No. 872,189. PATENTED NOV. 26, 1907.

E. MONGRAIN.

MACHINE FOR BURRING NUTS.

APPLICATION FILED MAY 28, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

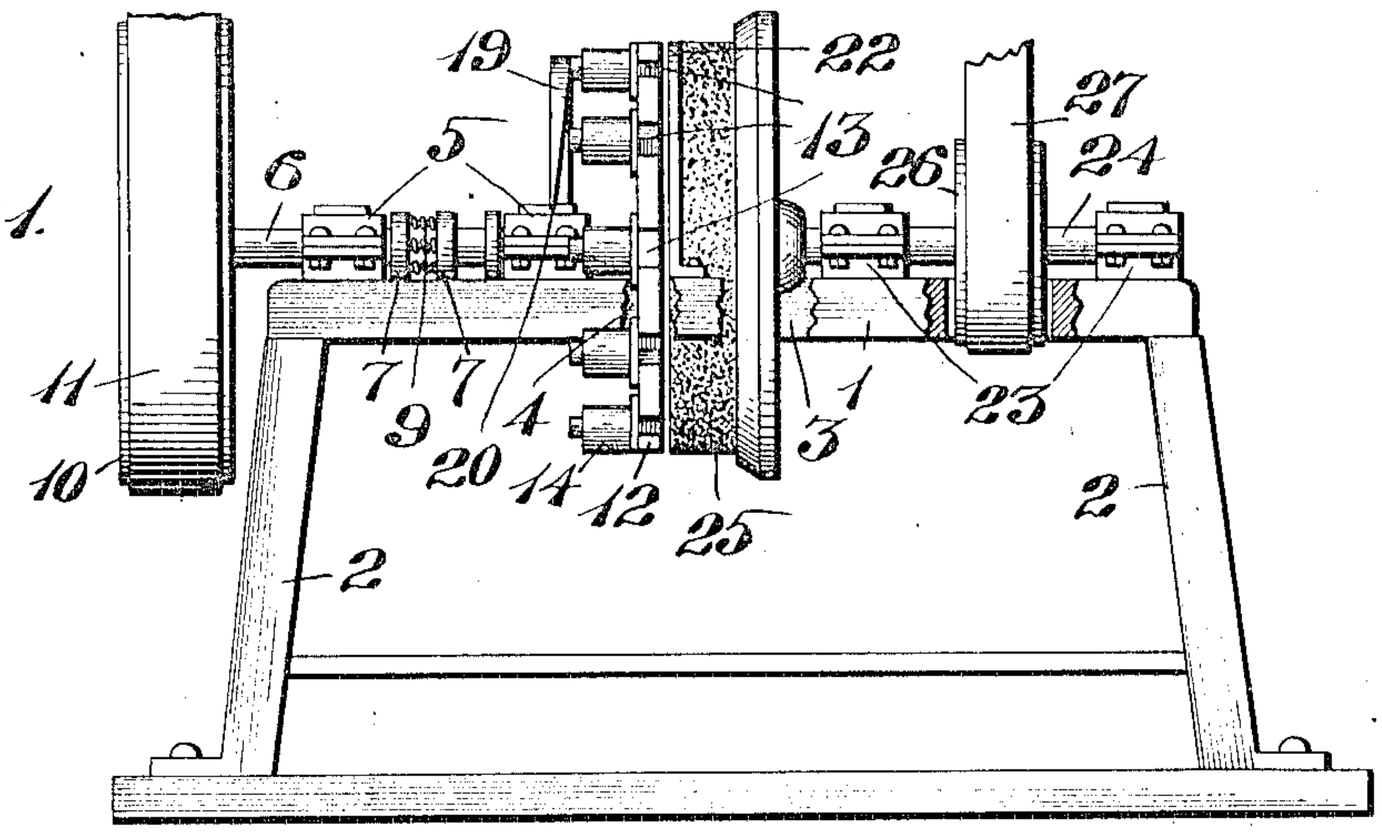


Fig. 2.

