

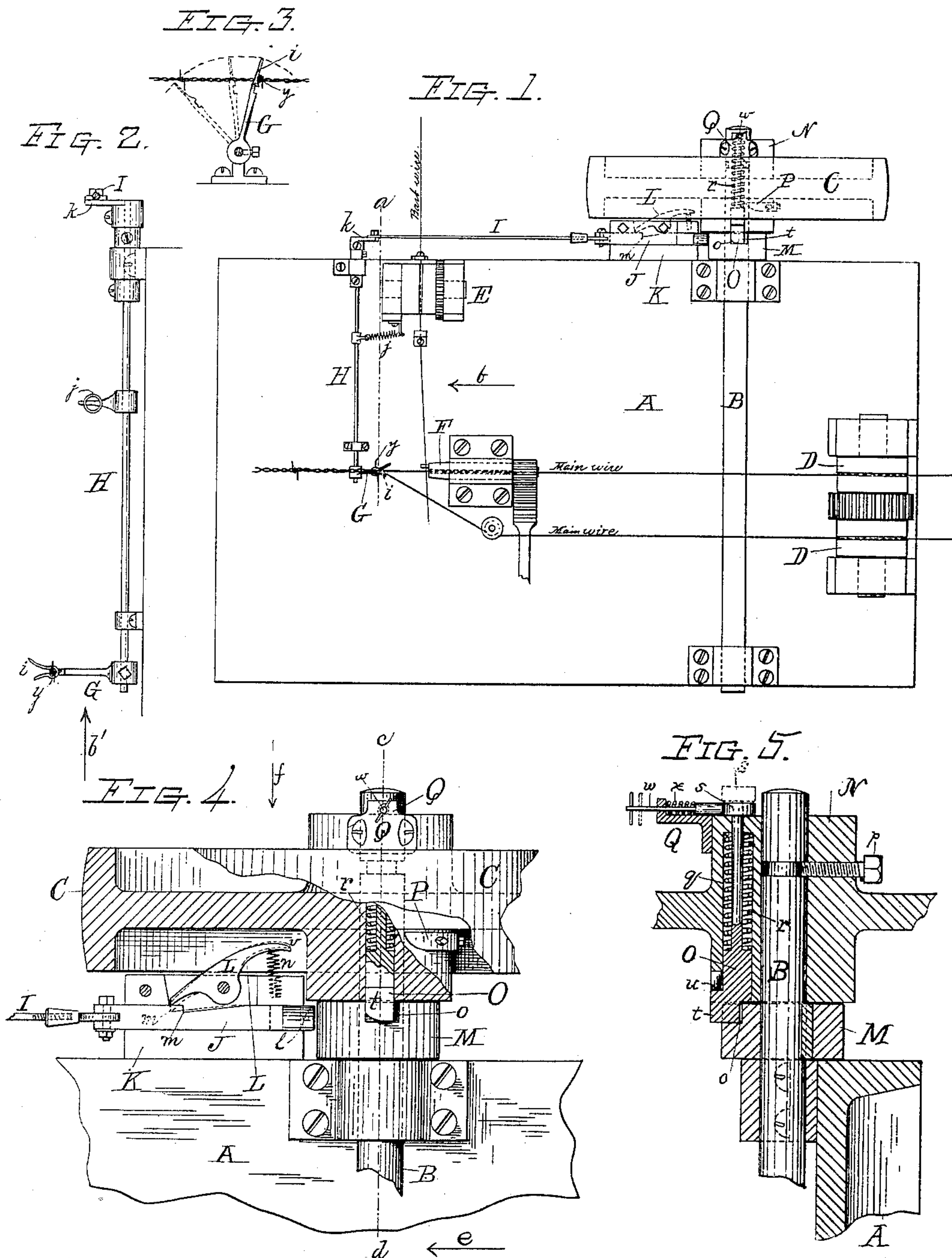
(No Model.)

2 Sheets—Sheet 1.

J. D. CURTIS.
BARB FENCE MACHINE.

No. 339,086.

