J. STACHOWSKI.

SHREDDING MACHINE.

APPLICATION FILED DEC. 18, 1917.

1,319,496.

Patented Oct. 21, 1919.

3 SHEETS—SHEET 1.

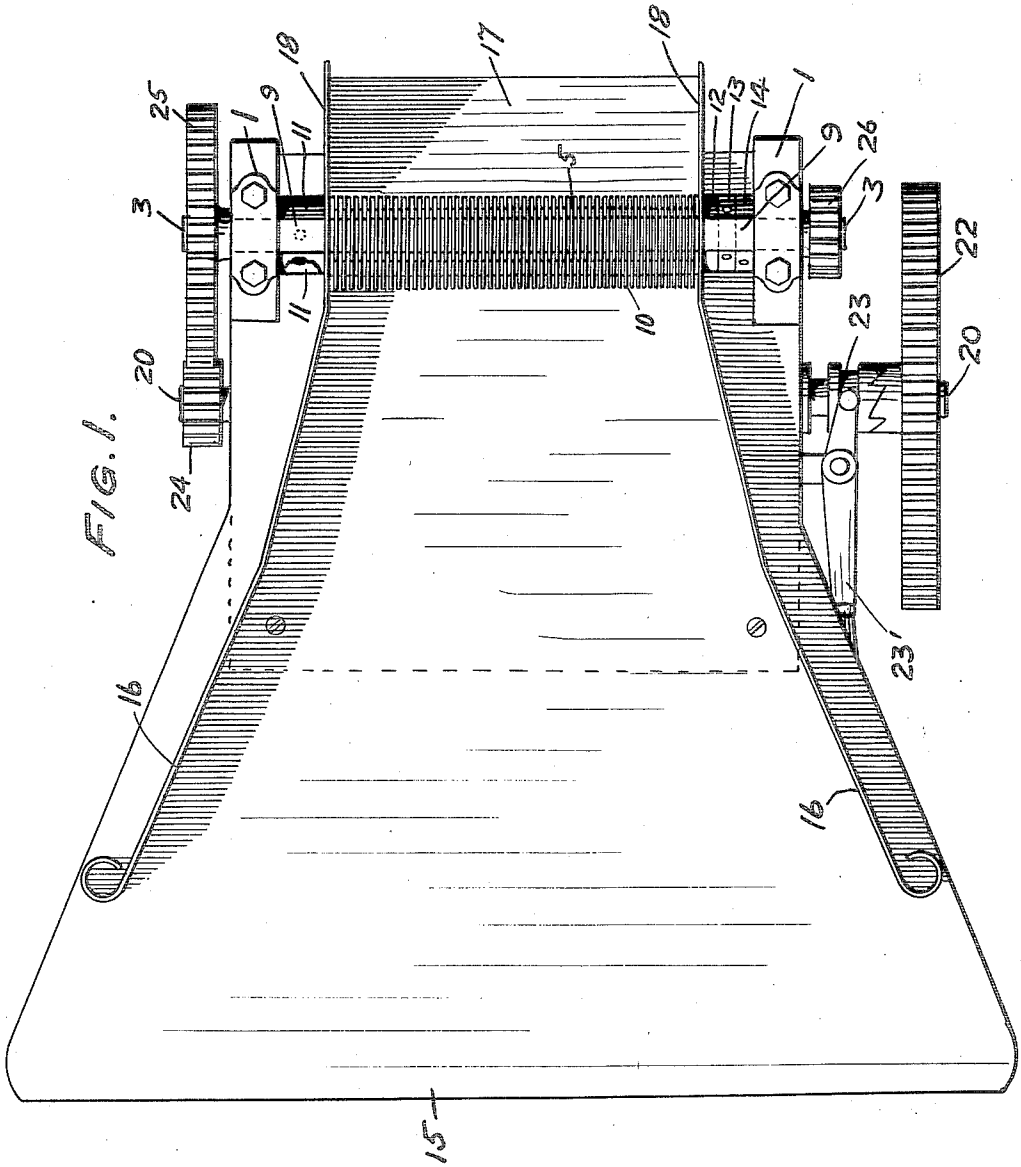


FIG. 1.

