(No Model.)

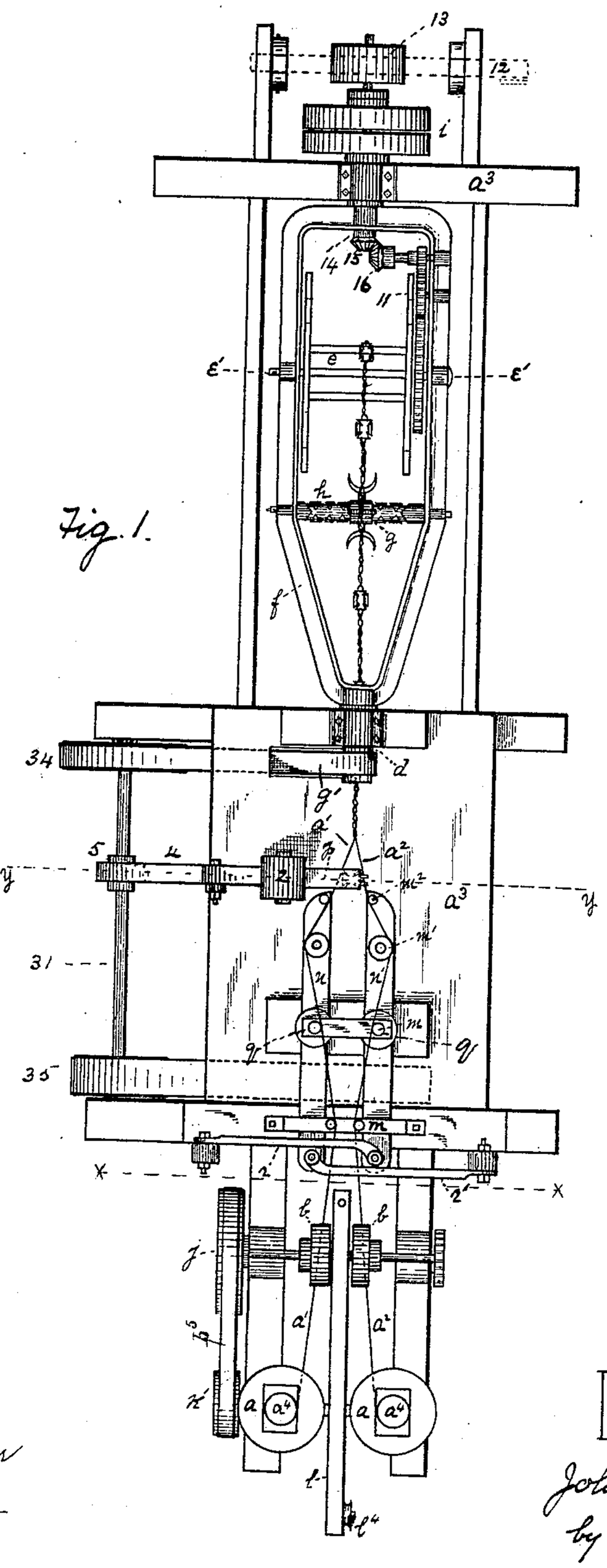
7 Sheets—Sheet 1.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

Fig. 1.

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(No Model.) 7 Sheets—Sheet 2

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

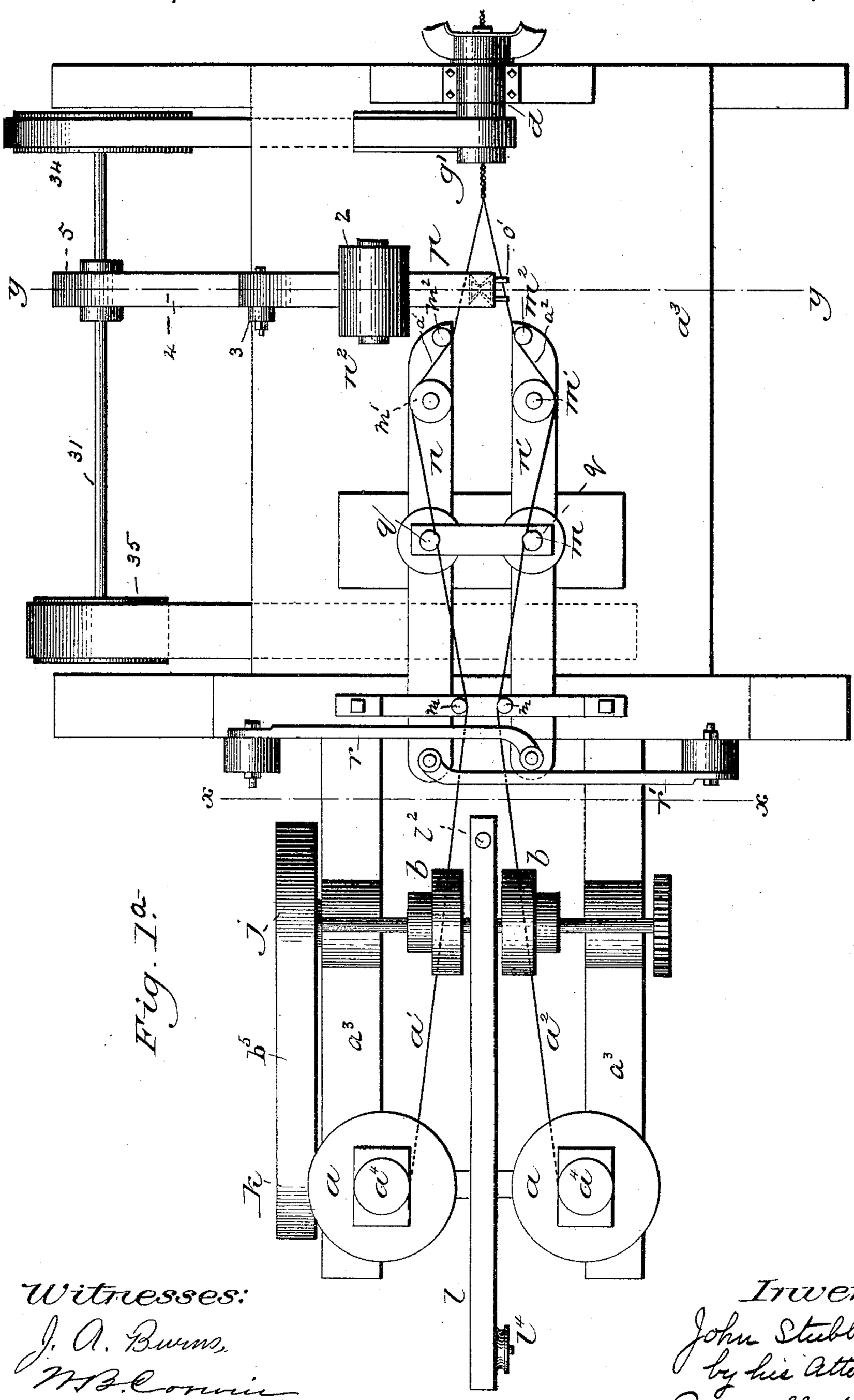

Fig. 1a.

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(No Model.)

