S. M. & C. B. HOWARD.
Nail-Assorter.

No. 196,456. Patented Oct. 23, 1877.

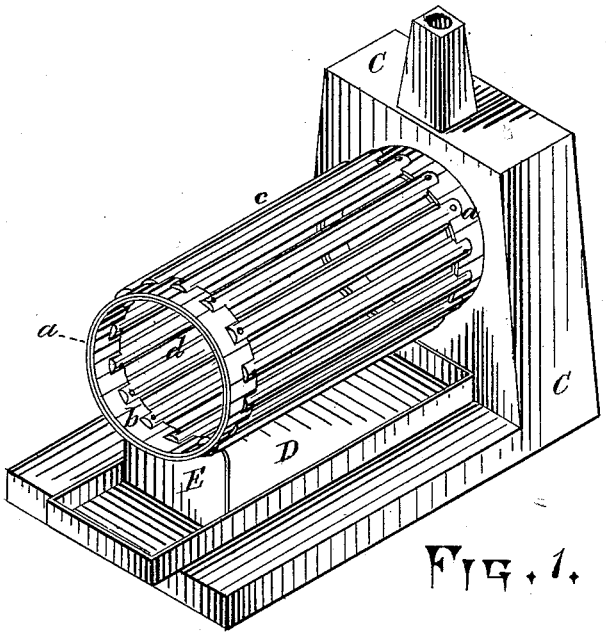

FIG. 1.

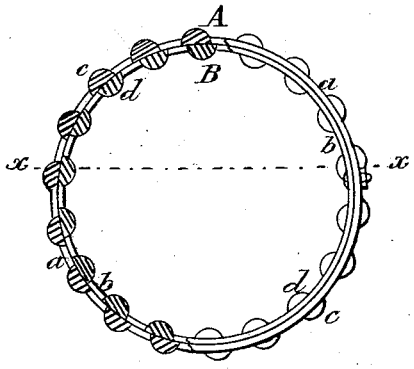

FIG. 2.

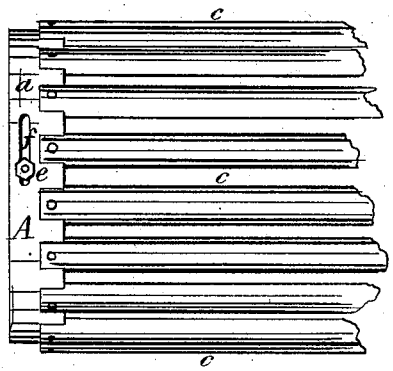

FIG. 3.

FIG. 4.

Witnesses
H. C. Elliott
D. R. Lowe

By

Inventor
Stanton M. Howard
Cyrus B. Howard
Wm. H. Brereton
Attorney.

UNITED STATES PATENT OFFICE.

STANTON M. HOWARD AND CYRUS B. HOWARD, OF WHEELING, W. VA.

IMPROVEMENT IN NAIL-ASSORTERS.

Specification forming part of Letters Patent No. **196,456,** dated October 23, 1877; application filed June 25, 1877.

To all whom it may concern:

Be it known that we, STANTON M. HOWARD and CYRUS B. HOWARD, of Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Screens; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates particularly to screens for use in the manufacture of nails; and it consists of two cylinders, one fitting closely within the other, and each constructed with longitudinal slats or bars, of triangular or curved shaped steel, placed about half an inch apart, and secured to rings at each end in such a way that the faces of the bars of each cylinder fit closely together, and pass one directly over the other, the two cylinders being connected together in such manner that the spaces intervening between the corresponding slats of the two may be graduated to any desired distance apart to adapt the apparatus for use with different-sized nails, this being readily accomplished by simply moving the inner cylinder around sufficiently for the edges of the bars to pass the edge of those in the outer cylinder, thus reducing the space between them until the required size slot is obtained, all as hereinafter, more fully and at large, will appear.

In the drawings, Figure 1 is a perspective view of a screen constructed according to our invention attached to a nail-bluing furnace. Fig. 2 is a transverse section, and Fig. 3 a sectional side view, of the cylinder-screen. Fig. 4 shows another form of the apparatus.