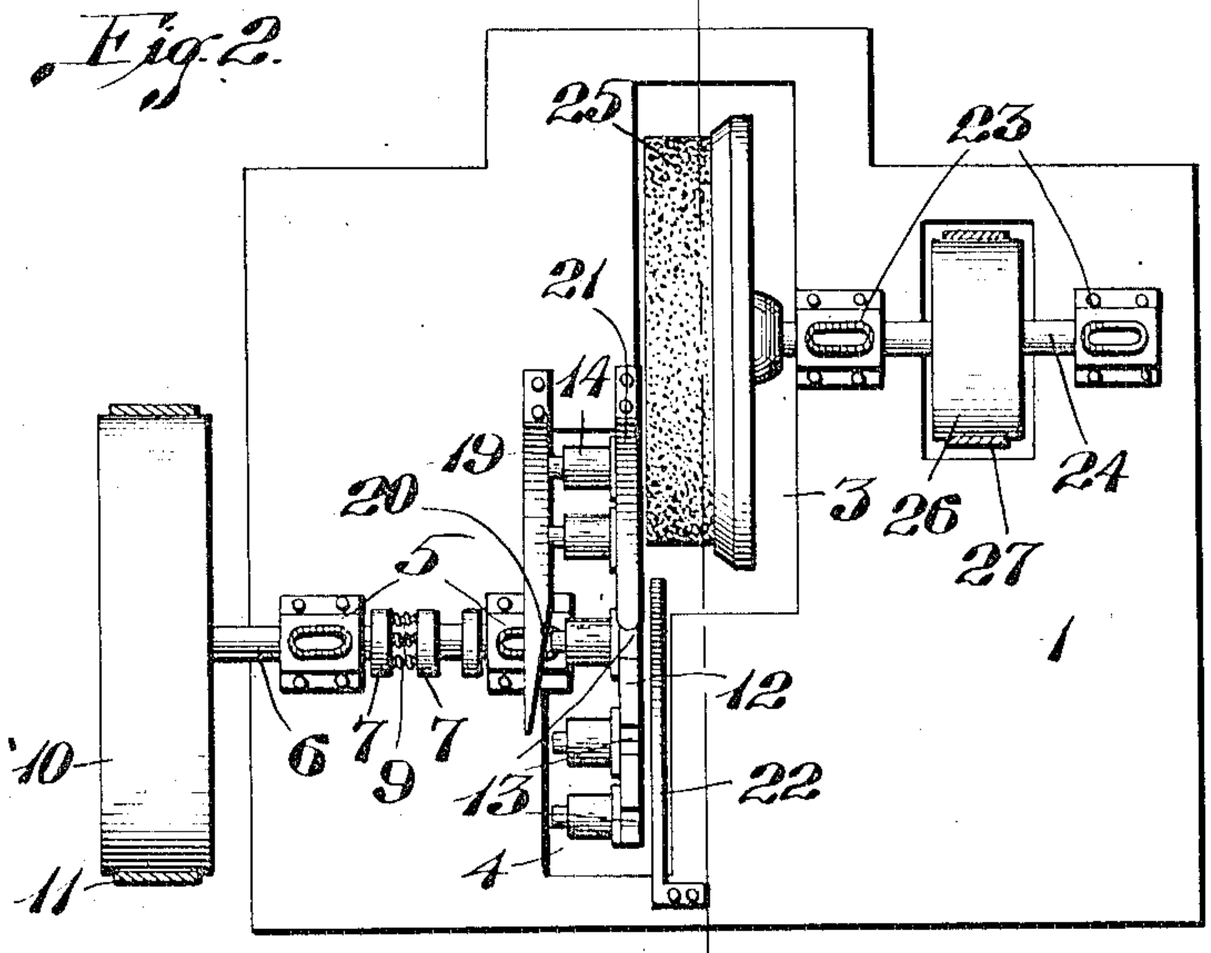
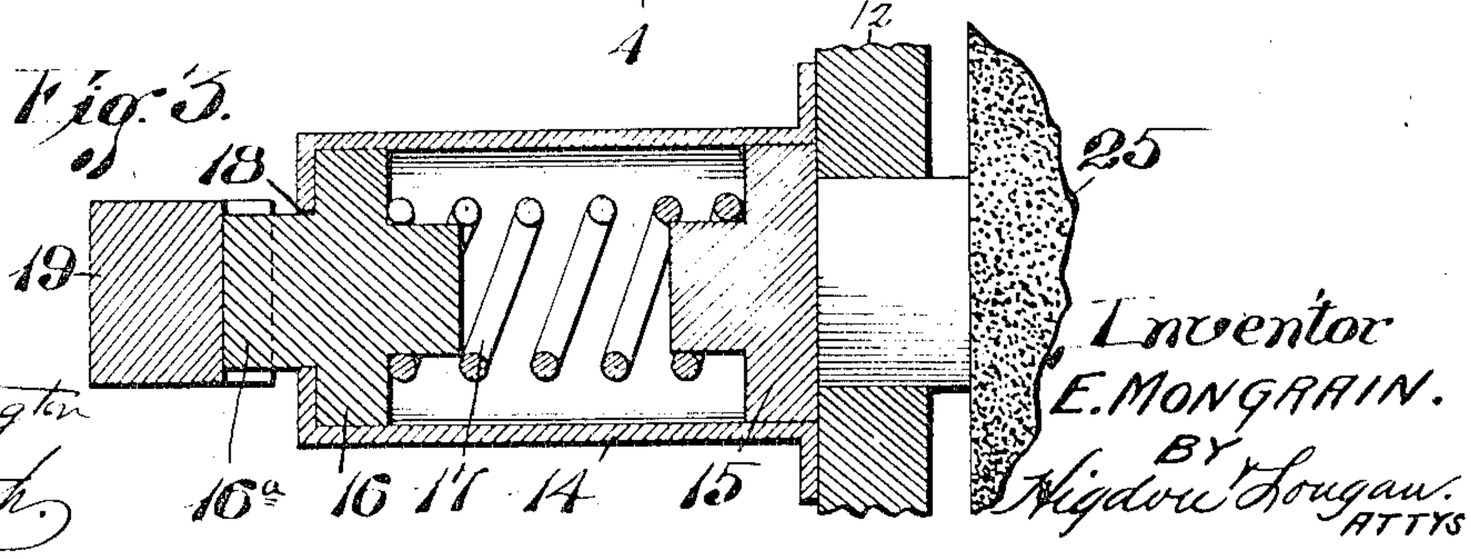