7 Sheets—Sheet 3.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

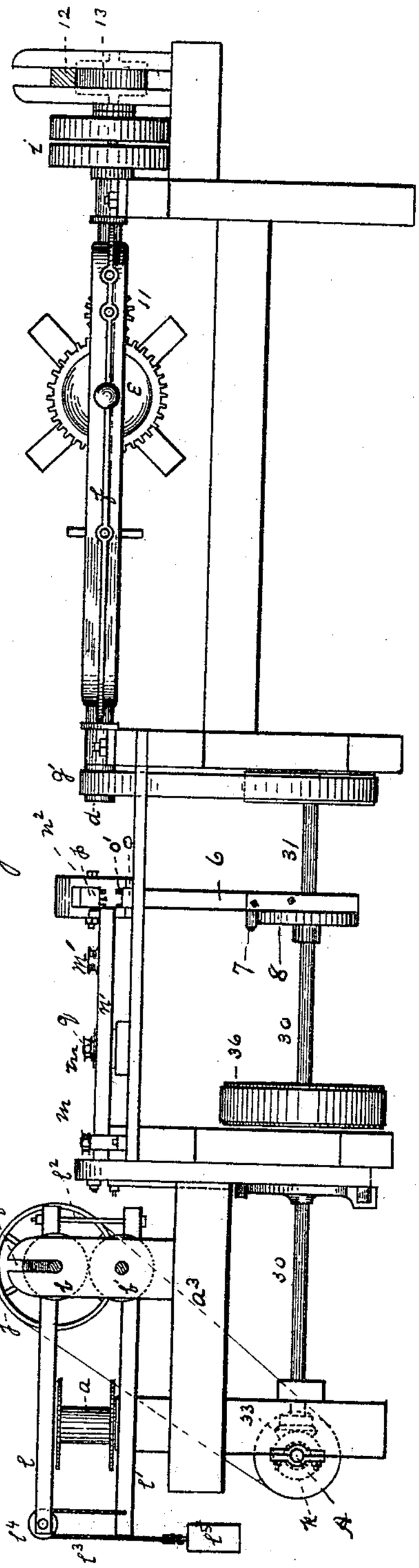

Fig. 2

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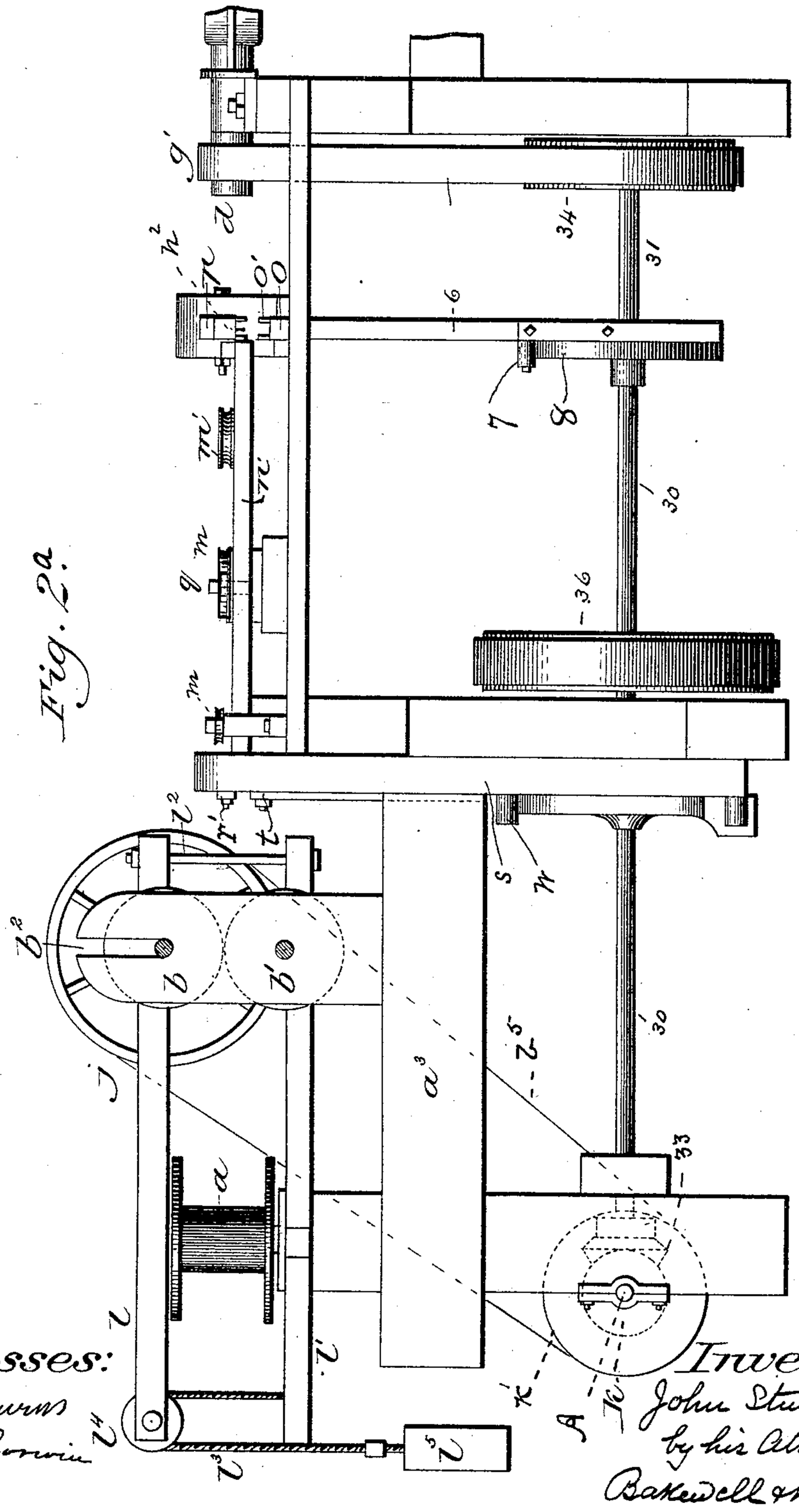
(No Model.) 7 Sheets—Sheet 4.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

Fig. 2a.




Witnesses:
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(No Model.) 7 Sheets—Sheet 5.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

Fig. 3.

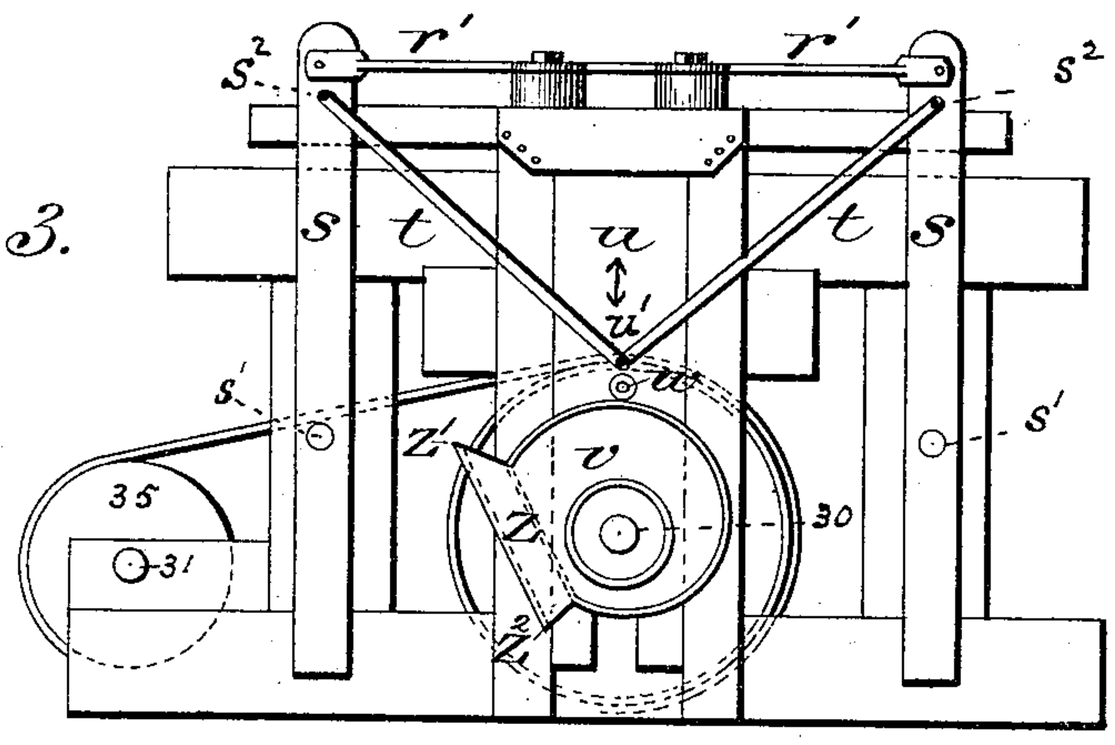



Fig. 4.