A B are the two cylinders, one, B, fitting closely within the other, each being provided with bands or hoops *a b* at their ends, to which are secured bars or slats *c d*. These bars or slats are arranged parallel to each other, and at any suitable distances apart, those, *c*, of the outer cylinder being secured to the outside of the bands *a*, and those, *d*, of the inner cylinder to the inside of the bands *b*.

The corresponding faces of the interior and exterior slats are made to fit closely together, in order to prevent refuse material from entering or finding lodgment between the two cylinders. Their opposite faces are curved, as shown, or they may be made triangular, for the purposes hereinafter set forth.

e is a set-screw secured to the inner cylinder, and working in a slot, *f*, in the outer cylder, by which the two cylinders are adjusted and secured in relation to each other.

C represents a nail-bluing furnace; D, the receptacle for imperfect nails and refuse, and E the receptacle for perfect nails.

The inner cylinder turns freely within the outer one, (or the reverse method may be adopted,) so that the distances between their respective slats may be varied at pleasure by a partial rotation of one or the other, being set farther apart for large and nearer together for small nails, and when the required adjustment is attained they are clamped firmly together by the set-screw *e*, or other equivalent means, and retained in that position until it is desired to reset the apparatus to operate upon a different class of nails.

The end of the screen nearest the nail-receptacle E is set somewhat lower than the other, the inclination being varied according to the size of nail operated on.

The operation is as follows: The two cylinders being adjusted and clamped together, as above described, a rotary motion is imparted to the screen. The nails passing from the bluing-furnace enter the upper end of the screen, where the imperfect nails, slivers, and refuse immediately drop through the openings between the slats, and fall into the trough or box D, the rounded or angular shape of the slats facilitating their discharge, while the perfect nails are retained within the screen by the slats, which do not permit their heads to pass through, and, making their way to the lower end, are finally discharged into the nail-receptacle E.

The screen may be attached to the bluing-furnace, as shown, to pick the nails during the operation of annealing. It may be attached with suitable gearing to the nail-machine, to screen the nails as they come from the cutting-knife; or it may be used separate from either,

mounted on a suitable frame, to pick cold nails before they pass to the annealing-furnace.

In Fig. 4 we have shown the screen as made flat instead of round, composed of two screens, fitting and connected together, but adapted to be adjusted by sliding one over the other.

This form of screen is used, in connection with the nail-cutting machine, to receive the nails as they are severed by the cutter.

Instead of making the screen flat, it may be made semi-cylindrical, as shown by the dotted lines *x x*, Fig. 2, accomplishing the same result.

The object of making the bars triangular or convex is to cause the immediate discharge of the imperfect nails, slivers, scales, &c., and compel the perfect nails to enter the slots.

As the nails are screened by the heads, and not by their bulk, there must be no square edges or flat intervening surfaces for the nail to rest on and catch with its broad head and revolve with the cylinder almost around, and then drop on other nails, and perhaps run out entirely without being subjected to the test of passing the openings; therefore, the bars must be made either triangular or convex, and not flat.

Were the bars made flat, a lodgment for the nails, slivers, &c., is made, and they fall back again and again as the cylinder revolves without striking an opening in proper line or shape to fall through and hang, if perfect. Thus the nails could not be thoroughly screened.

We claim as our invention—

1. In a cylindrical revolving nail-screen, the bars *c d*, made uniform throughout their length, with flat opposing faces fitting flush together, and curved or triangular shaped outside faces, substantially as and for the purposes described.

2. The nail-screen consisting of the double cylinder A B, one fitting closely within the other, and each composed of parallel triangular or convex-shaped bars *c d*, secured to bands *a b* at each end, in such a manner that the opposing faces of the bars of each cylinder fit close together, and pass one over the other, substantially as and for the purposes described.

STANTON M. HOWARD.
CYRUS B. HOWARD.

Witnesses:
ARCHIE P. PAXTON,
EDGAR F. HAY.