2 Sheets—Sheet 1.

N. Du BRUL.

Tobacco Granulating Machine.

No. 209,801. Patented Nov. 12, 1878.

Fig. 1.

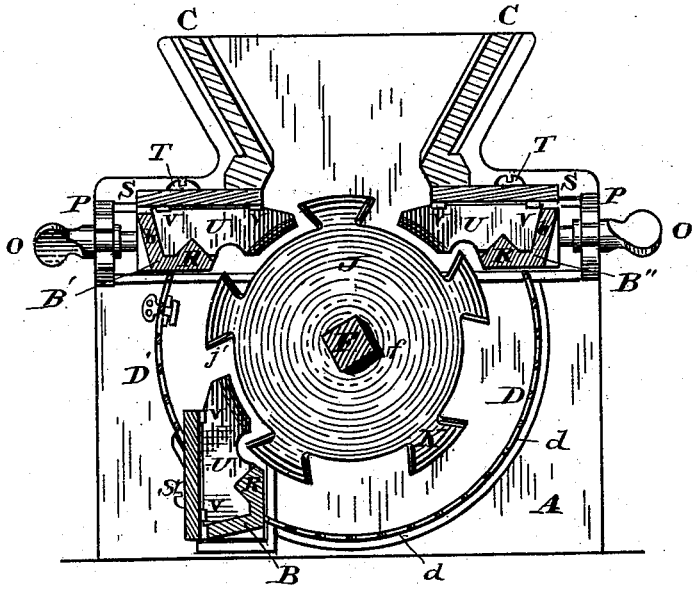
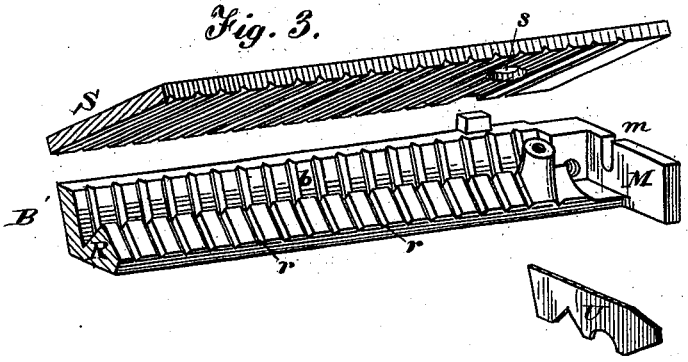


Fig. 3.



Inventor

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N. Du BRUL.

Tobacco Granulating Machine.

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Fig. 2.

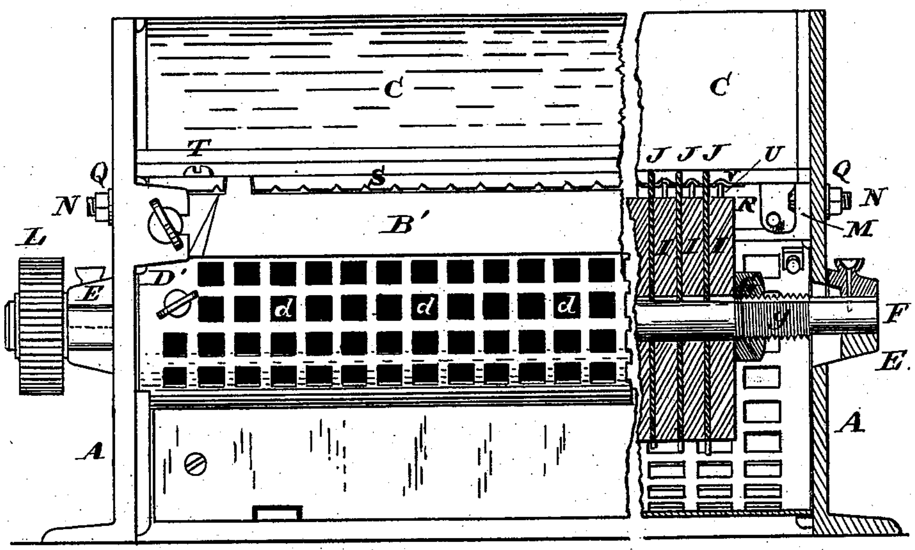


Fig. 5.

