

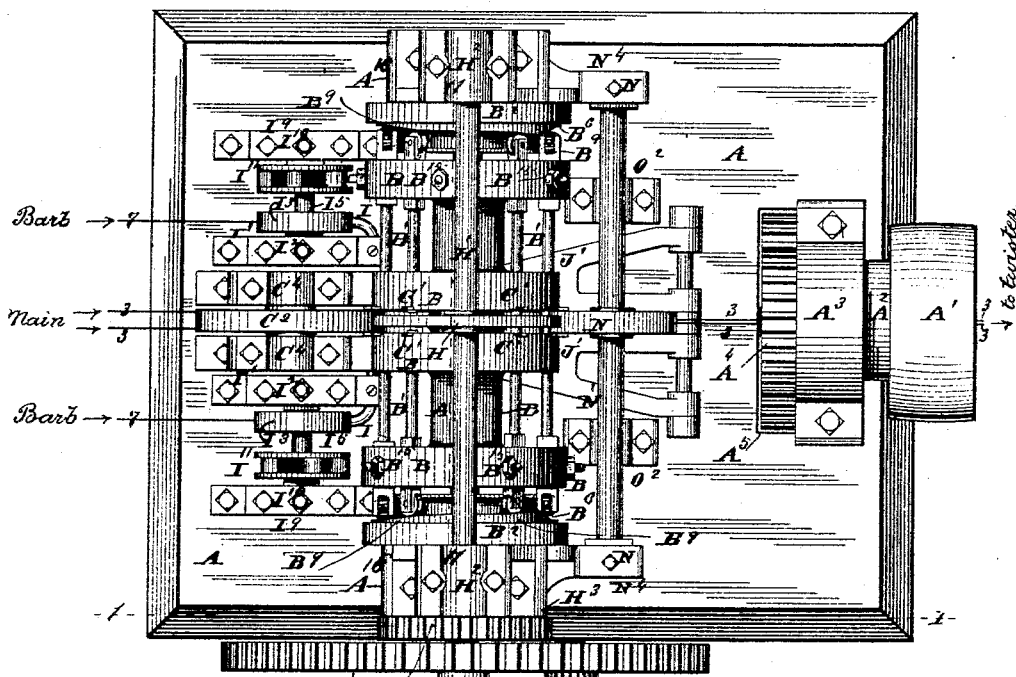
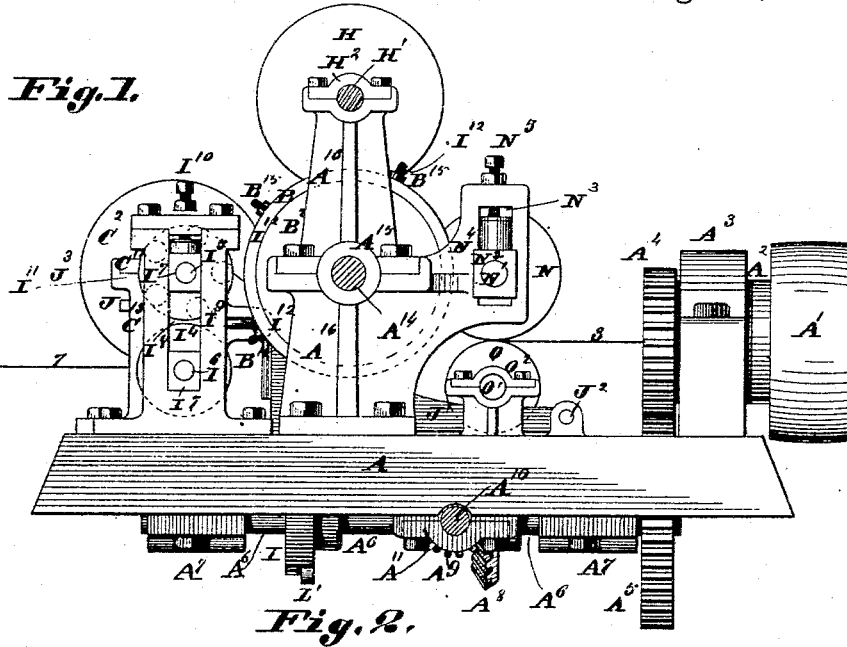
(No Model.)

