(No Model.)

B. H. GEDGE.

MACHINE FOR POLISHING, CLEANING, AND PACKING WIRE NAILS.

No. 458,571. Patented Sept. 1, 1891.

Fig. 1.

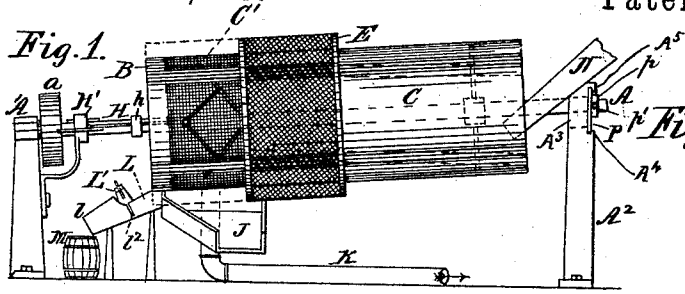


Fig. 7.

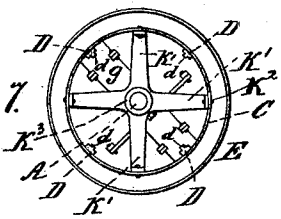


Fig. 8.

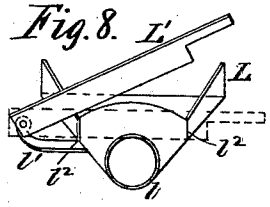


Fig. 2.

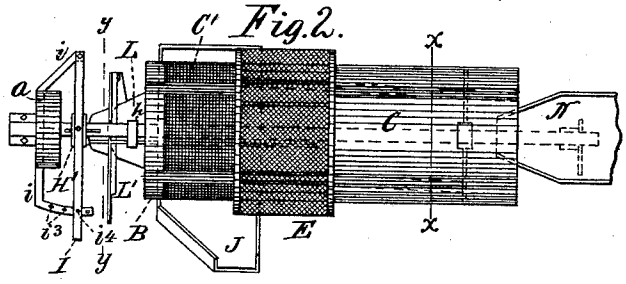


Fig. 9.

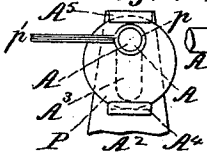


Fig. 10.

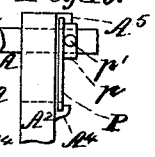


Fig. 3.

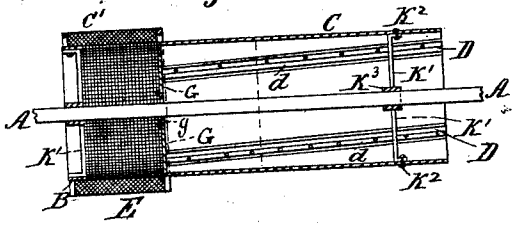


Fig. 11.

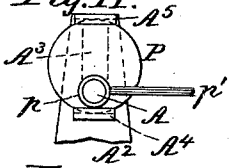


Fig. 6.

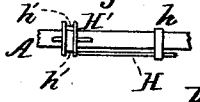


Fig. 4.

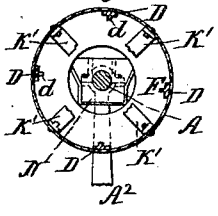


Fig. 5.

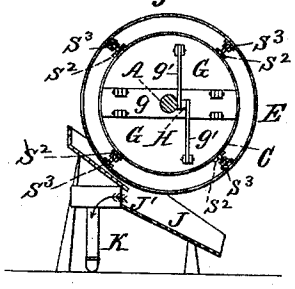
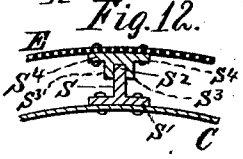


Fig. 12.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BURTON H. GEDGE, OF COVINGTON, KENTUCKY.

MACHINE FOR POLISHING, CLEANING, AND PACKING WIRE NAILS.

SPECIFICATION forming part of Letters Patent No. 458,571, dated September 1, 1891.

Application filed May 5, 1888. Serial No. 272,894. (No model.)

To all whom it may concern:

Be it known that I, BURTON H. GEDGE, a citizen of the United States, and a resident of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Machines for Polishing, Cleaning, and Packing Wire Nails and Sorting the Waste Therefrom, of which the following is a specification.

The several features of my invention and the advantages arising from their use conjointly or otherwise will be apparent from the following description.

