

No. 631,133.

Patented Aug. 15, 1899.

A. L. STARKE.

METHOD OF AND APPARATUS FOR CLEANING NAILS.

(Application filed Nov. 25, 1898.)

(No Model.)

Fig. 1

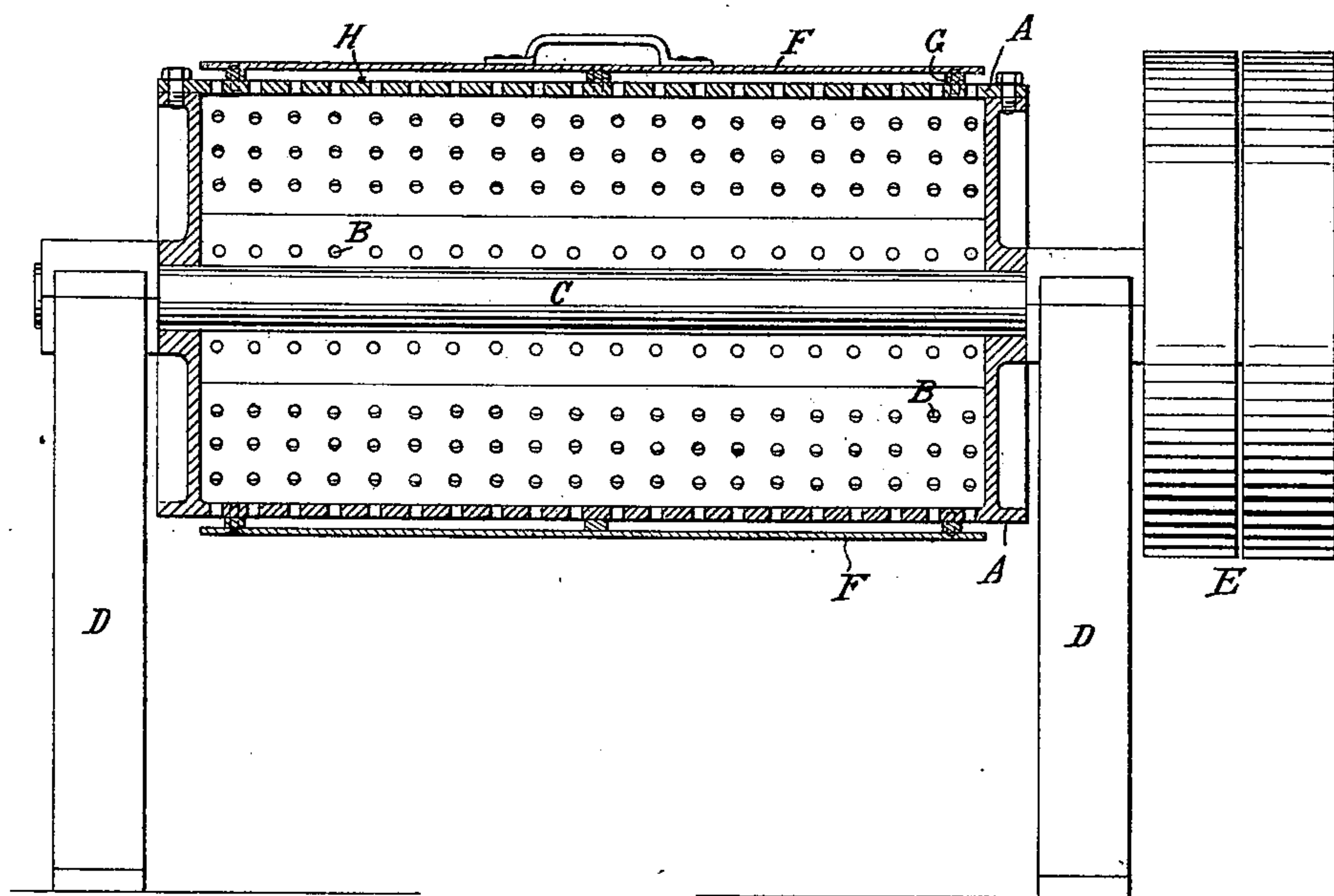


Fig. 2

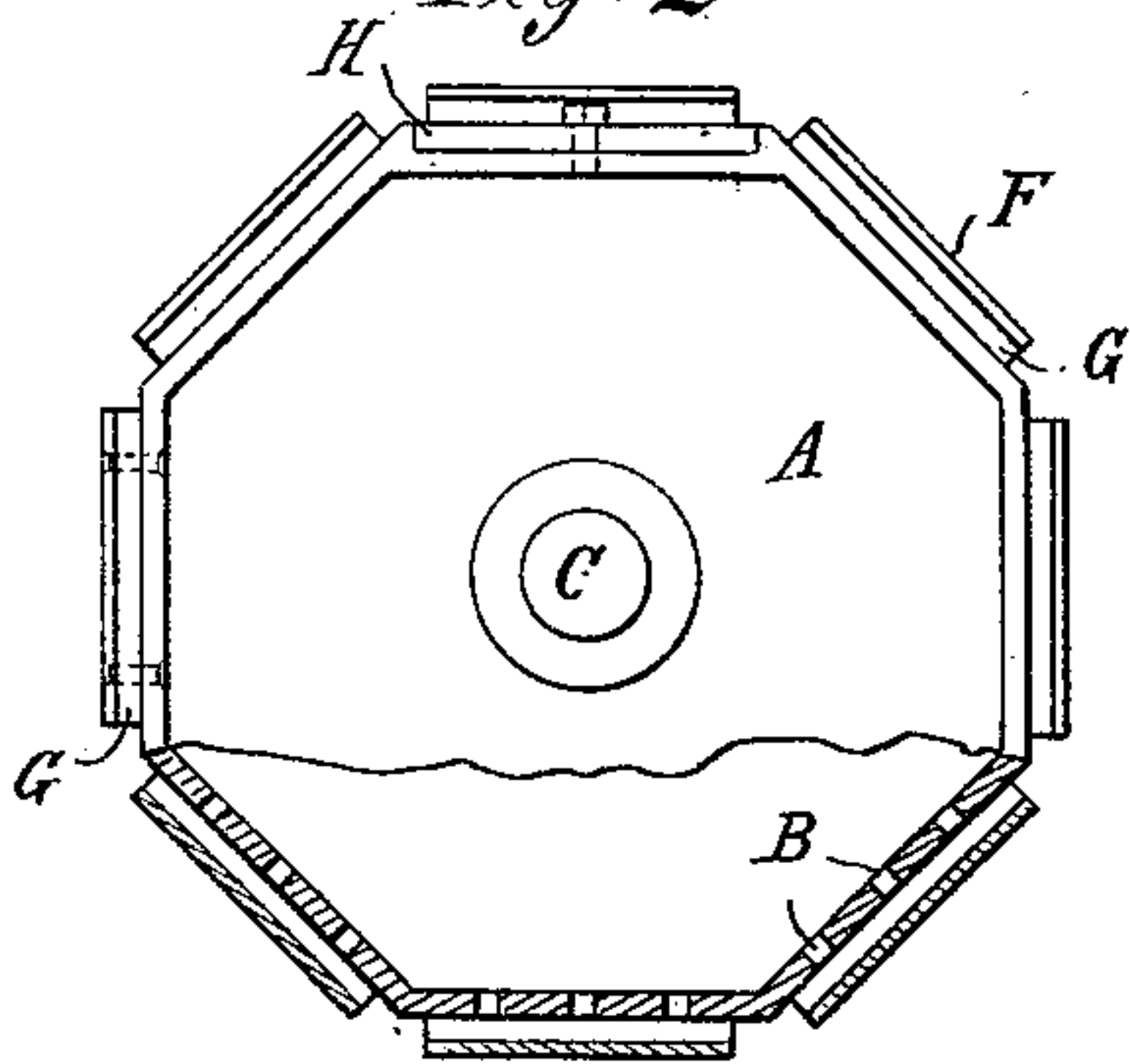
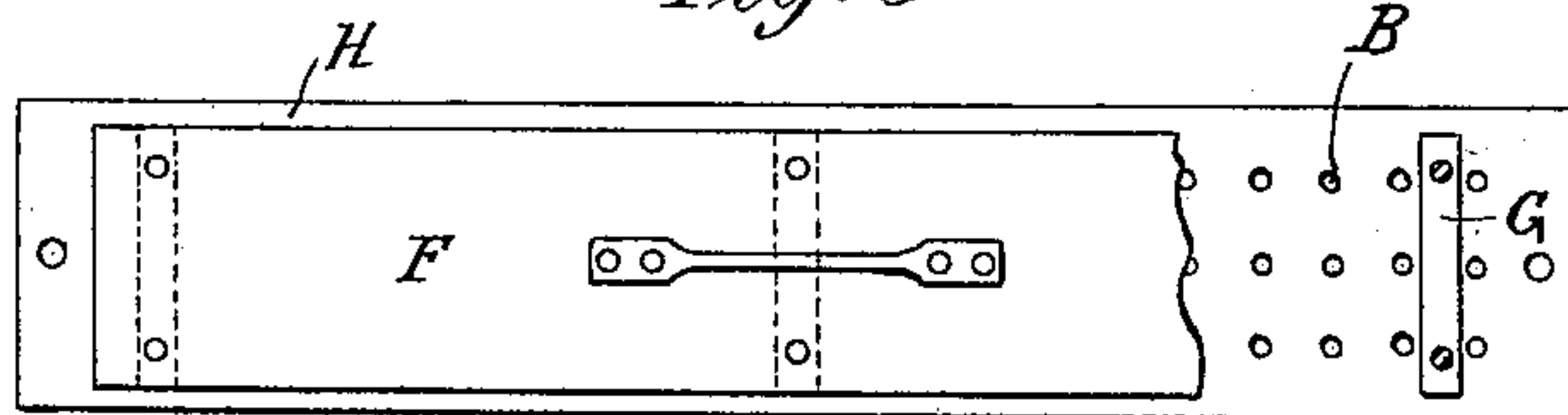


