No. 832,512. PATENTED OCT. 2, 1906.

S. SWANBUM.

WIRE BARBING MACHINE.

APPLICATION FILED OCT. 30, 1905.

4 SHEETS—SHEET 1.

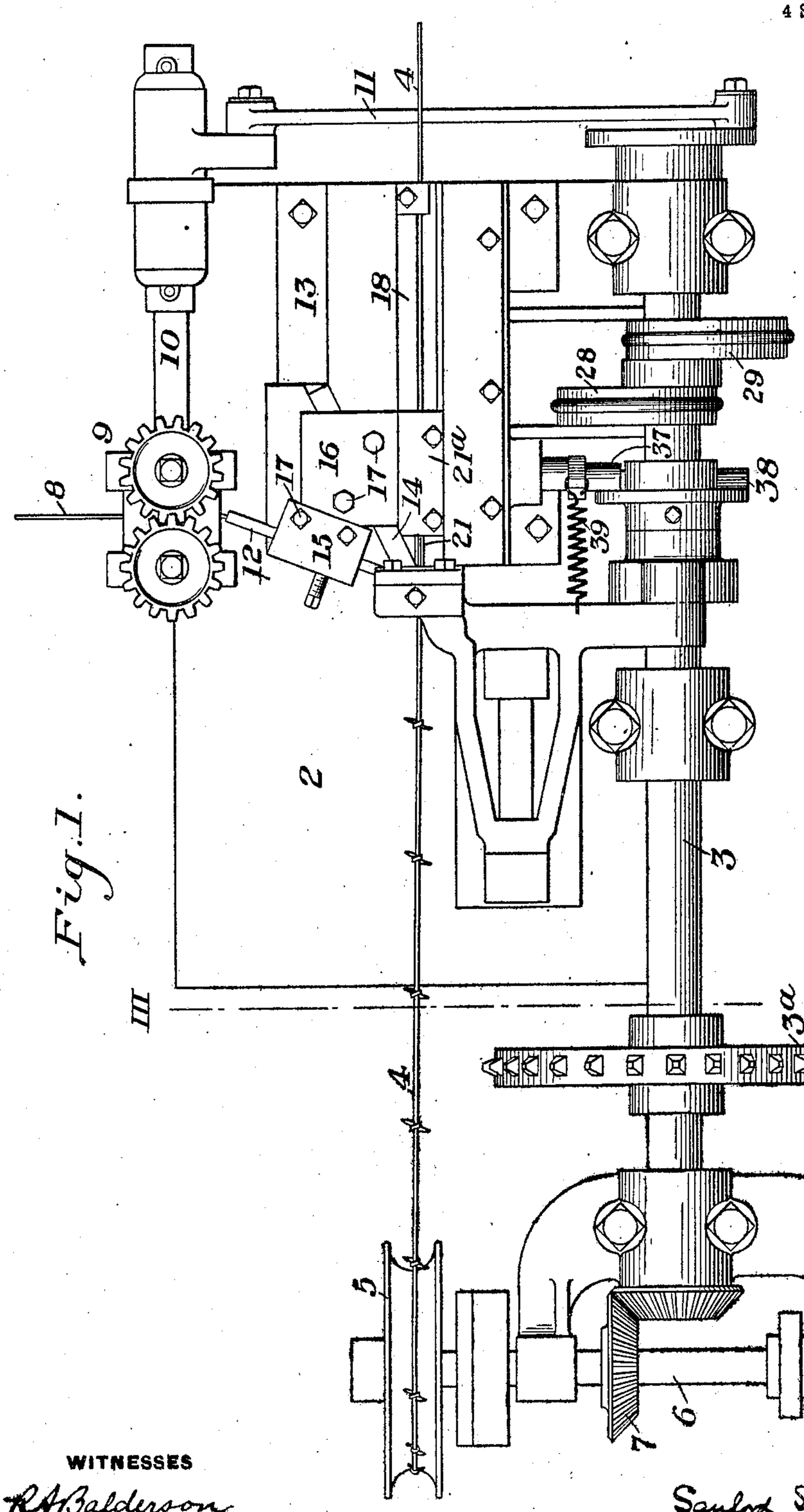

Fig. 1.

WITNESSES

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4 SHEETS—SHEET 2.

