

No. 647,531.

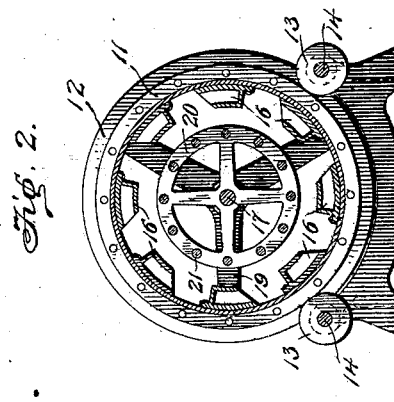
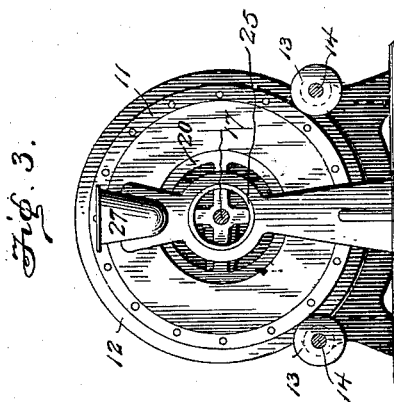
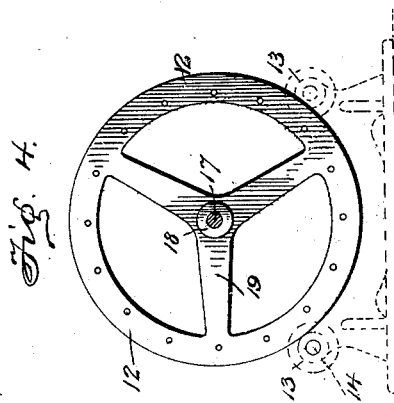
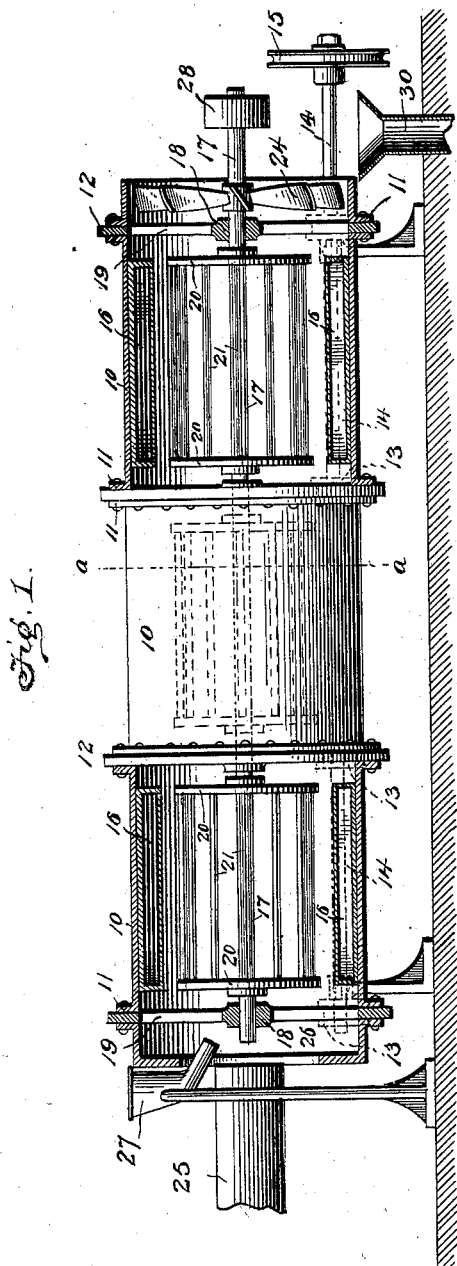
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J. J. SELDNER.

DRYING AND PULVERIZING APPARATUS.

(Application filed June 29, 1899.)

(No Model.)



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## DRYING AND PULVERIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 647,531, dated April 17, 1900.

Application filed June 29, 1899. Serial No. 722,320. (No model.)

*To all whom it may concern:*

Be it known that I, JONAS J. SELDNER, a citizen of the United States, residing at the city of Baltimore, in the State of Maryland, have  
5 invented certain new and useful Improvements in Drying and Pulverizing Apparatus, of which the following is a specification.

The present invention relates to an improved apparatus for drying and pulverizing  
10 materials, and is particularly designed for drying and pulverizing animal matter in the production of fertilizer. I do not, however, limit the invention to any particular use to which it may be put, but wish to protect it  
15 for all purposes to which it is adapted.