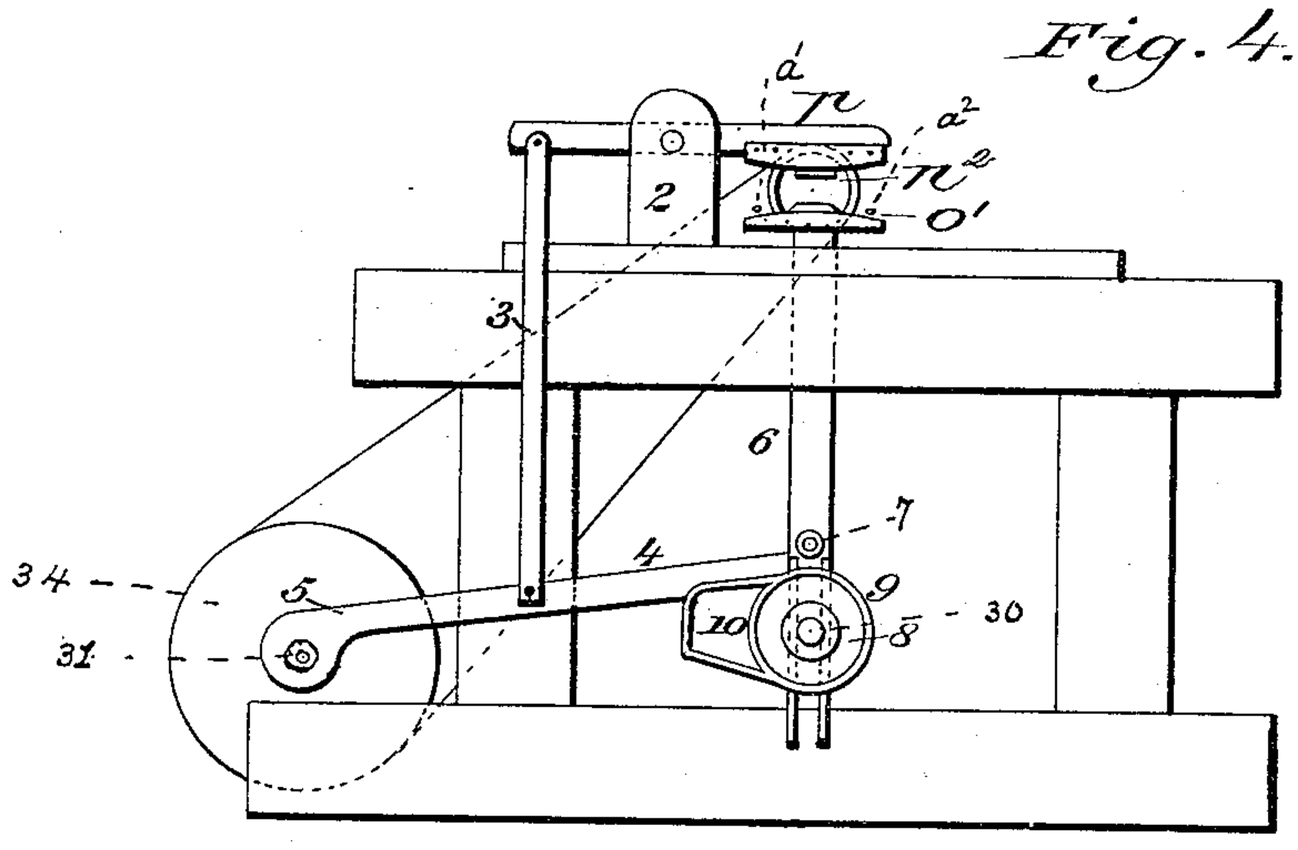
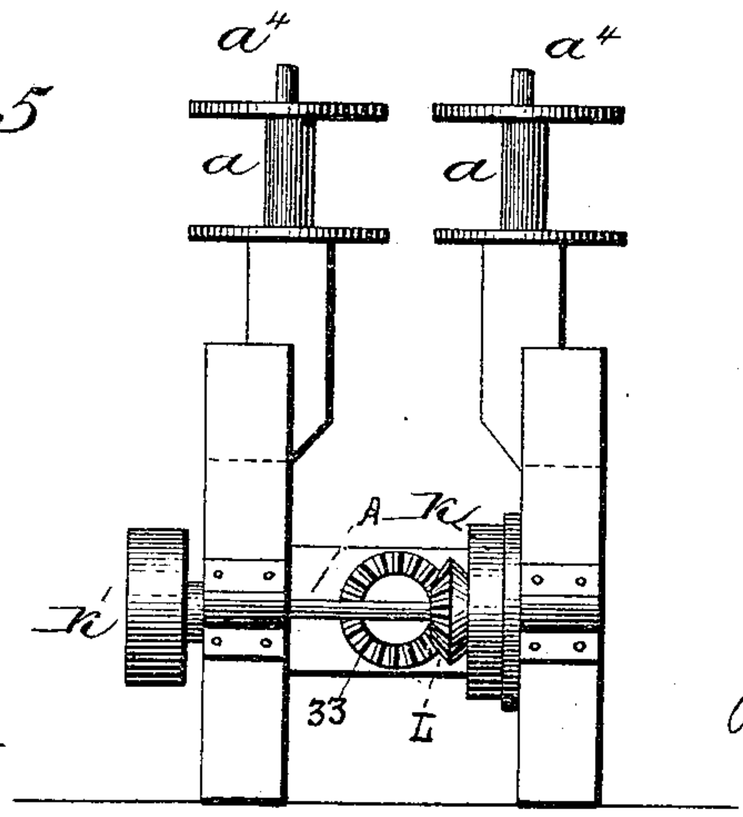



Fig. 5




Witnesses:
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(No Model.) 7 Sheets—Sheet 6.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

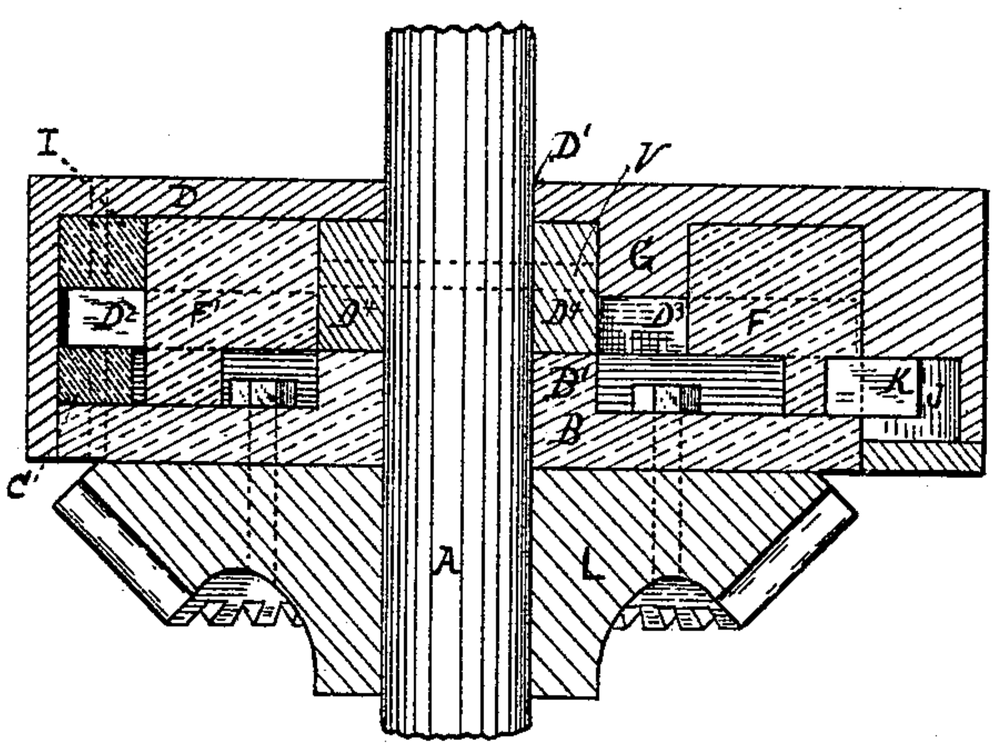


Fig. 6.

