

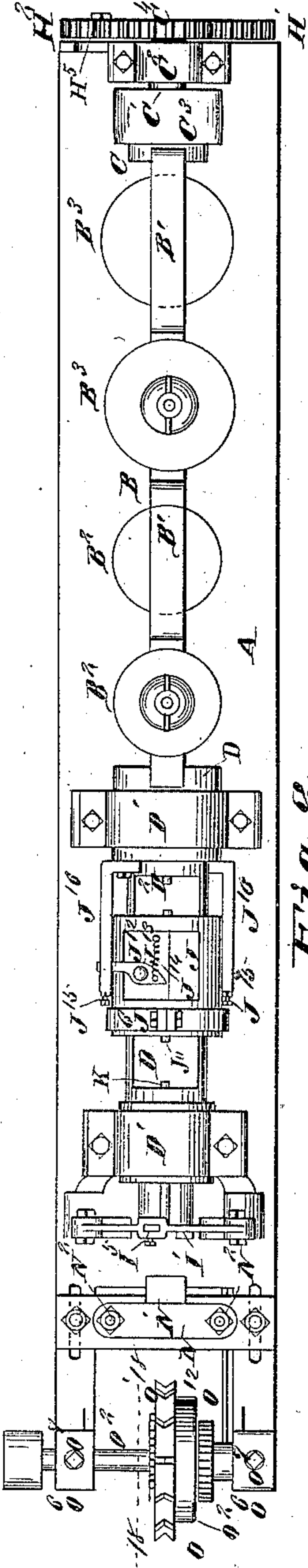
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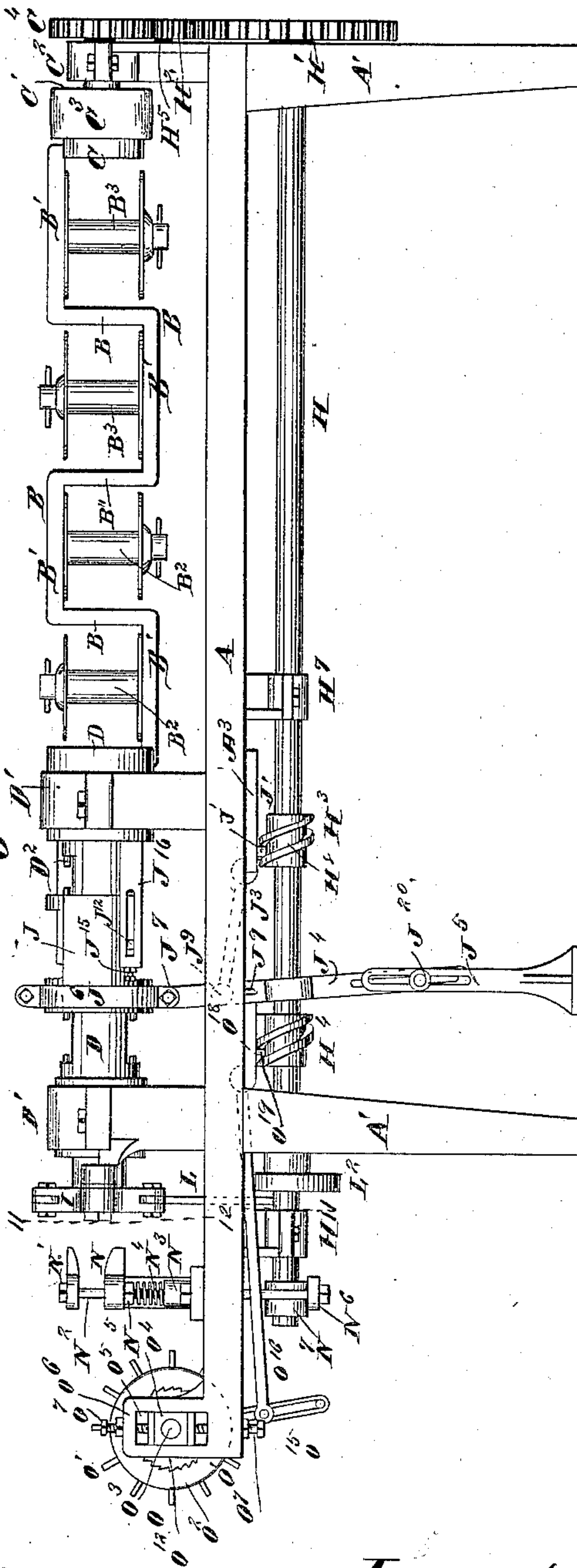
W. H. KING.
BARB WIRE MACHINE.

No. 313,741.

Patented Mar. 10, 1885.



Fitzg.