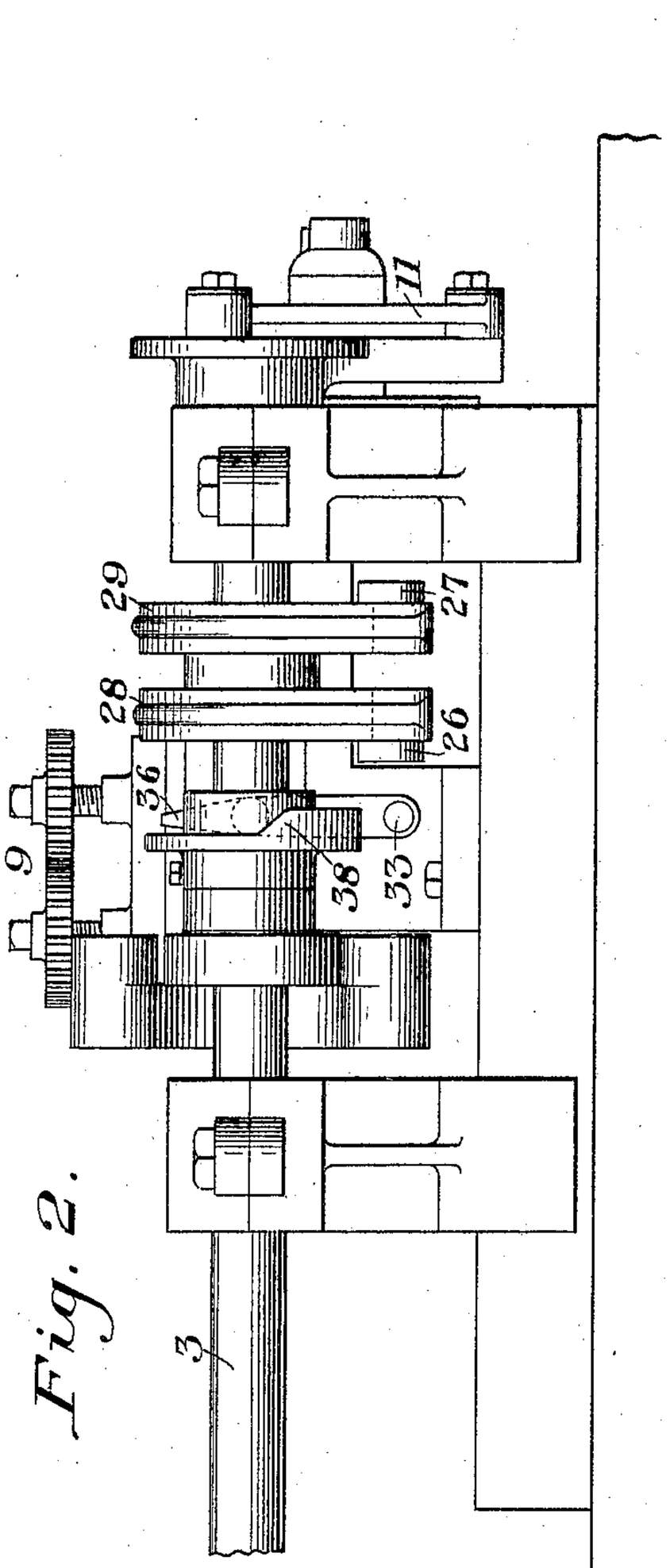

Fig. 2.

