W. H. SCOTT.

SHREDDING MACHINE FOR PAPER STOCK.

APPLICATION FILED OCT. 28, 1915.

1,233,514.

Patented July 17, 1917.

2 SHEETS—SHEET 1.

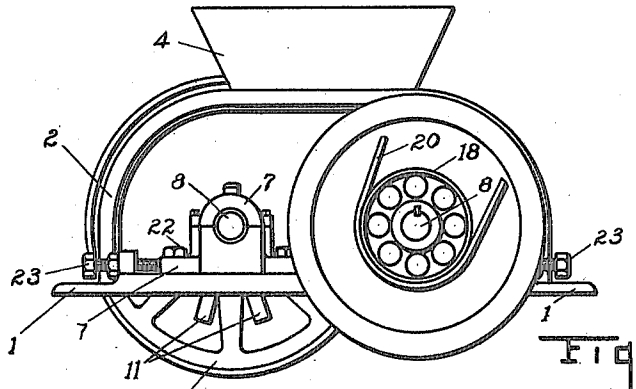


Fig. I.

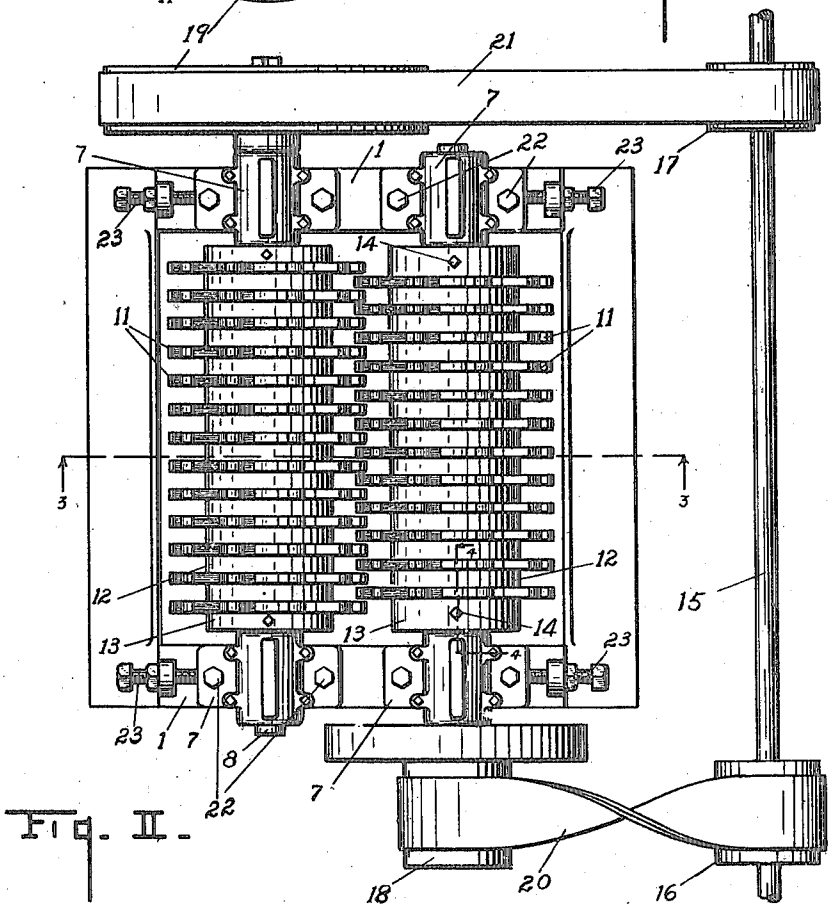


Fig. II.