Fig. 3



Witnesses:  
Raphael Ketter  
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# UNITED STATES PATENT OFFICE.

AUGUST L. STARKE, OF NEW YORK, N. Y.

## METHOD OF AND APPARATUS FOR CLEANING NAILS.

SPECIFICATION forming part of Letters Patent No. 631,133, dated August 15, 1899.

Application filed November 25, 1898. Serial No. 697,333. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST L. STARKE, a citizen of the United States, residing at New York city, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Methods of and Apparatus for Cleaning Nails, of which the following is a specification, reference being made to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of a machine which may be used in carrying out my method; Fig. 2, an end elevation thereof, with the lower part in section; and Fig. 3, a detail of the cover.

In the cleaning of wire nails as they come from the machine it is customary at the present time to clean them by agitating a mass of them together with sawdust, which will absorb the grease and refuse material that is removed from the nails by the rubbing and scouring of one upon another. This is ordinarily done by placing the nails in a tumbling-barrel, together with a quantity of sawdust, and the nails and the sawdust are then tumbled by the rotation of the barrel for some time until the nails have become bright and clean. The cover of the barrel is then removed and a different cover substituted therefor, in which there are a few holes through which by a further operation of the barrel the sawdust and the chips from the nails are gradually removed together. The chips and sawdust are then placed in a pneumatic separator and the sawdust blown away from the chips. This process is troublesome and expensive, since in a large mill the amount of sawdust required is a matter of considerable expense, while it requires a blower and separating apparatus with an appreciable expense for handling the machine and material. The sawdust is also blown around the entire building, so as to cause much annoyance and is constantly accumulating, while the piles of greasy sawdust are liable to take fire from spontaneous combustion, so that there is an added danger from fire. In some cases it is the practice on this account to provide a separate fireproof building or tank for the sawdust.

My invention consists in the process or method of cleaning nails by removing the

rust, grease, and dirt from the nails by agitating them, so as to cause them to rub and scour one another and simultaneously separating out the removed material and also the chips from the mass, as distinguished from the present method of absorbing this refuse material and grease by sawdust, which remains mingled in the mass until after the polishing is completed and is then separated out by a subsequent process. The leading difficulty in cleaning nails has been not only the removal of rust and dirt, but particularly the removal of the grease, which inevitably adheres to the nails as they pass through the cutting-machine. For the removal of this grease the sawdust has heretofore been considered a necessity; but with my method it may be entirely dispensed with, the escaping dirt serving to carry off the grease with it. Thus the dirt itself is made to serve the purpose of the sawdust in absorbing and retaining the grease. It is retained in the mass of nails for a short time at the outset and is disseminated throughout the mass, so as to absorb the grease and is gradually separated from the mass simultaneously with the agitating and polishing of the nails.