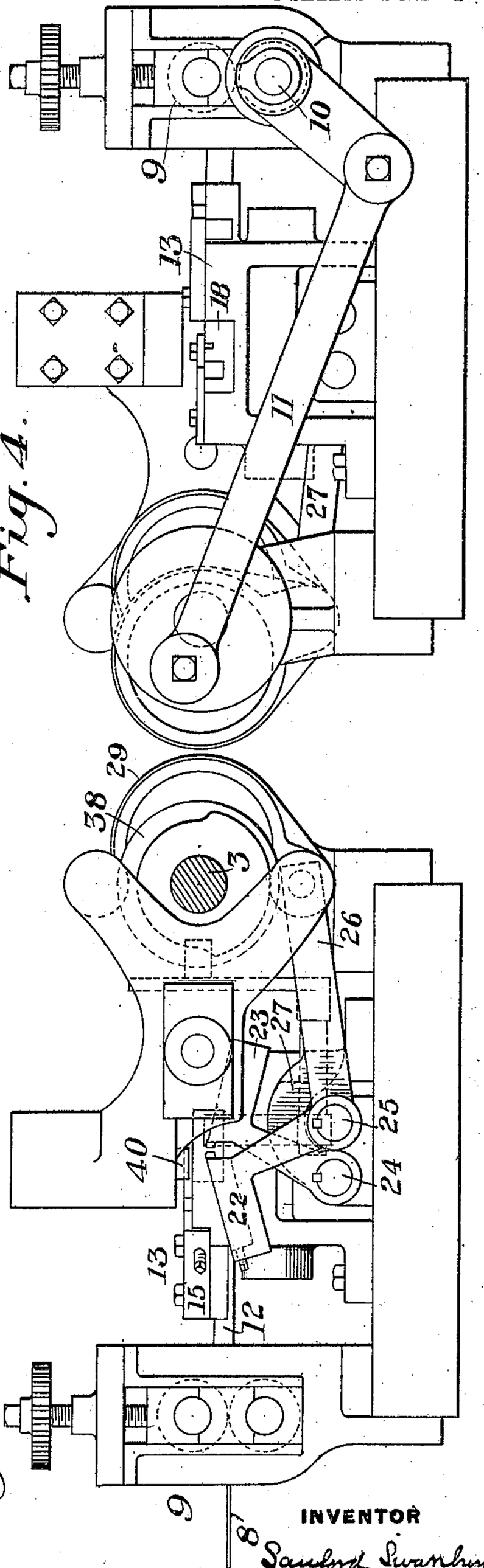

Fig. 4.

Fig. 3.

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4 SHEETS—SHEET 3.

Fig. 6.

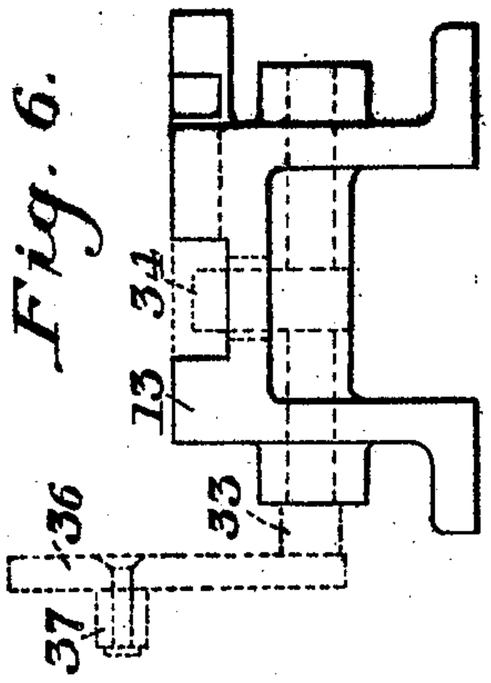


Fig. 7.

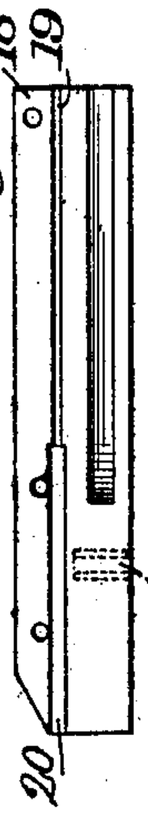


Fig. 8.

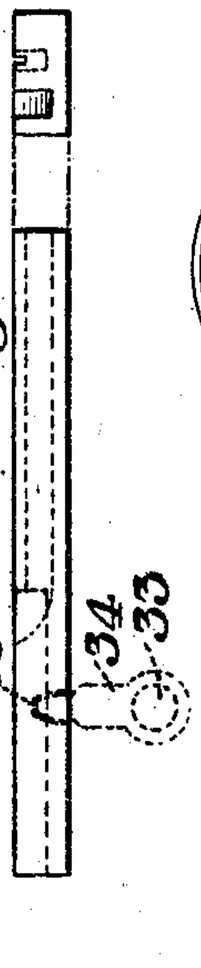


Fig. 11.