Attest;
Geo. L. Wheelock
Victor A. Lewis

Inventor:
William H. King
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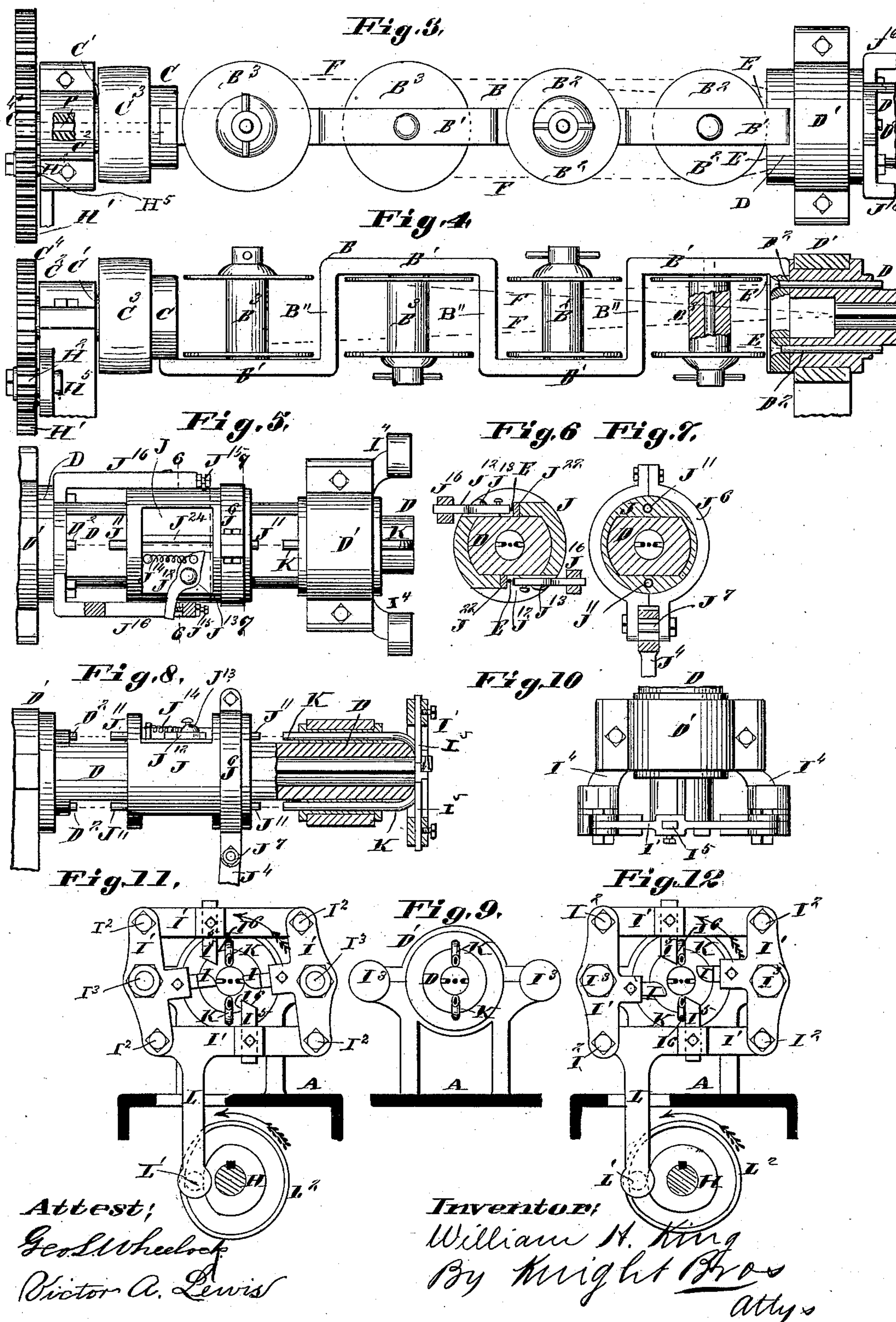
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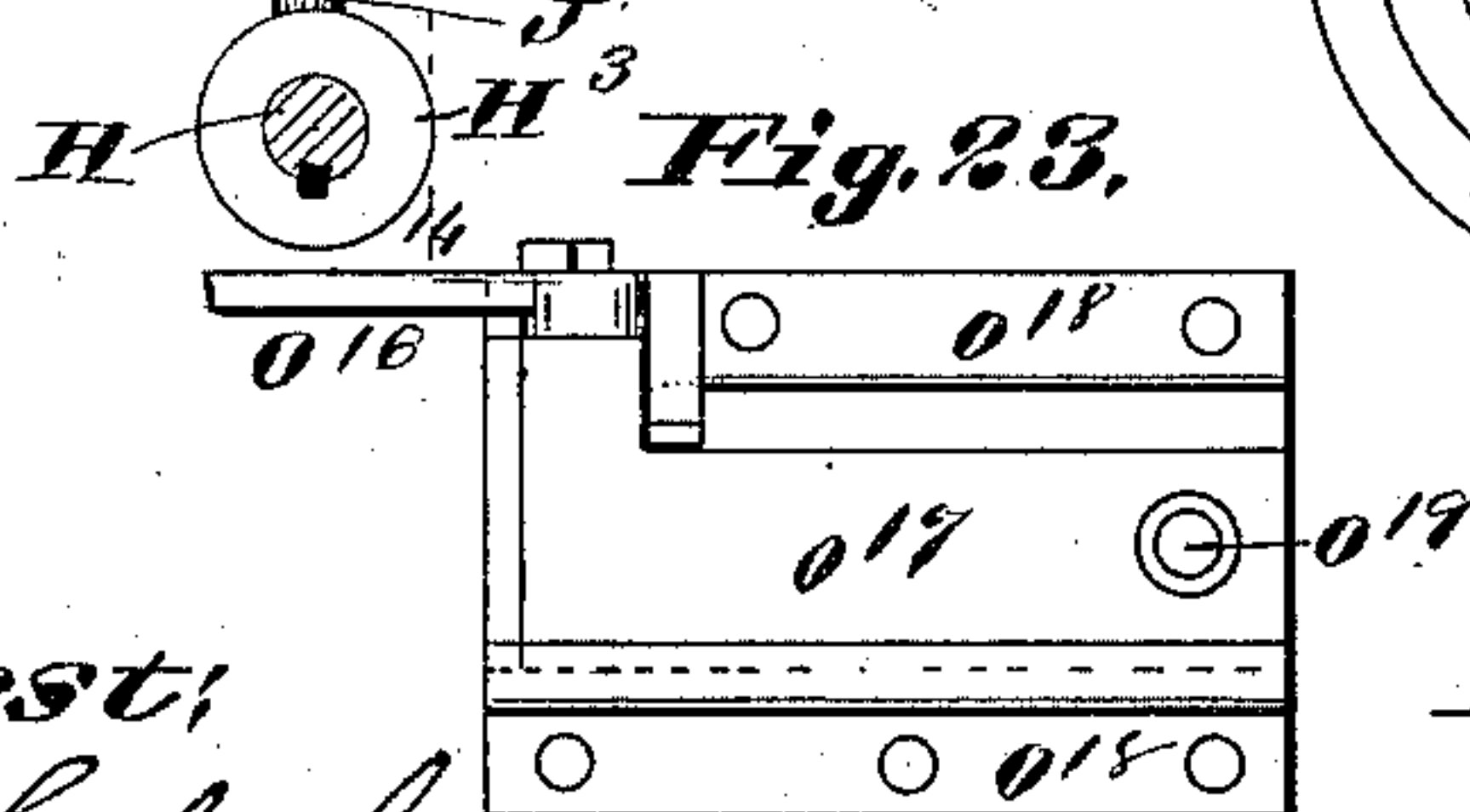
