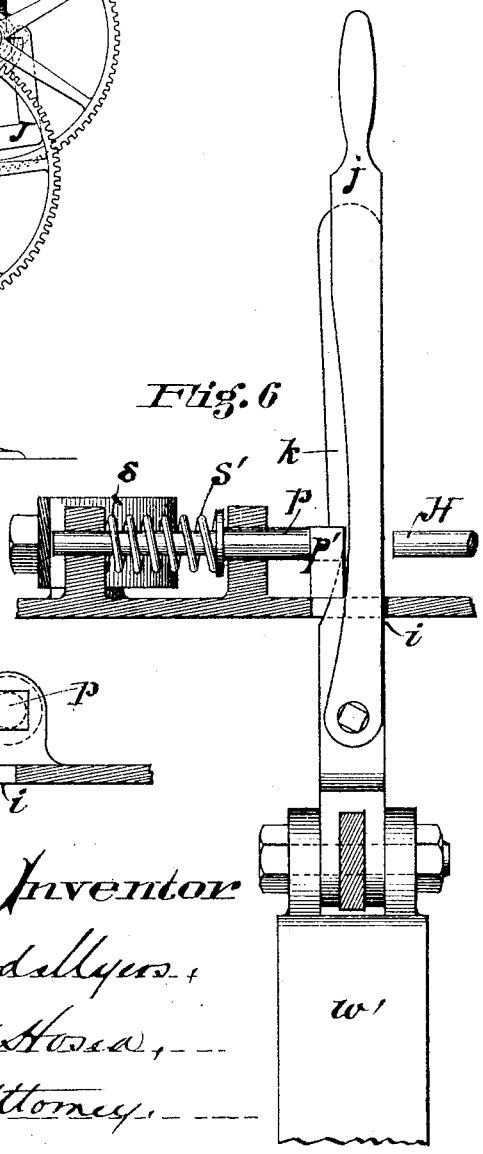

Fig. 7

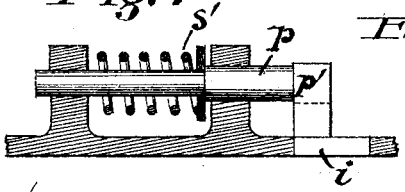

Fig. 8

Attest

Geo. B. Muschler

W. G. Rainey

Inventor

Edward Myers,

by Lull & Howard,

Attorneys.

(No Model.) 4 Sheets—Sheet 2.