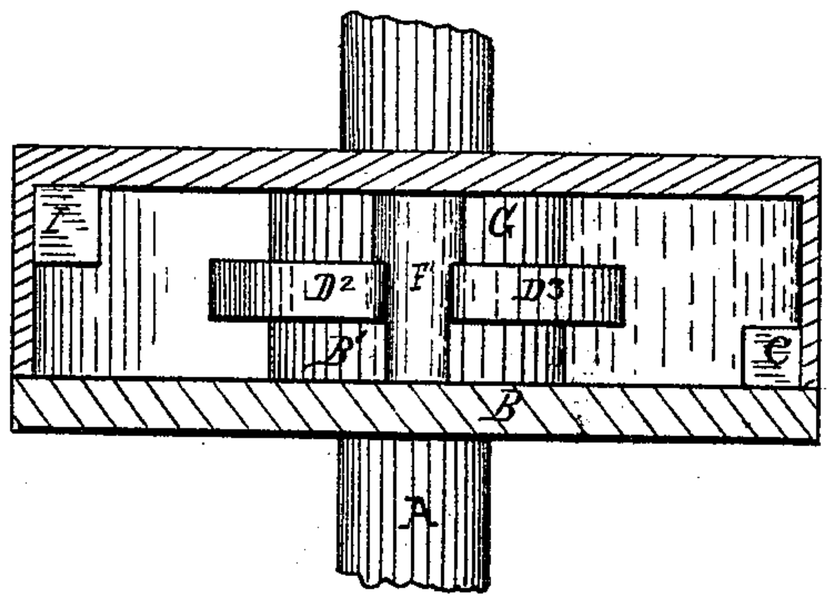


Fig. 7.

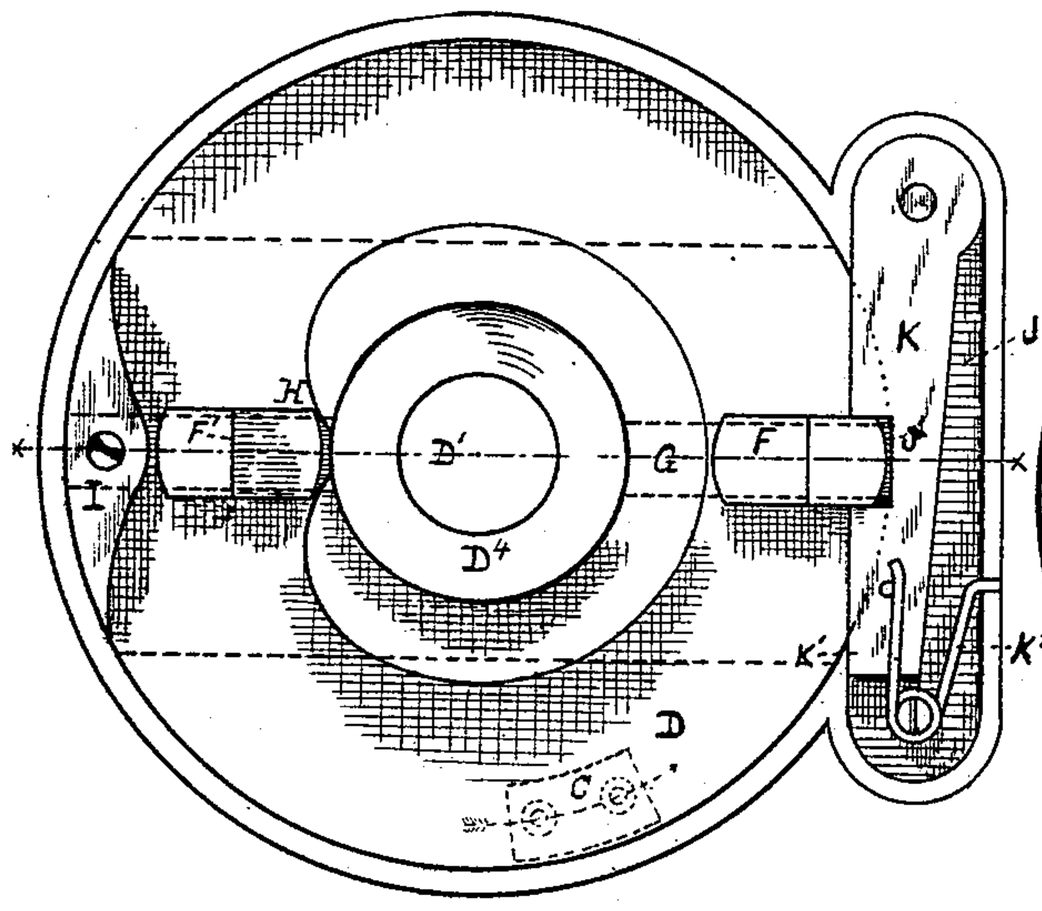


Fig. 8.

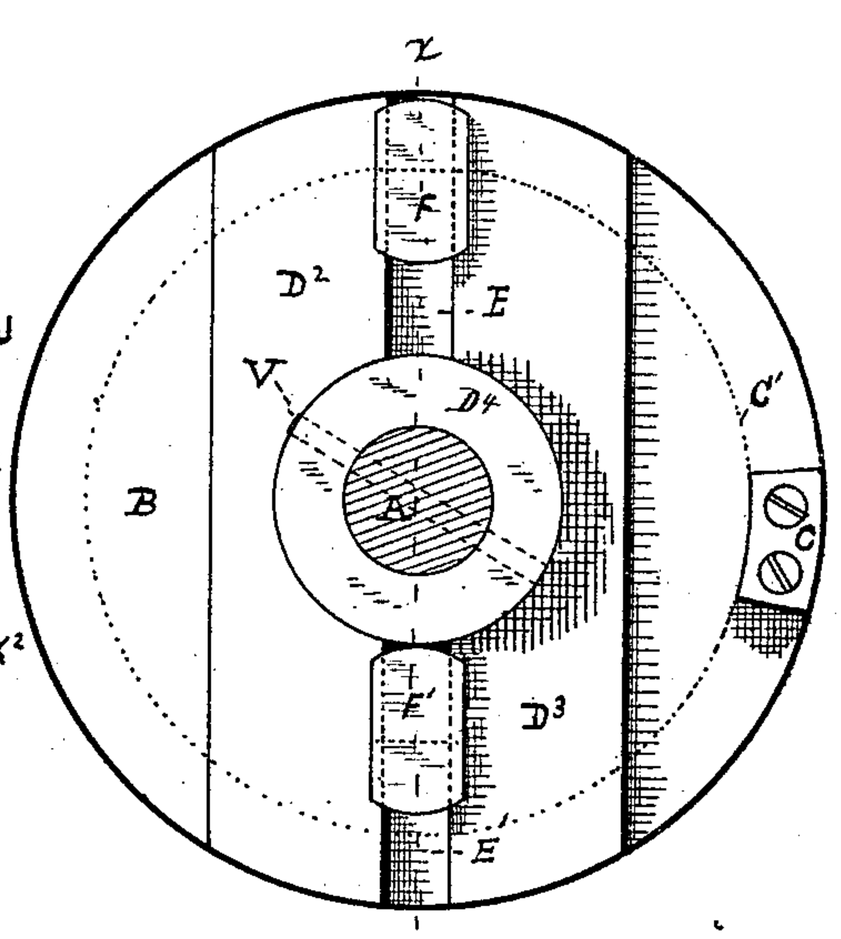


Fig. 9.

Witnesses.

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(No Model.) 7 Sheets—Sheet 7.

# J. STUBBE.

## MACHINE FOR APPLYING BARBS TO FENCE WIRE.

No. 328,621. Patented Oct. 20, 1885.

Fig 10.