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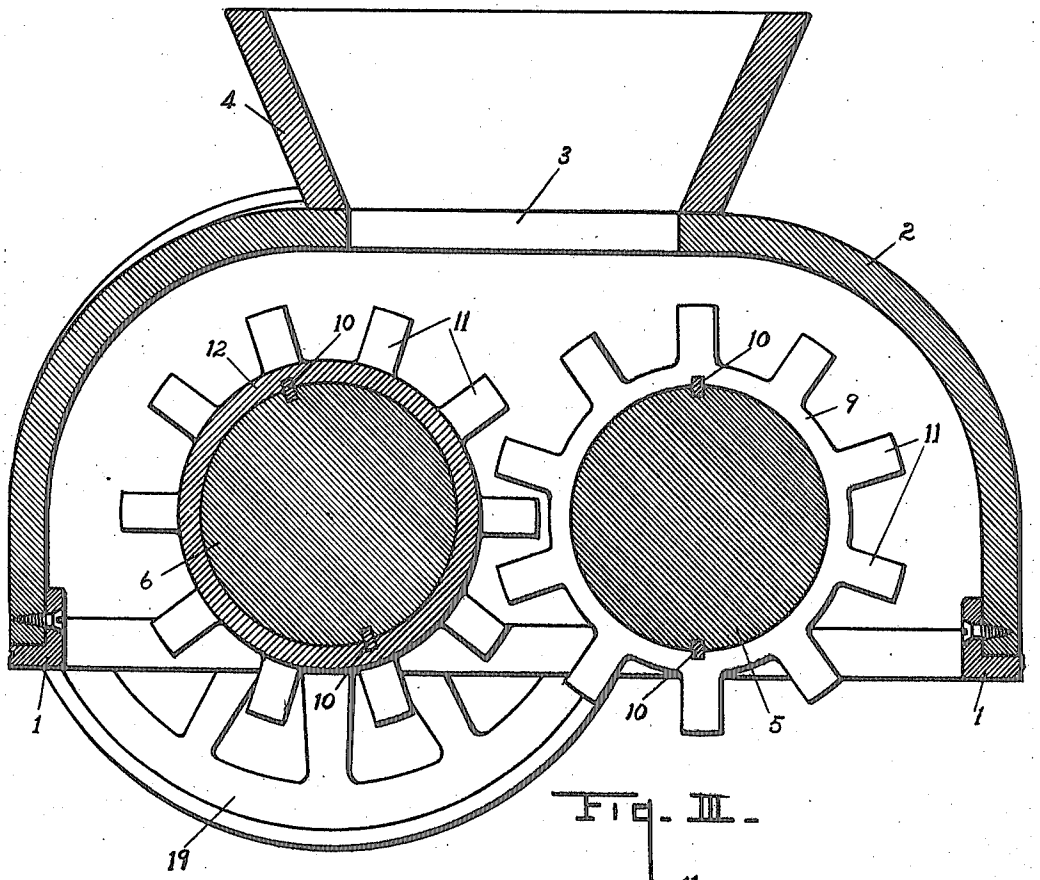


Fig. III.

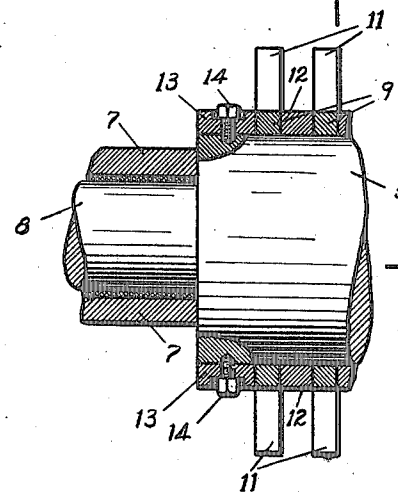


Fig. IV.

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SHREDDING-MACHINE FOR PAPER-STOCK.

1,233,514. Specification of Letters Patent. Patented July 17, 1917.

Application filed October 28, 1915. Serial No. 58,446.

To all whom it may concern:

Be it known that I, WILLIAM H. SCOTT, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Shredding-Machines for Paper-Stock, of which the following is a specification.

This invention relates to improvements in shredding machines for paper stock.

It is the main object of this invention to provide an improved shredding machine for the shredding of paper for paper stock, which is very effective, of large capacity, simple and durable and not likely to become clogged.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is an end view of my improved shredding machine, the driving connections being omitted.

Fig. II is a plan view with the casing and hopper removed, the driving connections being shown mainly in conventional form.

Fig. III is a detail vertical section on a line corresponding to line 3—3 of Fig. II.