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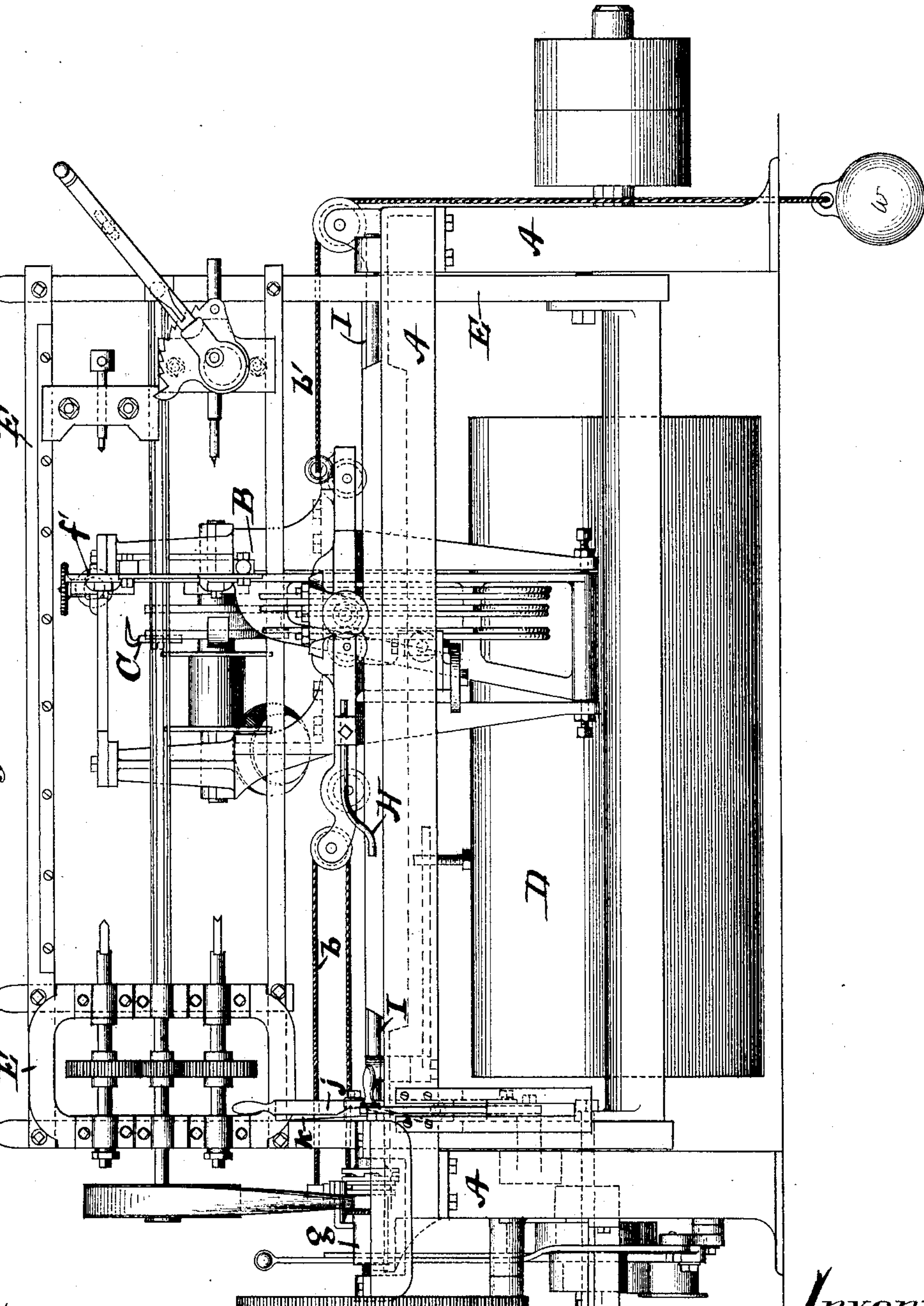
Fig. 2



Attest
Geo B Muschler
W. G. Rainey

Inventor
Edward Meyers
by Hill Hosea
Attorney

(No Model.) 4 Sheets—Sheet 3.

E. MYERS.

LATHE FOR TURNING IRREGULAR FORMS.

