(No Model.)

S. P. COLLINS.

TOBACCO SCRAP BREAKER.

No. 355,590. Patented Jan. 4, 1887.

Fig. 1.

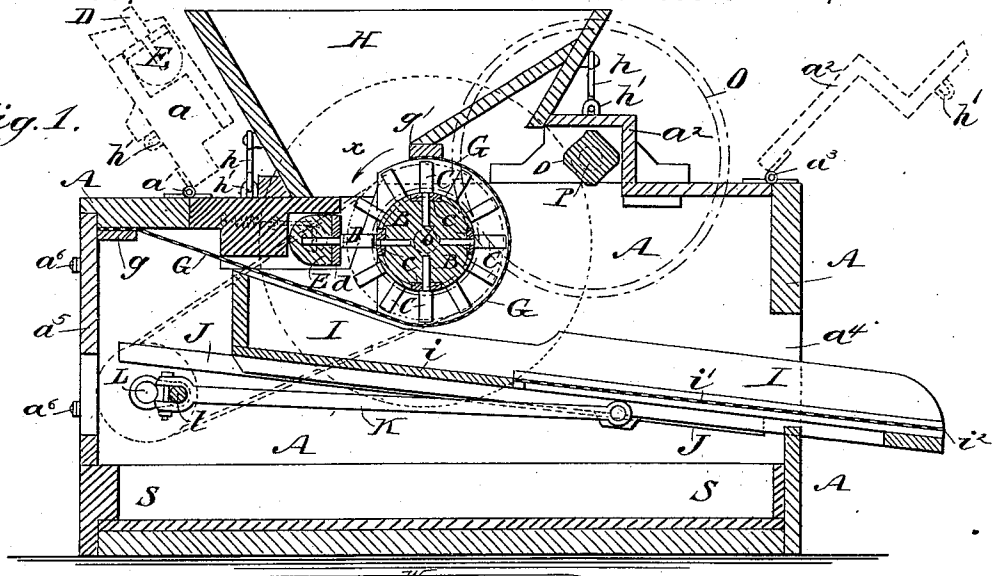


Fig. 2.

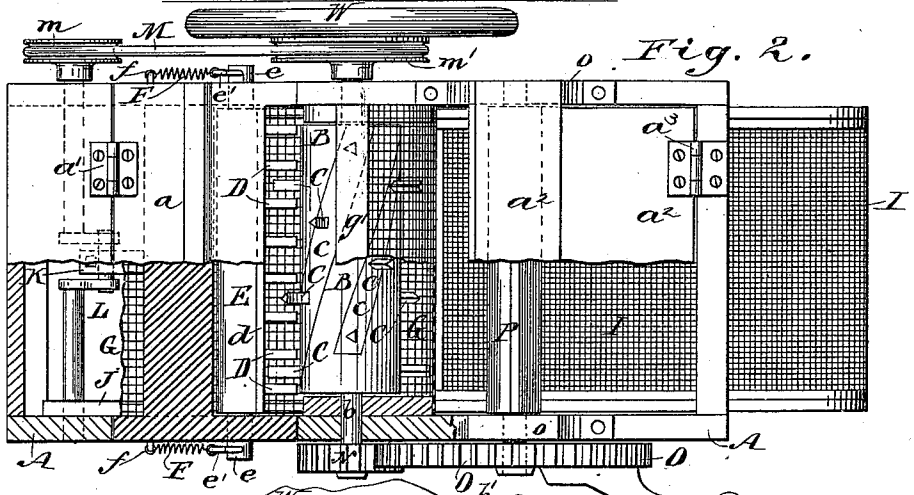
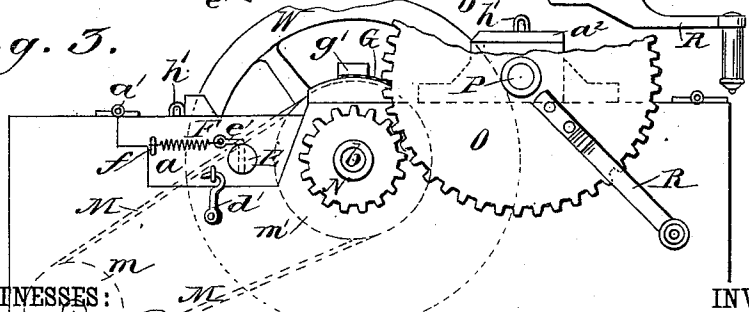


Fig. 3.