Patented Mar. 30, 1886.



Witnesses;
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Albert A. Parker.

Inventor;
John D. Curtis.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 6.

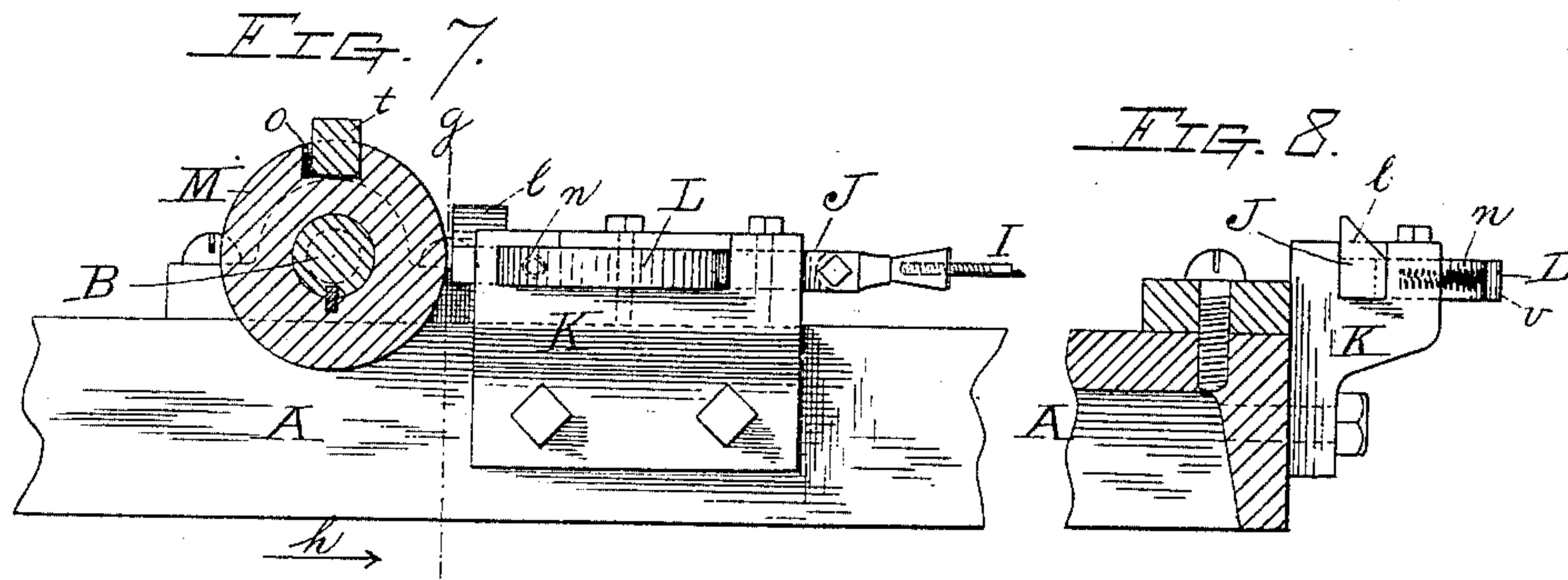
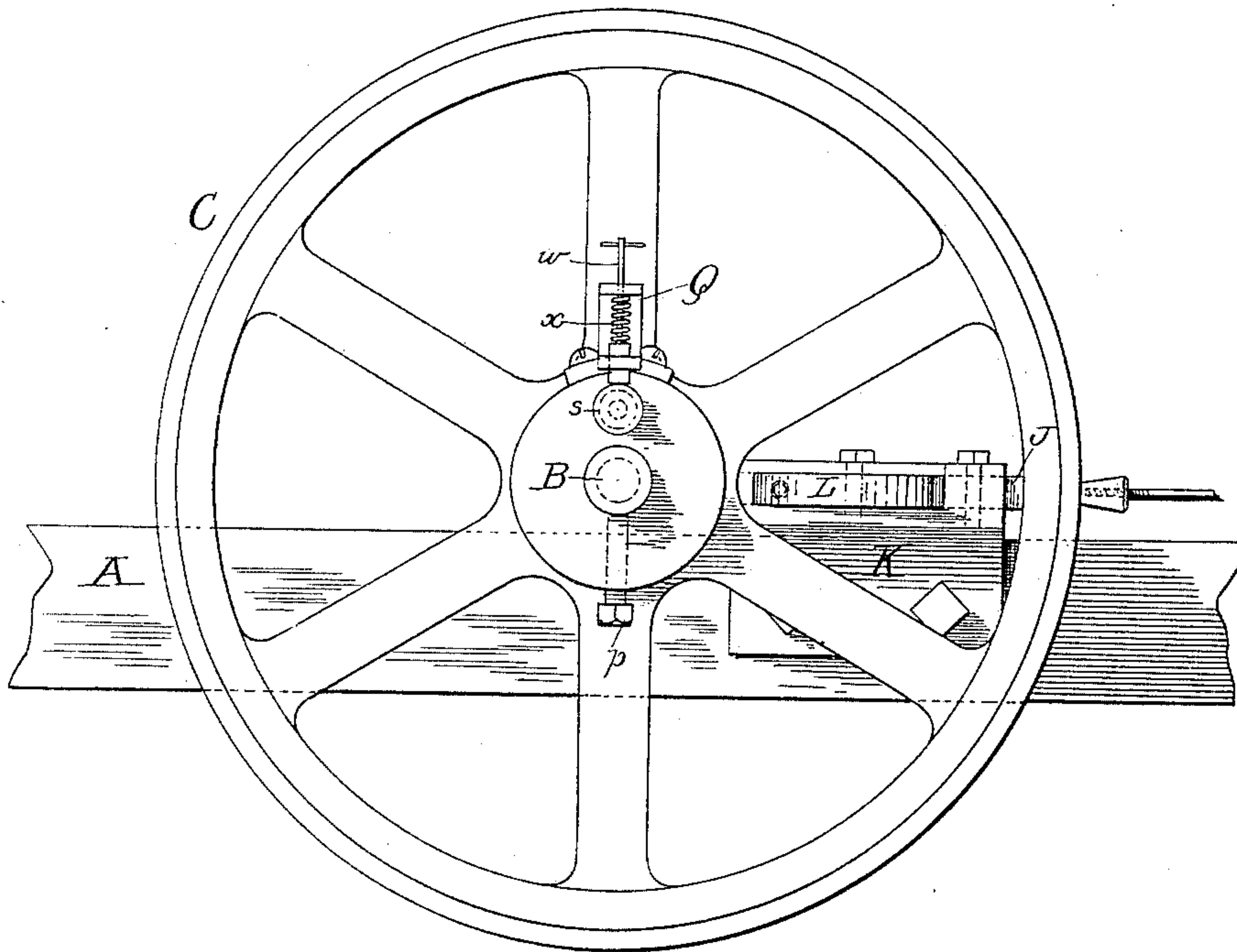
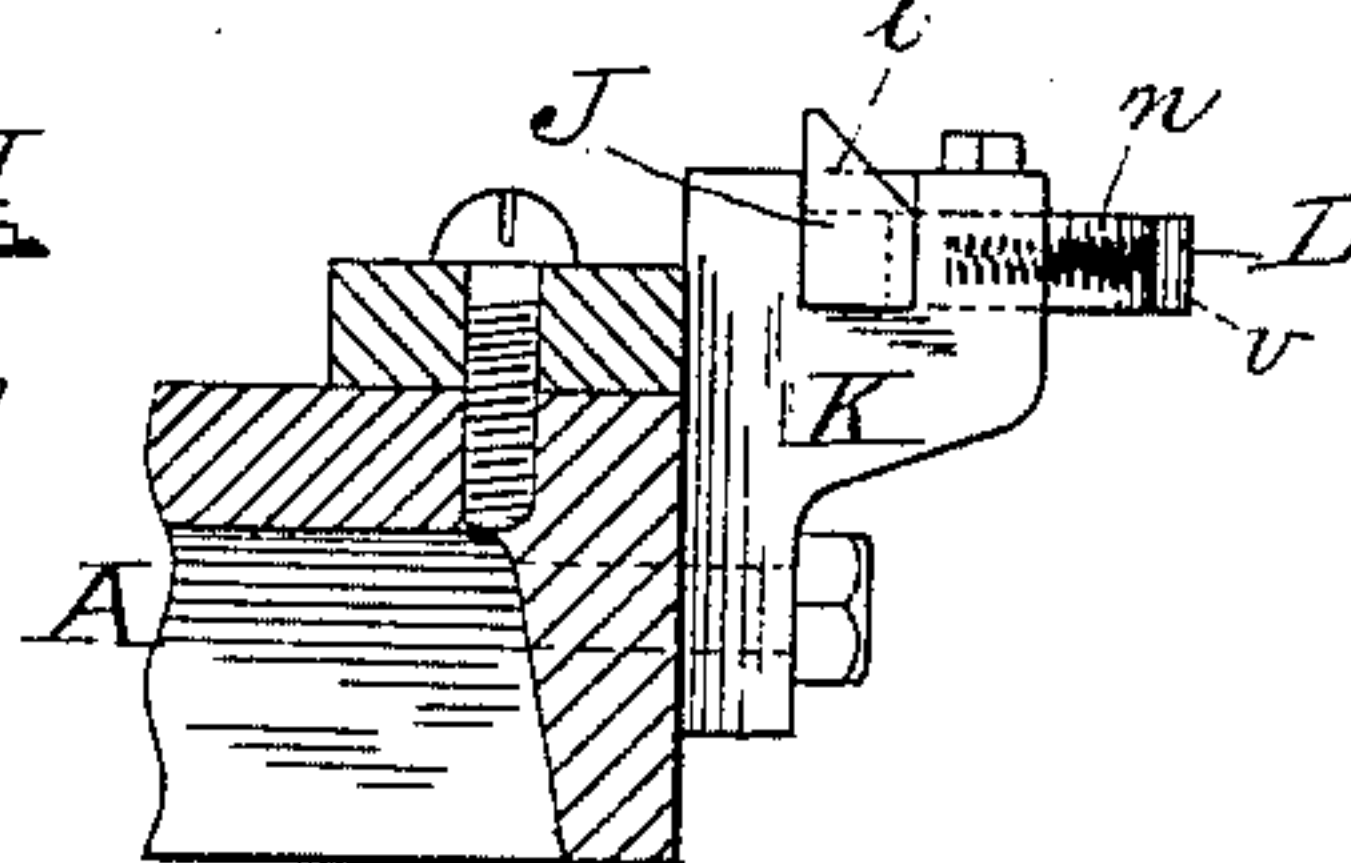