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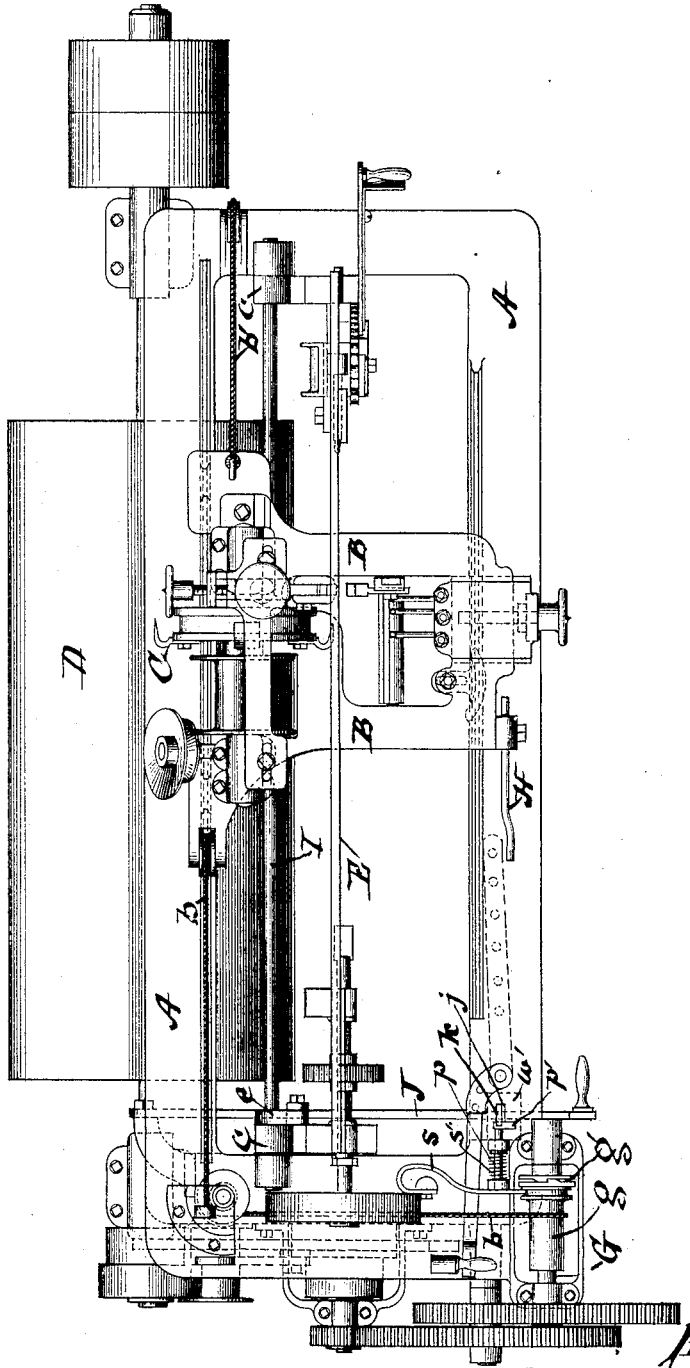
Fig. 3



Attest

Geo. B. Muschler

W. G. Rainey

Inventor

Edward Myers,

by Dell Mitchell,

Attorney.

(No Model.) 4 Sheets—Sheet 4.

E. MYERS.

LATHE FOR TURNING IRREGULAR FORMS.