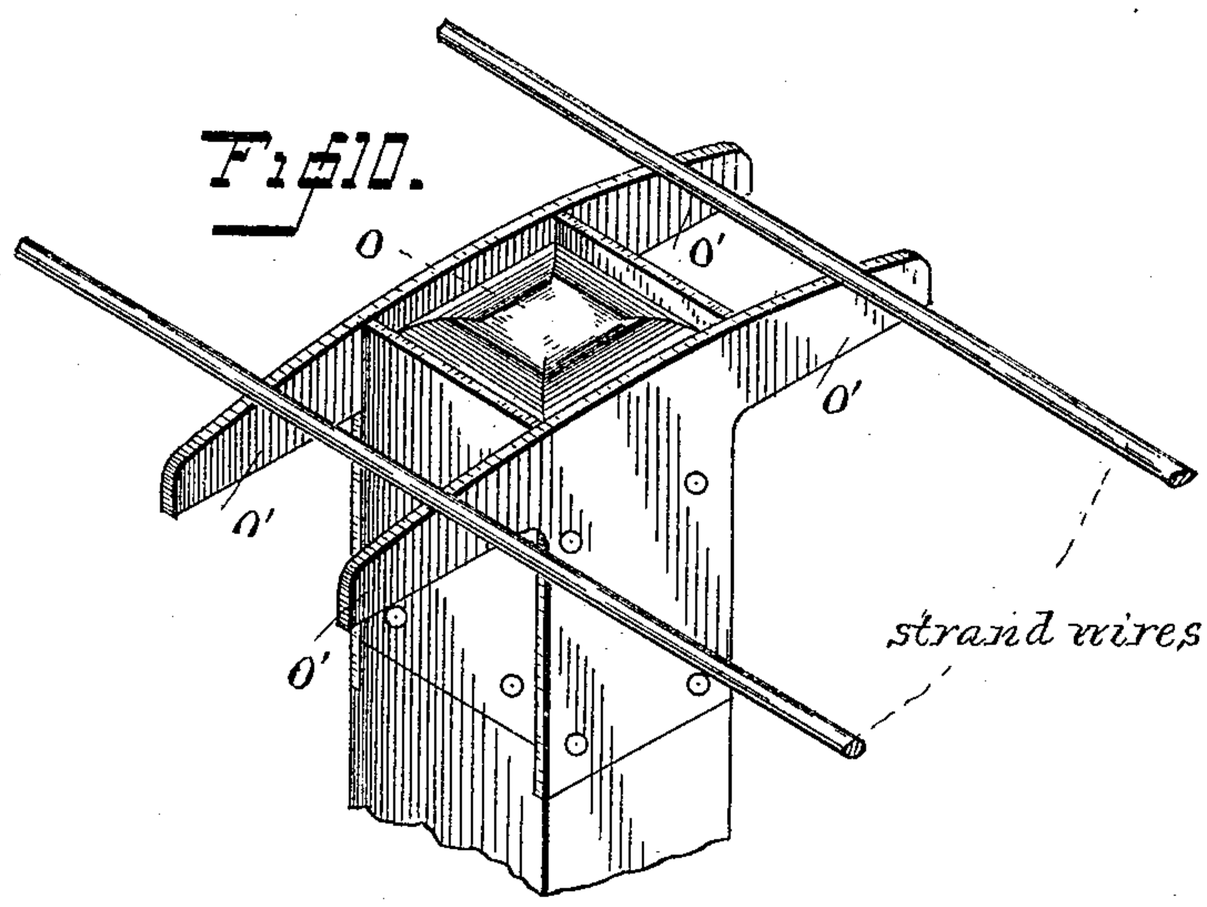



Fig 11.

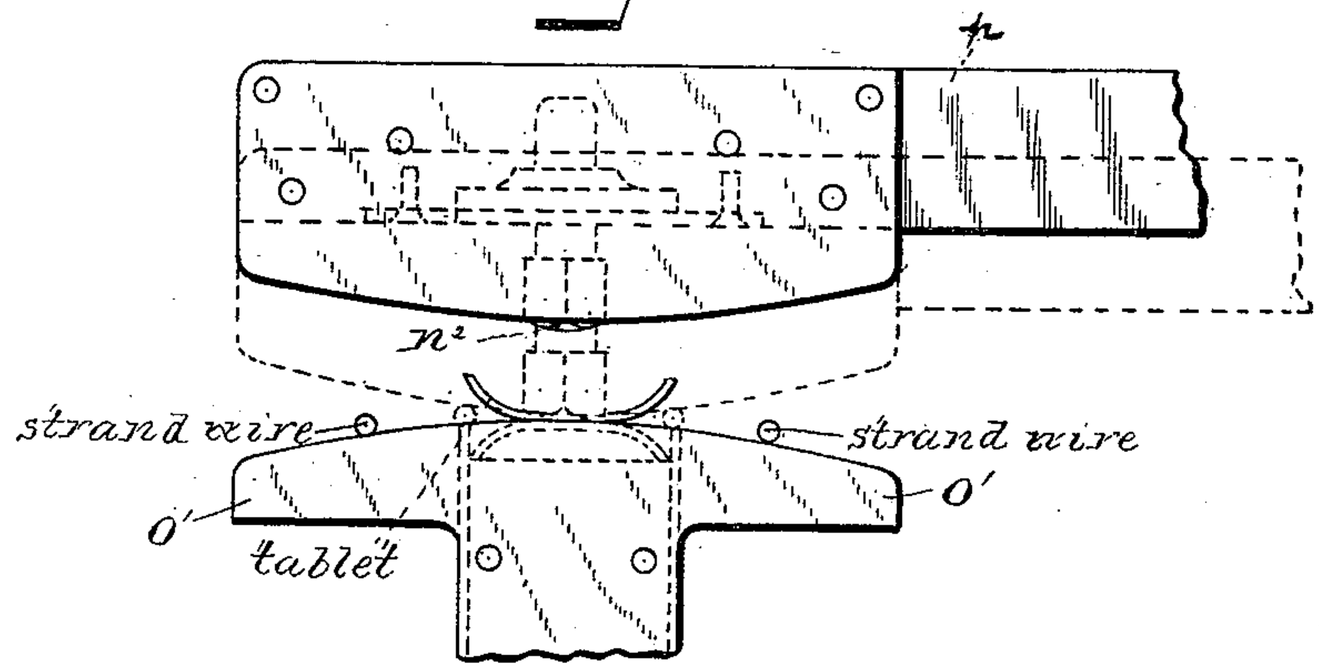
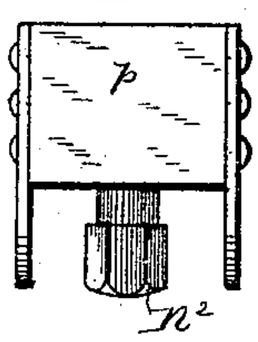



Fig 12.

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Alex. Scott

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L. K. Bakewell

# UNITED STATES PATENT OFFICE.

JOHN STUBBE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE PITTSBURG STEEL FENCING COMPANY, OF SAME PLACE.

## MACHINE FOR APPLYING BARBS TO FENCE-WIRE.

SPECIFICATION forming part of Letters Patent No. 328,621, dated October 20, 1885.

Application filed April 21, 1884. Serial No. 128,717. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN STUBBE, a resident of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Applying Plates or Barbs to Fence-Wire; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved wire-barbing machine. Fig. 1ª is an enlarged view of the same without the spinner. Fig. 2 is a side elevation of the machine as shown in Fig. 1. Fig. 2ª is an enlarged view of the same without the spinner. Fig. 3 is a vertical cross-section on the line *x x* of Fig. 1. Fig. 4 is a similar section on the line *y y* of the same figure. Fig. 5 is an end view of Fig. 1. Fig. 6 is a sectional view of a part of my improvement, showing the device for producing intermittent motion of the feed-rollers. Fig. 7 is a view of the same, partly in section. Fig. 8 is a plan view of said part, Fig. 6 being a section on the line *x x* of this figure. Fig. 9 is a plan view of a part of said intermittent gearing device. Fig. 10 is a perspective view of the table *o*. Fig. 11 is a view showing the movement of the pin 2 as it centers the tablet on the table. Fig. 12 is an end view of the bar *p* and the pin *n*.

