

(No Model.)

C. M. BARBER.
FEEDING APPARATUS.

No. 542,623.

Patented July 16, 1895.

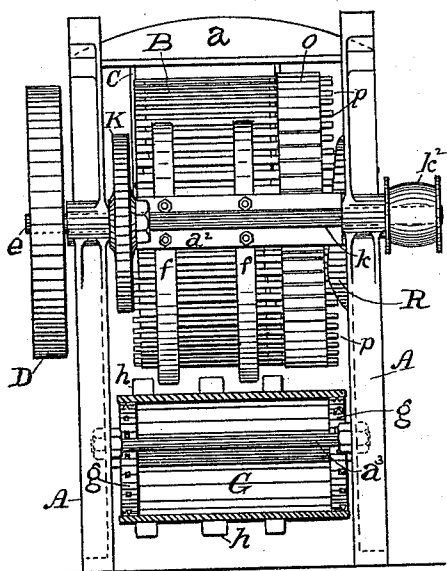


Fig. 1

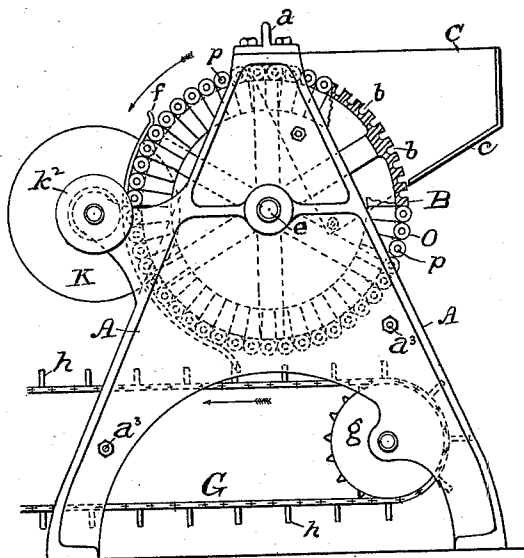


Fig. 2

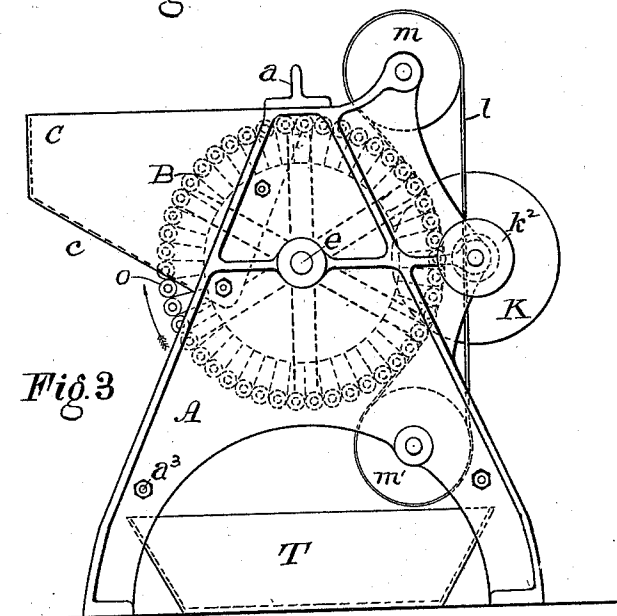


Fig. 3

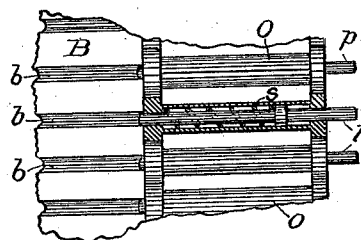


Fig. 4

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UNITED STATES PATENT OFFICE.

CLARENCE M. BARBER, OF CLEVELAND, OHIO.

FEEDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,623, dated July 16, 1895.