4 Sheets—Sheet 1.

G. GRIESCHE.
BARB WIRE MACHINE.

No. 303,838.

Patented Aug. 19, 1884.



Attest: *Edmund Stein*
Geod. Wheelock

Inventor:
Gustav Griesche
By *Knight Bros*
attys

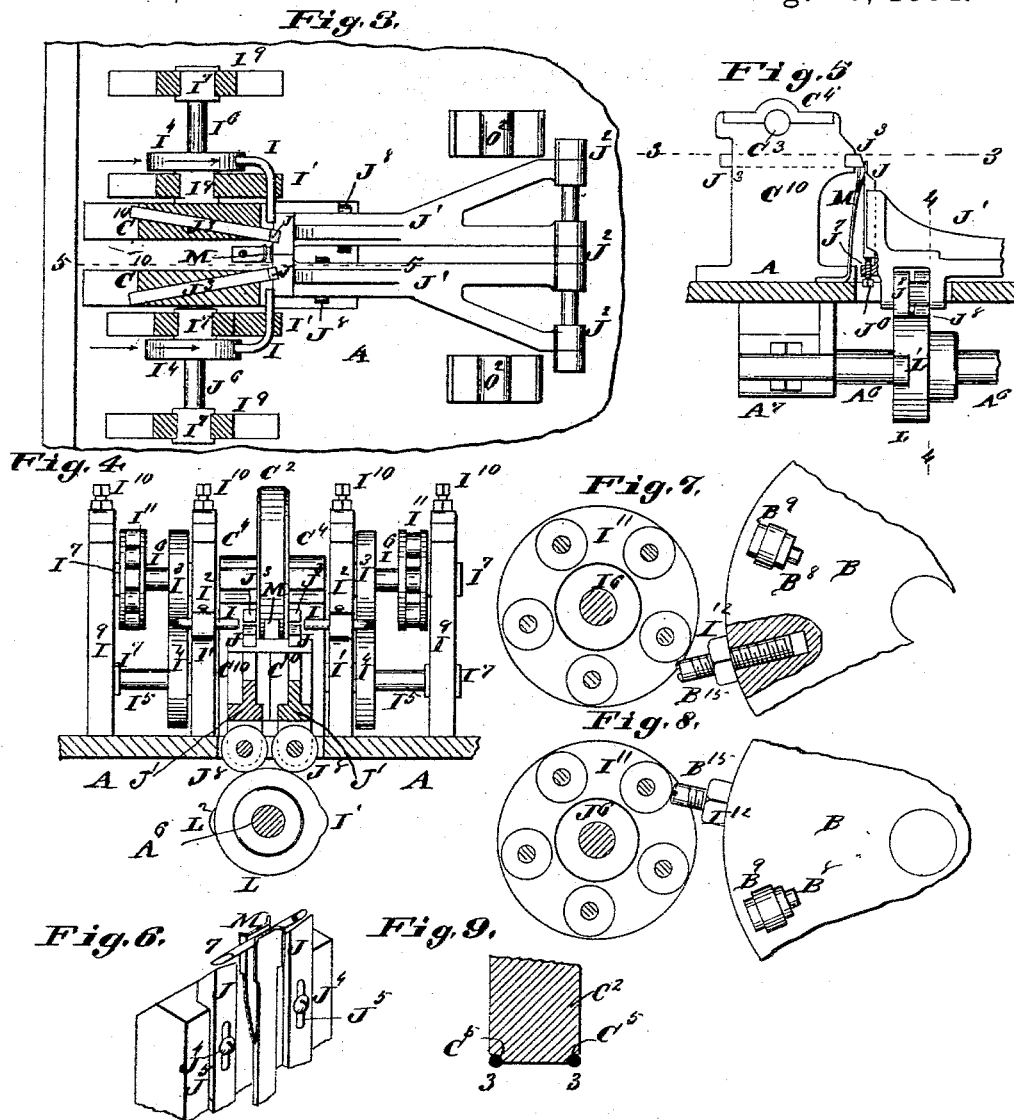
(No Model.)

4 Sheets—Sheet 2.

G. GRIESCHE.
BARB WIRE MACHINE.

No. 303,838.

Patented Aug. 19, 1884.