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SAMUEL P. COLLINS, OF ALLEGHENY, PENNSYLVANIA.

TOBACCO-SCRAP BREAKER.

SPECIFICATION forming part of Letters Patent No. 355,590, dated January 4, 1887.

Application filed August 30, 1886. Serial No. 212,242. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL P. COLLINS, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Tobacco-Scrap Breaker, of which the following is a full, clear, and exact description.

My invention relates to machines of that class adapted for breaking or cutting tobacco-scrap and other substances, and has for its object to provide a simple and effective machine of this character which may be operated with economy of time and labor.

The invention consists in certain novel features of construction and combinations of parts of the machine, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal sectional elevation of my improved machine. Fig. 2 is a plan view thereof, partly broken away and in section, and with the hopper removed; and Fig. 3 is a detail side view of the machine.

The operative parts of the grinder are arranged on and in a case or box, A, which gives support to the entire machine.

Across the case A, near its top and about at its center, there is journaled a shaft, *b*, on which is fixed the breaking or cutting cylinder B, which is fitted at its periphery with radial teeth or cutters C. I prefer to fasten the teeth in the cylinder by screwing or driving their inner ends through spirally-ranging metal plates *c*, screwed or otherwise fastened to the periphery of the cylinder. (See Figs. 1 and 2 of the drawings.) The projecting cutting ends of the teeth C may have any desired form, preferably the triangular form shown, and set with one angle toward the direction of rotation of the cylinder. These cylinder-teeth C pass between opposing teeth D, which are fixed in the side of a bar or rock-shaft, E, which is journaled at its ends *e e* in the case A. The teeth D are set into the bar E through a metal plate, *d*, fixed to the face of the bar, and the teeth normally project toward the axis of the cylinder B and nearly to the periphery of the cylinder.

The bar E is held to maintain the teeth D in the above-described position by the engagement of springs F F, held at one end at *f f* to the case *a*, with bent rods *e' e'*, which are fixed to the end journals, *e e*, of the rock-shaft. These springs have sufficient tension to resist the turning down of the toothed bar D E by the ordinary operation of the toothed cylinder C D in cutting or breaking the scrap; but when a nail or other hard foreign substance in the scrap is struck by the cylinder-teeth and forced against the teeth D of bar E the latter will be turned down against the tension of the spring F, to allow the nail or hard substance to pass below and avoid breaking the teeth, whereupon the springs will again draw the toothed bar D E to its usual position. (Shown in Fig. 1 of the drawings.)

A piece of wire-cloth, G, extends clear across the inside of the box A, and from an upper corner, where it is attached to the top of the case by a cross-cleat, *g*, or otherwise, and thence backward beneath the feed-opening at the base of the hopper H, and below the breaking or cutting cylinder B C and toothed bar D E, and up around the cylinder to a cross-bar, *g'*, fixed to the case A, above the center of the cylinder, and to which bar *g'* the other end of the wire-cloth G is fixed. This wire-cloth G serves as a feed-apron to prevent falling of uncut or unground scraps into the screen I below the grinding mechanism, and also catches and holds nails or other foreign substances and prevents them falling into the ground scrap on the screen.