Fig. 3.



Witnesses
E. M. Harrington
M. C. Smith

Inventor
E. MONGRAIN.
BY
Higdon & Longan.
ATTYS

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2 SHEETS—SHEET 2.

Fig. 4.

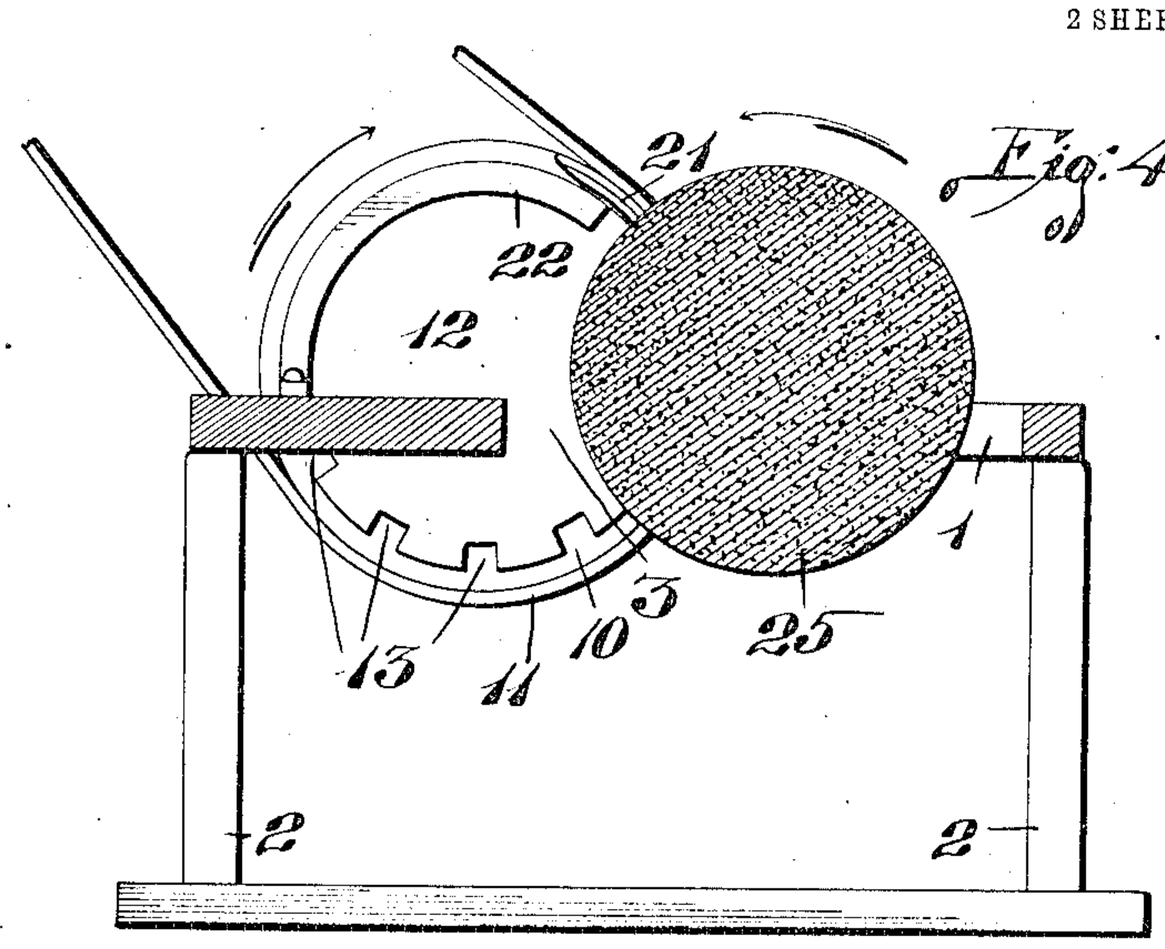