Like letters of reference indicate like parts wherever they occur.

My improvement is designed, primarily, for the purpose of attaching warning-plates, sheet-metal barbs, or other similar articles to strands of wire for wire fencing. With necessary modifications it may also be used for analogous purposes; but for convenience sake I shall describe it with reference to the application of those warning-tablets for which I have already obtained Letters Patent of the United States, No. 287,337, of October 23, 1883.

In my improved machine the wire is fed in two strands, *a' a²*, from spools *a*, which are mounted upon the bed-plate *a³*, through feed-rollers *b b'*, along guide-wheels *m* on oscillating arms *n n'*, and thence between a reciprocating table, *o*, and oscillating rod *p*, the latter situate above the table and provided with a centering device for clamping and adjusting the tablets on the table while the wires are being secured thereto. The twisting of the strands is performed by the action of a rotary spinner, *f*, into which they pass through its hollow cylindrical shaft *d*. The wires are secured to a reel, *e*, which is journaled to the frame of the spinner, and the twisting of the wires is therefore done along the course of the wires from their bearing on the reel to the ends of the oscillating fingers *n n'*, where they are confined between the guide-wheels *n²*. The rotation of the spinner and the twisting operation are continuous. The reel *e* is journaled within the spinner *f* at right angles to its axis, and is actuated by suitable gearing, so that as the feed-rollers *b b'* feed the strands into the machine the reel may gather and wind them in readiness for transportation and sale. The reel also serves to keep the wires from sagging during their passage through the machine. An intermittent motion of the feed-rollers *b b'* checks the passage of the strands during the process of adjusting the tablets, and simultaneously stops the rotation of the reel *e*. A wire-distributer, consisting of a movable sleeve, *g*, is mounted on a right-and-left threaded shaft, *h*, which extends transversely across the spinner. The wire passes between radial forks on the sleeve, and thus turns it and causes it to move from one side of the spinner to the other, thereby causing the twisted wire to be distributed regularly upon the reel. Power is applied by means of a suitable belt-wheel, *i*, which connects with the rotary spinner *f*, and thence by intermediate gearing or belting to the other parts of the machine.

I will now proceed to describe my improvement in detail.

The feed-rollers *b b'* are revolved by means of a shaft, *j*, connected by a belt, *b⁵*, with a gearing device, *k*, which is so arranged as to stop the motion of the feed-rollers for a time at certain regular intervals, and the periphery of the rollers is of such size that each motion may advance the strand-wires a length equal to the distance required between the fence-tablets. I shall describe the construction and arrangement of the gearing

device *k* more fully hereinafter. The feed-rollers *b b'* are preferably arranged in two adjacent pairs, one member of each pair being situate directly over the other, and the upper rollers, *b*, movably journaled in slots $b^2$, so that their faces may be movable toward the lower pair and may feed the interposed strand-wires forward by friction. The spools *a a* are loosely mounted upon spindles $a^4$, so that when exhausted of wire they may be removed and full spools substituted, the upper feed-rollers, *b*, being raised in the slot $b^2$, so as to permit insertion of the wires of the fresh spools. The upper feed-rollers, *b*, are pressed upon the lower rollers, *b'*, preferably by means of two parallel horizontal lever-arms, *l l'*, connected at their inner extremities near the feed-rollers by a vertical rod, $l^2$, the upper lever-arm, *l*, pivotally connected to said rod, and the lower arm, *l'*, attached to the frame of the machine. A rope or chain, $l^3$, is fastened to to the lower arm, *l'*, and passing over a sheave, $l^4$, on the free end of the arm *l* is attached to a weight, $l^5$. The effect of the weight is to depress the lever-arm *l*, which bears upon the axis of the upper feed-rollers, *b*, and to press said rollers down toward the faces of the lower feed-rollers, *b*. It is obvious that as these rollers grasp the strand-wires between their peripheries and revolve they will feed the wires forward from the spools *a* to the other parts of the machine. From the feed-rollers *b b'* the strand-wires pass along grooved guide-wheels *m m'* $m^2$, mounted on the oscillating horizontal arms *n n'*—that is to say, they extend along the grooves on the inner faces of the guide-wheels $m^2$, which are situate at the free ends of the arms *n n'*, and along the outer faces of the grooved wheels *m'*, next adjacent thereto. The course of the wires is thence above the surface of the table *o*, which is so arranged as to be capable of a vertically-reciprocating motion up to and downward from the level of the strand-wires. One of the functions of this table is to act as a lifting and adjusting device for the fence-tablet. The tablet is placed on the table when it is in its lowest position, and the rise of the table lifts the tablet into place between the then separated strands.

Above the table *o* is a centering-pin, $n^2$, attached to the extremity of the oscillating pivoted bar *p*, movable reciprocally with relation to the motion of the table *o*, so that as the table raises the placed barb to the level of and between the wires $a'$ $a^2$ the centering-pin may descend and engage the tablet there. The result is that the tablet is clamped firmly between the reciprocating table and the centering-pin $n^2$ in the proper position, so that when the wires are brought together by action of the arms *n n'* they may be forced exactly into the notches made in the tablet for that purpose.

In order that the operator may easily adjust the tablet on the table with its notches open toward the strand-wires, the surface of the table may be provided with parallel guide-ribs *o'*, upon which the tablet is set. If the latter be set a little out of alignment, the clamping of the pin $n^2$ thereon will cant or turn it upon the ribs *o'* to the proper position. When the tablet is clamped between the table *o* and the end of the bar *p*, as just described, the feed of the wires is caused to stop by automatically checking the revolution of the feed-rollers *b b'*, and the revolution of the spinner *f* twists the wires toward the tablet. (See Fig. 1.) Before the twist has quite reached the tablet the free ends of the oscillating fingers *n n'* approach, bringing the guide-wheels $m^2$ together and forcing the strand-wires $a'$ $a^2$ into the notches in the sides of the tablet. When the strands have been twisted up to the tablet, the table *o* and the rod *p*, which carries the centering-pin $n^2$, separate, and the feed-rollers *b b'* begin at the same moment, or immediately afterward, to revolve, so as to feed the wire forward and to allow the twisted strands to be wound upon the reel *e*. The tablet will then be free, and will move with its inclosing strand-wires away from the table *o* and toward the reel. During this motion the continuous rotation of the spinner *f* will twist together so much of the strand-wires as lies between the tablet and the ends of the closed fingers *n n'*, and the same twisting action is continued after the tablet has ceased advancing. The object of closing the fingers *n n'* before the separation of the table *o* and bar *p* is to press the strand-wires securely into the notches of the tablet, and by confining the wires in these notches to support the tablet when it has been released from the centering-pin $n^2$ and table *o*. Being thus supported a secure twist is produced on both sides of the tablet. When the wire has nearly passed through the distance desired between the tablets, the fingers *n n'* separate and spread the wire-strands apart, the feed motion immediately afterward stops, and the operator inserts a tablet upon the table *o*. The reciprocating table *o* then rises and lifts the tablet into position between the wires, the centering-pin $n^2$ closes upon and adjusts it, and the operation of twisting the wire goes on as before. The action of the table *o* and bar *p* is a clamping action, being designed both to hold and adjust the tablet. I shall so refer to it in the claims. When the oscillating fingers *n n'* open, as I have described, the resulting effect is to force the twist of the strands up to the tablet, and thereby to render the connection between the strands and the tablet much more secure.

