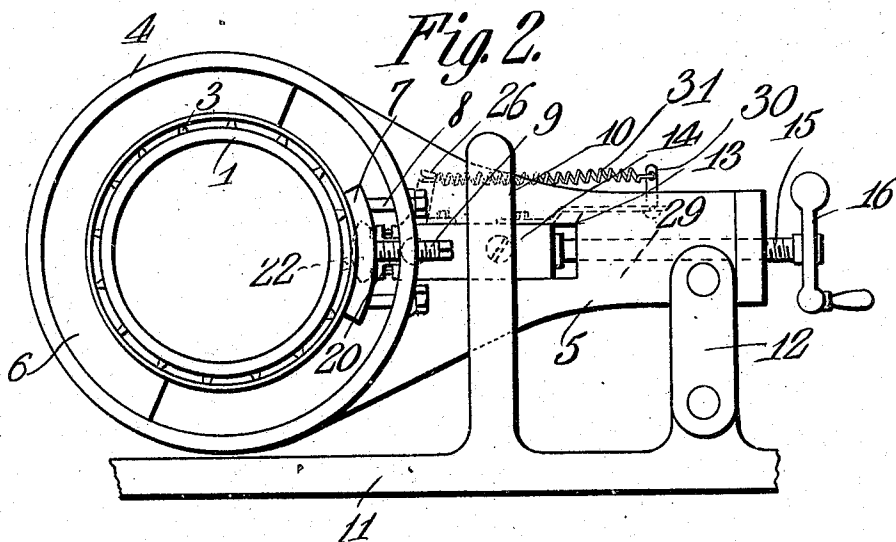
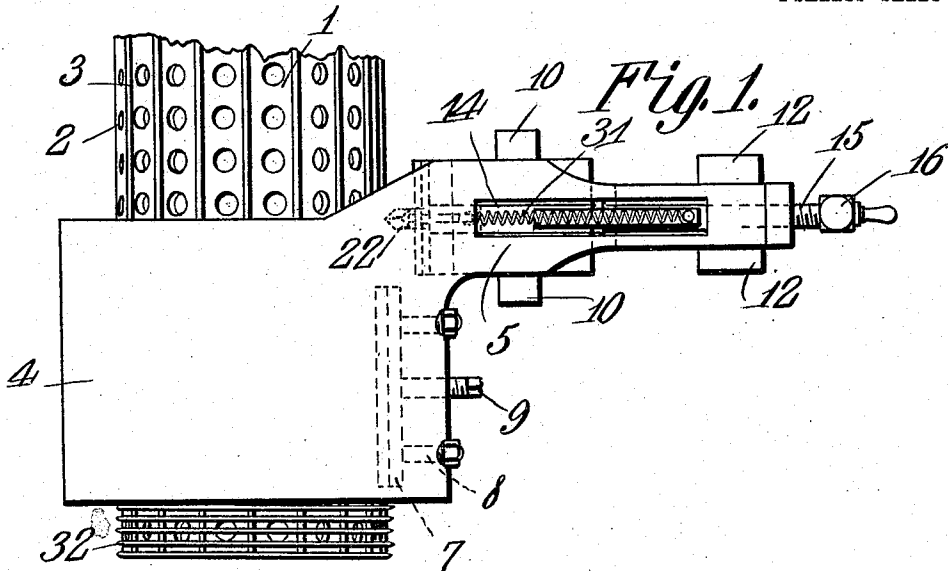


W. L. WERGIN.  
 NOTCHING MEANS FOR WIRE WINDING MACHINES.  
 APPLICATION FILED MAY 20, 1909

942,118.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.