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Fig. 4

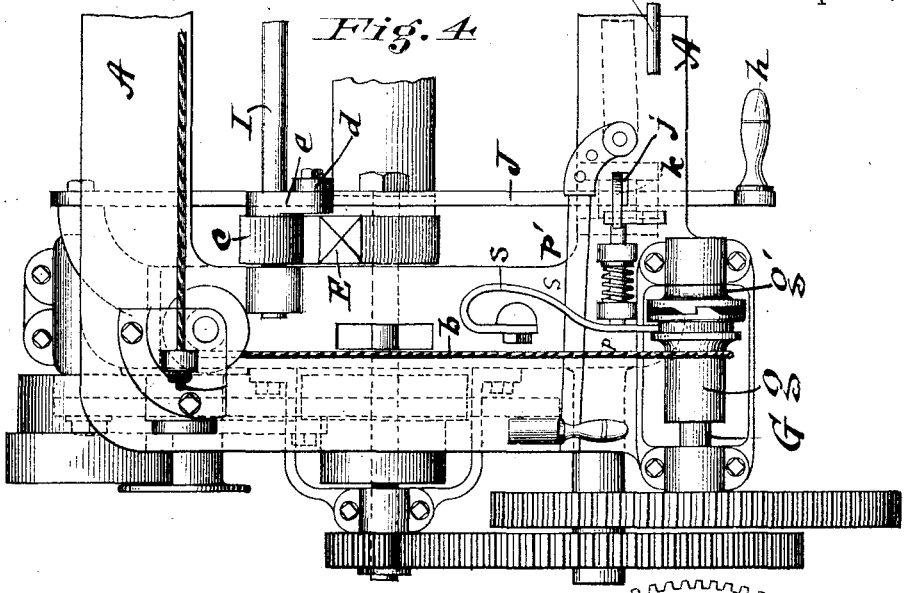
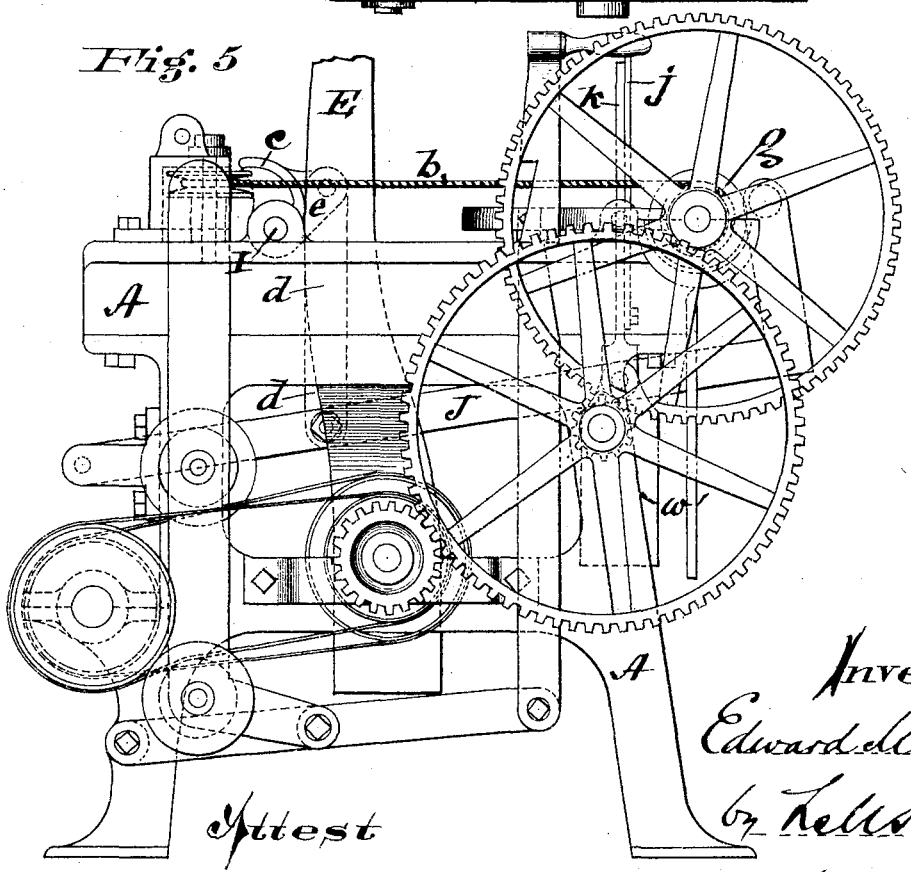


Fig. 5



Witnesses:
Geo. B. Muschler
M. L. Ramey

Inventor
Edward Myers
by Lell & Sons
Attorney

UNITED STATES PATENT OFFICE.

EDWARD MYERS, OF CINCINNATI, OHIO, ASSIGNOR TO THE LANE & BODLEY COMPANY, OF SAME PLACE.

LATHE FOR TURNING IRREGULAR FORMS.

SPECIFICATION forming part of Letters Patent No. 256,032, dated April 4, 1882.

Application filed February 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD MYERS, a citizen of the United States, residing at Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Lathes for Turning Irregular Forms, of which the following is a specification.

My invention relates to lathes for turning irregular forms, commonly known as "Blanchard" lathes, and is designed to increase the efficiency of such lathes by providing mechanism for automatically holding the vibrator away from the cutter when occasion requires, which shall be at all times under the control of the operator.

My invention consists essentially in the combination of a vertical work-carrying frame, a horizontal rock shaft arranged at one side of said frame and provided with cams, and lever mechanism connected with the rock-shaft and under control of the operator, whereby the rock-shaft can be rotated and the cams caused to move and retain the work-carrying frame away from the cutters at any stage of the cutting operation.