Application filed March 17, 1894. Serial No. 503,985. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE M. BARBER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Apparatus for Separately Feeding, Grinding, and Delivering Articles from a Mass; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to apparatus for taking articles singly from a mass or quantity of similar articles and conveying and subjecting them separately to a grinding, polishing, or other similar treatment. Its object is to save labor and reduce the cost of manipulation and manufacture; and it consists in the novel features of construction and combination hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 represents a front view in elevation of a machine embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a side elevation showing a modification of the structure. Fig. 4 is a sectional detail showing the construction of the feeding-plungers and their chambers.

A A represent the supporting-frames; *a a*, tie-beam joining the side frames A A at the top; *a²*, a bar joining the side frames lower down and serving also to support guards *ff*, and *a³* are tie-rods serving to brace the frame.

B is a drum or cylinder supported between the frames A A on the shaft *e* and having arranged around its periphery a series of grooves or depressions *b b b*, each of which is of a size and shape to contain a single one of the articles to be fed.

Around the periphery of the drum is a series of cylindrical or sleeve-like chambers O O, each exactly aligned with one of the grooves *b*, as seen in Fig. 2, and each containing a plunger *p* longer than the sleeve of the chamber, and which, by means of a spring *s* within the chamber, is kept normally retracted from the groove with which its chamber is aligned, and consequently protruding from the opposite or outer end of the chamber O, as seen at the top of Fig. 1. A cam R, curved to correspond with the feeding-drum, is fixed

in the path traversed by the outer ends of the plungers, so that each one, in its rotation with the drum, must ride up over this cam, as 55 shown in Fig. 1.

A hopper C is supported on or secured to the frame of the machine on the side from which the top of the drum B rotates and is so adjusted that its inclined bottom *c* nearly 60 or quite abuts against the periphery of the drum, so that the drum itself forms one side of the hopper, toward which the slope of the bottom *c* causes the contents of the hopper to continually gravitate, since the side of the 65 hopper formed by the drum is lower than the outer side of the hopper. By any suitable means—such, for instance, as a belt upon a pulley D on the shaft *e*—rotary motion is imparted to the drum in the direction indicated 70 by the arrows.

The articles to be fed—such, for instance, as stove-rods, pencils, dowel-pins, arc-light carbons, or any cylindrical articles—are placed in the hopper, which is of a width 75 equal to the length of the articles to be fed, so that they have but very little end play. Obviously the lower side of the pile of articles in the hopper will rest against the drum B, and as the latter revolves one of the articles will fall into each groove and will be carried up over the top of the revolving drum, and before reaching a level at which it would be spilled from the groove in which it lies it passes under the guards *ff*, which may be 85 one or more in number, and which retain each article in its groove until the discharge-point is reached at the lower ends of the guards, where the articles drop from the grooves of the drum into or upon the proper receptacle. 90

K represents a cutter, grinder, or polishing-disk fixed upon a shaft *k*, which is driven by the pulley *k²*, although it might be otherwise mounted, if preferred. As each plunger reaches the cam and rides up on it, it is thereby 95 forced into its chamber against the action of the spring and protrudes from the inner end of the chamber into the groove *b*, with which the chamber is aligned, and of course pushes before it the article lying in the groove, which 100 article will consequently protrude from the opposite end of the groove and will be brought into contact with the cutter, grinder, or polishing-wheel K, and will be cut off, ground,

or polished, as the case may be. As the plungers pass the widest part of the cam and ride down its receding face, their springs withdraw them from the grooves to their original position, as shown in the lower part of Fig. 1.

Instead of the fixed guards *ff*, one or more endless belts *l* may be employed as guards and run over pulleys *m m'* so located and arranged that the guard belt or belts shall hug the periphery of the drum for a portion of its circumference, as seen in Fig. 3. The belts *l*, traveling in contact with the periphery of the drum, will, of course, be in contact with the outer side of the articles lying in the grooves and will hold them firmly in the grooves against the action of the cutter or grinder *K*, and by making the grooves of the drum of slightly less depth than the diameter of the articles to be fed the friction of the belt on the articles in the grooves may be made sufficient to cause them to rotate in the grooves while being acted on by the cutter *K* or other mechanism. The same result may also be accomplished by adjusting the guards *ff* so as to make contact with the articles in the grooves of the drum.

