

(No Model.)

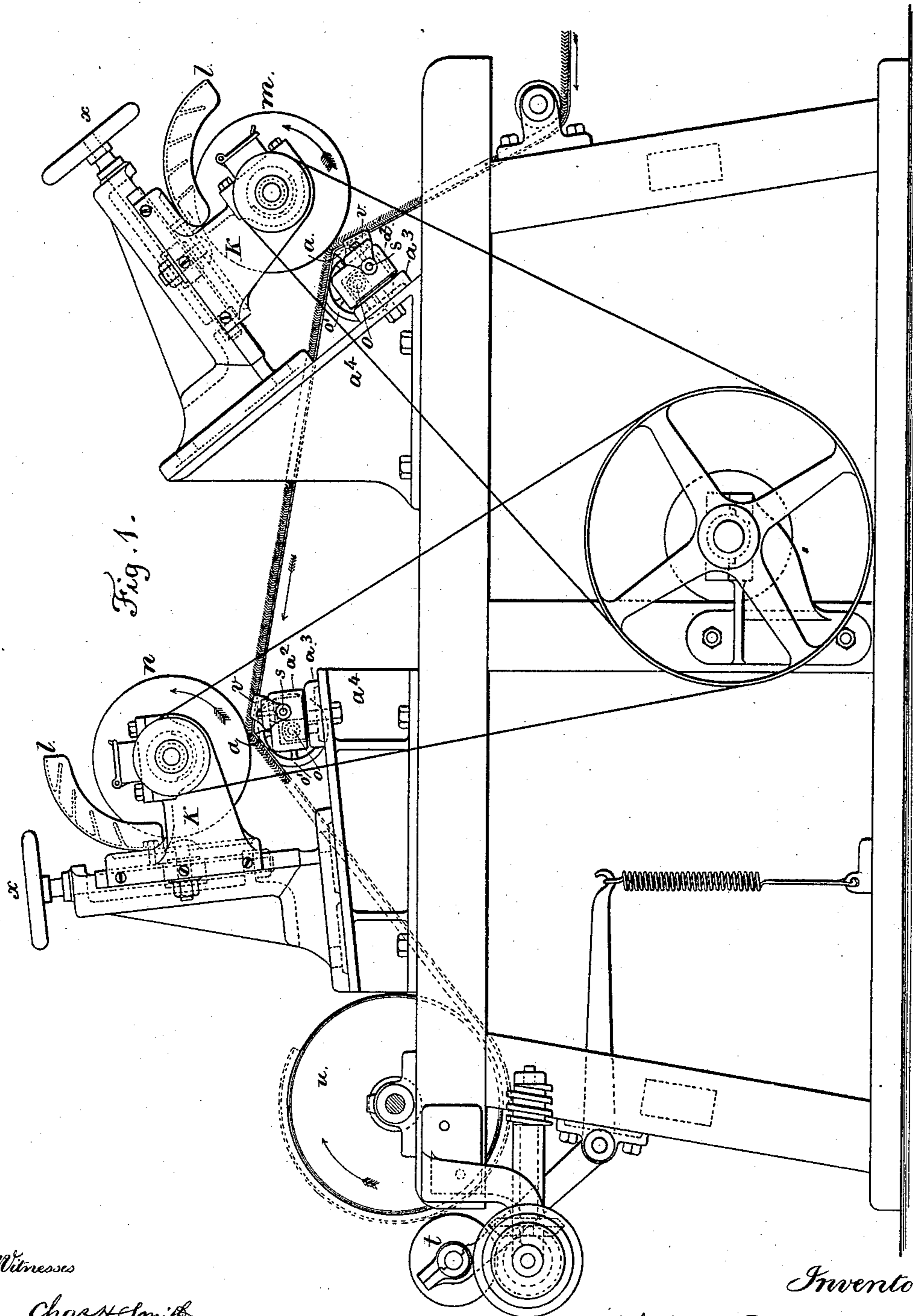
2 Sheets—Sheet 1.