The operation of the fingers *n n'* is illustrated in detail in Figs. 1 and 3. The fingers being pivoted at points *q*, preferably about midway of their length, are provided at their extremities with lateral arms *r r'*, the arm *r* of the right finger extending to the left and the arm *r'* of the other finger to the right. The arms *r r'* are pivotally attached to the extremities of the fingers *n n'*, and at their other ends to the upper extremities of upright bars *s*. The upright bars *s* are also pivotally connected at $s^2$ $s^2$ and *u'* by diagonal rods *t* to

an upright sliding bar, *u*, suitably mounted in grooves or standards on the frame of the machine between said upright oscillating bars. The diagonal rods *t* are pivoted both to the oscillating bars *s* and to the sliding bar *u*, the bars *s* being pivoted at *s'*. An eccentric cam, *v*, is suitably journaled, so that its periphery may bear upon a pin, *w*, on the sliding bar *u*, and by revolution against the same may impart a vertical reciprocating motion to the sliding bar. The upward motion is accomplished by the ordinary operation of an eccentrically-pivoted disk, and to secure downward motion there is a groove, *z*, across the surface of the cam, one end, *z'*, of which is at the greatest distance from the axis of the cam and the other, $z^2$, at the nearest point thereto. When the cam has raised the pin *w* and sliding bar *u* to the highest point, the pin enters the end *z'* of the groove *z* and is forced down by the outer side of the groove until it emerges from the end $z^2$. From this point a portion of the periphery of the cam is concentric with the axis, so that the sliding bar is kept at its lowest position until the eccentric portion of the periphery of the cam again reaches the pin *w*. The effect of the intermittent reciprocating motion of the sliding bar *u* is to alternately raise and lower the point where it is joined to the diagonal arms *t*, and to spread and bring together the free ends of the upright oscillating bars *s*. These communicate a corresponding motion to the pivoted fingers *n n'*, so that when the bar *u* is rising the fingers *n n'* open, and they close as the passage of the pin *w* through the groove *z* brings down the bar, and remain closed until the pin again meets the eccentric portion of the periphery of the cam.

The reciprocal vertical movement of the table *o* and of the bar *p*, which carries the centering-pin $n^2$ and guide blades or teeth *o'*, are secured as follows: The horizontal bar *p* is pivoted transversely to the frame of the machine upon an upright support, 2, and is pivoted at one end to the extremity of an upright rod, 3, the other end of which is pivoted to an oscillating rod, 4. The rod 4 is pivoted at one end to an upright sliding bar, 6, which supports the table *o*, and at the other end either to the frame $a^3$, or preferably, for convenience sake, to the axis of one of the gear-wheels 5 of the machinery. The table *o* is mounted upon a vertical reciprocating bar, 6, operated by an eccentric cam, 8, keyed on the shaft 30, bearing upon a pin, 7, on the same, and operating in a manner similar to that described with reference to the sliding bar *u* in Fig. 3. A portion, 10, of the highest part of the periphery of the cam 8 is concentric, as is also a larger part of the lowest portion, 9, of the same, so that when the sliding bar 6 and table *o* are at their highest point, and the tablet is clamped between the table and the centering-pin $n^2$, they may remain in that position for a time, and when the pin 7 is at its lowest point, and the table and centering-pin are separated so as to release the tablet and permit free passage of the wires, they may remain in that position for a still longer time. The rising of the bar 6 also elevates the end of the rod 4, pivoted thereto, and this raises the rod 3 and depresses the pin $n^2$ at the free end of the bar *p*, so that the centering-pin and reciprocating table may respectively approach and recede simultaneously. If desired, only one of these parts *p* and *o* may be made movable, and the other stationary; but I prefer the construction shown in the drawings, since it holds the fence-tablets more securely and gives greater room for their insertion. The alternate motions of the oscillating arms *n n'*, the table *o* and centering-pin $n^2$, and the feed-rollers *b b'*, whereby the arms approach before the table and centering-pin separate, and the feed-rollers stop before the table and centering-pin meet upon the tablet, are preferably secured by driving them from the same power-shaft, 30, and by suitable adjustment of their auxiliary gearing, as will be readily understood. The twisted wire passes from the oscillating rod *p* and table *o*, where the fence-tablet is attached, through a hollow cylindrical shaft, *d*, which is the journal-shaft of the rotary spinner *f*, within which the reel *e* is journaled. The motion of the spinner *f* is continuous, and it is preferably belted directly to the main belt-wheel *i*, and imparts motion by suitable belting, *g'*, to the other parts of the machine.

The manner in which the reel *e* is actuated is as follows: A horizontal shaft, 14, journaled upon the bed-plate of the machine, passes loosely through the frame of the spinner *f* and the belt-wheel *i*, and is provided at its rear extremity with a friction-wheel, 13, bearing upon the face of which are friction rods or clutches 12, or other suitable device for retarding the revolution of the wheel 13. The other end of the shaft 14, within the circumference of the spinner, is provided with a miter-wheel, 15, which gears into a similar miter-wheel or pinion, 16, journaled to the side of the spinner-frame. The pinion 16 is connected by suitable gear-wheels, 11, to the axis *e' e'* of the reel *e*. The wheel 13 being held stationary by the action of the friction-brake 12, revolution of the spinner *f* will carry the beveled surface of the miter-wheel 16 around the surface of the stationary miter-wheel 15, and will impart a rotary motion to the wheel 16 and its shaft, as will be readily understood. The rotary motion of the shaft of the wheel 16 also rotates the gear-wheels 11, and through them revolves the reel *e* upon its axis *e' e'* and winds the twisted strand-wires thereon.

I have mentioned the fact that when the motion of the feed-rollers *b b'* is checked, so as to allow the barbed plate to be adjusted between the wires and to be held in position while the strand-wires are twisted about it, the revolution of the reel *e* is also stopped, since otherwise the strand-wires would be broken. This stoppage of the reel is caused by the action of the brake 12 upon the wheel

13. Thus when the feed-rollers *b b'* have stopped, the friction of their faces holds the strand-wires *a' a²* and opposes resistance to the turning of the reel *e* and to the rotation of the miter-wheel 16. This friction would break the wires were it not that when the strain has reached a certain point within the tensile limits of the strand-wires the wheel 13 overcomes the resistance of the brake 12 and turns with the miter-wheel 15 upon its axis. When this happens, it is obvious that the miter-wheel 16 will turn about the face of the wheel 15 without the resulting rotation which I have described, and that consequently the reel *e* will also remain at rest. As soon as the rollers *b b'* begin again to feed the strand-wires forward, the strain upon the reel *e* is released, the wheel 13 and pinion 15 come to rest, and the reel recommences to revolve freely. To produce this result it is of course necessary to properly adjust the friction upon the wheel 13, so that it shall not exceed the desired limit.

The advantages of this device are great. It not only serves the purpose I have described, but also serves to regulate the winding action of the reel. Thus if the reel *e* does not move fast enough to wind the twisted wires as fed from the feed-rollers *b b'*, the resistance necessary to stop the reel will not occur until after the feed-rollers have stopped, and in the meanwhile the wire is wound tightly upon the reel. On the other hand, if the reel revolves too rapidly, so as to produce a strain upon the wires, this strain will stop the reel and allow it to accommodate itself to the motion of the feed-rollers. It is obvious that this change in relative motion will occur continually in practice, since when the reel is nearly full of wire its winding circumference increases, so that one revolution on its axis will wind far more wire than if it were empty.

The gearing device *k*, which causes the intermittent motion of the feed-rollers *b b'*, is illustrated in detail in Figs. 6, 7, 8, and 9. A plate or disk, B, is keyed to a miter-wheel, L, or other suitable gearing, which meshes with the miter-wheel 33, which is keyed to the shaft 30 and is adapted to impart a continuous rotation to the disk. The disk B is provided on its inner face, near the circumference, with a lug or projection, C, and is fitted within a fixed drum or casing, D, which has a central aperture, D', for the entrance of a cylindrical shaft, A, which passes through the miter-wheel L, the disk B, and drum D, and turns loosely within the same.

