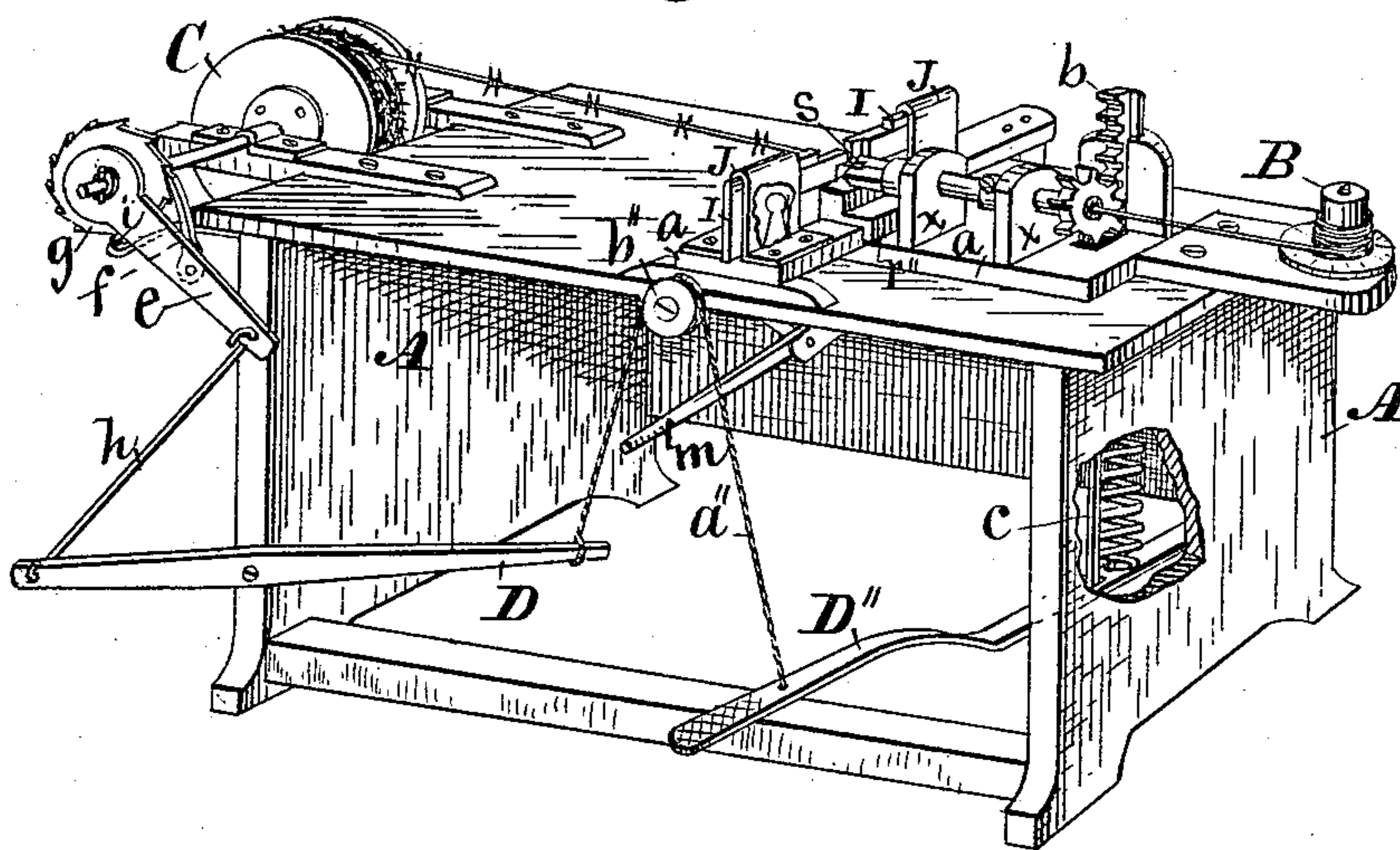