Attest:

Edmund Stein
Ger. Luthardt

Inventor:

Gustav Griesche
By Knight Bros
Attys

4 Sheets—Sheet 3.

No. 303,838.

Patented Aug. 19, 1884.

Fig. 10.

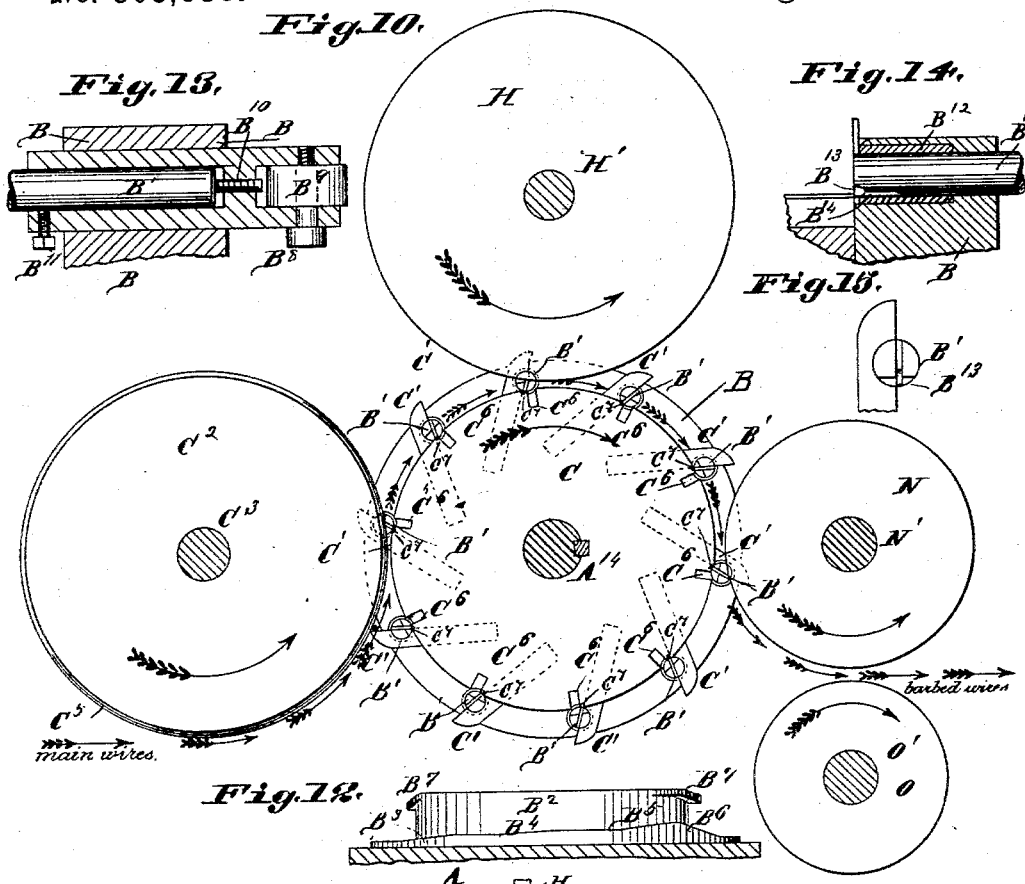
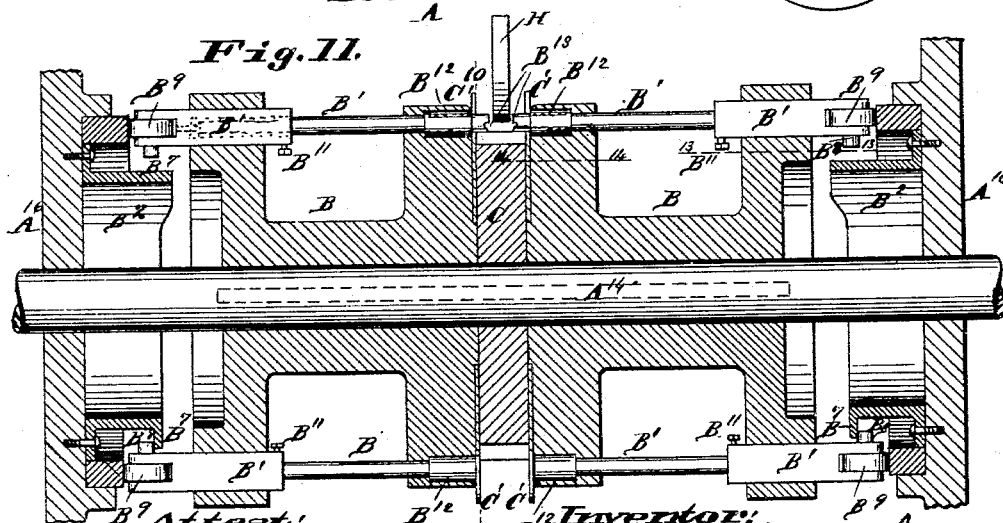


