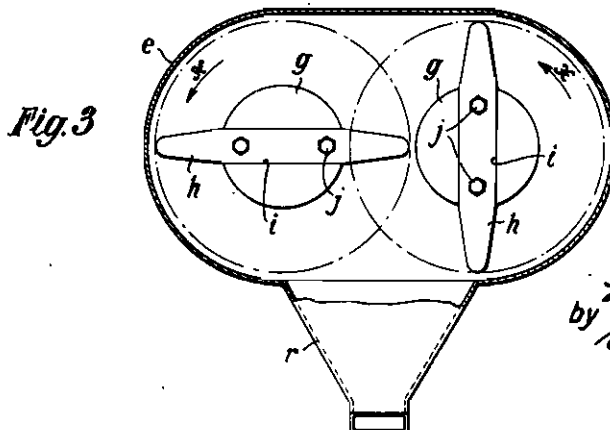
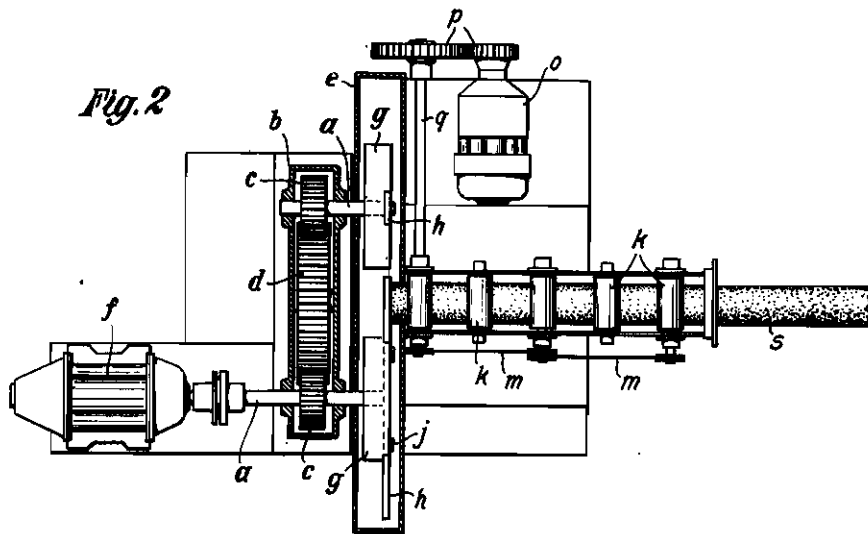
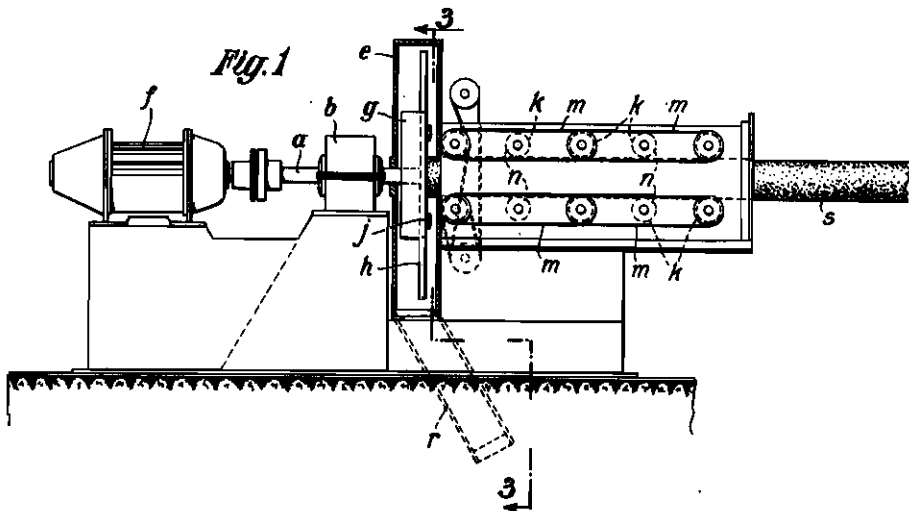


PUBLISHED
MAY 11, 1943.
BY A. P. C.