Other features of the invention will be hereinafter described in detail, and pointed out in the claims.

My invention is embodied in mechanism illustrated in the accompanying drawings, in which—

Figure 1, Sheet 1, is an end elevation of my improved lathe complete. Fig. 2, Sheet 2, is a front elevation of same. Fig. 3, Sheet 3, is a plan view of same. Fig. 4, Sheet 4, is a partial plan view, enlarged, of the end of the lathe, showing particularly the devices for throwing the vibrating frame out of range of the cutter. Fig. 5, Sheet 5, is a partial end elevation of the lathe, enlarged, showing the vibrating frame and the cams used for moving the same out of range of the cutter and the lever connections. Fig. 6, Sheet 1, is a detached enlarged view of the mechanism immediately connected with the adjustability of the vibrating frame. Fig. 7, Sheet 1, is a further detached side elevation of the push-pin in its loop-bearings, and Fig. 8 is an end elevation of the same.

Similar letters of reference indicate similar parts in both specification and drawings.

A in the drawings designates the frame or bed of the lathe, upon which is mounted the ordinary reciprocating carriage, B, moving on horizontal ways upon the lathe-bed, and carrying the cutter-head C, driven from an extended drum or pulley, D, arranged at the side of the lathe-bed parallel to the carriage-ways, and a fixed guide, f', in the ordinary manner.

E designates the rectangular vibrating frame, in which the pattern and the object to be turned are held and revolved; and F, the spring-impelled guide-frame containing the guides $f\,f$, acting in conjunction with the fixed guide f' upon the cutter-frame to hold the pattern and the object being cut to the cutter and fixed guide, respectively, according to the relations of the surfaces in contact.

The carriage B is moved forward to feed the work by a rope, b, winding upon a loose drum upon the shaft G, journaled at one end of the frame, and backward by a rope, b', to which is attached a weight, w, at the opposite end of the frame.

These parts, with their associated mechanism, constitute the principal features of the modernized Blanchard lathe, which are well known and require no further description.

In order to render the action of the carriage and of the vibrator-frame automatic, the following mechanism is introduced:

The rope b is wound upon a loose drum or sleeve, g, upon the shaft G, which may be thrown into or out of gear with a clutch or collar, g', upon the shaft. The drum is normally held in gear with the clutch or collar by a curved spring, s, secured at one end to the bed-plate, and resting at the other or free end in a groove in the periphery of the loose sleeve g.

The drum is thrown out of gear by means of a push-pin, p, acting against the spring s. The pin p rests at one end against the spring s, and extends through a loop or guide attached to the bed-plate, and terminates in a square head, p'. Between its loop-guide and the spring s a spiral spring, s', surrounds the push-pin, whose function will be more fully hereinafter described. The push-pin is acted upon when the lathe is in operation by an adjustable finger or striking-bar, H, attached to the side of the traveler B and held by a set-screw, so that when the traveler has reached the desired limit of its travel in feeding the

finger H, by pushing against the pin *p* and spring *s*, thrusts the loose drum *g* away from its clutch-gear and enables the weight at the other end of the lathe to act upon and draw the traveler to the remote end of its course.

In rear of the vibratory frame E, and lengthwise of the lathe-bed, is arranged a horizontal rock-shaft, I, the ends of which are loosely journaled in boxes or bearings *c' c'*, and to this shaft are attached the cams *c c*, which are located adjacent to the rear sides of the vertical bars of the vibratory frame E. The shaft I can be turned or rocked in its bearings *c' c'*, and thereby cause its cams to strike the vibratory frame and hold it away from the plane of the cutter. The rocking of the shaft is produced by a weight, *w'*, acting at the end of a horizontal lever, J, pivoted beneath and at the rear of the lathe-bed, and connected by a link, *d*, with a crank, *e*, on the shaft I. The lever J is bent up at the outer end and provided with a handle, *h*, for convenience of manipulation by the operator. The lever J is upheld against the weight *w'* by a supporting-link, K, extending up through a slot, *i*, in the bed-plate, and provided with a lateral recess, by which it engages upon the squared head *p'* of the push-pin, before described, which serves as a catch, actuated by the spiral spring *s'*, before described, surrounding the pin *p*.