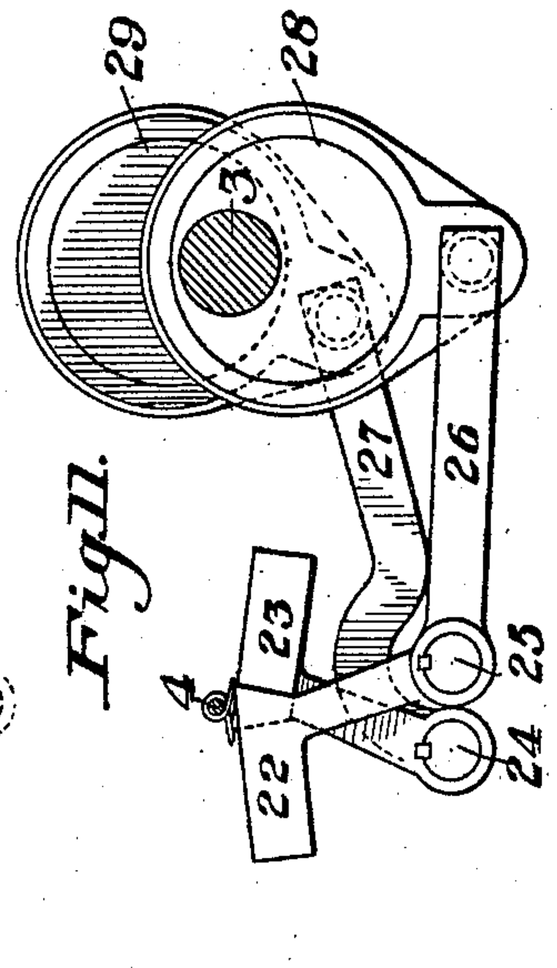


Fig. 5.

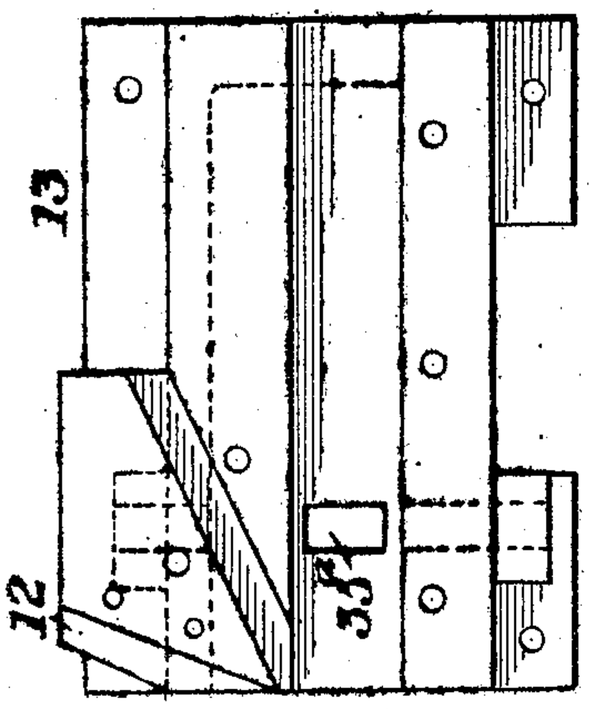


Fig. 10.