Between the disk B and the base of the drum D are parallel plates D² D³, attached to or integral with an annular collar, D⁴, which is keyed to the shaft A by key V, or they may be keyed directly to the shaft, as preferred. These plates are so arranged with reference to each other as to provide radial ways or slots E E', within which sliding dogs F F' are so mounted as to project on both sides of the plates, and to be capable of motion in said ways toward and away from the center of the drum. The plates D² and D³ are placed between a collar, B', on the disk B, and a stationary cam, G, which is secured to the under side of the drum and encircles the collar D⁴. The periphery of the cam G is circular, except that it has a depression or recess, H, which is the counterpart of a stationary cam, I, arranged on the drum D opposite thereto. The sliding dogs F F' preferably bear on one side of the plates D² and D³ against the face of the disk B, and on the other side against the under side of the drum D. The inner extremity of each of the dogs also bears against the periphery of the cam-collar G. Opposite the stationary cam I there is a lateral recess, J, in the side of the drum D, within which recess is pivoted an arm or catch, K, having a notch or recess, J', directly opposite the highest point of the stationary cam I. The side of the arm K lies within the path of revolution of the lug C on the disk B, so that the lug C may strike it and force it back into the recess J. A suitable spring, K², is secured to the arm K, so as to press it in the recess toward the central part of the drum D. The arm is, however, confined within the recess by contact with the sides of the drum, as at K'. The annular collar D⁴, to which the plates D² D³ are attached, is keyed to the shaft A, which is connected by a belt, *b*⁵, on the wheels *k'* and *j* to the feed-rollers *b b'*. The function of the plates D² and D³ is to act as lever-arms for the shaft A, so that as they revolve around the circumference of the drum D they may also turn the shaft A. When they are at rest, the shaft remains at rest also. The feed-rollers *b b'* being connected with and actuated by this shaft A, it is obvious that they will revolve with the plates D² D³ and will partake exactly of their motion.

Thus constructed, the operation of this part of my improvement is as follows: The plates D² and D³ being in the position shown in Fig. 8—namely, with one of the sliding dogs, F, at the end of the slot E, and in and confined by the notch on the spring-catch K, and the dog F' opposite the stationary cam I—the continuous revolution of the gear-wheel L will carry the rotary disk B with it until the lug C on the disk strikes the side of the pivoted arm K. The lug C will then push the arm K back into the recess J until the sliding dog F is released from the notch J', and as the dog is at the end of the slot E and in the path C' of the lug the lug C will engage it, and will carry it and the plates D² and D³, between which it is mounted, around the circumference of the cam G. When, however, the dog F has reached the cam I on the drum, the inclination of its face forces the dog along the ways E into the opposite recess, H, of the cam G and out of the path C' of the lug C. The lug C is thereby disengaged from the dog F, and is left free to pass under or by the stationary cam I, and to continue its revolution without moving the plates D² and D³ or the shaft A. At the same time that the dog

F is pushed in the ways E into the recess H on the cam G the opposite dog, F′, having engaged and pushed back the spring-arm K, slips into the notch J′. The arm K then springs back into its first position, and by holding the dog F′ prevents the plates $D^2$ and $D^3$ from revolving. The object of catching the dog within the notch *d′* is to immediately check the revolution of the plates $D^2$ and $D^3$ and of the shaft A, and thus secure accuracy in the motion of the feed-rollers. When the lug C again reaches the pivoted arm K and engages the dog F′, its revolution causes the other dog, F, to slide in the ways E, out of the recess H, and to move around the periphery of the cam-collar G and in the path of the lug C, as before described. By these means it is clear that the plates $D^2$ and $D^3$ and the shaft A revolve only with every alternate semi-revolution of the disk B, and remain stationary during the other semi-revolution, and as the feed-rollers *b b′* are actuated by the shaft A they, too, partake of its intermittent motion and alternately revolve and remain at rest—that is to say, that when the projection or lug C is moving from the point J′ to the point I it is turning the shaft by means of one of the dogs and the plates $D^2$ and $D^3$, and that at I it is disconnected from the shaft by the inward movement of the dog in the ways E, and moves from I to J′ without turning the shaft.

By reference to the drawings it will be seen that I have shown the dogs F F′ as of an L shape, the shank extending beyond one side of the plates $D^2$ and $D^3$, and the base thereof projecting beyond the other side, and that the spring-arm K is placed at one side of these plates and the cam I on the other side. I consider this the preferable arrangement, but do not desire to limit my claims thereto.

If preferred, any other suitable device—such as mutilated cog-wheels and the like—may be substituted for the intermittent gearing I have just described; but I prefer the latter on account of its simplicity and extreme accuracy of adjustment. It is not liable to get out of order, and is especially applicable to the production of intermittent motion in wire-barbing machines of like nature with the one which I have described in this specification, where it is desirable to produce a sudden intermittent stoppage of the machinery without jar or recoil. This object is attained by the action of the notched spring-catch K upon the dogs F in an easy and regular way, and is of beneficial effect in lessening the wear and tear on the machinery and in the prevention of the destructive accidents which are likely to arise from use of mutilated cogs. On the spinner-shaft *d* is a belt-wheel, *g′*, which is connected by a belt with the wheel 34 on the shaft 31, which shaft, by means of a belt and wheels 35 and 36, imparts motion to the shaft 30, upon which shaft are mounted the cam 8 and miter-wheel 33, so that the motion of each part is derived from the same source.

I do not wish to claim in this application the mechanism for producing intermittent motion, which is herein described and is shown in Figs. 6, 7, 8, and 9 of the drawings, because I have made it the subject-matter of a separate application for Letters Patent of the United States, filed by me on the 8th day of January, 1885, and numbered 152,249.

I claim—

1. In a machine for applying plates or barbs to fence-wires, the combination of a clamp for supporting and holding the plate or barb in position and fingers for closing the strand-wires against the edges of an interposed plate or barb, substantially as and for the purposes specified.

2. In a machine for applying plates or barbs to fence-wires, the combination of a clamp for holding a plate or barb in position and oscillating guide-fingers for securing and adjusting the strand-wires about the interposed tablet or barb, said guide-fingers being capable of moving simultaneously with or immediately before the separation of the clamp, substantially as and for the purposes specified.

3. In a machine for applying plates or barbs to fence-wires, the combination of clamping devices for holding and adjusting the plate or barb in the path of the wires, oscillating guide-fingers for first spreading the wires for the insertion of the barb or plate and then closing them in upon it, and a revoluble spinner for twisting the wires together closely around the barb or plate, substantially as and for the purposes described.

4. In a machine for applying plates or barbs to fence-wires, the combination of clamping devices for holding and adjusting the plate or barb in the path of the wires, oscillating guide-fingers for spreading the wires for the insertion of the plate or barb and then closing them in upon it, devices for twisting the wires together, and intermittently-moving feed-rollers capable of coacting with the said clamping devices and oscillating guide-fingers, substantially as and for the purposes described.

5. In a machine for applying plates or barbs to fence-wires, the combination of clamping devices for holding and adjusting the plate or barb in the path of the wires, oscillating guide-fingers, intermittently-moving feed-rollers, and a rotary spinner for twisting and securing the strand-wires together about the barb or plate, substantially as and for the purposes specified.

6. In a machine for applying plates or barbs to fence-wires, the combination, with the pivoted oscillating guide-fingers *n n′*, having lateral arms *r r′*, of the eccentrically-pivoted cam *v*, capable of transmitting an intermittent oscillatory motion to said guide-fingers through a sliding-shaft, *u*, and lateral connecting-arms *t t*, substantially as and for the purposes described.

7. The combination, in a machine for applying plates or barbs to fence-wires, of the centering-bar *p* with the reciprocating table *o* and cam 8, capable of transmitting an inter-

mittent reciprocating motion to said table, substantially as and for the purposes described.

8. The combination, in a wire barbing-machine, of the intermittently-moving feed-rollers *b b* with a movable table, *o*, and centering-bar *p*, actuated by a cam, 8, capable of transmitting an intermittent reciprocating motion thereto, said cam being driven by the power-shaft which actuates the said feed-rollers, so as to secure synchronous intermittent action of the said table and centering-bar with said feed-rollers, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand.

JOHN STUBBE.

Witnesses:
JOHN MCILVANE,
J. P. DRYNAN.