Pivoted to the link K is a small hand-lever, *j*, so arranged that when pressed back it forces the head *p'* of the push-pin out of its socket in the link K, and will thus release the link from the catch and allow it to drop independently of the traveler B. The upper end of the link K is beveled or wedge-shaped on the side next to the push-pin, and the parts so arranged and proportioned that when the push-pin is disengaged from the link K the drum *g* is not disconnected at once from its clutch, nor until the link drops down, and by the wedge-shaped enlargement of its upper part only disconnects the drum when the vibrator is forced forward and out of the plane of the cutter C; or, in other words, the disconnecting of the drum and the forcing out of the vibrator are thus made simultaneous.

The operation of my invention has been already indicated in the description of the parts. In the ordinary operation of the lathe, when the traveler has reached the proper limit of its travel, the bar H strikes against the squared head of the push-pin and compresses the springs *s* and *s'*, and releases the drum *g* from its clutch *g'*. At the same time the link K drops drown and the cams *c* throw the vibrator E forward, and the object being turned is thus held out of reach of the cutter, while the weight *w* moves the traveler to the other end of its ways, and the operator by lifting the handle *h* restores the link K to its position, engaging upon the push-pin, and the parts are thus ready for a new operation. By means of the independent spring *s'* the pin *p*, which also serves as the catch to uphold the link K, is rendered independent of the spring *s*, and its engagement in the link K is insured, even when by reason of the position of the drum *g* and its clutch the spring *s* is prevented from operating. The disengagement of the clutch and the vibrator may be effected at any portion of the travel of the carriage B by means of the hand-lever *j*, thus giving the operator perfect control of the parts at all times, so that in case a knot in the object being turned or any other defect or obstruction is met with, the object can instantly be thrown out of reach of the cutter by dropping down the lever J, thus actuating the cams.

Having described my invention, I claim and desire to secure by Letters Patent—

1. The combination, with the vertical work-carrying frame E, arranged independently of the driving mechanism of the lathe, of a rock-shaft arranged at one side of said frame and provided with cams *c c* and lever mechanism, such substantially as described, connected with the rock-shaft and under control of the operator, whereby the rock shaft can be rotated and the cams caused to move and retain the work-carrying frame away from the cutters at any stage of the cutting operation, substantially as described.

2. The combination, with the vibratory work-carrying frame E and the horizontal rock-shaft I, provided with the cams *c c* and crank *e*, of the lever J, pivoted at one end to the frame A, the pivoted link *d*, connected with the lever and with the crank of the shaft I, and the weight *w'*, arranged to draw the lever downward, substantially as described.

3. The combination, with the vibratory frame E and the cam-shaft I, of the lever J, the vertical link K, connected with the lever, the push-pin *p*, arranged to engage the link and sustain the same, the springs S S', and the traveling carriage connected with the winding-drum and clutch mechanism, substantially as described.

4. The link K, connected with the lever J and having the wedge-shaped upper end, in combination with the push-pin *p*, arranged to engage and sustain said link, the spring *s*, and the winding-shaft G, provided with the loose arm *g* and clutch *g'*, all substantially as described.

5. The independent spring *s*, encircling the push-pin *p*, in combination with the link K, connected with the lever J, the winding-shaft G, provided with the loose drum *g* and clutch *g'*, and the spring *s*, arranged to act on the clutch, all substantially as described.

6. The link K, connected with the lever J, and the spring-actuated push-pin *p*, arranged to engage and sustain the link, in combination with the hand-lever *j*, arranged to disengage the push-pin from the link, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD MYERS.

Witnesses:
C. P. DOOLITTLE,
L. M. HOSEA.