The toothed bar D E is journaled in a section or part, *a*, of the case A, which is hinged at *a'*, so that when the hopper H is lifted from the case this section *a*, with the bar D E, may be swung over, as indicated in dotted lines in Fig. 1, to give access to the wire-cloth apron G for cleaning it or for better access to the teeth or cutters of the machine. Hook-and-eye fastenings, as at *d'*, may be used to hold the case-section *a* down to the main body of the case. The other end part, a^2, of the case is hinged at a^3, allowing it to be swung over, as also shown in dotted lines in Fig. 1, to give access to the screen I and the interior of the case. On these two hinged portions *a* a^2 of the case-top, and also on the cross-bar *g'* and the sides of the case, the hopper is fitted so as to be readily removed, and hooks *h h* on the

hopper are adapted to engage eyes or staples *h' h'* on the case to hold the hopper securely in place.

The screen I is fitted to slide on guide cleats or ways J, fixed to the case A, and which incline or slope quite a little toward the tail end of the screen, to incline the screen likewise, and the screen is connected by a pitman-rod, K, with a crank, *l*, on a transverse shaft, L, journaled across the case A, and having a pulley, *m*, over which a driving-belt, M, passes to a pulley, *m'*, on the shaft *b* of the breaking or cutting cylinder B, on which shaft *b* also is fixed a fly-wheel, W, for steadying the motion of the cylinder. On the other end of the shaft *b* is fixed a toothed pinion, N, which meshes with a larger toothed driving-wheel, O, fixed to a shaft, P, journaled in the case A, or in bearing-blocks *o o*, fixed to the case. The wheel O is provided with a hand-crank, R, which when turned will cause rotation of the cylinder B C in direction of the arrow *x* in Fig. 1, and will also cause a simultaneous lengthwise reciprocation of the screen I below the cylinder.

I prefer to make that part *i* of the floor of the screen I lying directly below the cylinder B and apron G solid or imperforate, and to use wire-cloth *i'* at the center and tail end of the screen, through which the dust will fall or be sifted into a drawer, S, fitted in the case A at its bottom, while the broken or cut scrap will pass along and off the tail end, i^2, of the screen into any suitable receptacle. The tobacco thus broken or cut into pieces of about one-half inch in length is used for filling tobies or cigars.

One end of the case A has an opening at a^4, through which the tail of the screen I projects, and the other end, a^5, of the case, above the front of the drawer S, is preferably made removable to allow adjustment of the screen I in the case. The removable end part, a^5, may be held in place by buttons a^6, or any other suitable devices.

When the tobacco-scrap is wet, the teeth C D shown may be substituted by thin cutting-blades set quite closely together to insure proper reduction of the scrap.

The spiral springs F shown may of course be substituted by springs of other form adapted to maintain the reactionary cutter-bar E D in the position shown in Fig. 1, and allow the bar to turn to let hard substances pass, as above explained—as, for instance, springs having a coiled or elliptical or V form may be used, as will readily be understood.

It is obvious that this machine is adapted for other uses besides reducing tobacco-scrap, as with little or no modification it may be used as a grain thresher and cleaner, or for other purposes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A tobacco-scrap breaker or cutter consisting of a tocthed cylinder, a yielding toothed bar journaled next to the cylinder, a perforated apron under the said cylinder and bar, and a reciprocating screen below the perforated apron, the parts being combined substantially as herein shown and described.

2. In a tobacco breaker or cutter, the combination, with the frame A and the toothed cylinder B C, of the hinged section *a* of the frame, the toothed bar E D, journaled therein, and the springs F, secured to the journals of the said bar and hinged section, substantially as herein shown and described.

3. In a tobacco breaker or cutter, the combination, with the frame A, the toothed cylinder B C, and the perforated apron G, of the screen I, having its upper portion, *i*, imperforate, the crank-shaft L *l*, the pitman K, and means for operating the said crank-shaft from the toothed cylinder, substantially as herein shown and described.

4. In a tobacco breaker or cutter, the combination, with the toothed cylinder B C and the screen I, of the crank-shaft L *l*, the pitman K, the pulleys *m m'*, the band M, the pinion N, the toothed wheel O, and the crank-handle R, substantially as herein shown and described.

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Witnesses:
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