Fig. 5.

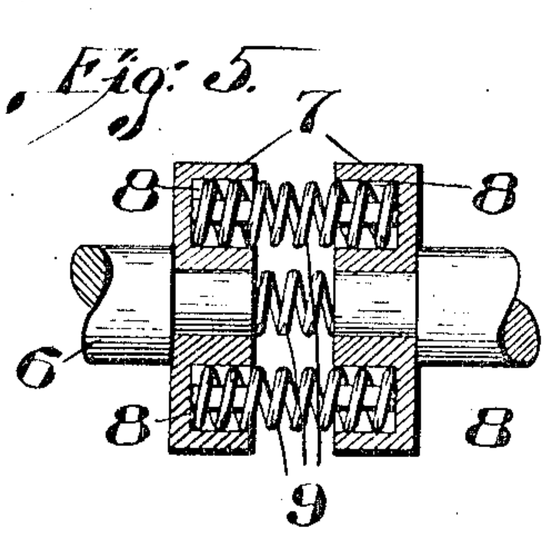
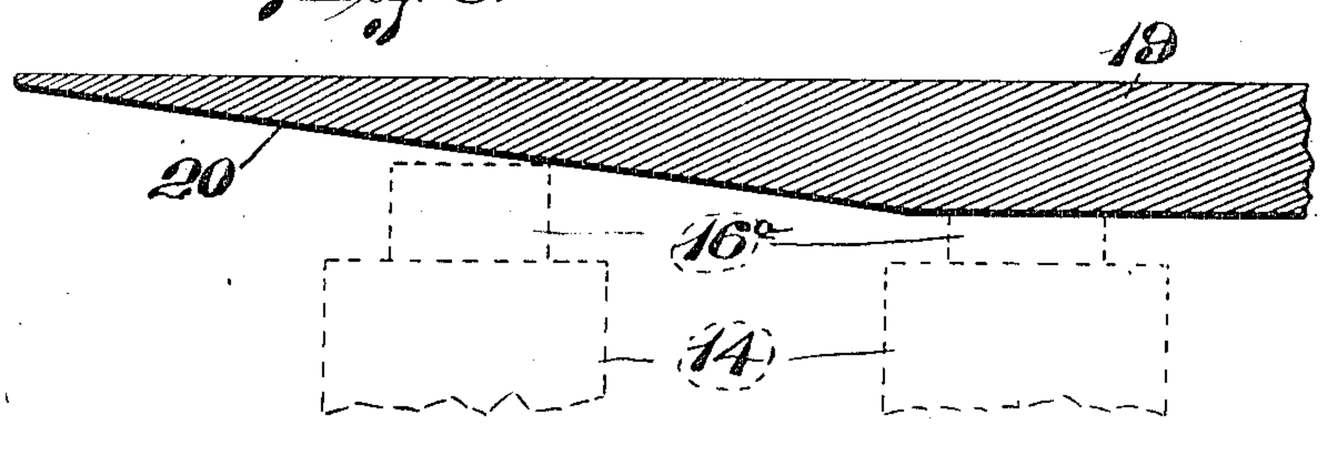


Fig. 6.



Attest.
E. W. Harrington
W. P. Smith.

Inventor.
E. MONGRAIN.
By Higdon Longan
Attys.

UNITED STATES PATENT OFFICE.