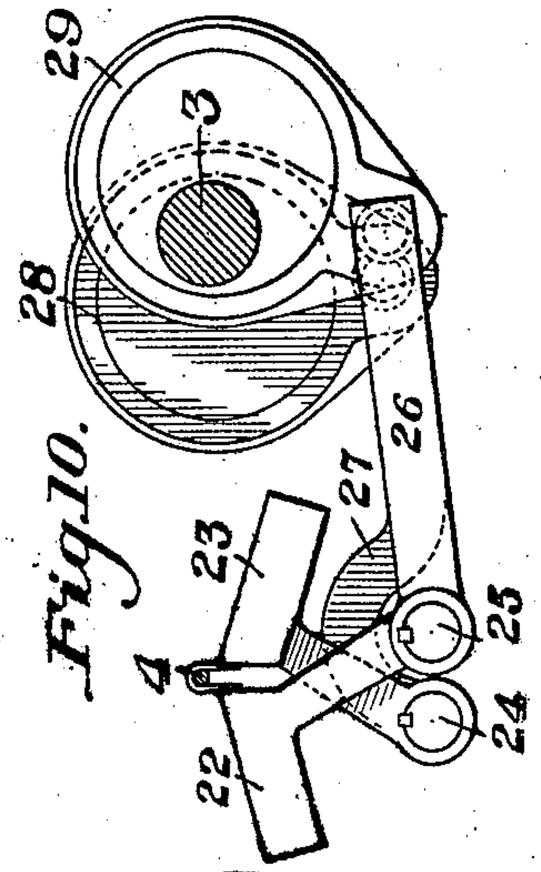
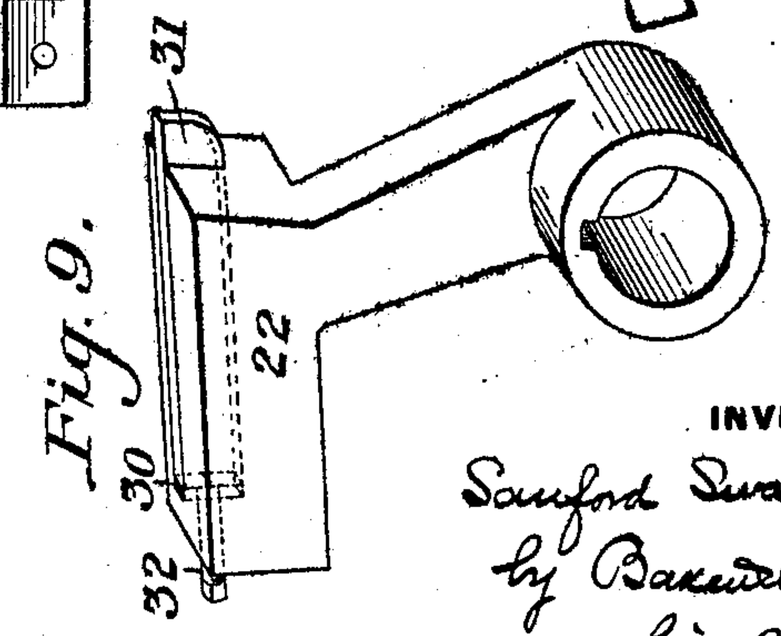


Fig. 9.



WITNESSES

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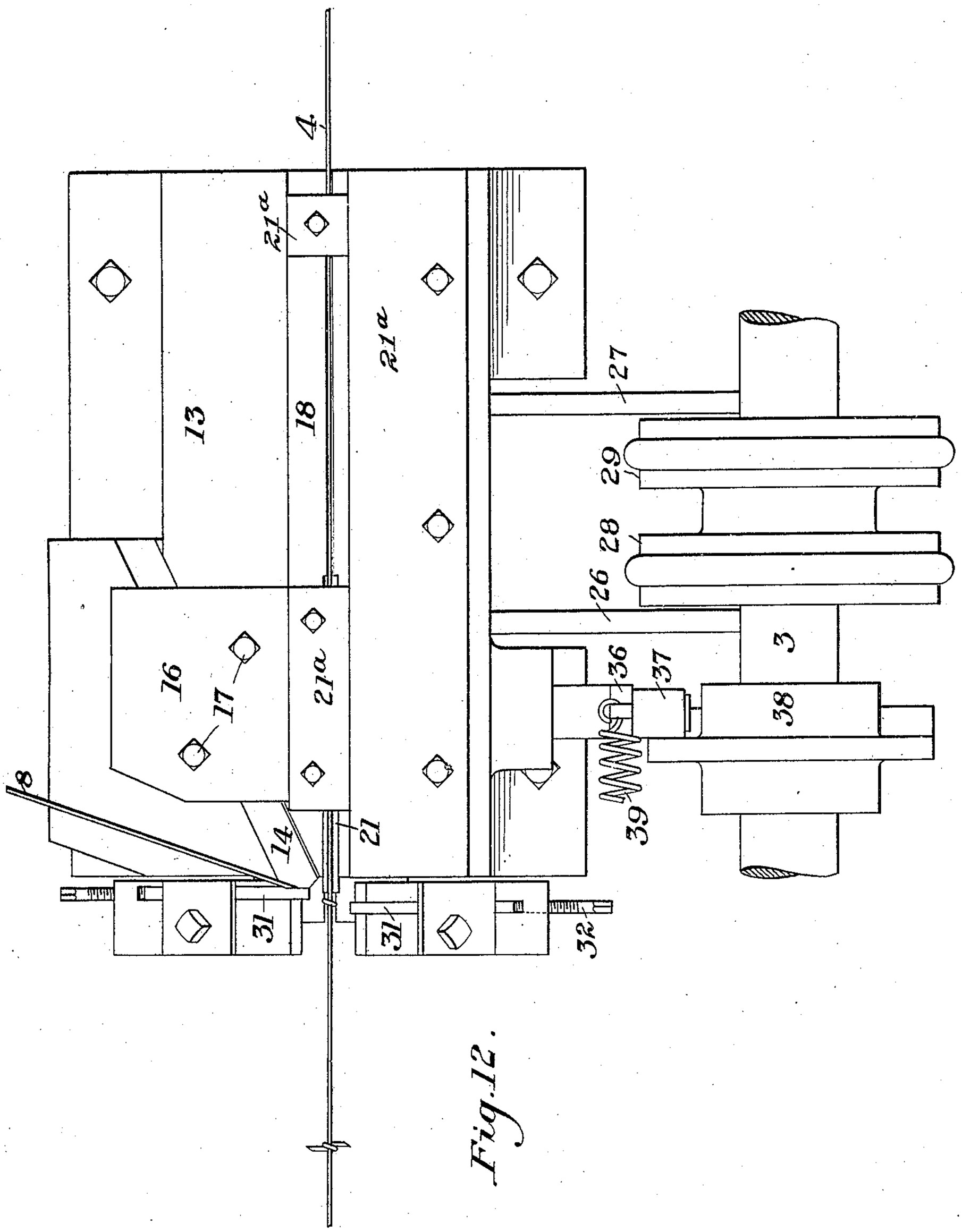