WITNESS:

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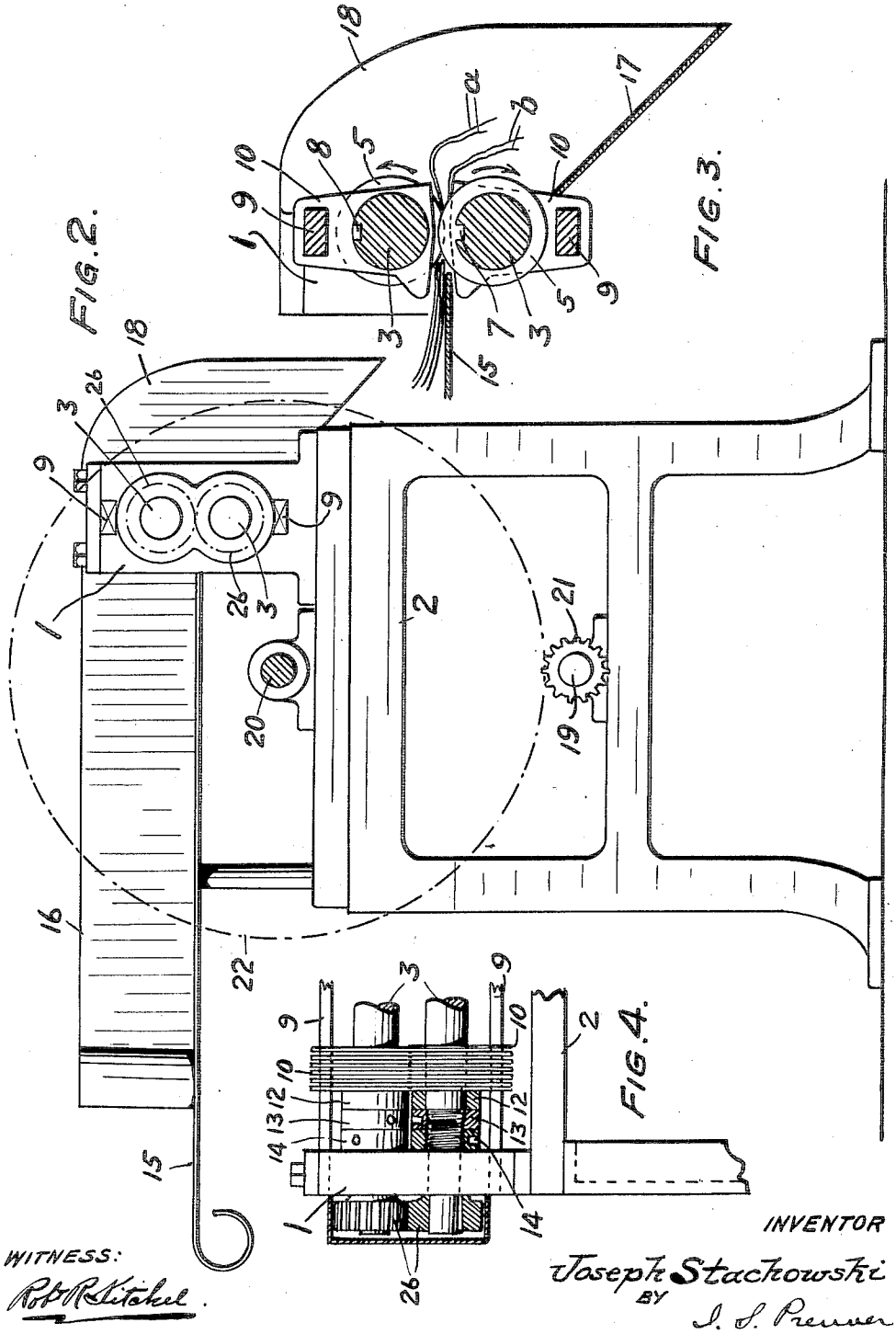
SHREDDING MACHINE.

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3 SHEETS—SHEET 2.



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SHREDDING MACHINE.