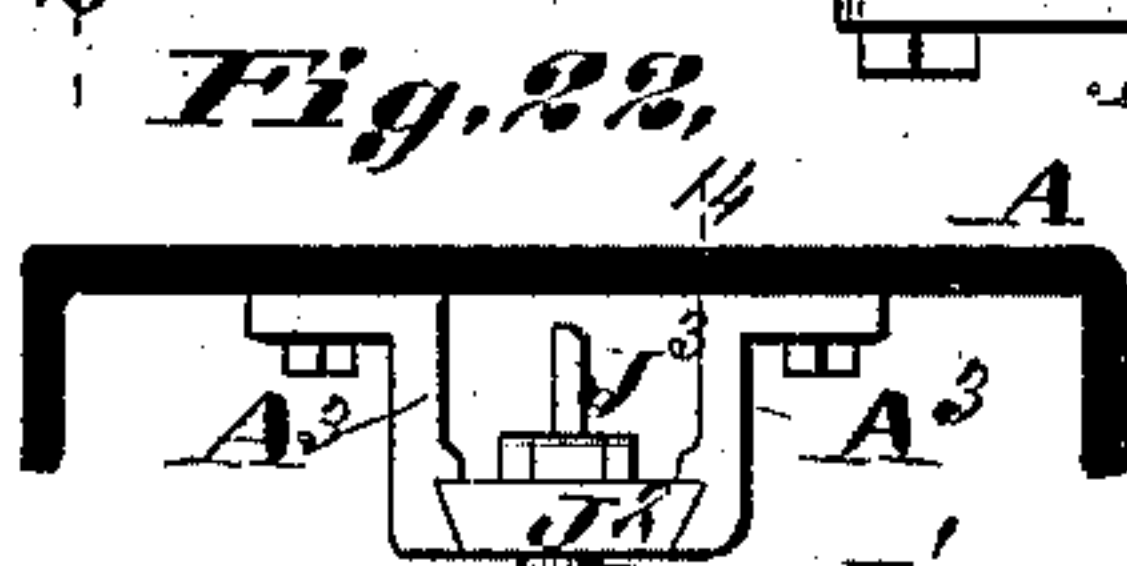
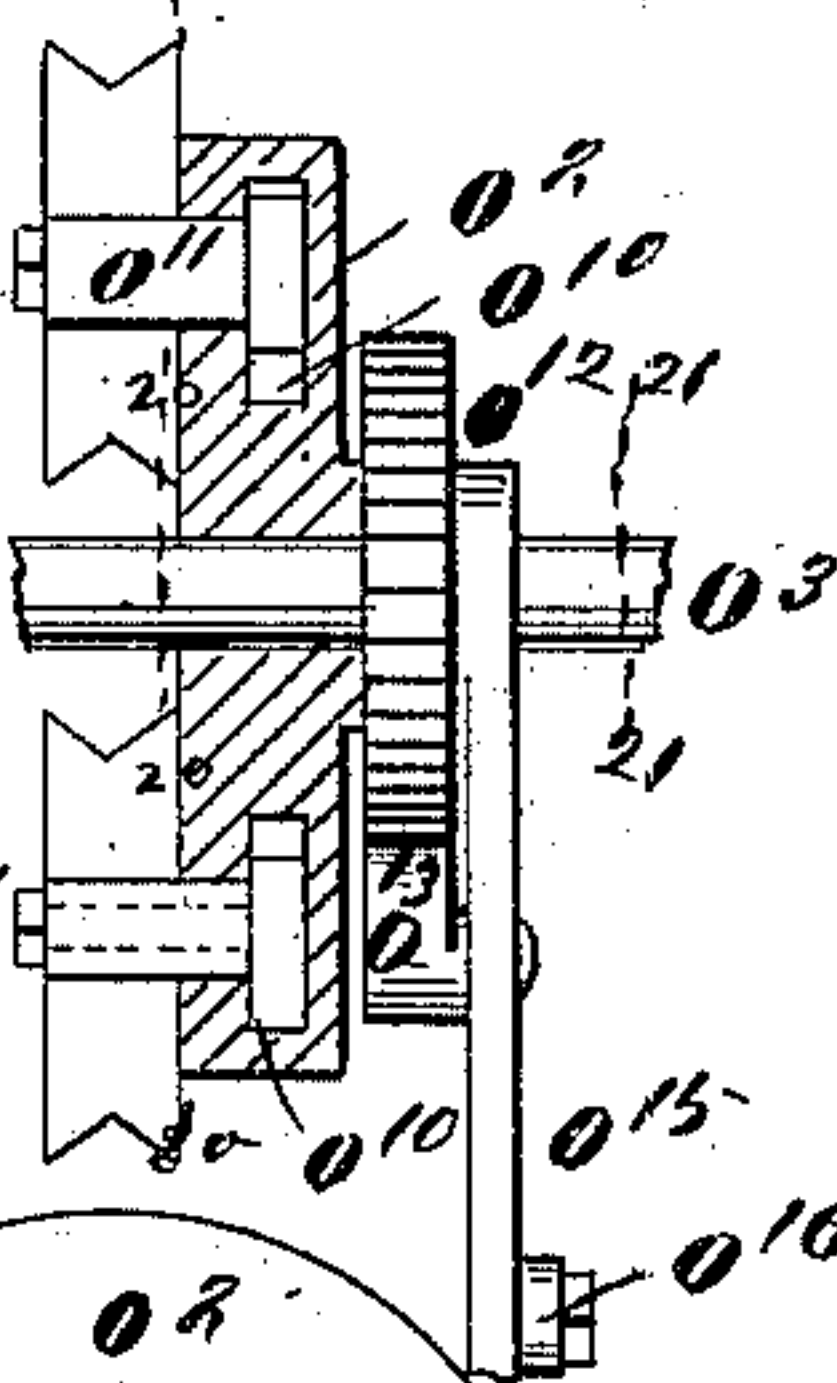
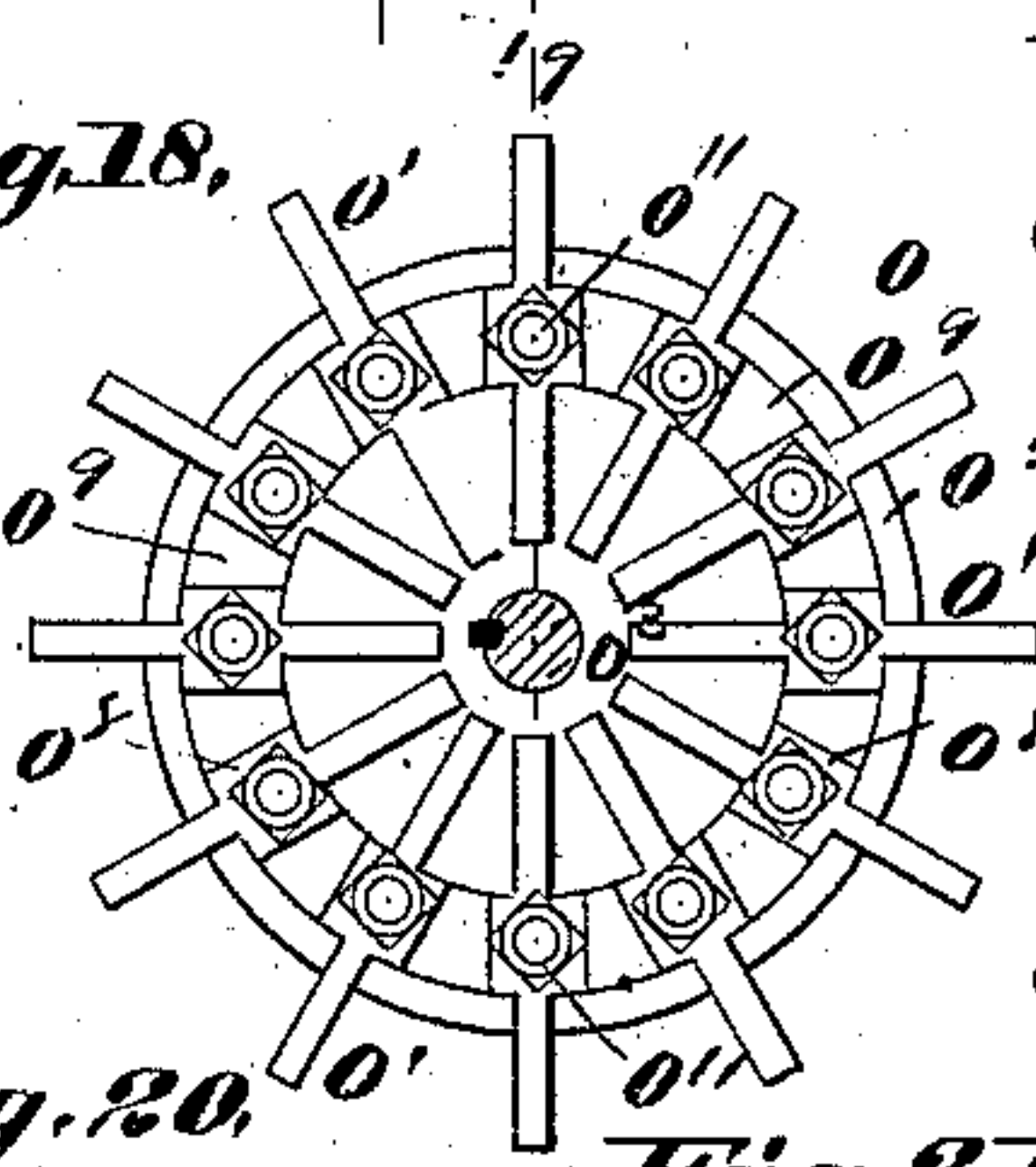