Fig. 12.

WITNESSES

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UNITED STATES PATENT OFFICE.

SANFORD SWANBUM, OF DE KALB, ILLINOIS, ASSIGNOR TO AMERICAN STEEL & WIRE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

WIRE-BARBING MACHINE.

No. 832,512. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed October 30, 1905. Serial No. 285,211.

To all whom it may concern:

Be it known that I, SANFORD SWANBUM, a citizen of the United States, residing at De Kalb, De Kalb county, Illinois, have invented a new and useful Wire-Barbing Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—.

Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a side view of a portion of the same. Fig. 3 is a sectional elevation taken on the line III III of Fig. 1. Fig. 4 is an end view. Fig. 5 is a plan view of the knife-block with the knives and anvil removed. Fig. 6 is an end view of the same with the anvil-moving devices shown in dotted lines. Figs. 7 and 8 are detail views of the strand-wire guide. Fig. 9 is a perspective view of one of the rocker-hammers. Figs. 10 and 11 are diagrammatic views showing the operation of the said hammers and their actuating connections; and Fig. 12 is a plan view, on a larger scale, showing the knife-block, its adjuncts, the hammers, and the actuating means therefor.

The object of my invention is to provide improved means for twisting the bars which will operate in a positive and effective manner and which are so arranged and operated as to reduce the lost motion to a minimum and to provide means for adjustment, also to so arrange the knife-block and knives that they may be readily taken out or adjusted without interfering with any other part of the machine, also to provide means for adjusting the guide-clamp for the barbed wire and to provide improved means for supporting the anvil and for withdrawing the same after the barb has been bent to staple form. I obtain these objects by the novel construction, arrangement, and combination of parts, all substantially as hereinafter described, and pointed out in the appended claims.

In the drawings, 2 designates the frame or bed of the machine, upon which is journaled the main actuating-shaft 3, which is driven in any suitable manner, as by a sprocket-wheel 3^a thereon.

5 is the sheave, which pulls the main strand-wire 4 through the machine and over which said wire passes to a reel. (Not shown.) The sheave 5 is fastened to a shaft 6, which is driven by gear connection 7 with the shaft 3 or in any other suitable manner.

8 designates the brad or barb forming wire, which enters the machine through the gear-feed rollers 9, actuated by suitable connections 10 and 11 with the shaft 3 to cause an intermittent feeding action of said rollers.

12 is a guide for the wire 8, carried by the knife-block 13. 14 designates the knives, which are set obliquely in the said block, said guide and knives being secured to said block by means of the cap-plates 15 and 16, which can be readily removed to secure the removal of said parts. By loosening the screws 17, which secure these cap-plates, the knives and brad-wire clamp can be readily adjusted. The knife-block 13 is formed with a longitudinally-extending channel or recess, as shown in Figs. 5 and 6, in which is movably seated the main strand-wire guide-block and anvil-carrier 18. This is preferably a heavy steel piece having therein the guide-channel 19, leading into a recess 20, Fig. 7, in which is seated the anvil-point 21, Figs. 1 and 12. The piece 18 and the point 21 are secured by removable cap-plates 21^a, so that said piece can be readily reached and the anvil-point be removed from the recess 20 or adjusted therein.