W. DECKER.

MACHINE FOR GRINDING WIRE CARDS.

No. 321,088.

Patented June 30, 1885.



Witnesses

Chas H. Smith

Harold Terrell

Inventor

Wilhelm Decker

f. Lemuel W. Terrell

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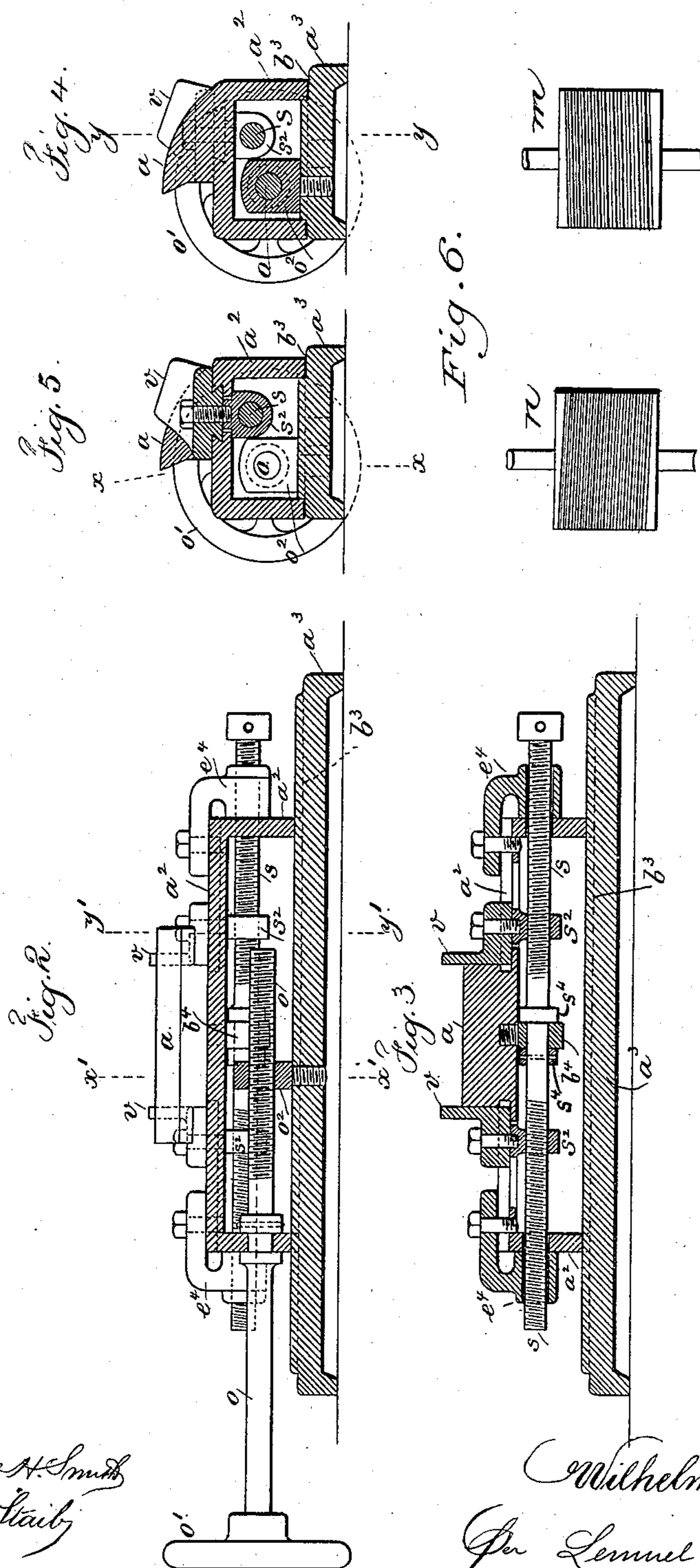
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J. Staley

Inventor

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Per Lemuel W. Ferrell atty

UNITED STATES PATENT OFFICE.