Witnesses

*H. J. Stewart*  
*F. T. Chapman*

Inventor

*William L. Wergin.*

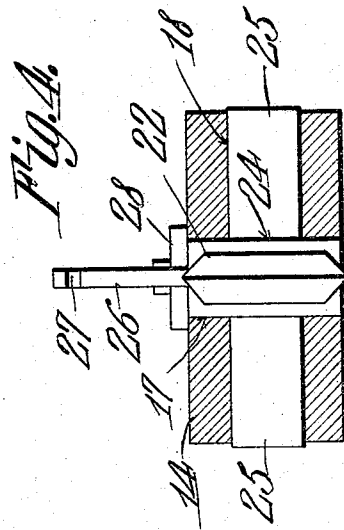
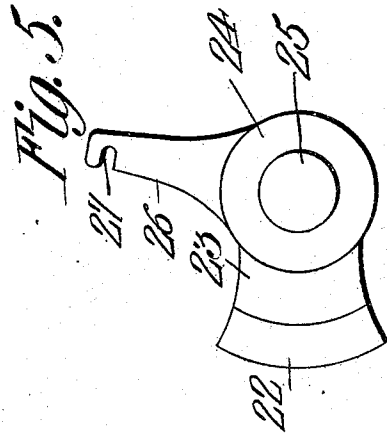
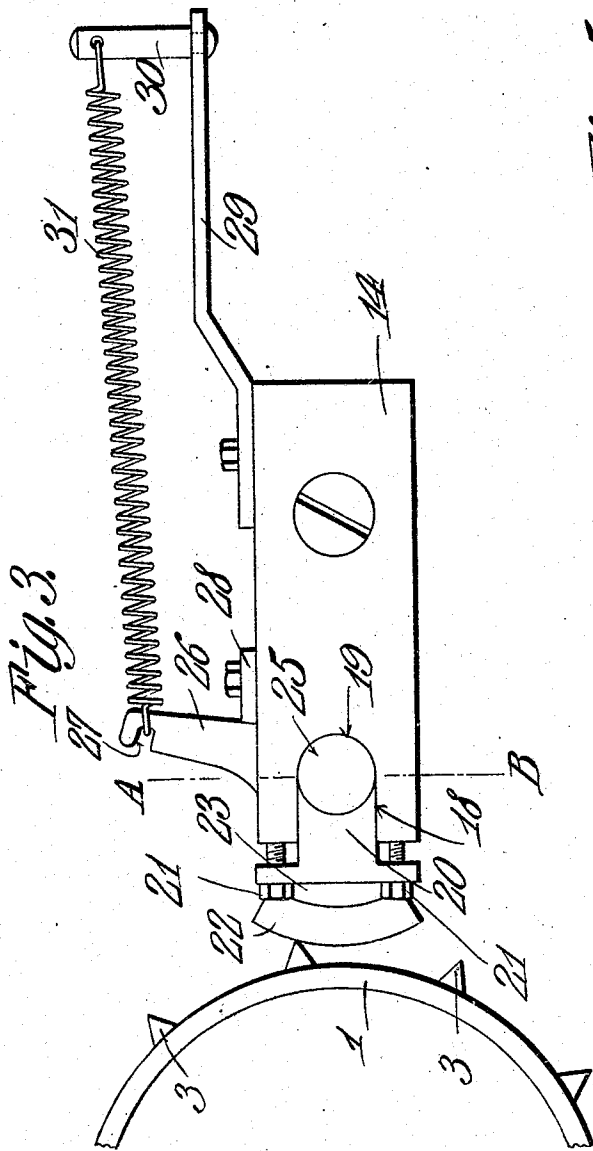
By

*C. A. Snow & Co.*  
 Attorneys

W. L. WERGIN.  
 NOTCHING MEANS FOR WIRE WINDING MACHINES.  
 APPLICATION FILED MAY 20, 1909.

942,118.

Patented Dec. 7, 1909.  
 2 SHEETS—SHEET 2.



Witnesses

*E. J. Howard*  
*F. J. Chapman*

Inventor  
*William L. Wergin*

By *C. A. Snow & Co.*  
 Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM LEWIS WERGIN, OF HOUSTON, TEXAS, ASSIGNOR TO STANCLIFF WELL  
SCREEN MFG. CO., OF HOUSTON, TEXAS.

## NOTCHING MEANS FOR WIRE-WINDING MACHINES.

942,118.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed May 20, 1909. Serial No. 497,253.

*To all whom it may concern:*

Be it known that I, WILLIAM LEWIS WERGIN, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Notching Means for Wire-Winding Machines, of which the following is a specification.

This invention has reference to improvements in notching means for wire winding machines and is designed to provide a means for the progressive notching of the longitudinal ribs formed on the body of a well screen so that a continuous strand of wire of proper shape may be wound about the ribs and lodged in the notches formed therein so that the turns of the wire throughout the length of the screen are held in proper spaced relation.

The well screen comprises, generally speaking, a perforated tubular body having disposed longitudinally thereon equally spaced radially projecting ribs, generally though not necessarily triangular in cross section with the base resting on the outer surface of the perforated tube, and these ribs are properly notched so that the layer of wire forming the outer wall of the screen may be wound thereon with the turns so spaced as to permit fluid exterior to the tube to pass between the turns of the wire and through the perforations in the body of the tube to the interior thereof, but at the same time excluding particles even of comparatively small size from passage to the interior of the tube.