By this apparatus all the rods or other articles passing over the drum may be sized to exactly the same length, or may be ground, polished, or otherwise treated on the end only or for any desired portion of their length. The finished articles after passing the wheel *K* are carried on and discharged at the bottom of the drum, as seen in Fig. 2, into a receptacle *T*, or into or upon the traveling apron or conveyer shown in Figs. 1 and 2, which consists of an endless belt or apron *G*, suitably supported and moved by any appropriate means, as sprocket-wheels *g*.

The apron *G* may be geared to be driven at any speed proportionate to that of the drum *B*, so that the articles delivered upon the apron by the drum may be made to form a single continuous layer upon the apron, or by driving the latter slower than the drum the articles may be piled upon the apron in layers several deep. I prefer to provide upon the apron *G* at intervals upright divisions *h*, which divide the surface of the apron into spaces or compartments, each of which will receive a definite number of the articles from the drum. This arrangement is of great service in facilitating the packing and other manipulation of the articles. For instance, if the articles are to be put up in packages of one dozen each it is easy to so adjust the speed of the apron to that of the drum that twelve of the articles will be delivered into each compartment of the apron, whence they may be taken for packing without the delay necessary for counting them. Obviously, by the same means any number of articles necessary to form a set, as two, four, or six, &c., or any desired number, may be counted out and separated from the mass mechanically and presented in groups of the desired number.

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

1. In apparatus for separately feeding, grinding and delivering articles from a mass, the combination of a hopper for the articles to be fed, a rotating drum forming one side of said hopper and having grooves in its periphery each of which is adapted to receive a single one of the articles in the hopper, a guard conforming to a portion of the periphery of the drum and preventing the escape of the articles in the grooves, plungers supported on one end of the drum in alignment with each of the grooves thereof, a grinding or polishing device located opposite the open end of the grooves, and a cam located in the path of the plungers and adapted to drive them into the grooves and force the articles therein against the grinder, substantially as described.

2. In apparatus for separately feeding, grinding and delivering articles from a mass, the combination of a hopper for the articles to be fed, a rotating drum forming one side of said hopper and having grooves in its periphery each of which is adapted to receive a single one of the articles in the hopper, a guard conforming to a portion of the periphery of the drum and in contact therewith and with the articles in the grooves, plungers supported on one end of the drum in alignment with each of the grooves, a grinding or polishing device located opposite the open end of the grooves, and a cam located in the path of the plungers, and adapted to drive them into the grooves and force the articles therein against the grinder, substantially as described.

3. In apparatus for separately feeding, grinding and delivering articles from a mass, the combination of a hopper for the articles to be fed, a rotating drum forming one side of said hopper and having grooves in its periphery each of which is adapted to receive a single one of the articles in the hopper, a guard conforming to a portion of the periphery of the drum and confining the articles in the grooves, plungers supported on one end of the drum in alignment with each of the grooves thereof, a grinding or polishing device located opposite the open end of the grooves, and a cam located in the path of the plungers and adapted to drive them into the grooves and force the articles therein against the grinder, and a conveyer beneath the drum to receive and carry away the finished articles, substantially as described.

4. The combination of a hopper for the articles to be fed, a rotating drum forming one side of said hopper, grooves in the periphery of said drum extending the entire length thereof, a guard conforming to a portion of the periphery of the drum and preventing the escape of the articles from the grooves, tubular casings rigid with the drum and aligned axially with each of the grooves thereof, plungers extend-

ing entirely through said casings and having
one end engaging the groove with which said
casing is aligned and the other protruding
from the other end of the casing, a spring in
5 each casing to retract the plungers from the
grooves, and a cam located in the path of the
protruding ends of the plungers and adapted
to drive them into the grooves and force out

the articles therein, substantially as de-
scribed.

In testimony whereof I hereto affix my sig-
nature in presence of two witnesses.

CLARENCE M. BARBER.

Witnesses:

LORIN PRENTISS,
ROLAND RIDET.