In the accompanying drawings, Figure 1 is a side view of my improved apparatus, the outer casing being shown partially in section. Fig. 2 is a transverse sectional view on  
20 the line *a a* of Fig. 1. Fig. 3 is an end elevation of the apparatus, and Fig. 4 is a detail view of one of the supporting-rings by which the apparatus is sustained.

Referring to the drawings, it will be seen  
25 that my improved apparatus includes an outer casing or shell, which is made up of a series of cylindrical sections 10. Both ends of the intermediate sections and one end of the outer sections of this casing are provided with radial flanges 11. The flanges 11 of adjacent  
30 sections are riveted or bolted to rings or hoop-like bearings 12. These rings are of greater diameter than the body of the sections 10 and project beyond the outer end of the flanges  
35 11, and the projecting portions of such rings engage with peripherally-grooved rollers 13. These rollers are mounted upon shafts 14, extending longitudinally of the cylinder, and are adapted to be driven in some suitable  
40 manner, as by pulleys 15. The rotation of said shafts will cause the cylinder to rotate.

Within the cylindrical casing formed as above described is arranged a series of longitudinally-extending buckets 16, which are  
45 secured to the inner wall of the casing and serve to carry material delivered into the cylinder upward as the cylinder rotates and gradually pour it out as the buckets pass the upper part of their course. Preferably a series  
50 of these buckets is arranged in each of the sections 10, and they are of a length

slightly less than that of the section of the cylinder.

A shaft 17 is supported centrally within the cylindrical casing, it being shown as jour-  
55 naled in bearings 18, carried by arms 19, extending inwardly from the ring-like supports 12. To said shaft are secured a series of spiders or frames 20, there being preferably two of such spiders within each section 10 of  
60 the apparatus. The spiders within each section 10 are connected by a series of bars or rods 21, which thus extend in a circular series concentric with the shaft 17. These bars  
65 or rods are strong enough to break and pulverize the material which is to be dried by the apparatus. A fan 24 is preferably secured to the shaft 17 adjacent to the discharge end of the cylinder to assist in drawing  
70 air or heated gases through the apparatus and material therein.

Instead of ordinary air I may supply the apparatus with hot air or with the hot gases of combustion from a furnace by means of  
75 one or more tubes 25, which discharge into an annular space 26 at the inlet end or head of the cylinder.

The material to be acted upon by the apparatus is fed into the cylinder in any suitable manner, as by means of a hopper 27.  
80

The operation of the apparatus is as follows: The material introduced into the cylinder from the hopper 27 is received in the buckets 16 as they pass the lowest portion of the cylinder and carried up by such buckets and  
85 discharged onto the rods or bars 21, which are rapidly rotated, the shaft 17 being provided with a driving-pulley 28. The revolving bars or rods 21 serve to break up and pulverize the material and also to toss and scatter  
90 it about in the cylinder, thus exposing it to the fullest extent to the drying influence of the air or gas which is passing through the apparatus. The cylinder may be inclined downwardly from its inlet or receiving end  
95 toward its discharge end in order to cause the material to be fed toward the delivery-chute 30. In some instances, where it is desired to pulverize the material thoroughly, the cylinder may be arranged in a horizontal  
100 position. The finer parts of the material will then be carried forward to the delivery end

by the draft of air or gas and the heavier parts will be retained until they become pulverized.

The buckets 16 and rods or pulverizing-bars 21 can be made of any desired length—that is, instead of being of a length approximating that of the cylinder-sections they might be of the length of two or more sections or extend continuously from end to end of the cylinder between the supports or hangers for the shaft 17. For the sake of clearness the buckets 16, which would appear in rear of the pulverizing-bars 21, are omitted from Fig. 1.

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

1. In a pulverizing and drying apparatus, the combination of a revolving cylinder comprising sections 10 having internal buckets, a rotating shaft arranged centrally in said cylinder, rings clamped between said sections, central bearings for the shaft support-

ed by said rings, frames 20 secured on and extending radially from said shaft, and rods 21 extending between the frames, for the purpose set forth.

2. In a pulverizing and drying apparatus, the combination with a revolving cylinder having internal buckets extending longitudinally thereof, of a rotating shaft, the frames 20 and rods 21 mounted on said shaft within the revolving cylinder, the hopper for delivering material to the cylinder, the hot-air-supply tube, and the fan for creating a draft through said cylinder, substantially as described and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JONAS J. SELDNER.

Witnesses:

N. F. BURKE,

WM. M. HURLEY.