In accordance with the present invention the notching of the ribs is performed by a chisel brought successively into engagement with the outer edges of the ribs as the body of the screen is slowly rotated and the chisel is simultaneously fed forward or in the direction of the longitudinal axis of the tube so that there is produced a progressive helical series of notches about the casing or body of the screen.

In accordance with the present invention the cutting edge of the chisel is maintained at a constant distance from the axis of rotation of the ribs but the said cutting edge has a rolling action upon the ribs similar to that of a cutting wheel.

By the present invention there is provided a very simple means whereby the chisel is given a rolling action with relation to each

rib successively and after acting on one rib is automatically returned to normal position ready for action on the next succeeding rib and this is accomplished without complicated mechanism of any character.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,

Figure 1 is a plan view of so much of a rib notching machine as is necessary for the understanding of the present invention. Fig. 2 is an end elevation of the structure shown in Fig. 1. Fig. 3 is a detail elevation, on a larger scale than shown in Figs. 1 and 2, of the notching chisel. Fig. 4 is a section on the line A—B of Fig. 3 with parts omitted. Fig. 5 is a detail view of the notching chisel removed from its holder.

The present invention relates more particularly to the notching chisel and immediate coacting parts but it will be understood that the chisel is mounted on and forms part of a machine capable of handling the well screens during the course of manufacture.

The well screen comprises a cylindrical body 1 in which are formed longitudinal series of perforations 2 and upon the outer surface of the cylinder 1 are secured a circular series of longitudinal equally spaced ribs 3 preferably though not necessarily triangular in cross section with the base adjacent to the surface of the cylinder 1 and the apex outward.

It will be understood that the cylinder 1 is suitably mounted on centers for rotation about a longitudinal axis, but as such structure need not differ materially from that of an ordinary lathe it is unnecessary to show it in the drawings.

There is provided an annular frame 4 which may be made in one or two parts as desired and this frame is off-set from an arm 5 away from the direction of the relative movement of the frame 4 and tube 1 in the operation of the machine. Housed in the frame 4 on one side thereof is a semi-cylindrical block 6 against which the ribs 3 may rotate, or, as will hereinafter appear it is the wire which is wound upon the ribs which engages the inner surface of the block 6.

In order to center the frame or annulus 4

upon the wire-wrapped tube or cylinder 1 there is opposed to the semi-cylindrical block 6 an arc-shaped bearing plate 7, which by means of suitable guide rods 8 and an adjusting screw 9 may be properly set up to the wound tube or cylinder 1 and then locked by the set screw 9, thus maintaining the frame or annulus 4 in proper relation to the tube 1 which relation however should be such that the annulus 4 will move readily along the tube 1 without binding, it being customary to mount the frame or annulus 4 upon the lathe carriage or equivalent structure.

The section 5 is held between two upright parallel guide plates 10 which serve to receive any side strain and prevent other than the proper feeding movement of the frame 4 along the tube 1. These standards rise from a base 11 which is either secured to or forms part of the lathe carriage, and the end of the extension 5 remote from the frame 4 is supported upon links 12 pivoted to the base 11 so as to accommodate the frame 4 to any want of trueness of rotation of the tube 1. The extension 5 is provided with a slot 13 radial to the axis of rotation of the tube 1 and in this slot there is mounted a block 14 capable of moving toward or from the tube housed in the frame or annulus 4. This block 14 is under the control of a feed screw 15 extending through the end of the member 5 remote from the frame 4 and this screw carries a handle or crank 16 for manipulating it.

The end of the block 14 remote from that engaged by the screw 15 is provided with a longitudinal recess 17 with flanking recesses 18, the latter having their inner ends 19 rounded and in the flanking recesses are inserted cap bearings 20 held in place by suitable bolts 21. The recess 17 is provided for the reception of a cutting chisel 22 in the form of an arc-shaped blade of substantially triangular cross section with the cutting edge outward and carried by a web 23 radiating from a hub 24 provided with trunnions 25 having their longitudinal axes coincident with the axis of generation of the cutting edge of the chisel blade 22. Extending radially from the hub 24 in a direction about at right angles to the direction of projection of the blade 22 from said hub is an arm 26 formed at its free end with a notch 27. At the rear end of the recess 17 there is secured a stop plate 28 determining the movement of the chisel blade 22 in one direction about its axis of rotation by the engagement of the arm 26 with said plate.