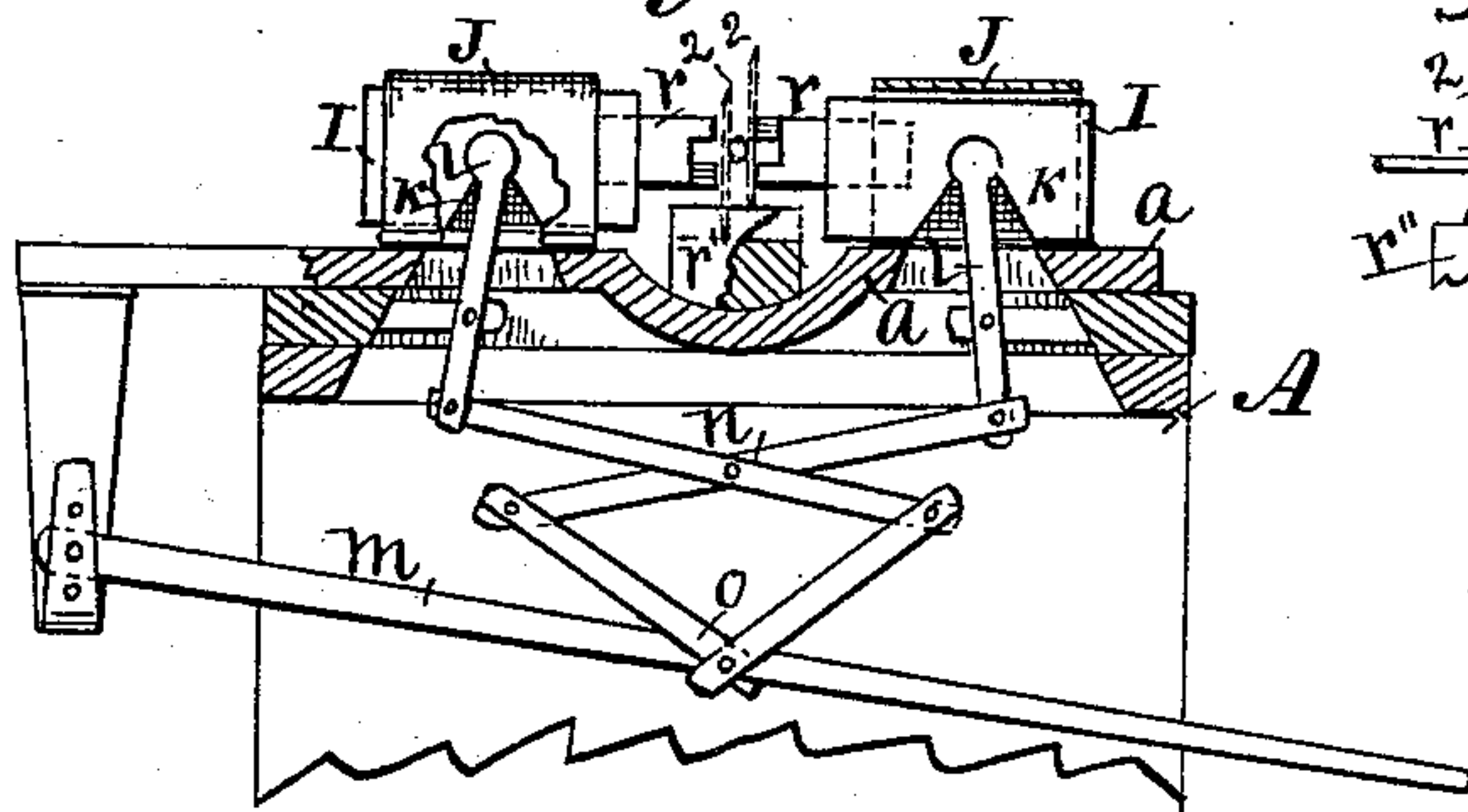