Fig. 18.



Attest:

Edmund Steer.

Geo. L. Wheeler

$B^{1/2}$ $C^{1/2}$ $B^{1/2}$ Inventor;

Inventor:
Gustav Lysieche
By Knight Bros
attys

G. GRIESCHE.
BARB WIRE MACHINE.

No. 303,838.

Patented Aug. 19, 1884.

Fig. 16.

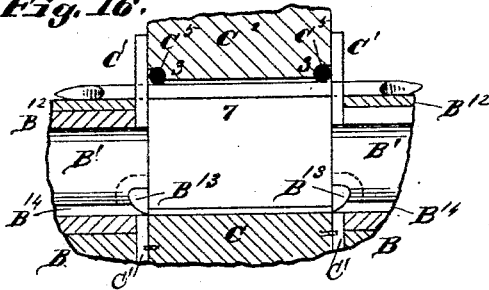


Fig. 17.

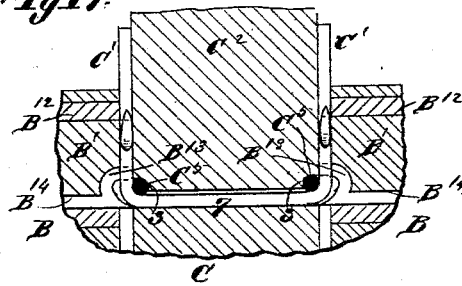


Fig. 18.

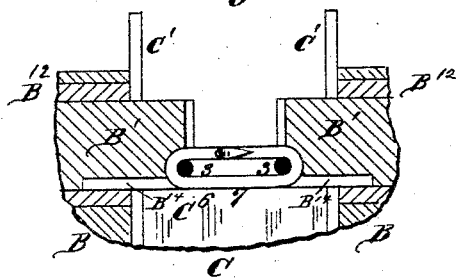


Fig. 19.

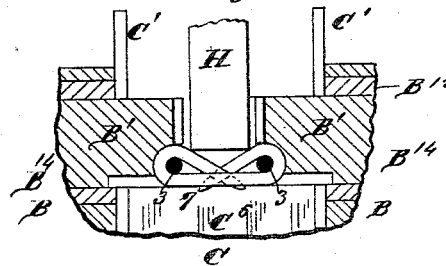


Fig. 20.

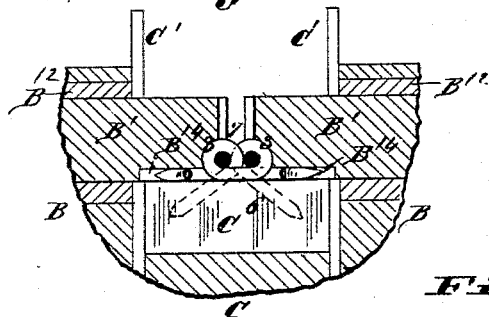


Fig. 21.

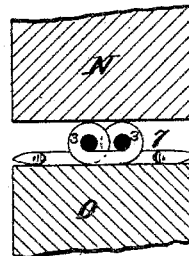
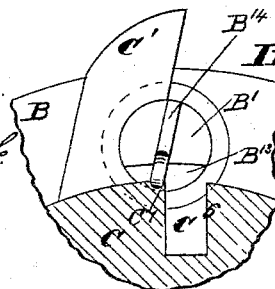


Fig. 22.



Attest:
Edmund Stur
Geo. S. Wheelock

Inventor:
Gustav Griesche
Ray Knight Bros
Attys

Fig. 23.



UNITED STATES PATENT OFFICE.