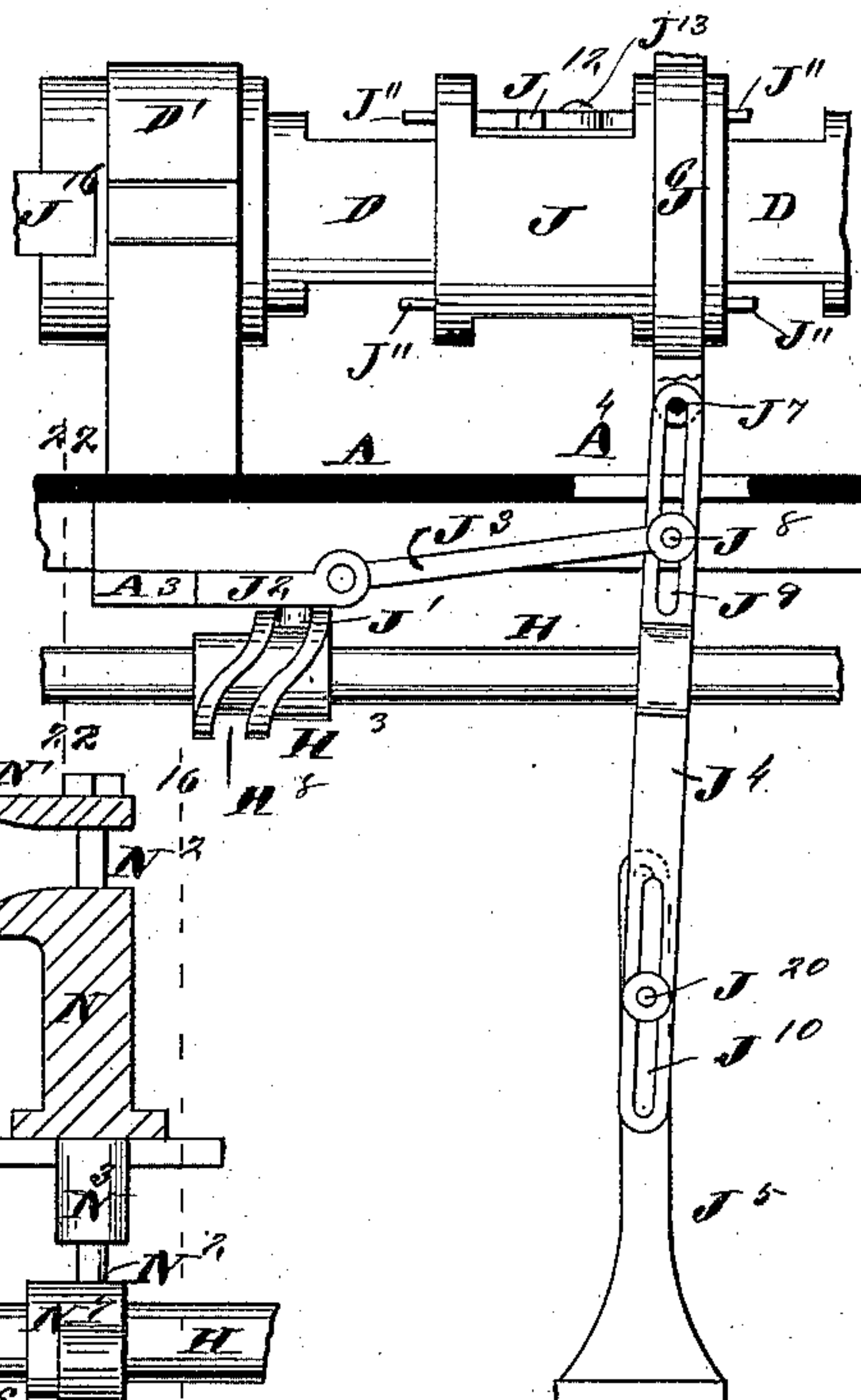
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UNITED STATES PATENT OFFICE.