FIG. 8.



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UNITED STATES PATENT OFFICE.

JOHN D. CURTIS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
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BARB-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 339,086, dated March 30, 1886.

Application filed December 20, 1884. Serial No. 150,802. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. CURTIS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Barb-Fence Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to
10 which it appertains to make and use the same.

My invention relates to the manufacture of barbed fencing, and to the automatic stopping of machines for making barbed fencing in case of the improper working of said machines, in
15 the manner to be hereinafter fully set forth.

The following description, together with the drawings, describes and shows a mechanism for carrying out my invention, and the claims indicate the nature thereof.

Referring to the drawings, Figure 1 is a top or plan view of parts of a barbing-machine with a mechanism applied thereto adapted to carry out my invention. Fig. 2 is a section on an enlarged scale on line *a*, Fig. 1, looking in the
25 direction of arrow *b* same figure. Fig. 3 is an end view of the parts shown in Fig. 2, looking in the direction of arrow *b'*, same figure, showing the projecting arm in different positions, as will be hereinafter explained. Fig.
30 4 represents on an enlarged scale, partly in section, a top view of the driving-pulley and parts connected therewith. Fig. 5 is a longitudinal section on line *c d*, Fig. 4, looking in the direction of arrow *e*, same figure, the
35 driving-shaft not being shown in section. Fig. 6 is a side view of the parts shown in Fig. 4, looking in the direction of arrow *f*, same figure. Fig. 7 is a cross-section through the hub of the driving-wheel next to the frame of the
40 machine, looking in the direction of arrow *f*, Fig. 4, and Fig. 8 is a cross-section on line *g*, Fig. 7, looking in the direction of arrow *h*, same figure.