GUSTAV GRIESCHE, OF ST. LOUIS, MISSOURI.

BARB-WIRE MACHINE.

SPECIFICATION forming part of Letters Patent No. 303,838, dated August 19, 1884.

Application filed March 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV GRIESCHE, 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—

Figure 1 is a vertical section taken on line 1 1, Fig. 2. Fig. 2 is a top view. Fig. 3 is a horizontal section taken on line 3 3, Fig. 5. Fig. 4 is a vertical section taken on line 4 4, Fig. 5. Fig. 5 is a vertical section on line 5 5, Fig. 3. Fig. 6 is a perspective view of the moving knives or cutters and the barb-holder. Figs. 7 and 8 are detail side views, parts in section, of the device for moving the barb-wire. Fig. 9 is a detail section of the grooved feed roller or wheel of the main wires. Fig. 10 is a vertical transverse section taken on line 10 10, Fig. 11. Fig. 11 is a vertical longitudinal section taken on line 11 11, Fig. 2. Fig. 12 is an enlarged view of one of the cams for operating the formers. Fig. 13 is a section on line 13 13, Fig. 11. Fig. 14 is a section on line 14 14, Fig. 11. Fig. 15 is an end view of one of the formers, showing the end of one of the fingers. Figs. 16, 17, 18, 19, 20, 21, and 22 are diagrams illustrating the manner of forming the barb. Fig. 23 is a view of the complete barb.

This invention relates to a barb-wire machine which applies the barbs during the movement of the main wires; and this invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the bed-plate of the machine, which would rest upon proper supports.

A' represents a driving-pulley on a shaft, A², journaled in a box, A³, secured to the bed-plate A. The shaft is hollow, and through it pass the main wires 3 3, after the barbs have been applied. The wires pass from the hollow shaft to a flier, (not shown,) which twists them.

7 7 represent the wires from which the barbs are cut.

On the inner end of the shaft or spindle A² is a cog-wheel, A⁴, meshing into a similar

wheel, A⁵, on a shaft, A⁶, journaled in boxes A⁷, secured to the under side of the bed-plate. On the shaft A⁶ is also a miter-wheel, A⁸, meshing into a similar wheel, A⁹, on a transverse shaft, A¹⁰, journaled in boxes A¹¹, secured to the bed-plate.

On the outer end of the shaft A¹⁰ is a pinion, A¹², which meshes into a large cog-wheel, A¹³, on a shaft, A¹⁴, journaled in boxes A¹⁵, secured to standards A¹⁶, supported on the bed-plate.

On the shaft A¹⁴ are heads B, carrying reciprocating barb-formers B', (see Fig. 11,) operated by cams B², rigidly secured to the standards A¹⁶. The cams have inclines B³ B⁴ B⁵, (see Fig. 12,) for pushing the barb-formers forward to produce the different parts or bends of the barbs, and have inclines B⁶, to allow the formers to be drawn back by flanges B⁷ on the peripheries of the cams which engage pins B⁸ on the inner end of the formers.

The formers preferably have friction-rollers B⁹, against which the cams bear. It will thus be seen that as the shaft A¹⁴ is turned by the described gearing, carrying the formers around, the formers will be forced forward at intervals, (producing the barb, as hereinafter explained,) and then are drawn back as the shaft continues to rotate, to be in position to form another barb.

Each former is preferably made in two parts, the inner part telescoping the outer part, (see Fig. 13,) and adjusted by a set-screw, B¹⁰, reached by removing the friction-roller, and held to its adjustment and kept from turning by a set-screw, B¹¹. Wear of the formers can thus be compensated for, so that they can always be kept the same length. The heads are provided with steel bushings B¹², through which the inner ends of the formers pass. (See Figs. 11 and 14.) In the inner ends of the formers are notches B¹³ and grooves B¹⁴, which receive the ends of the wires in forming the barb.