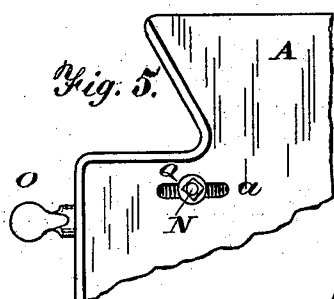
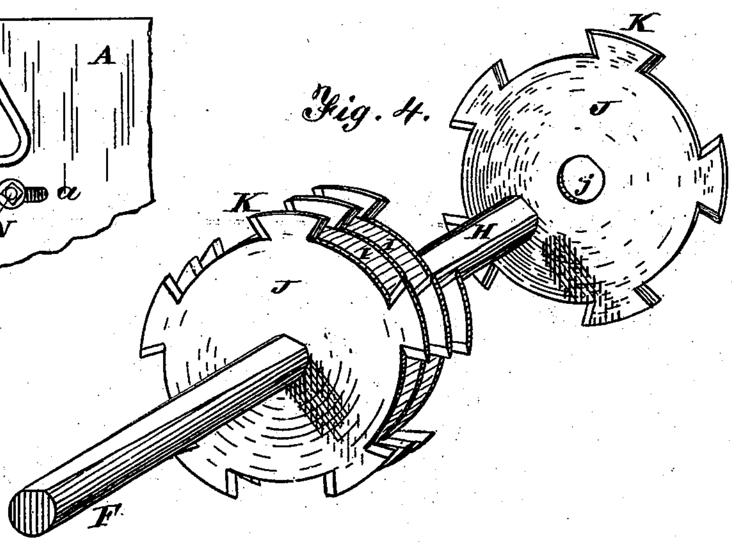


Fig. 4.



Attest
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UNITED STATES PATENT OFFICE.

NAPOLEON DU BRUL, OF CINCINNATI, OHIO.

IMPROVEMENT IN TOBACCO-GRANULATING MACHINES.

Specification forming part of Letters Patent No. **209,801**, dated November 12, 1878; application filed December 18, 1877.

To all whom it may concern:

Be it known that I, NAPOLEON DU BRUL, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Machine for Granulating Leaf-Tobacco, of which the following is a specification:

My invention relates to certain improvements in machines for reducing tobacco to the condition of scraps or minute fragments for cigar-filling, and commonly known as "cigar-machines."

It consists, essentially, of a revolving cylinder armed with knives or breakers, passing between adjustable knives, so as to divide the tobacco into fragments, and a perforated casing, which confines the tobacco where it can be acted on by the knives or breakers until reduced to scraps sufficiently small to pass through the openings in the casing, as hereinafter described.

In the accompanying drawings, Figure 1 is a transverse section of a machine embodying my invention. Fig. 2 is a view, partly in axial section and partly in side elevation. Fig. 3 represents portions of the bearing-bar and cap or clamp plate of one of my adjustable knife-holders, and one of the knives detached. Fig. 4 represents a portion of the shaft and a few of my knife-disks and spacing blocks or sections. Fig. 5 is an external view of a portion of one end.

A represents two similar cast-iron plates, constituting the ends of the machine, these plates having on their inner faces suitable lugs for supporting the several knife-supporting bars, B B′ B″, hopper-boards C, screen or grating D, and other inclosing and supporting members. Cast or otherwise securely attached to the ends A are journal bearings or boxes E for a horizontal shaft, F.

The screen or grating D is concentric with the shaft F, and extends in semi-cylindrical form beneath and partly around said shaft. Said screen consists of a sheet or plate of cast or wrought iron, having numerous orifices, *d*, uniformly distributed over it. A portion, D′, of said screen is made removable, so as to constitute a door, whose removal enables the attendant to have access to the interior of the machine for repair or inspection of any part or for removal of an obstruction.