As wire nails come from the stamping and shaping machine the points of the nails have smalls burrs technically known as "whiskers" attached to them. In addition to the whiskers, the nails are quite greasy.

To remove the whiskers and grease and to prepare a clean, polished, smooth, and well-finished nail is one of the objects of my invention.

Another object is to separate the nails from the whiskers and to deliver each into separate chutes.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my machine. Fig. 2 is a top view. Fig. 3 is a vertical central longitudinal section of the screen-cylinders, the shaft being shown in elevation. Fig. 4 is a sectional elevation taken at the line $x\ x$ of Fig. 2, looking from left to right, the frame or spider consisting of the hub and spokes for supporting the rear end of the cylinder being broken away in order to show the end of the box or chute for delivering into the cylinder the dirty nails to be cleaned. Fig. 5 is a sectional elevation taken at the line $y\ y$ of Fig. 2. Fig. 6 illustrates part of the device for operating the door of the cylinder. Fig. 7 is a cross-section of the screen-cylinder, showing a frame—viz., the hub and spokes for supporting the rear end of the nail-cylinder. Fig. 8 is a view in perspective of the spout for receiving the cleaned nails as they come from the cylinder and delivering them to the keg or other receptacle in which they are to be kept for shipment or for use. Fig. 9 is a rear elevation of the upper part of the rear standard, illustrating the device for adjusting the angle of inclination of the cylinder. Fig. 10 is a side elevation of the device shown in Fig. 9. Fig. 11 is a view similar to Fig. 9, showing the cylinder-shaft in a different position. Fig. 12 is an enlarged view in cross-section of the guide attached to the exterior surface of the nail-cylinder C and of the guide located on the interior surface of cylinder E and showing how these guides engage one another.

The shaft A is mounted on bearings in the standards A′ A^2 in a slightly oblique position, the pitch being preferably about one inch to the foot. This shaft is provided with a driving-pulley a or other means for imparting motion to it.

The delivery end of the nail-cylinder C C′ is supported by the spiders or frames centered upon and fixed to the shaft A. One of these frames supports the cylinder C C′ at the end where it delivers the nails of said cylinder—viz., in the vicinity of the band B—and another of these frames supports the other or inlet end of the cylinder C C′ and is located near the said inlet end. These supporting-frames are preferably located within said cylinder. Each of these frames or spiders preferably consists of a hub K^3, provided with the radiating arms K′. The hub K^3 is centered on and fixed to the shaft A, and the extremities of the arms K′ are securely fastened to the cylinder C, preferably by means of flanges attached to the extremities of the arms K′ and extending at right angles to the plane of the arms, said flanges K^2 being suitably secured to the cylinder C, preferably by bolts, substantially as shown in Figs. 3 and 7. A series of strips D are attached to the band-wheel B and extend the whole length of the cylinder C. They are preferably made to occupy a slightly-spiral position in the cylinder. Each strip D is preferably provided on its inner face with a web d, which not only strengthens the strip and with it the whole inner cylinder, but also assists in turning over the nails in the cylinder. The entrance to the cylinder C has a ring F (see Fig. 4) attached to the strips D and forming a flange partially closing the opening to the cylinder. The lower end C′ of the cylinder C is made of wire-netting, through the meshes of which the barbs from the nails and sawdust employed in cleaning

escape. An outer cylinder E surrounds the lower end of the cylinder C and is adapted to move longitudinally on the guides S^2. It is formed of wire-netting of a finer mesh than that employed in the end C′ of the cylinder C. The lower end of solid portion C is closed by a door of any suitable pattern.

The preferred description for controlling the outgo of the nails is the semicircular doors G, hinged to the cross-piece *g*, mounted on the shaft A.