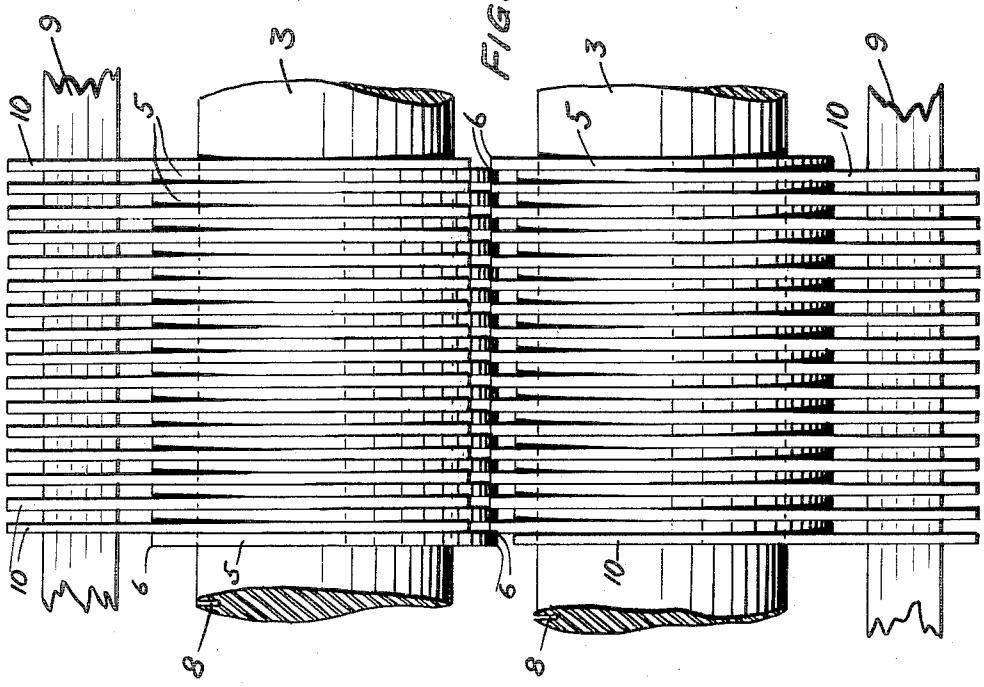
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3 SHEETS—SHEET 3.

FIG. 7.



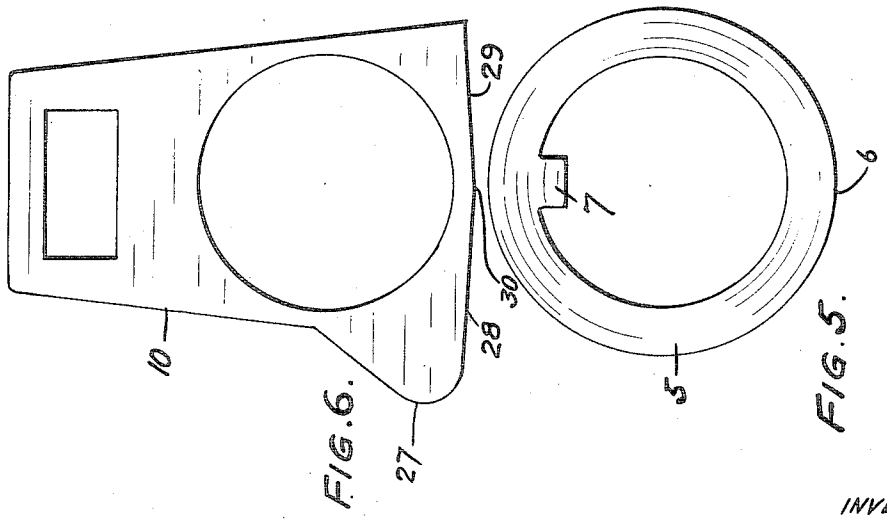


FIG. 6.

FIG. 5.

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UNITED STATES PATENT OFFICE.

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SHREDDING-MACHINE.

1,319,496. Specification of Letters Patent. Patented Oct. 21, 1919.

Application filed December 18, 1917. Serial No. 207,663.