The shaft F has a collar, *f*, near one end, and is screw-threaded at *g* at its other end for a nut, G. Said shaft has also a flattened spiral depression, as at H, Fig. 4, or other non-circular form, as at Fig. 1, to compel rotation of my scrapping-cylinder. This cylinder consists, essentially, of a number of short cylindrical sections or annular blocks of wood, I, between which are interposed disks or plates J of thin sheet-steel, whose central orifices, *j*, having the same truncated circular form as the cross-section of the shaft F, as in Fig. 4, or other non-circular form, as in Fig. 1, fit snugly thereupon and are compelled to rotate therewith.

Portions of each plate J extend beyond the periphery of the wooden sections, so as to form knives or teeth K, preferably of the hooked or segmental shape shown. These teeth may be five in number, as here illustrated, or of any less or greater number, and occupy equal distances around the circuit of the cylinder. Their radial edges *j′* are sharpened, in order to cut rather than tear the material. All of the plates of K being precisely alike, and their central orifices exactly fitting the spirally-flattened or other non-circular shaft F, the teeth K assume also a spiral arrangement upon the periphery of the cylinder, as shown in Figs. 2 and 4.

A suitable gear, L, on shaft F enables the said shaft and its above-described cylinder to be driven at a high velocity.

Of the side bars B B′ B″ one bar, B, near the lower part of the machine, is bolted permanently to the ends A. The two upper bars, B′ B″, are provided with flanges M and perforations *m* to receive bolts N, which, traversing horizontal slots *a* in the ends, permit the bars to be set nearer to or farther from the cylinder.

Set-screws O, occupying lugs P in the inner faces of the ends, enable the attendant to force the bar either inward or outward, which having been done, the bar is held to its specific adjustment by means of nuts Q. The capacity for adjustment of the knife-bearing bars B′ B″ enables the machine to be adapted to make finer or coarser scrap.

Each bar has a ridge, R, which, as well as its inner wall, *b*, has a series of equidistant

transverse notches, *r*. Caps or clamp-plates S also are provided, which may be similarly notched on their under sides, as shown, and are perforated, as at *s*, for screws T, which serve to hold the said clamp-plates securely down, and thus to grasp firmly and hold at equal distances, and intermediate between the knives K, a series of knives, U, of the represented or any suitable form.

Each transversely-grooved bar B B′ B″, with its cap-plate S and screws T, constitutes one of three several stationary knife holders or clamps, providing three series of knives, of which the lower series is fixed, while the two upper series are adjustable. Copper or other suitable grummets V may be introduced between the caps S and the knives U, in order to secure an equable pressure upon the latter.

The tobacco, as fast as it becomes reduced to the desired fineness, escapes through the orifices of the screen. The purpose of the screen D is to prevent the escape of the material except as it is sufficiently reduced by the action of the knives.

The provision of the removable clamp or cap plate S enables the ready removal of any one or all of the stationary knives for inspection, sharpening, or substitution of new knives. These knives may be blunt, as in Fig. 3, or sharp, as in Fig. 1.

I am aware that meat-cutters have been constructed with washers or blocks filling the spaces between knives ranged on a cylinder and revolving therewith, and that others have been constructed with stationary knives engaging with rollers or disks having cutting-teeth. I do not, therefore, claim such, broadly considered; but

I claim as new and of my invention—

1. A tobacco-scrap machine constructed with a revolving cylinder, I J, made up of short sections armed with knives K K, a corresponding series of stationary knives, U U, with interstices through which the revolving knives K K pass, and a grating, D D′, extending concentrically around the lower part of the cylinder, so as to retain the tobacco to be acted on by the cylinder until sufficiently reduced in size, and then permit its escape, substantially as described.

2. The combination of the revolving cylinder I J, armed with knives K K, and the knives U U, mounted in adjustable holders B′ B″, moved in and out by set-screws O O, to vary the fineness to which the tobacco is cut, as explained.

In testimony of which invention I hereunto set my hand.

NAPOLEON DU BRUL.

Attest:

WALTER KNIGHT,

L. H. BOND.