

J. C. COONLEY & T. T. GRAHAM.  
Tumbling Barrel.

No. 199,797.

Patented Jan. 29, 1878.

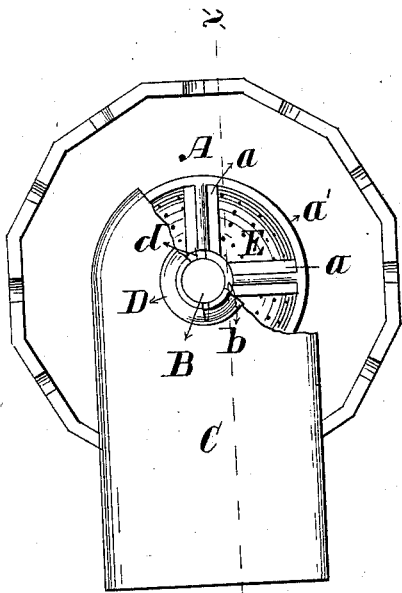


Fig. 1.

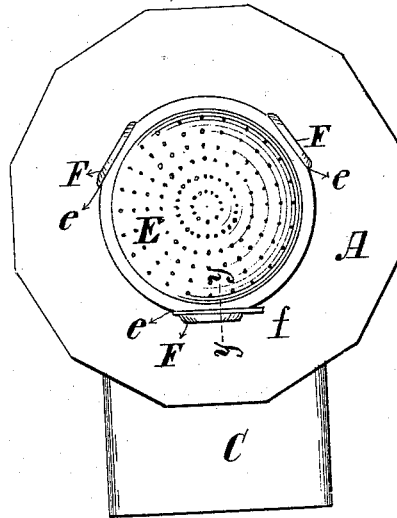


Fig. 2.

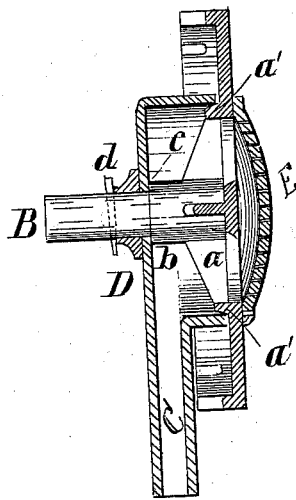


Fig. 3.

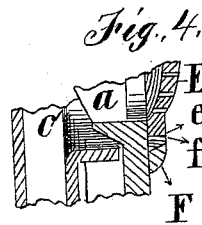


Fig. 4.

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN TUMBLING-BARRELS.

Specification forming part of Letters Patent No. **199,797**, dated January 29, 1878; application filed  
September 1, 1877.

*To all whom it may concern:*

Be it known that we, JOHN C. COONLEY and THOMAS T. GRAHAM, both of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tumbling-Barrels, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents an end elevation of a tumbling-barrel embodying our improvements; Fig. 2, a similar view of the same upon the inside of the barrel; Fig. 3, a vertical section of the same, taken on the line *xx*, Fig. 1; and Fig. 4, a detail view in section, enlarged, taken on the line *yy*, Fig. 2.

Our invention relates to an improvement upon the tumbling-barrel for which Letters Patent No. 190,009 were granted to J. C. Coonley, April 24, 1877. The tumbling-barrel therein described and shown is provided with tubular journals, through which the exhaust is effected. This construction increases the friction, and consequently the power required to drive the barrel; and it is the object of our invention to obviate this difficulty by constructing the barrel so that an ordinary solid journal may be employed.

The invention consists in constructing the head of the barrel with a solid stub-journal, cast in one piece therewith, and cutting openings in the head around said journal.

It also consists in the peculiar combination of the head thus constructed with the exhaust-pipe.

In the drawings only such parts of the entire apparatus are represented as are necessary to an understanding of our invention, the barrel, in its general construction and appearance, being like that described and shown in the Letters Patent above mentioned.

In the drawings, A represents one end of the barrel, the central portion of which is partly cut away, so as to leave large openings in the head, but radial portions *a* are left, which extend from the center of the head to the remaining solid portion thereof, as shown in Fig. 1 of the drawings.

The journal B of the barrel is attached to the arms *a* where they join each other, and, in fact, may be cast in one piece therewith.

This journal is a small solid shaft, of ordinary form, except that at the inner end there is a slight enlargement, *b*, for a little distance from the head.

The exhaust pipe or shaft C is provided with an opening, *c*, opposite its open upper end, of such size as to fit the outer or smaller portion of the journal, so that the pipe may be slipped upon the latter, as shown in Fig. 3 of the drawings. The upper end of this pipe is arranged, as shown in the drawings, with the opening at one side and a circular flange or housing, which is made to cover the central open portion of the end of the barrel, and is fitted upon a flange, *a'*, on said head, so that when the pipe is slipped upon the journal B it will extend over the flange *a'* and rest against the shoulder on the journal, as shown in Fig. 3 of the drawings, thereby forming a tolerably close joint, but at the same time permitting the barrel to turn freely. A washer, D, is put on the journal outside of the exhaust-pipe, which is held in place by a pin, *d*, thereby also securing the pipe in position. The extreme outer end of the short shaft B constitutes the journal of the barrel, and is fitted in any suitable bearings.

Upon the inside of the head A is a circular perforated cap, E, convex upon one side and concave on the other, and sufficiently large to cover the openings in the head. This cap is fastened to the head by means of dovetail lugs F, raised on the inner face of the barrel-head A, the cap having small sections cut away from its outer edge at suitable points to form straight edges *e*, cut to fit the lugs F, and thereby form a dovetail fastening. The cap is cut so that it may be readily placed within the lugs, against which it is then forced, and secured in position by a dovetail-key, *f*, driven between one of the lugs and the corresponding edge of the cap, as shown in Figs. 2 and 4 of the drawings.

It will be understood that both ends of the barrel are constructed in the same way, but that the pipe C is fitted to one end only, the other being left open for the free admission of air, so that a current may be created through the barrel, as described in the patent mentioned above.

It is evident that the form of the openings

in the ends of the barrel may be made quite different from those herein described and shown, and, therefore, we do not limit ourselves to the precise construction described. It is only necessary to provide openings in the ends of the barrel sufficiently large to admit of air passing freely into or out of the barrel, and at the same time leave a central support for the journals at each end. We thus obtain all the advantages of an ordinary small journal, and at the same time provide for an exhaust current of air through the barrel, as in the former patent.

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

1. In a tumbling-barrel, the end or head A, provided with a solid stub-shaft, B, cast in one piece therewith, and having central openings

arranged around said shaft, substantially as and for the purpose set forth.

2. The barrel-head A, provided with central openings, as described, in combination with the journal B and the exhaust-pipe C, mounted on said journal, substantially as and for the purpose set forth.

3. The barrel-head A, provided with a flange, *a'*, around the openings in the head, in combination with the exhaust-pipe C, the upper end of which is constructed hood-shaped and fitted upon the flange *a'*, substantially as described.

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Witnesses:

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