WILLIAM H. KING, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
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BELLEVILLE, ILLINOIS.

BARB-WIRE MACHINE.

SPECIFICATION forming part of Letters Patent No. 313,741, dated March 10, 1885.

Application filed July 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. KING, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Barb-Wire Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

10 Figure 1 is a top view. Fig. 2 is a side elevation. Fig. 3 is an enlarged side view of the flier and adjacent parts. Fig. 4 is an enlarged side view of same, partly in section. Fig. 5 is an enlarged top view of the mechanism for
15 feeding the barb-wires forward. Figs. 6 and 7 are transverse sections taken, respectively, on lines 6 6 and 7 7, Fig. 5. Fig. 8 is part in side view and part in longitudinal section of this feed mechanism. Figs. 11 and 12 are vertical
20 sections taken on line 11 12, Fig. 2, showing the barb-formers and cutters in front view and in different positions. Fig. 10 is a top view of same; and Fig. 9 is an end view of the spindle, showing the supports of the frame that
25 carries the formers and cutters. Fig. 13 is an enlarged end view of the driving end of the machine. Fig. 14 is an enlarged detail vertical section taken on line 14 14, Fig. 22. Fig. 15 is an enlarged vertical section taken on line
30 15 15, Fig. 16. Fig. 16 is a vertical transverse section taken on line 16 16, Fig. 15, illustrating the compressor. Fig. 17 is a similar view taken on the same line, showing the platen in its lower position. Fig. 18 is a section on line 18 18, Fig. 1, illustrating the device for pulling the main wires forward. Fig.
35 19 is a section taken on line 19 19, Fig. 18. Fig. 20 is a face view of the feed-wheel, being taken through the shaft on line 20 20, Fig. 19. Fig. 21 is a view of the wheel, the section of shaft being taken on line 21 21, Fig. 19. Fig. 22 is a section taken on line 22 22, Fig. 14, and Fig. 23 is a bottom view of one of the slides and supporting-brackets.

45 My invention relates to a machine for making barbed fence-wire; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents
50 the bed-plate of the machine, supported on legs A'.

B represents the flier, consisting of a single

bar bent to form open spool-recesses, as shown in Figs. 2 and 4. The flier has longitudinal parts B' and transverse parts B''. Its rear end is
55 made fast to a hub, C, on a shaft, C', journaled in a box, C², secured to the bed-plate, and its front end is made fast to a spindle, D, supported in journal-boxes D', made fast to the bed-plate.

60 To the longitudinally-straight parts B' of the bar are secured the barb-wire spools B² and the main-wire spools B³, the wires E from the former passing forward through tubes or openings D² in the enlarged portion of the
65 spindle D, (see Fig. 4,) and the wires F from the latter passing forward through the spindle, which is made hollow to receive them. The flier is turned by means of a driving-pulley, C³, on the shaft C, having a cog-wheel, C⁴, which is connected to the main or cam shaft
70 H by a similar wheel, H', and a pinion, H². The shaft H is journaled in box H', depending from the bed-plate, and is provided with grooved cams H³ H⁴. (See Figs. 2 and 14.)
75 The pinion H² is journaled on the end of a short arbor, H⁵, fitting in a semicircular slot, H⁶, in an extension, A², of the bed-plate. (See Fig. 13.) It is held to any adjustment by means of a head on one end and a nut on the other.
80 (See Fig. 4.) The object of making this pinion adjustable is to permit a larger or smaller wheel, H' or C⁴, to be substituted for those in use to increase or decrease the speed of the flier, to give more or less twist to the main
85 wires.

Forward of the tubes or openings D² the spindle D is made flat, as shown in Figs. 5, 6, 7, and 8, for a distance, and at the termination of the flat portion the spindle has an enlarged portion or coiling-head journaled in a box, D', above mentioned.

90 Snugly fitting the flat portion of the spindle is a carriage or collar, J, which is free to be moved back and forth, but which, owing to the non-circular shape, is turned with the spindle. The collar is moved back and forth by means of the cam H³, having an eccentric groove, H³, in which fits a pin, J', depending from a slide, J², supported by brackets A³, secured to the bottom of the bed-plate. (See
100 Figs. 2 and 22.) The slide is connected by means of a link, J³, to an arm, J⁴, hinged by its lower end to a standard, J⁵, and connected

by its upper end to a yoke or ring, J^6 , that surrounds the collar, (see Figs. 2, 7, and 14,) the collar having a groove to receive the ring, so that it will be moved back and forth with the ring and at the same time turn with the flier.