G. C. BAKER.  
Machine for Barbing Fence-Wire.  
No. 217,673.                      Patented July 22, 1879.

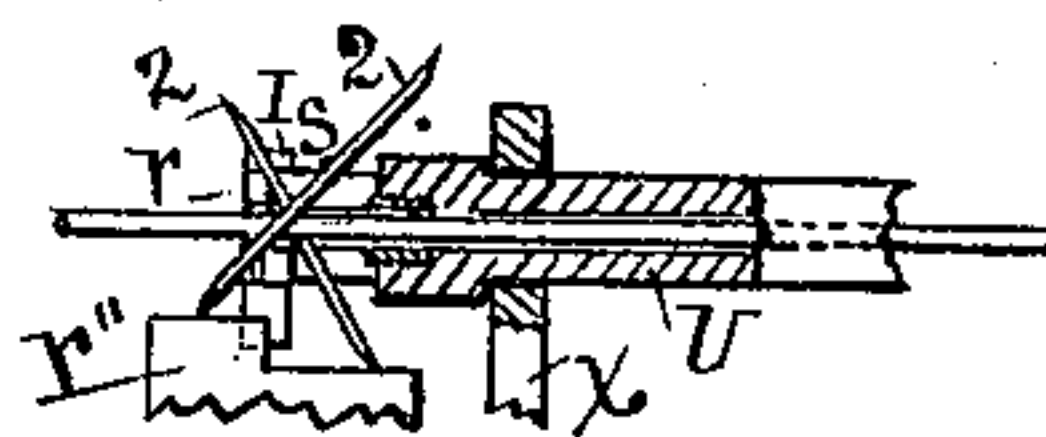
*Fig. 1*



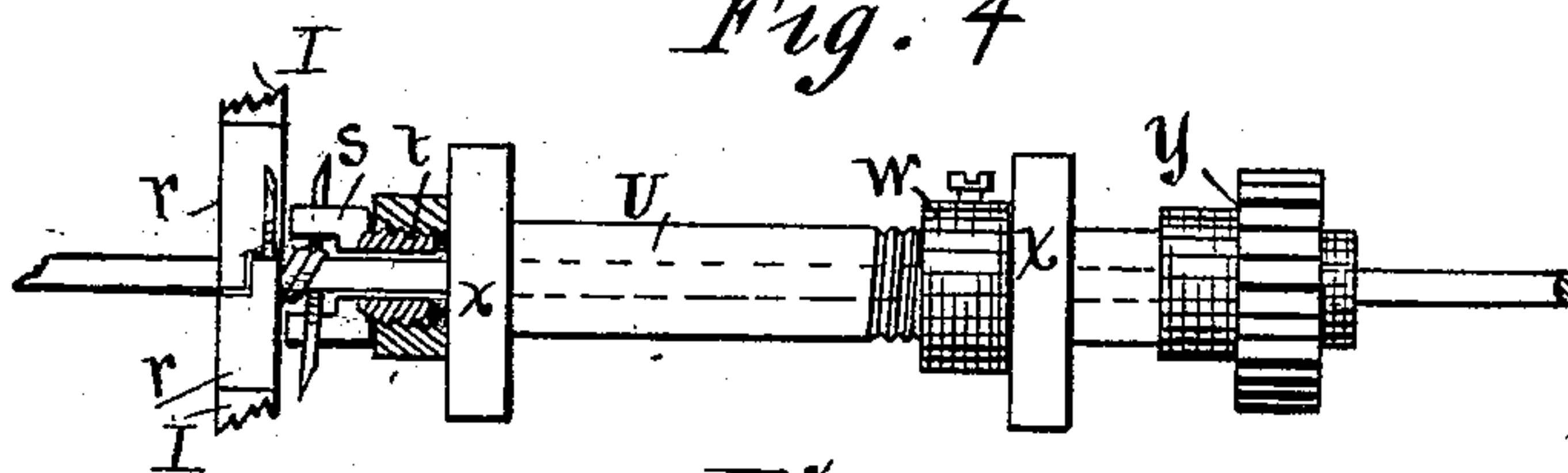
*Fig. 2*



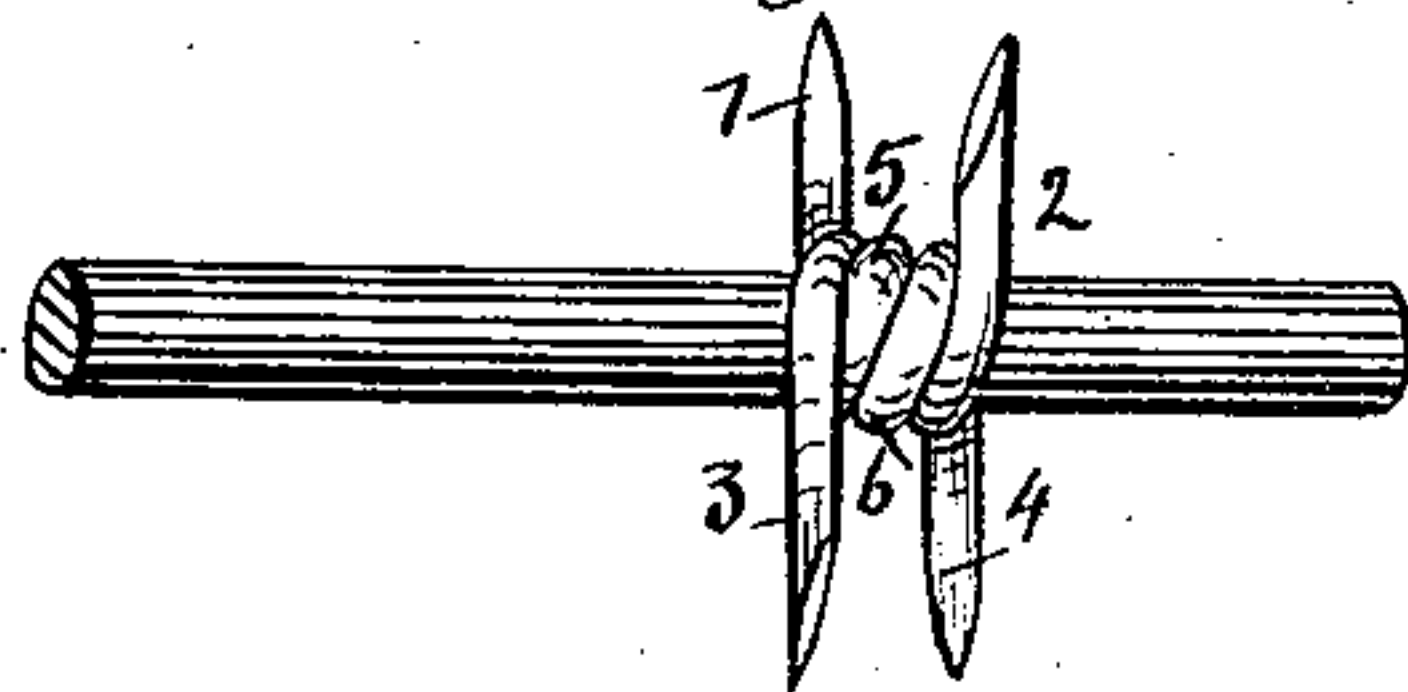
*Fig. 3*



*Fig. 4*



*Fig. 5*



Witnesses:

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# UNITED STATES PATENT OFFICE.

GEORGE C. BAKER, OF DES MOINES, IOWA.

## IMPROVEMENT IN MACHINES FOR BARBING FENCE-WIRE.

Specification forming part of Letters Patent No. **217,673**, dated July 22, 1879; application filed June 22, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE C. BAKER, of Des Moines, in the county of Polk and State of Iowa, have invented a Machine for Barbing Fence-Wire, of which the following is a specification.

The object of my invention is to furnish a light portable machine that is adapted to be operated by hand and foot power to automatically move fence-wire and fix barbs upon the same at regular intervals of space and in such a manner that the projecting barbs will be crowded upon the coils of the same barb-pieces to lock the complete barbs rigidly upon the fence-wire.