EDWARD MONGRAIN, OF EAST ST. LOUIS, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO THOMAS CUNNINGHAM, OF EAST ST. LOUIS, ILLINOIS, AND ONE-FOURTH TO CHARLES P. BURGESS, OF ST. LOUIS, MISSOURI.

MACHINE FOR BURRING NUTS.

No. 872,189. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed May 28, 1907. Serial No. 376,170.

To all whom it may concern:

Be it known that I, EDWARD MONGRAIN, a citizen of the United States, and resident of East St. Louis, St. Clair county, Illinois, have invented certain new and useful Improvements in Machines for Burring Nuts, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a machine for removing the burs formed on the edges of nuts during their manufacture, my object being to construct a simple, compact machine which can be operated with a minimum amount of power, and which will very rapidly perform the work of removing burs from nuts, which work has heretofore been done by hand, thereby involving much time and labor.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of a machine of my improved construction, parts thereof being broken away; Fig. 2 is a plan view of the machine seen in Fig. 1; Fig. 3 is a detail section taken through the center of one of the yielding devices against which the rear face of the nut bears when the front face thereof is engaged by the grinding wheel; Fig. 4 is a transverse section taken on the line 4—4 of Fig. 2; Fig. 5 is a detail section illustrating a flexible connection in the shaft which carries the nut holding disk; Fig. 6 is a detail section of one end of a bearing plate I make use of in my machine, against which the rear ends of the yielding devices carried by the nut holding disk engage.

Referring by numerals to the accompanying drawings:—1 designates the top or body plate of my improved machine, which is supported on suitable legs 2, and formed in the rear portion of the center of this top is an opening 3, which is occupied by the grinding wheel of the machine; and formed in the front portion of the top and communicating with the opening 3 is an opening 4, in which operates the nut carrying disk.

Located on the top 1, to the left of the opening 4, is a pair of journal boxes 5, in which is arranged for operation a shaft 6 formed in two sections, and the adjacent ends of the sections, between the boxes 5, being provided with disks 7, in the adjacent faces of which are formed recesses 8, occupied by stiff coil springs 9, thus providing a yielding joint between the two parts of the shaft 6.

Fixed on the outer end of the shaft 6 is a pulley 10, which is driven by a belt 11, and fixed on the opposite end of the shaft 6, and operating in the opening 4 is a disk 12, in the edge of which is formed a series of rectangular notches 13, of such size as to readily receive the nuts from which the burs are to be removed.

Fixed to the rear face of the disk 12, immediately to the rear of each notch 13, is a tubular housing 14, and arranged to slide therein, and normally bearing against the rear face of the disk, immediately behind each notch 13, is a block 15.

A block 16 is arranged to slide in the rear end of each housing 14, there being an expansive coil spring 17 arranged between each corresponding pair of blocks 15 and 16; and integral with each block 16 is a stem 16^a, which projects through an opening 18 formed in the rear end of each housing 14.

Fixed on the top 1, at the rear left hand corner of the opening 4 is the lower end of a segmental bearing plate 19, the central portion of the body of which is in the path of travel of the outer ends of the stems 16^a, and the upper forward corner of this bearing plate is beveled, as designated by 20.

Fixed to the top 1, at the rear end of the opening 4, and extending upwardly over the rear portion of the disk 12, and adjacent the notched periphery thereof, is a curved guard 21, which prevents the nuts from becoming unseated from the notches 13 when engaged by the grinding wheels; and fixed to the top 1, adjacent the forward right hand corner of the opening 4, is the lower end of a curved guard 22, which extends around the upper front portion of the disk 12, immediately adjacent the notches 13 therein, to prevent the nuts from becoming unseated from the notches before being carried into engagement with the face of the grinding wheel.

Fixed to the top 1, to the right of the opening 3, is a pair of journal boxes 23, in which is arranged for operation a shaft 24; and fixed on the left hand end thereof and op-

erating in the opening 3 is a grinding wheel 25, of emery, or analogous material, a portion of the face of which overlaps a portion of the face of the disk 12. Fixed on the shaft 24, between the boxes 23, is a pulley 26, which is driven by a belt 27.

When the machine is in operation, the pulleys 10 and 26 are driven by belts 11 and 27, and rotary motion is imparted to the shafts 6 and 24; and the disk 12 and grinding wheel 25 are driven in the directions indicated by the arrows in Fig. 4, and the speed at which the grinding wheel 25 is traveling being much greater than that of the disk 12.