As the construction and operation of machines for making barbed fence are well known, I have not thought it necessary to show in the drawings all the different parts of a machine for making barbed fence, including the twisting and spooling portion of the machine, as
50 they form no part of my present invention, and are not necessary for a clear understand-

ing of my invention as applied to a barbing-machine; but I have shown only such parts as are essential to properly illustrate my invention and the manner of operation of the same. 55
The main fence-wires are shown twisted together, but the twisting and spooling portion of the machine is not shown, as it may be of any well-known construction, and connected with the barbing part of the machine and operated by a shaft provided with suitable gears and driven by the main shaft *B* in a similar manner to machines now in general use, and as fully illustrated and described in the Letters Patent granted to H. W. Putnam, No. 187,776, so
60 that the automatic stopping of the barbing portion of the machine, or the stopping of the main driving-shaft *B* in the manner to be hereinafter fully described, will also simultaneously stop the driving-shaft of the twisting
70 and spooling portion of the machine, and the twister and spooler, as will be readily understood by those skilled in the art.

Similar letters of reference refer to similar parts in the drawings. 75

In the accompanying drawings, *A* is the top or bed of a barbing-machine, to which the several parts of the machine are secured in the usual and well-known manner, *B* being the driving-shaft, turning in suitable bearings, and
80 operated in this instance by the driving wheel or pulley *C* in the manner to be hereinafter described.

D D are suitable rolls for feeding in the main wires; *E* any suitable mechanism for feeding in the barb-wire; and *F*, a coiling-spindle provided with a coiling-finger, constructed and operated to coil on a barb in any well-known manner. 85

The devices used in the making of barbed fencing and their operation are old and well known, and therefore require no description, as they form no part of my invention, which, as before stated, relates only to stopping a barbing-machine automatically, and which in
90 this instance is done by means of the mechanism shown in the drawings, and which I will now proceed to describe and explain the operation thereof.

The part marked *G* is an arm provided with a forked end, *i*. Said arm *G* is in this instance secured to a small rod, *H*, arranged to 100

turn in suitable bearings. A coiled spring, *j*, secured to the rod *H* and to the machine, draws the arm *G* into its proper position after it has been drawn forward by the moving
 5 barb, as will be hereinafter explained. Upon the other end of rod *H* is secured a crank-arm, *k*, to which is secured a small connecting-rod, *I*, which is pivoted to a sliding bar, *J*, the outer end, *l*, of which projects up, and is beveled,
 10 as clearly shown in Figs. 7 and 8.

The sliding bar *J* moves in and out in the holder or box *K*, which is secured to the frame of the machine, at the same time with and according to the movement of the arm *G*. The sliding
 15 bar *J* is provided in this instance with a notch, *m*, into which one end of the pawl *L* enters as the sliding bar moves back, to prevent it moving back too far before the proper time. (See dotted lines, Fig. 4.) Said pawl *L* is pivoted
 20 in the box or holder *K*, and is provided with a spring, *n*, as clearly shown in Fig. 4. In practice the pawl *L* may be dispensed with, if desired.

The collar *M* is secured to the driving-shaft
 25 *B*, turning with said shaft, having a slot, *o*, in its outer surface, as shown in the drawings.

The driving pulley or wheel *C*, around which the belt passes, is loose upon the driving-shaft *B*, being secured from working endwise on the
 30 shaft by a screw or pin, *p*, projecting into a groove in the shaft. (See Fig. 5.)