On the shaft A¹⁴, between the heads B, is a wheel or disk, C, consisting of a separate piece or an extension of one of the heads and of less diameter than the heads, to which are secured fingers C', which project beyond the periphery of the wheel, and are inclined, as shown in Fig. 10. There is a set of these fingers on each side of the disk, (see Fig. 16,) and they act to

remove the barbs from the holder shown in Fig. 6, (passing between the holder and knives or cutters,) and carry them up between the disk C and a roller, C², secured to a shaft, C³, journaled in boxes C⁴, secured to standards C⁵, resting on the bed-plate. The roller C² fits between the heads B, and as the barbs are carried up by the fingers C¹ between the disk C and the roller C² they are bent into the form shown in Fig. 17. The main wires 3 pass up between the roller C² and the disk C, as shown by arrows, Fig. 10, and the roller has grooves C³, (see Figs. 9 and 10,) to receive them. They pass between the two series of fingers, as shown in Fig. 16. Before the barbs leave the roller C² the formers come against the inclines B³ of the cams and are advanced tight up against the wires, and as the barbs leave the roller C² the formers come against the inclines B⁴ of the cams and are moved forward, bending the barb into the position shown in Fig. 18, and then the barbs pass under a narrow roller, H, (see Figs. 1, 2, 10, 11, and 19,) which is secured to a shaft, H¹, journaled in boxes H², supported by the standards A¹⁶. This shaft may be turned by a cog-wheel, H³, thereon, engaged by a wheel on the shaft A¹⁴. (Not shown.) The wheel H fits between the formers and presses the barb from the position shown in Fig. 18 to that shown in Fig. 19, and as the barb leaves the roller H the formers are again advanced by the inclines B³ of the cams, and press the barbs into the position shown in Fig. 20, bending them around the main wires, as shown in Fig. 23. As this part of the barb is being formed, the central part rests in a cross-groove, C⁷, (see Figs. 10 and 22,) on the periphery of the wheel or disk C, and the ends enter recesses C⁶. (See Figs. 19, 20, and 22.) These recesses are necessary to permit the barbs to be bent. The formers having now completed their function, they are withdrawn by the flanges B⁷ on the cams B², which engage the pins B⁸ on the formers, as above described. The inclines B⁶ permit the backward movement of the formers.

N represents a roller on the opposite side of the disk C to the roller C², which is secured to a shaft, N¹, journaled in boxes N², fitting in slots N³ (see Fig. 1) in projections N⁴ of the standards A¹⁶. The boxes can move vertically in the slots N³, to allow the roller to be moved slightly from or to the disk for different-sized main wires, and to compensate for wear. This vertical movement of the roller may be regulated by set-screws N⁵. (See Fig. 1.) The rollers C² and N move the main wires forward over the disk C. As they are bent out of a straight line in passing over the disk, they are not liable to slip. A roller, O, may be located beneath the roller N, secured to a shaft, O¹, journaled in boxes O², secured to the bed-plate A. As the main wires with the barbs pass between these rollers N O, the barbs are flattened down. After passing between the rollers N O, the main wires pass through the hol-

low shaft A² and to a flier of any ordinary construction, where they are twisted together, as usual. The barb-wires 7 are moved forward alternately, and pass through bent tubes I, (see Figs. 1, 3, and 4,) secured to the standards I¹, through which they pass, and held to any adjustment by set-screws I². (See Fig. 4.) These barb-wires, before passing through the tubes I, pass between feed-rollers I³ I⁴, (see Figs. 3 and 4,) secured, respectively, to shafts I⁵ I⁶, journaled in boxes I⁷, fitting in vertical slots I⁸ of the standards I¹ and outer standards, I⁹. The boxes of the upper rollers, I⁷, may move in the slots I⁸ to allow the passage of 80 wires of different sizes, and they may be held at any point by set-screws I¹⁰, passing down through the tops of the standards. (See Figs. 1 and 4.) The feed-rollers are turned to advance the wires 7 alternately by pins B⁵, projecting from the peripheries of the heads B, which engage with rag or sprocket wheels I¹¹ (see Figs. 2, 7, and 8) on the shafts I⁵. The pins are preferably screwed into the heads, as shown in Fig. 7, so as to be lengthened or shortened, and are held to their adjustment by jam-nuts I¹². As the barb-wires are fed forward, they are cut off into proper lengths by movable knives or cutters J—one for each wire—acting against stationary knives J³, secured in the standards C¹⁰. (See Figs. 3 and 5.) The knives J are secured to arms J¹, hinged at J² to the bed-plate A. (See Figs. 3, 4, 5, and 6.) The cutters are secured to the free ends of the arms by set-screws J⁴, fitting in slots J⁵ in the cutters and screwing into the vertical parts of the arms. (See Fig. 6.) They are adjusted from beneath by set-screws J⁶, passing through lugs J⁷ on the arms. (See Fig. 5.) The free ends of the arms are raised to operate the cutters J by means of a collar, L, on the shaft A⁶, provided with cams L¹ L², which respectively come in contact with friction-rollers J⁸, journaled to the arms. (See Figs. 1, 3, 4, and 5.) As the barbs are cut off, they fall into or are held by a holder, M, secured to the bed-plate, (see Figs. 5 and 6,) consisting of a plate forked at its upper end either by being split or by having a piece attached. The barbs are held by this holder until removed by the fingers C¹, as above described.