J^7 (see Fig. 7) represents the bolt that connects the arm to the ring. The bolt J^8 , that connects the link J^3 to the arm, (see Fig. 14,) passes through a slot, J^9 , in the arm, so that the link can be adjusted up or down to regulate the movement of the collar, and this movement may also be regulated, if desired, by a slot, J^{10} , in the lower end of the arm, through which the bolt J^{20} , that connects the arm to the standard, passes. The upper end of the link works in a slot, A^4 , in the bed-plate. It will thus be seen that as the shaft H turns the collar J will be moved back and forth, feeding the barb-wires forward at intervals, which pass through perforations J^{11} in the collar, which is cut away, forming flat sides to expose the wires, so that they may be gripped by dogs J^{12} , (see Figs. 5, 6, and 8,) pivoted at J^{13} to the collar, and held against the wires by springs J^{14} . The dogs slip over the wires as the collar moves backward, and then as the collar moves forward they bite or engage the wires, carrying them forward the required distance to give enough wire for one barb. The wires need not be carried forward the full distance of the travel of the collar, but their feed is regulated by set-screws J^{15} , against which the outer ends of the dogs strike as the collar approaches the limit of its forward movement, and the dogs are thus disengaged from the wires, when the wires will cease to be carried forward by or with the collar; and it will be understood that by turning the screws in or out the dogs will be operated sooner or later, giving more or less feed to the wires, as desired. The screws pass through the ends of arms J^{16} , formed upon or secured to the spindle, and slotted, as shown in Figs. 5 and 6, to receive the outer ends of the dogs. The arms are outside of the collar, so that the collar moves back and forth within them. The arms of course turn with the spindle, but do not have endwise movement. From the collar the barb-wires pass through tubes K, secured in the enlarged portion above mentioned of the front end of the spindle. These tubes cause the wires to cross the end of the spindle, where they are caught by the formers in the same manner as in many other barb-wire machines.

I represents the formers, against which the barb-wires come as they are discharged from the tubes K, and by which they are held as the spindle turns to form the barb. They are secured to a rectangular frame consisting of four pieces, I^1 , connected at the corners by bolts I^2 , and supported on pins I^3 , projecting from extensions I^4 of the box D' (or its support) of the front end of the spindle. The formers are secured to the end pieces of the frame, (see Figs. 11 and 12,) and secured to the top and bottom

pieces are knives or cutters I^5 . When the barb has been formed, the frame is moved from the position shown in Fig. 12 to that shown in Fig. 11 (which causes the knives to come against the wires and cut the barb off) by means of a downwardly-projecting arm, L, formed upon or secured to one corner of the frame, and which has a pin, L' , on its lower end fitting in an eccentric groove of a cam, L^2 , on the shaft H. The cutting edges of the knives are marked I^6 , and they are simply pulled against the wires by the movement of the frame. When the barbs are completed, they are in the shape of a cross, the four points projecting in four different directions; and it is desirable, for certain purposes at least, to have the four points project in two directions only, (two in one direction and two in the other,) and for this reason I pass them through a compressor (see Figs. 1, 2, 15, 16, and 17) consisting of a table, N, platen N' above the table, rods N^2 , secured to the platen, and which pass downward through perforations in the table, guide-tubes N^3 , supported by the bed-plate of the machine, and through which the rods pass, spiral springs N^4 between the upper ends of the tubes, and nuts N^5 on the rods, and cross-bar N^6 , connecting the lower ends of the rods.

N^7 represents a cam on the shaft H, just over the bar N^6 . As the shaft H revolves, the cam pulls the platen down from the position shown in Fig. 16 to that shown in Fig. 17, and as the barb is at this time passing over the table N, its ends are pressed (between the platen and table) down, so as to project in two directions only, instead of four, as above stated. As soon as the cam has passed the springs N^4 raise the platen to relieve the barb and allow another to enter. The parts are so adjusted that the press operates upon one barb while another is being formed, so that the pressing as well as the forming of the barbs is done while the main wires are at rest, they being moved forwardly intermittently by a device hereinafter described. Should it be desired not to flatten the barbs, the press can be removed by simply taking off the plate or bar N^6 by removing the nuts on the lower ends of the rods N^2 , which will permit the press to be raised up out of the slot A^6 in the bed-plate, in which it is supported by a cross-piece, A^7 , made fast to the tubes N^3 , the table N being made fast to the cross-piece. The main wires are moved forward intermittently by a sprocket-wheel, O, consisting of arms O' on a disk, O^2 , secured to a shaft, O^3 , journaled in boxes O^4 , fitting in slots O^5 of extensions or projections O^6 of the bed-plate. (See Figs. 1, 2, 18, and 19.) The boxes are made adjustable by set-screws O^7 , as shown in Figs. 1 and 2, so that the top of the wheel may always be kept in line with the table of the press. The arms are notched on their ends to receive the wires, and they are held to the disk by having square portions O^8 , that fit in a slot, O^9 , in the face of the wheel, the slot opening into an enlargement, O^{10} , in the wheel.