The hub *N* of the driving-pulley *C* has a hole, *q*, extending through it, in which the driving-pin *O* fits, its ends extending out on each side
 35 of the hub *N*. A coiled spring, *r*, contained within the hole *q* and around the pin *O*, keeps the pin in position and holds its end in the slot *o* in the collar *M* when the machine is in operation, causing the driving-shaft *B* to be
 40 revolved by the driving-wheel *C*, as shown in Figs. 4 and 5.

The driving-pin *O* is provided with a head, *s*, at its outer end, for the purpose to be hereinafter stated, and at its other end it has the
 45 projection *t*, extending out beyond the periphery of the collar *M*, a recess, *u*, being cut in the hub *N*, to allow the projecting part *t* of the driving-pin *O* to slide back into it, when the pin is disconnected with the collar *M* and the
 50 driving-shaft of the machine is stopped.

Upon the hub *N* of the driving-wheel *C* is secured a cam, *P*, for the purpose of striking against the end *v* of the pawl *L* at each revolution of the wheel, and moving said pawl out
 55 of the notch *m* in the sliding bar *J*, so as to allow the bar *J* and also the arm *G* to be drawn back by the spring *j* into their proper position at the right time preparatory to their being drawn forward again as the machine
 60 continues to operate.

Upon the outer side of the hub *N* is secured in this instance a device, *Q*, consisting of a small rod, *w*, enlarged at its lower end, and moving up and down in suitable bearings, and
 65 operated by a coiled spring, *x*, for the purpose of holding the driving-pin *O* out of connection with the collar *M* when the machine is

stopped, the lower end of the rod *w* being forced down by the spring *x* between the end of the hub *N* and the head *s* of the driving-pin
 70 *O* when said pin is pushed out of the hole *q* in the hub *N*, and disconnected with the collar *M*, as shown by dotted lines in Fig. 5.

The operation of the mechanism above described, and shown in the drawings, is as follows: When the barb is placed upon the wire,
 75 the parts of the mechanism are in substantially the position shown by full lines in the drawings, the fork *i* of the arm *G* being held against the barb *g* by the spring *j*. After the barb is
 80 placed upon the wire, and as it moves forward with the wire preparatory to the placing of another barb upon the wire, it carries or pushes the forked arm *G* forward in the arc of
 85 a circle, allowing the barb to pass over the ends of the fork *i*. (See dotted lines, Fig. 3.) The arm *G* is then drawn back by the spring *j* into substantially the position shown by the other dotted lines, Fig. 3, it being prevented
 90 from being drawn back farther by the pawl *L* entering the notch *m* in the sliding bar *J*. The forward movement of the arm *G*, mentioned above, rocks the crank-arm *k*, which works
 95 the sliding bar *J*, drawing it through the box *K* and away from the collar *M* more than a sufficient distance to prevent the end of said bar *J* coming in contact with the projection *t*
 100 of the driving-pin *O*, which projects out from the periphery of the collar *M*, and allowing the driving-pin *O* to remain connected with the collar *M*, its end extending into the slot *o*, and the machine to continue to operate. After
 105 the barb has passed over the fork *i* of the arm *G*, and said arm is drawn back by the spring *j*, as above stated, the sliding bar *J* is also moved back at the same time toward the collar *M*, but it is prevented from moving way
 110 back to its first position too quickly, and before the projecting end *t* of the driving-pin *O* has passed the end of the sliding bar *J*, by the pawl *L* entering the notch *m* in said bar *J*, which holds the arm *G* and also the sliding
 115 bar *J* in the position shown by dotted lines in the drawings. At the proper time, when the driving-pin *O* has passed the end of the sliding bar *J*, the cam *P*, as the driving-wheel *C* revolves, strikes against the tail *v* of the pawl
 120 *L*, raising said pawl out of the notch *m* in the sliding bar *J*, and allowing the spring *j* to draw back the arm *G* and the sliding bar *J* into their first position, as shown by full lines in the drawings, preparatory to the placing of
 125 another barb upon the wire, when the operation above described is repeated, and so on, as long as the machine continues to work in a proper manner; but in case the arm *G* fails to be drawn forward, as above described, at
 130 the proper time, by reason of the failure of the placing of a barb upon the wire, or for any other reason, the sliding bar *J* is not drawn forward, and its end moved out of contact with the projecting end *t* of the driving-pin *O*, but the end *l* of the bar *J* striking against the projecting end *t* of the driving-pin *O* forces said