A convenient means of operating the doors G consists of toggle-arms *g′*, attached one to each door and both to the rod H. The rod H passes along the shaft from a toggle-joint to the collar H′, located on shaft A. The collar *h* (see Fig. 6) forms a support for the rod H, intermediate between the collar H′ and the toggles. The lever I is fulcrumed to the bracket *i*. The lever I fits in the groove *h′* of the collar H′. By the lever I the doors G may be controlled. It is convenient to have the bracket i^2 provided with a series of openings i^3. The free end of the lever I rests on this bracket, and may be held in any desired position by a pin dropped through the opening i^4 in the lever and one of the openings i^3 of the bracket. The chute J is placed obliquely under the portion C′ of the cylinder C. In its floor an opening J′ is cut, (see Fig. 5,) communicating with the suction-pipe K. Another chute L is placed under the end of the cylinder C and leads to a keg M. The chute L is preferably made to terminate in a covered spout *l*. It is also provided with a gate L′, which is fulcrumed to the bracket *l′* and fits into the slots l^2 in the sides of the chute and serves to control the passage of nails through the chute. The hopper or chute N leads into the upper end of cylinder C and is perforated by the shaft A, in order to be accommodated in its position. At the rear of the device the shaft A passes through the slot A^3 in the standard A^2 (shown in dotted lines in Figs. 9 and 11) and is received in a bearing *p*, situated eccentrically in the disk P. The disk P is held between the lugs A^5 and A^4 on the face of the standard A^2. The handle *p′* projects from the disk P, being preferably attached to the bearing *p*, as shown. When the parts are in the position shown in Fig. 9, the shaft A occupies its position of greatest obliquity. By depressing the handle *p′* the disk is rotated so that the shaft A may be lowered, as shown in Fig. 11. When nails of the ordinary sizes are to be screened, the cylinder E will not be needed and may be shoved back, as shown in Figs. 1 and 2, and the screen C′ alone be used.

The mode of operation is as follows: The doors G are closed to retain what is to be introduced into the cylinder. The unfinished greasy nails, together with a quantity of dry sawdust, are now introduced into the cylinder C through the chute N. Motion is imparted to the machine, and the mingled nails and sawdust are tossed around in the inner cylinder. In this motion the burrs or whiskers are knocked off of the nails, and the grease is absorbed by the sawdust. After the nails have thus been polished and cleaned the doors G are opened. The nails, sawdust, and burrs move forward toward the delivery end of the cylinder and pass onto the wire sieve or cloth. The sawdust and burrs drop through the wire-cloth of the screen C′ into the chute J, while the nails are retained in the cylinder and finally drop out of its lower end clean and polished into the chute L, hence to the keg M, placed to receive them. In the interval between removing this keg and putting another in place the end of the chute is closed by the gate L′ of the chute. When the sawdust and burrs drop from the cylinder, they encounter the suction through the pipe K, which carries away the sawdust, but leaves the burrs in the chute J. When small nails are being cleaned, the cylinder E is pushed into place and prevents the nails escaping with the burrs.

In cases where it is desired to adapt the particular screen and cylinder for use in screening nails limited to certain sizes and classes the screen E may be altogether dispensed with, and the screen C′ may be of the desired mesh for screening such nails.

While the various features of my invention are preferably employed together, one or more of said features may be used without the remainder, and, in so far as applicable, may be employed in connection with apparatus for cleaning or polishing nails or other articles other than the apparatus herein specifically specified.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a central shaft, means for rotating the same, a cylinder having a solid and perforated portion, and means for closing the end of the cylinder, substantially as and for the purposes specified.

2. The combination of shaft A, cylinder C C′, chute N, chute J, suction-pipe K, and doors G, substantially as and for the purposes specified.

3. The combination of shaft A, band-wheel, strips D, cylinder C, having wire-cloth section C′, and outer perforated cylinder E, substantially as and for the purposes specified.

4. The combination of shaft A, cylinder C C′, chute N, chute J, suction-pipe K, doors G, bracket *i*, lever I, grooved collar H′, and rod H, and toggle-arms *g′*, substantially as and for the purposes specified.

5. The combination of shaft A, cylinder C C′, chutes N and L, trough J, and doors G, substantially as and for the purposes specified.

6. The combination of shaft A, cylinder C C′, chutes N and L, cut-off gate L′, trough J, and doors G, substantially as and for the purposes specified.

7. The combination of standards A' A^2, the latter provided with slot A^3, lugs A^4 and A^5,

and disk P, substantially as and for the purposes specified.

8. The combination of screen E, screen C′, cylinder C, and guides s^2 s^3 s^3, substantially as and for the purposes specified.

9. The combination of shaft A, cylinder C C′, chute N, chute L, chute J, independent of chute L, and doors G, substantially as and for the purposes specified.

10. The combination of the imperforate cylinder C and the perforate cylinder C′, being an extension of the lower end of said cylinder C, and the outer cylinder E, having a finer mesh than the cylinder C′, substantially as and for the purposes specified.

BURTON H. GEDGE.

Attest:
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