

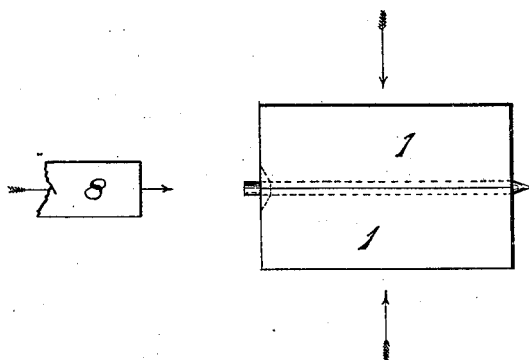
(No Model.)

R. BERCHTOLD.  
DIE FOR BARBING WIRE NAILS.

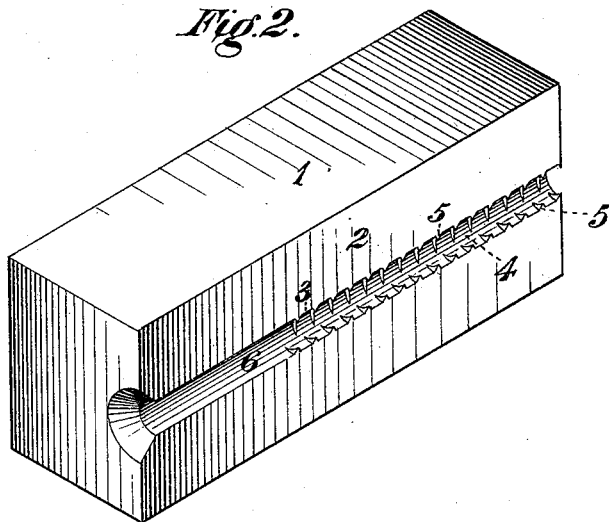
No. 343,425.

Patented June 8, 1886.

*Fig. 1.*



*Fig. 2.*



WITNESSES:  
Samuel S. Wolcott  
C. M. Clarke.

INVENTOR,  
Rudolf Berchtold  
BY George H. Christy  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

RUDOLF BERCHTOLD, OF NEW BRIGHTON, PENNSYLVANIA, ASSIGNOR TO  
WILLIAM P. TOWNSEND, CHARLES C. TOWNSEND, AND EDWARD P.  
TOWNSEND, ALL OF SAME PLACE.

## DIE FOR BARBING WIRE NAILS.

SPECIFICATION forming part of Letters Patent No. 343,425, dated June 8, 1886.

Application filed November 7, 1885. Serial No. 182,084. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLF BERCHTOLD, residing at New Brighton, in the county of Beaver and State of Pennsylvania, a citizen of the United States, have invented or discovered a certain new and useful Improvement in Dies for Wire-Nail Machines, of which improvement the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a diagrammatic view showing a pair of gripping-dies and a heading-die. Fig. 2 is a perspective view showing one of my improved gripping-dies to an enlarged scale.

In an application No. 180,005, filed by me in the United States Patent Office October 15, 1885, I have described and claimed a wire nail having as its prominent characteristic a head formed of unbarbed stock, a plain or roughened shank portion adjacent to its head, and the remaining portion of the shank toward or to the point barbed or roughened.

The object of the invention herein is to so construct the gripping-dies designed to hold the stock while a nail-head is being formed as to firmly support that portion of the stock adjacent to the end to be upset as against any lateral tendency or upset, and to simultaneously barb and grasp that portion of the stock which will form the point end of the completed nail, and firmly hold such portion as against any longitudinal movement.

The invention herein consists in a pair of gripping-dies having longitudinal cavities or grooves in their adjacent faces, the portions of grooves adjacent to the heading ends of the dies being so constructed as to present smooth or unroughened surfaces to the wire stock and the remaining portions of the grooves being constructed to hold the stock as against longitudinal movement, and provided with inwardly-projecting teeth or serrations, substantially as hereinafter described and claimed. The gripping-dies 1 are counterparts of each other, each being provided on its inner face, 2, with a longitudinal groove, 3, approximately semi-circular in contour, and of a depth proportional to the diameter of the shank of the nail to be formed. The walls of the rear end, 4, of this groove in each die—i. e., the end into which the stock is fed—is provided with a series of inwardly-projecting teeth, 5, so con-

structed that when the dies are closed together against the wire stock a series of barbs, points, or projections will be formed on the surface of the stock. These teeth may extend, if desired, from the rear end of the groove through any desired portion of its length, except for a short distance from the heading ends of the dies, which portion should be made plain, as shown at 6, in order that the portion of the stock inclosed in that portion of the groove in each die may be left smoothed or unbarbed. If a countersunk head is to be formed, the forward ends of the dies around the grooves 3 may be countersunk, as shown at 7; but if a flat-headed nail is desired the forward ends of the dies should be left plain or smooth. The barbed portion 4 and the plain or unbarbed portion 6 of the groove are so proportioned that when the wire stock has been gripped by the barbed portion, the teeth 5 being forced into the surface of the stock, the surface of the plain portion 6 of the groove will bear firmly and evenly upon that portion of the stock adjacent to the end to be headed. The roughened or barbed portion 4 serves not only to roughen so much of the stock as is inclosed therein, but also to prevent any longitudinal movement of the stock during the formation of the head by the heading-die 8, and the plain or smooth portion 6 serves only or mainly as a support for the portion of the stock adjacent to the end to be headed, as against any upsetting or lateral bending of said portion during the heading operation.

The dies constructed as above described may be employed in any form of wire-nail machine now in use, and I do not therefore limit myself to the external shape of dies 1, shown, as they may be changed to suit various forms of machine; nor do I limit myself to any particular manner of roughening or barbing the surface of the grooves in said dies, nor to the extent or location of the barbed or roughened portions, provided that the portions of the grooves adjacent to the forward or heading ends of the dies be left smooth or unbarbed.

It will be noticed that a wire nail produced by a machine having its gripping-dies constructed as above described, stock being fed therein, will have a barbed or roughened point portion and a plain or unroughened portion

adjacent to the head, and thus embody all the advantages of a roughened holding-surface where such surface is most effective, and avoid the weakening effect incident to roughening or barbing adjacent to the head, as is customary in the usual form of nail.

I claim herein as my invention—

1. In a machine for the manufacture of wire nails, the combination of a heading-die and a pair of gripping-dies having longitudinal grooves in their adjacent faces, said grooves being plain-faced or practically so at the forward ends thereof, and barbed or roughened thence to or toward the rear ends thereof, substantially as set forth.

2. In a machine for the manufacture of wire nails, the combination of a heading-die and a pair of gripping-dies having longitudinal grooves in their adjacent faces, said grooves having a plain or smooth portion, 6, at the forward ends of the dies and a barbed or roughened portion, 4, extending thence to or toward the rear ends of the dies, substantially as set forth.

In testimony whereof I have hereunto set my hand.

RUDOLF BERCHTOLD.

Witnesses:

THOS. BRADFORD,  
H. W. WILDE.