My invention also consists in an arrangement of apparatus whereby in pursuance of my method the nails may be cleaned as perfectly as by the present methods, but without the use of sawdust or any other additional substance.

Referring to Fig. 1 of the drawings, there is shown a tumbling-barrel, which may be either cylindrical, hexagonal, or octagonal in cross-section and which in the usual manner is provided with a shaft by means of which it may be rotated. In the previous nail-cleaning methods the tumbling-barrel is made with imperforate walls, so as to retain the sawdust and chips during the polishing operation. I, however, perforate the entire or a substantial portion of the wall of the barrel with a large number of small holes. In the illustration the tumbling-barrel is represented as an eight-sided figure A, and each of the eight sides provided with three rows of perforations B. It may, however, be round or have any other desired configuration. The barrel is provided with a shaft C and is mounted in bearings D D and rotated by a pulley E.



The size of the holes should preferably be adjusted to the size of the nails to be treated and should have a dimension adequate to allow the passage of the chips cut from the points of the nails, which obviously vary in size, according to the size of the nails from which they are cut. In consequence of this the nails themselves will also tend to drop through the holes. Hence I arrange a guard-plate or a series of guard-plates F outside of the walls of the barrel, but separated therefrom by a space sufficient to allow the passage of the dirt and chips, but at the same time preventing the nails themselves from dropping through the holes. These guard-plates F are secured to the outside of the tumbling-barrel, but raised away from the surface of the barrel by a series of ribs G, placed under the guard-plates at any desired intervals. The cover H (shown in Fig. 3) is likewise perforated and provided with a guard-plate, which is removable, together with the cover.

In operation I place in the tumbler the usual quantity of nails, but without any sawdust, and then rotate the barrel for the usual length of time, when it will be found that the nails are cleaned and polished full as well as in the previous process, but without the use of any sawdust or other outside material. At the same time the dust and chips are separated out from the mass of the nails and passing through the described perforations in the walls of the barrel gather on the floor or in a hopper beneath the machine and at the same time carry off the grease in the manner described.

With my apparatus and method of cleaning the results which I have already described are secured with a less expense than by the prior methods and in a less time, without the annoyance and danger of the sawdust and without the need of any supplementary blowers or separating-machines.

As I have above stated, it is the present practice at one point in the nail-cleaning process to employ a tumbling-barrel having a temporary cover perforated with a few holes; but such a construction is not one that will permit of

carrying my process into effect, since the perforations are not of a character that will give any appreciable result in cleaning nails without the employment of sawdust. Hence I intend to distinguish my invention from any such construction by the complete and extended perforation of the walls of the tumbling-barrel, which gives a substantial portion of the surface of the barrel an almost sieve-like character, which is the construction required for the practical performance of my process.

It should finally be noted that my tumbling-barrel is not inclosed in any external casing, but is completely exposed, so that the dust and refuse are carried away and not worked back into the nails.

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

1. The process for cleaning nails coated with greasy dust incident to their manufacture which consists in agitating them in a mass independently of absorbent material for the dirt, to dislodge the greasy dirt from the nails and simultaneously with such agitation separating the dislodged dust from the mass of nails substantially as described.

2. A nail-cleaning machine comprising an exposed tumbling-barrel having a sieve-like wall perforated with holes slightly larger than the nails to be cleaned and outside guard-plates, substantially as described.

3. A nail-cleaning machine comprising a tumbling-barrel having its walls thoroughly perforated with holes slightly larger than the nails to be treated and provided with external guard-plates placed opposite the said holes to stop the nails projecting therethrough, but separated from the walls of the barrel sufficiently to allow the escape of refuse material and chips from the mass of contained nails.

In witness whereof I have hereunto set my hand this 23d day of November, 1898, before two subscribing witnesses.

AUGUST L. STARKE.

Witnesses:

E. M. BENTLEY,  
L. T. SHAW.