Fig. IV is an enlarged detail view of one of the cylinders, partially in longitudinal section on a line corresponding to line 4—4 of Fig. II.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, I provide a frame 1 on which the housing or casing 2 is mounted. The casing is provided with a feed opening 3 and hopper 4. The cylinders 5 and 6 are substantially alike in structure. The bearings 7 for the cylinder shafts or journals 8 are mounted on the frame 1 to support the cylinders side by side below the hopper so that the material delivered from the hopper is delivered centrally of the pair of cylinders.

The cylinders have annular tooth members 9 sleeved thereon and secured against rotation by the splines 10. These tooth members have integral teeth 11, the teeth being preferably rectangular in general form and relatively long and flat, and also rectangular in cross section, as shown.

The tooth members are spaced on the cylinders by means of the spacing rings 12 disposed between them. The tooth members and spacing rings are retained on the cylinders by means of the retaining rings 13 arranged at the ends of the cylinders, the rings being retained by the screws 14. The tooth members thus mounted on the cylinders provide circumferential rows of teeth and the teeth of the two cylinders are arranged alternately so that the teeth of one cylinder swing between the teeth of the other as the cylinders revolve. The spacing of the teeth is such that while the teeth of one cylinder swing in close proximity to the teeth of the other they do not contact and have no shearing action, the shredding being effected by a tearing action, as distinguished from a cutting or shearing or grinding action.

The cylinders are driven in opposite directions to rotate toward each other and they are also driven at varying relative speeds, one cylinder being preferably driven much faster than the other.

I have found it very satisfactory when the speed of one cylinder is about four times that of the other.

In the structure illustrated the driving connection consists of the driving shaft 15 having pulleys 16 and 17 thereon connected to the pulleys 18 and 19 respectively of the cylinders by means of belts 20 and 21.

The bearings 7 for the cylinder are preferably adjustably mounted, the adjustment being effected by means of their securing belts 22 and the adjusting screws 23.

In event of the teeth becoming worn on one edge the tooth members may be removed from the cylinders and turned over, which brings the other edge into operative position, also the position of the tooth members on the cylinders can be varied, that is, those at the outer ends can be shifted to an inner position in which position they receive the greatest wear. This enables the securing of the full wear of the teeth. When the teeth become dull, the tooth members can be placed in a lathe and readily recut to sharpen or provide the proper edges for the teeth.

My improved shredder is of very large

capacity and is very effective for the purpose, the stock being suitably shredded so that it may be delivered from the shredder directly to the duster. It is compact and simple in structure and is not likely to get out of repair or become clogged in use.

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

1. In a machine for shredding paper stock, the combination of a casing, a pair of shredding cylinders disposed parallel within said casing and provided with circumferential rows of relatively long flat rectangular teeth, said teeth being rectangular in cross section and spaced longitudinally of the cylinders so that the teeth of one cylinder pass between and in coacting proximity to but without shearing action with the teeth of the other cylinder, means for driving said cylinders toward each other at different relative speeds, and a hopper arranged to deliver the paper stock between the pair of cylinders.

2. In a machine for shredding paper stock, the combination of a casing, a pair of shredding cylinders disposed parallel within said casing and provided with circumferential rows of flat rectangular teeth spaced longitudinally of the cylinder so that the teeth of one cylinder pass between and in coacting proximity to but without shearing action with the teeth of the other cylinder, means for driving said cylinders toward each other at different relative speeds, and a hopper arranged to deliver the paper stock between the pair of cylinders.

3. In a machine for shredding paper stock, the combination of a pair of shredding cylinders disposed parallel and provided with circumferential rows of relatively long flat rectangular teeth, said teeth being rectangular in cross section and spaced longitudinally of the cylinders so that the teeth of one cylinder pass between and in coacting proximity to but without shearing action with the teeth of the other cylinder, and means for driving said cylinders toward each other at different relative speeds.

4. A structure of the class described, comprising a cylinder, annular tooth members having integral flat rectangular teeth thereon, said tooth members being sleeved upon and splined to said cylinder, spacing rings sleeved upon said cylinder between said tooth members, and retaining rings at the ends of said cylinder whereby said tooth members are removably retained on said cylinder, all coacting for the purpose specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM H. SCOTT. [L. S.]

Witnesses:
M. J. MEYER,
C. F. REDMOND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."