(See Fig. 19.) The arms are held in the slot by bolts O^{11} , having T-heads on their inner ends and nuts on their outer ends, the heads being passed through the slot and then turned into the enlargement, which locks the bolts to the disk. The wheel is turned by a ratchet-wheel, O^{12} , on its back, engaged by a pawl, O^{13} , (see Fig. 21,) held against the wheel by a spring, O^{14} , and pivoted to an arm or lever, O^{15} , fitting loosely on the shaft O^3 and projecting downward, having connected to its lower end a pitman or link, O^{16} , the other end of which is made fast to a slide, O^{17} , secured to the bottom of the bed-plate by brackets O^{18} , similar to those A^3 . The slide has a pin, O^{19} , that fits in an eccentric groove in the cam H^4 . It will thus be seen that the sprocket-wheel will be turned intermittently as the shaft H revolves, and the distance it turns each time may be regulated by moving the end of the pitman up or down, for which purpose the end of the arm or lever O^{15} is slotted, as shown in Fig. 21.

A single wire may be barbed with my machine, and in that case the main-wire spools would be left off the flier and the main wire passed through an opening or perforation, P , in the shaft C' . (See Fig. 3.) The collar J has strips J^{22} , against which the barb-wires are pressed by the dogs. The springs J^{14} could be dispensed with, and the dogs made to bite or take hold of the wires by their outer ends coming against the back ends of the slots in the arms J^{16} .

I claim as my invention—

1. A flier for barb-wire machines, consisting of a bent bar formed with longitudinal parts B' and transverse parts B'' , providing open spool-recesses and spools secured to the longitudinal parts.

2. In combination with the flier-shaft having a cog-wheel, main shaft having a cog-wheel, and a frame in which the shafts are mounted, the extension A^2 , having a slot, H^6 , and a pinion, H^2 , having arbor H^3 , adjustable in said slot.

3. The combination of the flier-spindle having perforations for the main and barb wires, boxes in which the spindle is mounted, a carriage sliding on said spindle, having means for grasping the barb-wires in its forward movement, and means by which the carriage is reciprocated on the spindle.

4. In a barb-wire machine, the combination of the non-circular spindle, collar fitting thereon, and provided with dogs adapted to engage with and carry the barb-wires forward, and means for reciprocating the collar, consisting of an arm made fast to a ring on the collar, a standard to which the arm is hinged, a slide connected to the bed-plate by suitable brackets, a link connecting the slide to said arm, a cam on an operating-shaft and eccentrically grooved, and a pin on the slide fitting in the groove in the cam, substantially as set forth.

5. In a barb-wire machine, the combination of the spindle, reciprocating collar, dogs secured to the collar and adapted to engage and carry the barb-wires forward, arms secured to the spindle, and having slots to receive the outer ends of the dogs, and set-screws in the arms to disengage the dogs from the wires, substantially as and for the purpose set forth.

6. A former and cutter frame consisting of a suitable support having pins $I^3 I^3$, rectangular frame having four pieces, $I' I' I' I'$, bolts connecting the ends of the pieces, the end pieces being supported on the pins, suitable knives and formers secured to the pieces, and means by which the frame is swung sidewise on the pins to advance and withdraw the formers and cutters.

7. The combination, with a supporting-frame, of a compressor consisting of a table supported on the frame, platen, springs to support the platen, rods connected to the platen, and cross-bar connecting the rods, and means by which the platen is operated.

8. A compressor for barb-wire machines, consisting of a table, N , platen N' , rods N^2 , guide-tubes N^3 , spiral springs N^4 , nuts N^5 , and cross-bar.

9. In a barb-wire machine, the compressor consisting of a table, platen, rods connected to the platen, tubes through which the rods pass, spiral springs between the upper ends of the tubes, and nuts on the rods, and a cross-bar connecting the lower ends of the rods, in combination with a cam on an operating-shaft, substantially as and for the purpose set forth.

10. In a barb-wire machine, a sprocket feed-wheel consisting of a disk having an interior opening, and a slot in its face communicating with the opening, and notched arms with square portions fitting in the slot in the disk, and held therein by bolts the heads of which fit in the opening in the disk, substantially as set forth, the wheel being supported on a suitable shaft, and having suitable means for operating it.

11. In a barb-wire machine, the sprocket-wheel, constructed as specified, in combination with a ratchet-wheel secured to the back of the sprocket-wheel, arm fitting loosely on the shaft of the wheel, pawl pivoted to the arm and engaging the ratchet-wheel, link or pitman connected to the lower end of the arm, slide to which the link is connected, and which is secured by brackets to the bed-plate of the machine, eccentrically-grooved cam secured to an operating-shaft, and a pin on the slide fitting in the groove in the cam, substantially as set forth.

WM. H. KING.

In presence of—

GEO. H. KNIGHT,
SAML. KNIGHT.