WILHELM DECKER, OF MITTWEIDA, SAXONY, GERMANY.

MACHINE FOR GRINDING WIRE CARDS.

SPECIFICATION forming part of Letters Patent No. 321,088, dated June 30, 1885.

Application filed March 19, 1884. (No model.) Patented in England December 15, 1881, No. 5,491, and January 8, 1884, No. 924; in France February 9, 1883, No. 140,466; in Germany November 16, 1883, No. 28,440; in Belgium November 29, 1883, No. 63,378; in Austria-Hungary September 12, 1884, and in Spain November 20, 1884.

To all whom it may concern:

Be it known that I, WILHELM DECKER, of Mittweida, in the Kingdom of Saxony, German Empire, have invented an Improvement in Machinery for Grinding and Sharpening Fine Wire Cards, of which the following is a specification.

Letters Patent for this invention have been granted in France February 9, 1883, No. 140,466; in Great Britain January 8, 1884, No. 924, and December 15, 1881, No. 5,491; in German Empire November 16, 1883, No. 28,440; in Austria-Hungary September 12, 1884; in Belgium November 29, 1883, No. 63,378, and in Spain November 20, 1884.

In Letters Patent No. 260,466, granted July 4, 1882, to me as assignee of George Etty, an invention of shaping the fine steel wire or teeth of ready-made card-strips into needle-points is described and shown, and in United States Letters Patent No. 263,123 I have explained and illustrated the apparatus and the improved method by which I have completed said invention.

In my further attempts to improve my invention I have now constructed a machine for grinding or shaping the fine steel wire or teeth of ready-made card-strips into needle-points, in which machine the card-strip, in passing underneath the grinding-rollers, approaches to and leaves each grinding-roller at an equal inclination or angle to a tangent at the point of grinding, so that the point of each tooth is formed of two equal sides, or, in other words, that the lengths of ground parts are equal at both sides of each tooth and at the back of each tooth or wire. Again, in this machine no special arrangement is made to press the teeth for a very small distance through the strip in order to make room for the grinding action of the roller against the subsequent rows of teeth, and no special rollers are employed to restore the row of teeth into normal position, this restoring being done by the slanting form of the anvil over which the strip passes for the next grinding operation. Again, in the present construction of the machine the strip of card-cloth, where it passes from one grinding-roller to the other, is in a straight line, instead of moving down-

ward and upward, as in the former case, which former arrangement proves to be rather inconvenient. In the present arrangement the first grinding-roller shown in the drawings may be preceded by one or more rollers in the same machine for bringing the blunt teeth to one uniform length before pointing such teeth; or this process of bringing the teeth to uniform length may be executed in a separate machine.

In the drawings, Figure 1 is an elevation of the machine complete, and Figs. 2, 3, 4, and 5 are sectional views in larger size of the anvil and support, Figs. 2 and 3 being sections at the lines xx and yy of Figs. 5 and 4, respectively, and Figs. 4 and 5 being sections at the lines $x'x'$ and $y'y'$ of Figs. 2 and 3, respectively. Fig. 6 is a plan view of the two grinding-rollers.

The machine as illustrated in the drawings consists, mainly, of two grinding-rollers, m and n . Each roller is provided with spiral grooves on its surface, the spiral of the one roller running from right to left, of the other roller from left to right, as in my former patent. The supports of these rollers are, however, mounted in a more or less slanting position, so that the strip of card-cloth leaves the roller m at exactly the same angle to a tangent at the grinding-point as it leaves the roller n . As the roller m , with its spiral grooves running in one direction, shapes the single teeth or wires into needle-points on one side and one half of the backs of the teeth or wire, and as the roller n , with its spiral grooves running in the other direction, shapes the same teeth or wires into needle-points on the other side and other half of the back of the teeth or wire, it follows that the length of the grinding action on the different sides of the teeth or wire must be equal by the action of the two rollers m and n , if the strip is drawn or passes underneath both rollers at equal angles. It is for this reason that the supports K for the two rollers m n are mounted in slanting position. The supports are provided each with a screw and hand-wheel, x , by which means the bearings of the two rollers may be brought into juxtaposition