Secured to the end of the block 14 remote from that carrying the chisel is a bracket 29 projecting for a distance in the direction of the screw 15 and at its free end carrying a pin 30 which latter receives one end of a spring 31, the other end of which is engaged

in the notch 27 at the free end of the arm 26. The trunnions 25 have bearings in the flanking recesses 18 and are held against the rounded rear edges 19 of said flanking recesses by the cap blocks 20. The normal tendency of the spring 31 is to maintain the arm 26 in engagement with the plate 28 and when the arm is in this position then the blade 22 is central to the block 14 but may be moved about the axis of the trunnions 25 against the action of the spring 31, the said spring yielding to a sufficiently superior force applied to the chisel 22.

The position of the chisel 22 in the member 5 is such that it is about in line so far as its cutting edge is concerned with the front wall of the frame or annulus 4, such front wall being the one facing the direction of travel of the said frame or annulus.

The chisel carrying block 14 is adjusted toward the axis of rotation of the tube 1 until the forward edge of the chisel, which in the normal position is its median point is within the path of the outer edges of the ribs 3.

Now let it be supposed that the tube 1 is rotating clockwise as viewed in Fig. 3. It will be seen that a rib 3 will engage the cutting edge of the chisel blade 22 above the center of the said blade, the distance above depending upon the projection of the median point of the blade into the area circumscribed by the path of the outer edges of the ribs 3. The progressive movement of the engaged rib about the axis of rotation of the tube 1 will cause a movement of the chisel blade 22 around the axis of the trunnions 25 and against the normal tendency of the spring 31 and as this movement progresses the chisel edge will enter to the required distance into the edge of the rib 3 and thereby form a notch therein. As the rotative movement of the tube 1 continues the rib 3 being acted upon will be carried away from the point of greatest projection of the chisel blade 22 and the latter will then be relieved from engagement with the rib and under the action of the spring 31 will move rapidly back to its normal position with the arm 26 in engagement with the plate 28. When the next rib in order approaches the chisel 22 the same action takes place but since in the meantime the chisel has been fed forward a short distance lengthwise of the tube 1 the notch in the second rib 3 will be displaced a short distance in the direction of the longitudinal axis of the tube 1. Therefore as the tube 1 is rotated and the frame or annulus 4 carrying the blade 22 is fed forward in the direction of the axis of the tube 1 there is produced upon the ribs in succession a helical series of notches. The winding wire, indicated at 32 in Fig. 1 is fed to the ribs 3 immediately subsequent to the notching thereof so that this wire will pass

into the interior of the frame or annulus 4 and so form a smooth bearing surface to be engaged by the bearing means within said frame or annulus.

5 The mounting of the chisel 22 is rigid, though adjustable in a direction radial to the axis of rotation of the tube 1 while the chisel blade is yieldable about an axis parallel with the axis of the tube 1 but exterior to and in opposition to the circumferential  
10 path of the outer edges of the ribs 3.

What is claimed is:—

1. In a notching means for wire winding machines, a chisel having an arc-shaped cutting edge and a mounting for the said chisel  
15 in which the chisel has a limited movement about the axis of generation of its cutting edge.

2. In a notching means for wire-winding machines, a chisel having an arc-shaped cutting edge, a mounting for said chisel in which the chisel is movable about the axis of generation of its cutting edge, and elastic  
20 constraining means tending to maintain the chisel in a predetermined position.

3. In a notching means for wire winding machines, a chisel having an arc-shaped cutting edge and provided with trunnions having their axis of rotation coincident with  
25 the axis of generation of the cutting edge of the chisel, a support for the chisel having bearings for the said trunnions, and a spring constraining the chisel to a predetermined position.

4. In a notching means for wire winding machines, a chisel having an arc-shaped cutting edge and provided with trunnions having their axis of rotation coincident with the axis of generation of the cutting edge of the chisel, a recessed supporting block in  
35 which the chisel is seated and having bearings for the trunnions of the chisel, a spring connected at one end to the chisel structure and at the other end to a fixed member carried by the block, and means for adjusting  
40 the block in the direction of its length.

5. In a notching means for wire winding machines, a guiding or support frame for the member to be notched, a chisel having an arc-shaped cutting edge and provided with  
45 trunnions having their axis of rotation coincident with the axis of generation of the cutting edge of the chisel, a supporting block having bearings for the chisel trunnions and in turn mounted in the support for the article  
50 to be notched, a spring constraining the chisel to a predetermined position, and means for adjusting the block and the chisel carried thereby to or from the article to be notched.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature  
55 in the presence of two witnesses.

WILLIAM LEWIS WERGIN.

Witnesses:

HOWARD F. SMITH,  
P. S. GRUFFITH.