It consists, first, in combining barb-forming mechanism and wire-moving mechanism, by means of a bench and two treadles, in such a manner that the downward motion of one treadle will operate the barb-forming device by means of a rack and pinion, and at the same time elevate the second treadle and hold inoperative the reels, while the downward motion of the second treadle will actuate the reels and move the fence-wire and at the same time elevate the first treadle and the rack into the positions required to be in readiness to again operate the barb-forming device; second, in the manner of forming and operating lateral-moving jaws that close to hold the fence-wire, and open to allow the barbs to pass after they are fixed on the wire; third, in the manner of forming an adjustable barb-former and combining it with the sliding jaws in such a way as to cause it to crowd the projecting barb-points upon the barb-coils, to prevent them from uncoiling, all as hereinafter fully set forth.

Figure 1 of my drawings is a perspective view of my complete machine. Fig. 2 is a sectional view showing the construction and operation of the lateral-moving jaws. Fig. 3 is a longitudinal section of the rotating head that wraps the barbs upon the fence-wire, and also an end view of one of the extensions of the sliding jaws that hold the short ends of the barb-pieces while their long ends are being wrapped in parallel coils upon the fence-wire by means of the rotating head or twister. Fig. 4 is a sectional and top view, showing the

construction of my adjustable and rotating head and shaft used to wrap the barb-pieces upon the fence-wire while the fence-wire and the ends of the barb-pieces are rigidly held by means of the sliding jaws. Fig. 5 is a perspective view of my improved barb.

Jointly considered these figures illustrate the construction and operation of my complete invention.

Similar letters of reference are used to denote like parts that appear in several figures.

A represents a bench or stand, that may vary in size and material, as desired. B is a reel mounted in a vertical position on the top and right end of the bench. C is a reel of corresponding size mounted in horizontal position at the opposite end of the bench. D is a treadle pivoted to the bench in a horizontal position in such a manner as to extend from under the reel C to a point immediately under the barb-forming mechanism. *e* is a crank-arm pivoted to the axle of the reel C. *g* is a ratchet rigidly connected with the end of the same reel-axle. *f* is a pawl pivoted to the arm *e*, to engage the ratchet *g*. *h* is a rod connecting the crank-arm *e* with the short arm of the lever or treadle D. *i* is a spring-pawl extending from the bench to the ratchet *g*, to prevent any backward motion of the reel and wire.

*a a* is the metal frame and base of my barb-forming mechanism, bolted upon the top and central portion of the bench A. *b* is a rack that extends and moves vertically through a suitable bearing formed in or attached to the base *a a*. *c* is a rod attached to the lower end of the rack. It extends downward and is flexibly connected with a treadle, D'', that is pivoted to the bench in such a manner as to bring the two treadles at right angles to each other and their free ends contiguous to each other.

I I are lateral-moving jaws sliding in suitable bearings J, that rise vertically from the base-plates *a a*. Each jaw has a triangular-shaped opening, *k*, in its under side, which terminates at its top in the form of a socket.

*l l* are levers pivoted to suitable bearers or fulcrums that extend from the bench or base. The top ends of these levers *l* are fitted into the sockets formed in the central parts of the



sliding jaws I, and their lower ends connected with a pivoted handle, *m*, by means of lazy-tong levers *n o*, or other suitable operative devices.

The jaws I have extensions *r* formed on or attached to their inner ends to fit against a fence-wire and to hold the wire rigidly while barb-pieces are being coiled upon the fence-wire by means of the barb-forming mechanism that is co-operated with the jaws, as shown by Fig. 3; and the extensions *r* have openings in their corners to form shoulders that will engage and hold rigidly the ends of the barb-pieces while they are being coiled upon the fence-wire.

*s* is the removable head of my barb-former. It is preferably formed in two uniform parts, and has a screw-shank, *t*, that enters the tubular shaft U. The head thus formed and applied is bifurcated at its free end to allow the wire barb-pieces to pass through and to engage them when it rotates, to wrap the projecting portions of the barb-pieces around the fence-wire while the barb-pieces and the wire are held by the gripping ends *r r* of the sliding jaws I.

The combined head *s t* and shaft U has a bore through its longitudinal axis, through which the fence-wire is passed from the reel B to the reel C. *w* is an adjustable collar on the shaft U. This collar abuts against the shaft-bearing *x*. It carries a set-screw, by means of which it can be readily fixed to the shaft. By adjusting the collar the shaft can be moved longitudinally as required to adjust the head *s* relative to the jaws I. By this means the head can be kept close to the jaws, and the coils of the barb crowded close together, and the wearing of parts compensated for by adjustment.

