H. B. SCUTT & H. S. SMITH.

2 Sheets—Sheet 1

Machine for Making Wire Cables.

No. 204,686.

Patented June 11, 1878.

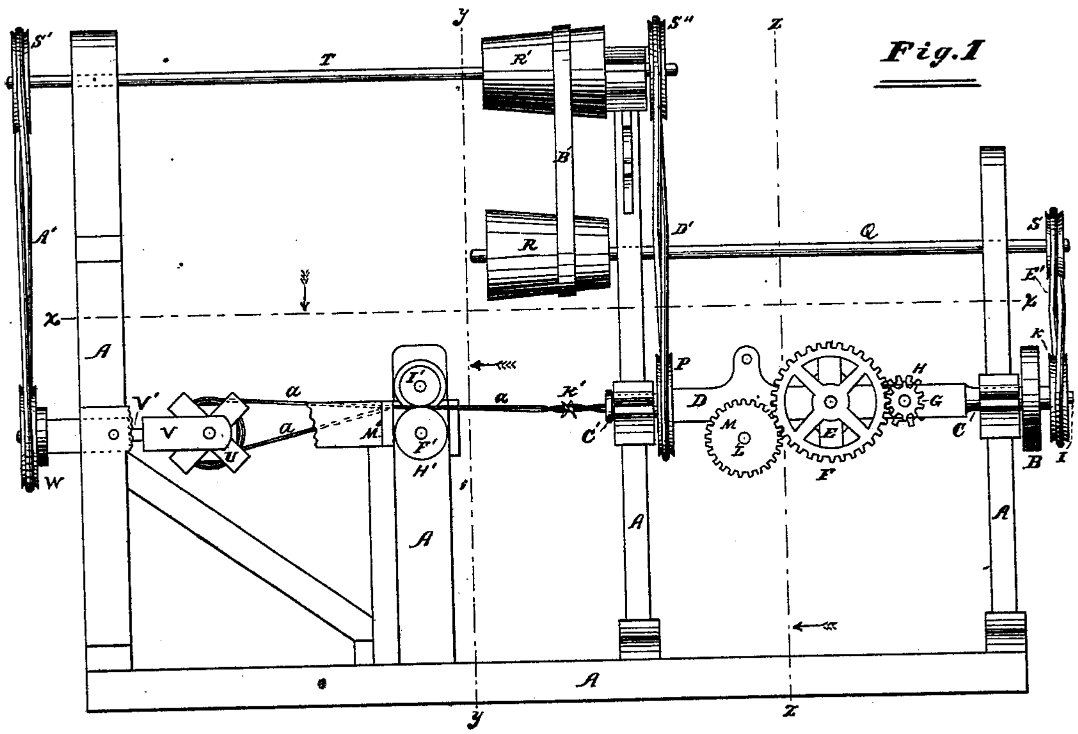

Fig. 1

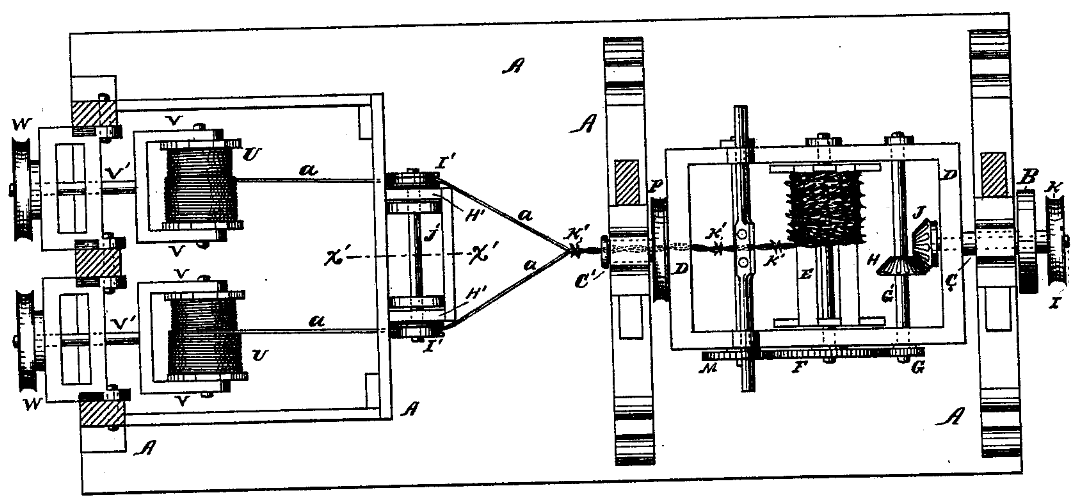

Fig. 2

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2 Sheets—Sheet 2.