22 and 23 designate the coöperating staple-twisting hammers, which are secured, respectively, to the rocker-shafts 25 and 24, actuated by connecting-rods 26 and 27 of eccentrics 28 and 29 on the main shaft 3, said eccentrics being so set as to cause the two hammers to simultaneously approach or recede as the shaft 3 is rotated, as clearly shown in Figs. 10 and 11. Each hammer is provided with a recess 30, in which is seated a hardened die-piece 31, adjustable by means of a set-screw 32.

33 is a rock-shaft in the base of the machine, having an upwardly-projecting rocker-arm 34, the point of which engages a recess 35 in the piece 18 through an aperture 35^a in the bottom of the channel 19. The shaft 33 is actuated by an arm 36, upon which is mounted a roller 37, which is held by a spring 39 in contact with the face of a cam 38 on the main shaft 3.

The operation is as follows: The brad or barb forming wire 8 is intermittently fed over the main strand-wire 4 by the rollers 9, which

may also serve to flatten said wire. This wire passes in through the guide 12 and is cut by the knives in the usual manner, the cut piece lying across the main strand-wire 4. This cut piece is then bent by means of a bender 40, operating over the anvil 21, into the form of a staple. As this bender may be of any usual or suitable character, it is not shown and described in detail. At this time the hammers 22 and 23 approach and pass each other, as shown in Fig. 11, thereby wrapping the ends of the staple into the usual barb form, as shown in said figure. The rocker-arm 34 operates to draw the anvil back after the part has been cut and bent to the staple form shown in Fig. 10. The arm 34 is subsequently rocked in the opposite direction by the cam 38 to advance the anvil for the bending of another staple.

It will be noted that the rocking hammers, which effect the tying or wrapping of the barbs, are directly connected to the main operating-shaft, which gives them a positive action with a minimum of lost motion. The provision of the dies 31, seated in the hammers in the manner described, permits adjustment for the purpose of taking up wear.

It will be obvious that various details of construction and arrangement may be changed without affecting my invention.

What I claim is—

1. In a wire-barbing machine, the combination with a main strand-wire guiding and feeding means, and barbed-wire feeding, guiding and cutting devices, of coöperating rocker-hammers for tying the barbs, and eccentrics for actuating the said hammers; substantially as described.

2. In a wire-barbing machine, the combination with a main strand-wire guiding and feeding means, and barbed-wire guiding, feeding and cutting devices, of the oppositely-arranged rocking hammers for tying the barbs, and actuating-eccentrics for said hammers; substantially as described.

3. In a wire-barbing machine, means for tying the barbs consisting of two oppositely-arranged coöperating rocker-hammers, and eccentrics for actuating said hammers to cause them to simultaneously approach and recede; substantially as described.

4. In a wire-barbing machine, two oppositely-arranged rocker-hammers, and means for actuating the same to cause them to simultaneously approach and recede, said hammers having adjustable wire-bending dies; substantially as described.

5. In a wire-barbing machine, means for tying the parts comprising two oppositely-arranged rocker-hammers, a main driving-shaft, eccentrics thereon, and actuating connections between said eccentrics and the hammers; substantially as described.

6. In a wire-barbing machine, a knife-block having a knife-seat therein, and also a longitudinal recess, a knife removably set in said seat, a strand-wire guide, an anvil-carrier movably mounted in said recess, and detachable cap-plates for securing the knife and strand-wire guide; substantially as described.

7. In a wire-barbing machine, a knife-block having a main strand-wire guide and an anvil-carrier adjustably secured therein; substantially as described.

8. In a wire-barbing machine, the combination with an anvil-carrier, of a rocker-arm engaging said carrier, a main operating-shaft, and operating connections between said rocker-arm and shaft; substantially as described.

9. In a wire-barbing machine, the combination with a reciprocable anvil-carrier, of a rocker-arm engaging the said carrier, a rock-shaft to which said arm is connected, a main shaft, and a cam on the main shaft arranged to operate the said rock-shaft; substantially as described.

In testimony whereof I have hereunto set my hand.

SANFORD SWANBUM.

Witnesses:
HARRY O'CONNOR,
T. D. TEMPLE.