pin into the hole *q* in the hub *N* of the driving-wheel *C* and out of the slot *o* in the collar *M*, thus disconnecting the driving-wheel *C* from the collar *M* on the driving-shaft *B*, and allowing said driving-wheel *C* to turn loosely on said shaft *B*, the driving-pin *O* being held out of contact with the collar *M* as the driving-wheel *C* revolves by means of the movable rod *w* slipping down between the head *s* and the end of the hub *N*, as shown in dotted lines, Fig. 5. Thus, the driving-wheel *C* being automatically shipped or disconnected with the driving-shaft in the manner above described, the machine will stop.

15 The attendant may remove the cause of the stopping of the machine, and then by drawing forward the arm *G* and releasing the driving-pin *O*, allowing it to go back into the slot *o* in the collar *M*, the machine will start again.

20 In case it is desired to run the machine shown in the drawings without any reference to and independently of the automatic stop mechanism, it is only necessary to release one end of the spring *j*, or to hold the arm *G* away from the barbing mechanism.

25 It will readily be observed by those skilled in the art to which my invention belongs that the form of the device placed in front of the barbing mechanism, and which is operated by the barb or barbs, may be varied, and also its position relatively to the barb, as, instead of being placed below it, as shown in the drawings, it may be suspended over it, or placed upon either side of it; and, further, that the manner of construction, the arrangement, and the mode of operation of the mechanism for automatically stopping the machine, operated by and in connection with the device placed in front of the barbing mechanism, could be changed and varied in many particulars from that shown in the drawings, as would be necessary in the case of a machine driven by gear-connection instead of by belt-connection, as shown.

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

1. In a machine for making barbed fencing, a device operated by the barb or barbs, in combination with a device for disconnecting the driving mechanism from the main shaft of the machine from which the barbing mechanism is operated, and intervening mechanism connecting said devices, whereby when the first device fails to be operated in a proper

manner the machine will be automatically stopped, substantially as set forth. 55

2. The combination, with arm *G*, sliding bar *J*, and intervening parts, substantially as described, and pawl *L*, for the purpose stated, of the collar *M*, and driving-wheel *C*, provided with driving-pin *O* and cam *P*, substantially as and for the purposes set forth. 60

3. The combination, with hinged or pivoted arm *G*, sliding bar *J*, and intervening parts, substantially as described, of the loose driving-wheel *C*, provided with driving-pin *O*, and collar *M*, secured upon the driving-shaft *B*, all constructed and operated substantially as shown, and for the purpose stated. 65

4. In a machine for making barbed fencing, the combination, with the wire-barbing mechanism, the driving mechanism, the main shaft, and the driving-pin for connecting the driving mechanism and main shaft, of a device arranged to be struck by a projection of said pin, and thereby disengage the driving mechanism, said device being connected with an arm or lever operated by the barbs to withdraw the said device from the path of said projection at the proper time to prevent such contact so long as the barbs are properly applied, substantially as described. 70

5. In a machine for making barbed fencing, the combination, with the barbing mechanism, driving-pulley, main shaft, and pin connecting said pulley and shaft and having a suitable projection, of the sliding bar arranged in the path of said projection, the pivoted arm or lever actuated by the barbs on the fence-wire, and the connections between the sliding bar and arm or lever, whereby the former is withdrawn from the path of said projection at the proper time to prevent disengagement of the main shaft and driving-pulley so long as the barbs are properly applied, substantially as described. 75

6. The combination, with the barbing device, of an arm or lever hinged or pivoted in the path of the barb or barbs, and intermediate mechanism, substantially as described, connecting it with means for stopping the machine when said lever fails to be acted upon by the barb moving forward, substantially as set forth. 80

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