H. B. SCUTT & H. S. SMITH.

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Fig.3

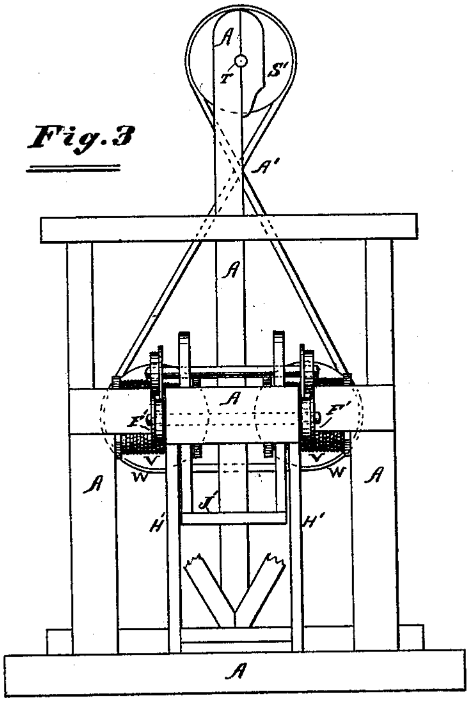
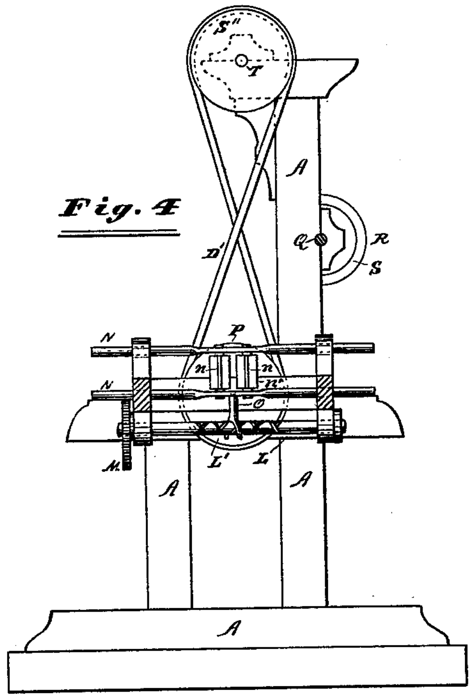


Fig. 4



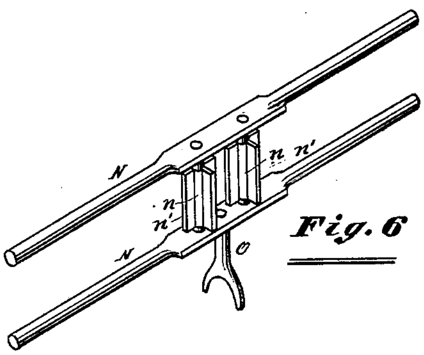


Fig. 6

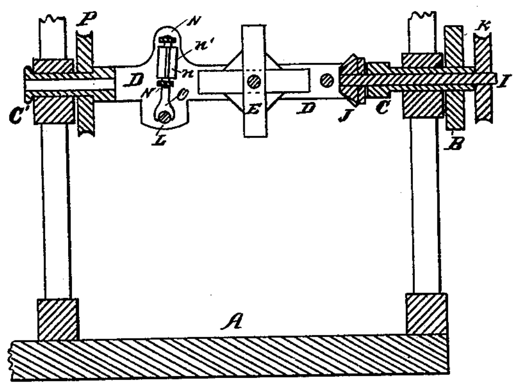


Fig.5

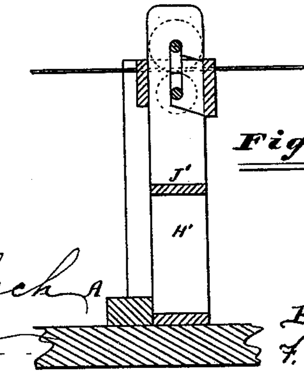


Fig.7

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UNITED STATES PATENT OFFICE.