L. PALLMANN
REDUCING MACHINES
Filed March 15, 1940

Serial No.
324,232



Inventor:
L. Pallmann
by *B. F. Okendroth*
Attorney:

ALIEN PROPERTY CUSTODIAN

REDUCING MACHINES

Ludwig Pallmann, Zweibrucken, Germany; vested
in the Alien Property Custodian

Application filed March 15, 1940

My invention relates to improvements in reducing machines, and are more particularly in reducing machines comprising a pair of rotary members disposed one beside the other with their axis parallel and each bearing a reducing arm or arms, the distance between the shafts being less than the sum of the lengths of the arms of the said members, so that the paths of the said arms partly coincide. In machines of this type the said members are rotated in the same direction, and the arms are placed on their members so that they clear each other. Machines of this type have heretofore been used for reducing granular material and the reducing action was based on the impact of the material on the said arms. The object of the improvements is to provide a machine of this type by means of which elongated material, such as wood, waste leather, rubber hoses and the like can be reduced, and with this object in view my invention consists in constructing the said reducing arms in the form of blades and providing means for positively conveying the said material into position for being acted upon by the said blades, the said conveying means being constructed so that the material is held thereby while the blades act thereon.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawing, in which the same letters of reference have been used in all the views to indicate corresponding parts. In said drawing

Fig. 1 is a sectional elevation of the machine partly in section,

Fig. 2 is a top plan view of Fig. 1, the casing enclosing the blades and the gear box being shown in section, and

Fig. 3 is a sectional elevation taken on the line 3—3 of Fig. 1.

In the construction shown in the figures the machine comprises a pair of rotary shafts *a* suitably supported in the end walls of a gear box *b* and adapted to be rotated in the same direction by means of gear wheels *c* and *d* mounted in the said gear box *b*, one of the gear wheels *c* being driven by an electric motor *f*. To the shafts *a* weighted disks *g* are secured which are located within a casing *e*, and each of the said shafts carries two blades *h*, and the distance between the shafts *a* is smaller than the sum of the lengths of the blades *h* taken from the axes of the shafts *a* to the ends of the blades, so that the paths of the blades partly coincide, as has been shown in Fig. 3 in broken lines. The blades *h* rotate in the same plane and they are disposed so that they do not interfere with each other when they rotate. In the construction shown in the figures

in which each disk *g* carries two blades *h* the blades of the said shafts *a* are displaced with relation to each other at an angle of 90°. As shown, the blades *h* of each disk *g* are provided by a single member embedded in a groove *i* made in the disk *g* and secured thereto by means of screws *j*. The disks *g* are comparatively heavy so that they have a function similar to fly wheels.

Laterally of the casing *e* and the blades *h* means for conveying a skein *s* of material to the blades are provided, and, as shown, the said means consist of upper and lower series of rollers *n* and sprocket wheels *k* on which endless chains *m* are trained. The said chains and sprocket wheels and guide rollers *n* are driven from a motor *o* through the intermediary of gear wheels *p* and a shaft *q*. The said rollers and sprocket wheels are mounted so as to be movable in vertical direction, so as to adapt themselves to skeins of different thicknesses.

To the bottom part of the casing *g* a shoot *r* is connected.

The operation of the machine is as follows:

The disks *g* carrying the blades *h* are rapidly rotated in the direction of the arrows *x* shown in Fig. 3 from the electric motor *f* through the intermediary the gear wheels *d* and *c*, *c*. The material to be reduced is supplied in the form of a skein *s* by means of the rollers *k* into the paths of the blades *h*, and it is held by the rollers *k* while the blades act thereon. The reduced material is delivered through the shoot *r*.

By means of my improved machine, which is provided with blades *h*, I am enabled to reduce material which is coherent in a form similar to skeins, such as boards of wood, waste leather, rubber hoses, etc. The said material is conveyed to the blades and held by the conveying device while the blades act thereon, so that the blades are able to break up the structure of the material and to reduce the same. This result is attained by the said arms *h* being in the form of blades which move during the reducing action in opposition to each other and thus alternately act on the material from opposite sides. By the said alternating blows exerted by the blades on the material from opposite sides and in rapid succession, the material is completely reduced, because, by being held in position by the conveying device, it is not able to yield to the blades.

In machines in which the blades move in opposite directions, frequently an energetic movement of the air is caused by the rotary blades. In my improved machine, in which the blades rotate in the same direction no such circular movement of the air is produced.

LUDWIG PALLMANN.