with reference to the anvil, over which the strip passes. The supports are provided with shields l divided into partitions by small sheets, so as to catch the dust from the grinding operation. The course of the strip between the two anvils or bridges a is a perfectly straight one, upwardly inclined. Each anvil or bridge a is mounted parallel with the support K for the roller m or n . The anvil a is made with or securely attached to the box-shaped base a^2 , that rests upon a support, a^3 , and said support is bolted to the frame a^4 , as shown in Fig. 1. This support a^3 is provided with ways at b^3 for the base a^2 to slide on, and said base and its anvil are moved by means of the screw o and hand-wheel o' , the screw o passing through a nut, o^2 , secured to the support a^3 . This adjustment of the anvil is very convenient, for if one portion of the grinding-roller becomes worn the anvil can be shifted to such a position that the strip of card-clothing passing over the anvil will be acted upon by a portion of the grinding-roller that has not been worn.

In order to keep the strip of card-clothing in its proper position on the anvil, I provide guides $v v$, between which the strip passes; but as the strips vary in width it is necessary that the guides should be adjustable. I make these guides with dovetailed lower portions entering correspondingly shaped grooves in the top of the base a^2 , and connected with these guides are nuts $s^2 s^2$ for the screw s , that has right and left hand threads upon it. By revolving the screw s the guides $v v$ will be brought nearer to or farther from the sides of the anvil a , according to the direction in which the screw is turned. The nuts $s^2 s^2$ are connected to the lower part of the guides $v v$ by bolts, and the top of the base a^2 is slotted to allow of this connection being made, and also to permit of the nuts and guides moving when the screw s is turned. e^4 are guides and supports for the outer ends of the screw s . There is a support, b^4 , connected to the under side of the anvil a , for the screw s , and there are collars s^4 upon said screw s , at opposite sides of said support, to prevent the screw s moving endwise when turned. The screw o also has collars upon it at opposite sides of the end piece of the base a^2 , to prevent said screw o moving endwise when revolved.

At the end part of the machine a drum, u , covered with cloth or felt, is mounted in suitable bearings. This drum is rotated by a worm-wheel, worm, bevel-wheels, and step-pulley or cone from any convenient shaft of the machine. This drum is intended to wind up the card-strip, and thereby to draw the same through the machine against the grinding action of the rollers m and n with a speed in proportion to such grinding action.

In order to press the card-strip against the cloth or felt cover of drum u , I arrange a roller, t , to press against the surface of roller u . This roller t is mounted in a forked rock-lever, which, under the pressure of a spring, tends to keep u and t in contact.

I claim as my invention—

1. In a grinding-machine for shaping the wires or teeth of a card-strip into needle-points, the combination, with the grinding-rollers $m n$, having right and left hand spiral grooves therein, of an anvil to each roller, means, substantially as described, for drawing along the strip of card-clothing, bearings for said rollers, and supports for said anvils, said bearings and supports being at an inclination to each other, so that the strip of card-clothing passes to and leaves each grinding-roller at the same angle and passes in a straight line from one roller to the other, substantially as specified.

2. In combination with the roller m or n and bearing for the same, the anvil a , base-piece a^2 , support a^3 , screw o , and nut o^2 , whereby the anvil can be adjusted in its relation to the grinding-roller, substantially as specified.

3. The combination, with the grinding-roller and the anvil a , base a^2 , support a^3 , screw o , and nut o^2 , of the guides $v v$, having dovetailed lower portions entering grooves in the base a^2 , the screw s , and nuts s^2 , substantially as and for the purposes specified.

In testimony whereof I have hereunto set my hand this 14th day of November, 1883, in the presence of two subscribing witnesses.

WILH. DECKER.

Witnesses:

WILHELM WIESENHÜTTER,
GEORG RICHTER.