HIRAM B. SCUTT AND HORACE S. SMITH, OF JOLIET, ILLINOIS.

IMPROVEMENT IN MACHINES FOR MAKING WIRE CABLES.

Specification forming part of Letters Patent No. **204,686**, dated June 11, 1878; application filed October 11, 1877.

To all whom it may concern:

Be it known that we, HIRAM B. SCUTT and HORACE S. SMITH, both of Joliet, in the county of Will and State of Illinois, have jointly invented certain new and useful improvements in the art of making twisted-wire cables for barbed-wire fences, and in the mechanism employed therefor, of which improvements the following is a full, clear, and exact description, which will enable others skilled in the art to which our invention appertains to make our improvements and apply them to use, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1, Sheet 1, is a side elevation of a machine embodying our improvements; Fig. 2, Sheet 1, a horizontal section in the plane of the line *x x* of Fig. 1, showing a top or plan view of the parts below the said line; Fig. 3, Sheet 2, an end elevation of the parts to the rearward of the line *y y* of Fig. 1; Fig. 4, Sheet 2, a section in the plane of the line of last-mentioned figure, *z z*. Fig. 5, Sheet 2, is a vertical central longitudinal section of the driving-shaft and the parts mounted thereon; Fig. 6, Sheet 2, a perspective view of some of the distributing or guiding mechanism; and Fig. 7, Sheet 2, a vertical section in the plane of the line *x' x'* of Fig. 2.

Like letters of reference indicate like parts.

In the drawing, A represents the frame of the machine. B is the driving-wheel, and C is a hollow shaft, on which the wheel B is mounted rigidly. D is a frame, rigidly attached at one end to the shaft C; and C' is a hollow trunnion, supporting the other end of the frame D, the shaft and trunnion having suitable bearing in the frame A, and being arranged in a line passing longitudinally and centrally through the frame D. E is the cable-reel, the arbor of which turns in bearings in the sides of the frame D. F is a spur-wheel on the arbor of the reel E. G is a pinion on the shaft G', and H is a miter-wheel on the same shaft. The shaft G' turns in bearings in the sides of the frame D, and the pinion G engages the wheel F. I is a shaft passing through the shaft C; and J is a miter-wheel, arranged to engage the wheel H, and carried by the shaft I. K is a belt-wheel on the shaft I. L is a shaft having a reverse-acting or endless spiral groove, L', cut therein. M is a spur-wheel on the shaft L, and arranged to engage the wheel F. The shaft L is parallel to the reel E. N N are parallel sliding bars, arranged parallel to the reel E. *n n* are posts, arranged vertically between the bars N N, and turning in bearings therein. The posts *n n* may be provided with radial wings *n' n'*, as shown in Figs. 4, 5, and 6. O is a vertical post, passing freely through the lower bar N, and having a curved base, resting in the groove L'. P is a belt-wheel, rigidly mounted on the hollow trunnion C'.

Q is a shaft arranged above the frame D, and carrying the conical pulley R and the belt-wheel S. T is a shaft arranged in the upper part of the rear portion of the frame A, and carrying the conical pulley R' and the belt-wheels S' and S''.

U U are the reels upon which the strands are wound. These reels turn freely on their axles, and the latter are mounted in bearings V V, carried by the shafts V' V', respectively, these shafts being arranged at right angles to the axles of the reels V V, as shown in Fig. 2. W W are belt-wheels, mounted rigidly on the shafts V' V'. A' is a belt, arranged on the wheels S' and W W in the manner shown in Figs. 1 and 3. B' is a belt on the pulleys R and R' D' is a belt on the wheels P and S''. E' is a belt on the wheels S and K.