The operator in front of the machine successively places the nuts in the notches 13 during the time the latter are traveling past the guard 22, with the faces of the nuts having the burs thereon projecting toward the right hand; and, as the disk 12 rotates, the nuts positioned in the notches 13 are carried around beneath the guard 21.

The stems 16ª of the blocks 16 during their travel successively ride up the inclined face 20 of the bearing plate 19, and during their travel upon said bearing plate, said stems and blocks are forced inwardly for a short distance through the housings 14, as shown by dotted lines in Fig. 6, thus compressing the springs 17 and causing the blocks 15 to bear with considerable pressure against the rear face of the disk 12 and the nuts carried thereby; and during this period of travel of the various parts just described, the face of the grinding wheel 25 is in engagement with the faces of a number of the nuts carried by the disk 12 and the burs thereof being ground off. The extra pressure is supplied to the blocks 15 in the manner just described during the time the nuts are being carried past the grinding wheel, in order that nuts having extra heavy burs will be prevented from being forced inwardly as a result of contact with the face of the grinding wheel; and thus all nuts leaving the machine will be uniform and free from burs. After the nuts are carried past the face of the grinding wheel and to the lower portion of the disk, they will automatically discharge into a suitable receptacle located beneath the disk. The flexible connection between the two sections of the shaft 6 reduces all jar and vibration due to a contact of nuts having heavy burs with the grinding wheels.

It will be readily understood how a machine of my improved construction can be slightly modified so as to receive and hold nuts while the sides and faces thereof are brought into engagement with a grinding or polishing wheel for the purpose of finishing the exterior surfaces of said nuts.

The rotating nut receiving member carries the nuts across the working face of the grinding wheel in a curved path of travel, and thus the wear upon the grinding wheel is uniform and the working face thereof remains straight.

A machine of my improved construction posesses superior advantages in points of simplicity, durability, and general efficiency, saves much time and labor in removing the burs from nuts, and can be operated with a minimum amount of power.

I claim:—

1. In a machine of the class described, a frame, a grinding wheel arranged for operation thereon, a disk arranged for rotation adjacent the grinding wheel so that portions of said disk and wheel overlap, there being a plurality of notches formed in the edge of the disk to receive the nuts that are engaged by the grinding wheel, housings fixed to the rear side of the disk immediately opposite the notches therein, a pair of blocks loosely mounted in each housing, an expansive coil spring arranged in each housing between the pair of blocks therein, and means fixed on the frame for moving the rear series of blocks inwardly during the time the corresponding notches of the disk are moving past the grinding wheel.

2. In a machine of the class described, a frame, a grinding wheel arranged for operation thereon, a disk arranged for rotation adjacent the grinding wheel so that portions of said disk and wheel overlap, there being a plurality of notches formed in the edge of the disk to receive the nuts that are engaged by the grinding wheel, housings fixed to the rear side of the disk immediately opposite the notches therein, a pair of blocks loosely mounted in each housing, an expansive coil spring arranged in each housing between the pair of blocks therein, means fixed on the frame for moving the rear series of blocks inwardly during the time the corresponding notches of the disk are moving past the grinding wheel, and a curved guard fixed in front of the grinding wheel and extending upward immediately adjacent the notched edge of the disk.

3. In a machine of the class described, a frame, a grinding wheel arranged for rotation thereon, a disk arranged for rotation adjacent the grinding wheel so that portions of said disk and wheel overlap, there being a plurality of nut receiving notches formed in the edge of the disk, yielding nut engaging devices arranged on the rear side of the disk immediately opposite the notches therein, and means fixed on the frame for engaging the yielding nut engaging means during the time the corresponding notches of the disk are moving past the grinding wheel.

4. In a machine of the class described, a frame, a grinding wheel arranged for rotation thereon, a disk arranged for rotation adjacent the grinding wheel so that portions of said disk and wheel overlap, there being a plurality of nut receiving notches formed in

the edge of the disk, yielding nut engaging devices arranged on the rear side of the disk immediately opposite the notches therein, means fixed on the frame for engaging the yielding nut engaging means during the time the corresponding notches of the disk are moving past the grinding wheel, and a curved guard fixed on the frame in front of the grinding wheel and extending upward immediately adjacent the notched edge of the disk.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

EDWARD MONGRAIN.

Witnesses:

EDWARD E. LONGAN,

M. P. SMITH.