I claim as my invention—

1. In a barb-wire machine, the combination of the oppositely-placed formers secured in and adapted to have endwise movement in suitable revolving heads, and the stationary cams, each having two or more inclines for forcing the formers forward at intervals to bend the barbs, substantially as set forth.

2. In a barb-wire machine, the combination of the oppositely-placed formers secured in revolving heads, and adapted to have endwise movement therein, the stationary cams, each having two or more inclines, and a flange for drawing the formers back by engaging with pins thereon after they have been moved forward, substantially as set forth.

3. In a barb-wire machine, the fingers secured to a revolving disk for carrying the barbs up between the disk and a roller, in combination with heads of greater diameter than the disk, and arranged to revolve with the disk, and carrying formers operated by suitable cams, the said roller bending the barbs down between the heads against the disk, substantially as set forth.
4. In a barb-wire machine, the revolving disk, and heads provided with fingers and formers for carrying and bending the barbs, and means for operating the formers, in combination with the rollers for bending the barbs down between the heads against the disk, substantially as set forth.
5. In a barb-wire machine, the combination of revolving heads, formers oppositely placed therein, disks between the heads to revolve with the latter, fingers carried between the heads and disk, roller having grooves for passing the wires and pressing down the barbs, and a roller to press down the barbs after the grooved roller, and each roller forming a different part of the barbs, as set forth.
6. In a barb-wire machine, the combination of the revolving heads carrying oppositely-placed formers, operated by suitable mechanical means, and the revolving disk having recesses for the reception of the ends of the barb-blanks while the barbs are formed, and a roller to work against the disk, as set forth.
7. In a barb-wire machine, the combination of the revolving disk and revolving heads carrying formers, fingers between the disk and heads, means for operating the formers, and the triangularly-arranged rollers above, in advance of, and in rear of the disk, as set forth.
8. In a barb-wire machine, the combination of the disk and heads carrying fingers and formers, means for operating the formers, the triangularly-arranged rollers above, in advance of and in rear of the disk, and the roller O, be-

neath the rear roller, all arranged and operated substantially as and for the purpose set forth.

9. In a barb-wire machine, the combination of revolving heads, oppositely-placed formers in said heads, consisting of two parts, one part adjustable within the other part by a set-screw, and stationary cams for reciprocating the formers, as set forth.

10. In a barb-wire machine, the combination of the revolving heads provided with pins on their peripheries, the feed-rollers between which the barb-wires pass, and sprocket-wheels on the feed-roller shafts, adapted to be engaged by the pins on the heads, substantially as and for the purpose set forth.

11. In a barb-wire machine, the combination of the revolving heads provided with adjustable pins on their peripheries, the bent tubes through which the barb-wires pass, the feed-rollers between which the barb-wires pass, and the sprocket-wheels on the feed-roller shafts, with the roller for bending the barb down between the heads and against the disk, and with the roller for bending the free ends of the barbs around the main wires, all arranged and operating substantially as and for the purpose set forth.

12. In a barb-wire machine, in combination with the stationary knives or cutters, the moving cutters secured to pivoted arms, operated by a collar secured to a revolving shaft, and having two cams out of line with each other, substantially as and for the purpose set forth.

13. In a barb-wire machine, the combination, with the revolving disk carrying fingers, of the knives for cutting off the barbs, and the forked holder adapted to receive the barbs as they are cut off, and retain them until removed by the fingers, substantially as set forth.

GUSTAV GRIESCHE.

In presence of—

GEO. H. KNIGHT,
SAML. KNIGHT.