F' F' are flanged tension-rollers, the axle of which turns in bearing in the standards H' H'. I' I' are also flanged tension-rollers, resting on the rollers F' F'. The flanges of one pair of tension-rollers are set within those of the other pair, as represented in Figs. 1 and 2, and there exists between the sides of the flanges a space sufficient to receive the strands. J' is a shelf or table hung upon the axle of the flanges I' I', and is intended to receive a weight to increase the tension. The tension may be varied by varying the weight. K' K' are barbs arranged between the twisted strands.

The strands *a a* are wound upon the reels U U in the usual manner, and from thence they are carried through eyes in the cross-bar M', and from these eyes they pass between the flanges of the tension-rollers. From the tension-rollers they pass through the hollow trun-

nion C′, thence between the posts *n n*, and then to the reel E, to which they should be tied.

When the power is applied and the wheel B rotated, the frame D is rotated on its axis C and C′. The rotation of the frame D causes the reel E to rotate on its short axis, and the strands are thus twisted together. All the parts mounted on the frame D are carried with it, and retain their original position with relation to it and each other, excepting as hereinafter stated. The rotary movement of the wheel P is communicated to the shaft T and the parts mounted thereon, and the belt B′ carries this movement to the shaft Q and the parts mounted thereon. The belt E′ causes the rotation of the shaft I, and the gearing connecting this shaft to the arbor of the reel E causes the latter to rotate upon its longitudinal axis, and hence the cable or twisted strands are wound upon the reel with a speed regulated by the position of the belt B′ upon the conical pulleys. The number of coils or twists of one strand upon the other in a given length of cable is also thus regulated by the position of the belt B′.

The engagement of the wheel M with the wheel F causes the rotation of the shaft L, and this rotation causes the post O to travel back and forth in the groove L′. By this means the posts *n n* are made to move back and forth, and the cable is thus guided or carried along the coil on the reel E during the rotation of the latter, so that the cable is properly distributed upon the reel while being wound thereon.

The reels U U rotate on their longitudinal axes as the cable is twisted and reeled, and the proper tension is preserved and too much slack prevented by means of the tension-rollers F′ and I′ and the weighted shaft J′. The strands are thus properly fed forward to the rotary frame D. The rotation of the shafts V′ V′ causes the reels U U to rotate on their short axes, or to revolve end over end in the same direction that the frame D rotates, and the strands are thus prevented from being twisted upon their longitudinal axes by the rotation of the frame D, and while they are being laid together to form a cable the strands approach the frame D in converging fixed lines, as shown. In other words, the strands are plaited one upon the other. This is the chief feature of our invention.

Heretofore, so far as we are aware, the strands have been twisted upon their longitudinal axes while being twisted into a cable, and the result has been that the cable, upon being unwound and upon being cut, has recoiled or untwisted sufficiently to loosen the barbs arranged between the coils or folds.

The barbs are applied to the cable, in the example shown, just before the meeting-point of the strands, and, being once arranged in the cable, they are firmly held there without becoming loose when the cable is unreeled and cut. The result follows for the reason that the strands are plaited or folded upon each other without a torsion of the strands.

The machine is also comparatively simple in its construction and operation.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a machine for making barbed-wire cables, of the rotary frame or flier D, the reel E, mounted in bearings in the sides of the said frame, the hollow shaft C, rigidly connected to one end of the said frame and provided with a driving-wheel, the shaft I, arranged within the shaft C, and carrying the wheels J and K, and the gearing carried by the said frame and connecting the wheel J to the reel E, whereby the said reel is rotated on its transverse axis, and also on its longitudinal axis, substantially as and for the purposes specified.

2. In a machine for making barbed-wire cables, the combination of the flanged tension-rollers F′ and I′ and the shelf J′, suspended on the axle of the rollers I′ I′, substantially as and for the purposes specified.

3. The combination of the conical pulleys with the shafts V′ V′ and I and frame D, for the purpose specified.

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HORACE S. SMITH.

Witnesses:
F. F. WARNER,
JAMES H. COYNE.