*y* is a pinion fixed on the shaft U at the opposite end of its head *s* to engage the rack *b*.

In the practical operation of my invention a spool of wire is placed on the reel B, and the free end of the wire passed through the tubular shaft U and fastened to a spool on the reel C. Two pointed wire barb-pieces, 22, are then placed in position over the fence-wire, as shown in Fig. 3, to rest against shoulders formed in the ends of the jaw-extensions *r*, and to extend through the opening of the rotating head *s*. A block, *r''*, fixed under the head *s*, has a shoulder, and consequently two level surfaces and planes at two different points of elevation to form rests for the barb-pieces, as shown in Fig. 2, and to regulate the setting of the barb-pieces relative to the fence-wire, upon which they are to be wrapped in parallel and interlocking coils, to form a rigidly-fixed four-pointed barb. When the barb-pieces are thus placed, treading upon the lever D'' will pull down the rack *b*, and thereby actuate the pinion *y* and the shaft U, and rotate the head *s*, and cause it to wrap the barb-pieces upon the fence-wire in the manner illustrated by Fig.

4, and in such a way that the projecting ends 1 2 3 4 will be pressed upon and partly overlap the coils 5 6, to thereby form an interlocked barb that cannot be uncoiled without first bending the points away from the coils. Pressing down the free end of the lever D after a barb is thus formed, the upward motion of its opposite end will, by means of the ratchet device *e f g h*, rotate the reel C and move the fence-wire; and in order to let the barb just formed pass the jaws I, which were closed by means of the handle *m*, the jaws are first opened by a reverse movement of that handle; and the same portion that pressed down the lever D, and thus moved the fence-wire, lifts the lever D'' by means of a cord, *a''*, that connects the two treadles, and passes over a pulley, *b''*, that is secured to the top edge of the bench A, and makes the machine ready to form another barb on the fence-wire.

Fence-wire may be thus readily moved at regular intervals of time, and barbs successively fixed thereon at regular intervals of space, as required, to produce barbed fence-wire.

To dispense with the cord *a''* and pulley *b''* I attach a coiled spring to the rear portion of the lever D'', and fasten it at its top end to the under side of the bench A, so that in its normal position the spring will hold up the front end of the treadle, and always raise the same after the pressure that pulls it down is relaxed.

I claim—

1. In barb-forming machines, the combination of the reel B, the reel C, the levers D and D'', the cord and pulley *a'' b''*, the crank *e*, pawl and ratchet *f g*, and connecting-rod *h*, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

2. The combination of the wire-moving mechanism B C D D'' *a'' b'' e f g h* and the rack *b*, having a connecting-rod, *c*, at its lower end, extending to the lever D'', substantially as shown and described, to operate in the manner and for the purposes set forth.

3. The sliding jaws I in the bearings J, each having an opening, *k*, the pivoted levers *l*, lazy-tongs *n o*, and the pivoted handle *m*, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

4. The adjustable tubular shaft U, having a removable bifurcated head, *s t*, a collar, *w*, and pinion *y*, in combination with the rack *b* and sliding jaws I, substantially as and for the purposes shown and described.

5. The combination of the wire-moving mechanism B C D D'' *a'' b'' e f g h*, the rack *b*, and the rotating barb-forming device U *s t w y*, substantially as and for the purposes set forth.

6. The combination of the wire-moving mechanism B C D D'' *a'' b'' e f g h*, the barb-

forming mechanism *b U s t w y*, and wire-holding lateral-moving jaws *I I*, substantially as and for the purposes shown and described.

7. The barb-forming machine composed of the following elements, to wit: the bench or stand *A*, the reels *B* and *C*, the treadles *D* and *D'*, the cord *a''* and pulley *b''*, the ratchet device *e f g h i*, the jaws *I I*, each having an

extension, *r*, the barb-setting device *r''*, the adjustable barb-forming device *s t U w y*, and the operating-rack *b*, substantially as shown and described.

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