To all whom it may concern:

Be it known that I, JOSEPH STACHOWSKI, a citizen of Germany, and a resident of New York, in the county of Manhattan and State of New York, have invented certain new and useful Improvements in Shredding-Machines, of which the following is a specification.

This invention relates to shredding machines and particularly such as are adapted to cut waste paper into narrow strips capable for use as a substitute for excelsior.

The object of my invention is a waste paper shredding machine comprising a pair of parallel shafts rotating in opposite directions, each shaft provided with an alternating series of rotating cutters and non-rotating strippers, the cutters of one shaft intermeshing with those of the other, each alternating series of cutters and strippers being adjustable longitudinally of the shaft.

A further object of this invention is to provide a waste paper shredding machine with strippers adapted, first—to prevent an excess of material from being fed to the cutters, second—to guide the material over the cutters while being shredded, third—to separate the shredded material into single thicknesses, fourth—to prevent the shredded material from winding about the cutters.

A still further object of this invention is to provide a waste paper shredding machine with a chute for discharging the shredded material in a direction away from the rotating parts of the machine.

With the above and related objects in view, this invention comprises the construction, combination and arrangements of parts and the material thereof hereinafter more fully described, an embodiment whereof is illustrated in the accompanying drawing, and is embraced within the scope of the appended claims.

In the said drawing:—Figure 1 is a plan view of the machine; Fig. 2 is a side elevation thereof; Fig. 3 is a fragmentary central section thereof; Fig. 4 is a fragmentary plan view partly in section; Fig. 5 is a detail view of a cutter; Fig. 6 is a detail view of a stripper, and Fig. 7 is an enlarged view of a central portion of the machine.

Referring more particularly to the drawings for a detail description of my invention:—1 represents a pair of standards mounted on a frame 2. Each standard is provided with a pair of horizontal bearings adapted to support a pair of shafts 3, one above the other and at a fixed distance apart. 5 represents a disk provided with cutting edges 6 and with a tongue 7. Each shaft is provided with a keyway 8 for the tongues of the cutting disks 5. 9 represents a pair of plain faced bars, supported by the standards 1 above and below the pair of shafts 3. 10 represents a stripper provided with a circumferential hole for mounting it on the shafts 3 and with a plain faced hole for mounting it on the bars 9. Each of the shafts 3 is provided with collars 11, 12, 13, and 14. The collars 13 are provided with inner threads in mesh with the threaded portions of the shafts 3.

15 represents a table in front of the shafts 3, said table being provided with sides 16. 17 represents a chute provided with wings 18. 19 represents a power shaft. 20 represents a driven shaft. 21 represents a gear fixedly mounted on the power shaft in mesh with a gear 22 loosely mounted on the driven shaft. 23 represents a clutch for coupling the gear 22 with the shaft 20, and 23′ represents a lever for operating the clutch. 24 represents a gear fixedly mounted on the shaft 20 in mesh with a gear 25 similarly mounted on one of the shafts 3. 26 represents a pair of gears mounted on the shafts 3 adapted to drive said shafts in opposite directions as indicated by the arrows shown in Fig. 3.

In assembling the machine, the collars 11 are mounted on the shafts 3 in alinement and locked by means of set screws, as shown in Fig. 1. The cutters and strippers are then mounted alternately upon the shafts, throughout their lengths included between the wings 18 of the chute. The collars 12, 13, and 14 are then slipped on, and the collars 13 are turned until the cutting edges of the opposite cutters are in proper mesh. The collars 14 are then locked by means of set screws or bolts, as shown in Fig. 4.

The operation is as follows:—The material to be shredded is fed over the table 15, between its sides 16, in the direction of rotation of the cutters. The frontwardly projecting noses 27 of the strippers assure of the smooth movement of the material in the direction of the cutting edges, between the oppositely inclined surfaces 28 of the oppositely mounted strippers which prevent

any excess of material from reaching the cutting edges. The ridges 30 of the strippers are adapted to hold down the material to assure of its being shredded by the cutting edges, and as the shredded layers are fed rearwardly, they are separated by the surfaces 29 of the strippers and held from turning in the direction of the cutters, to be finally discharged into the chute, the wings 18 being adapted to prevent the spreading of the shredded material sidewise, to protect the revolving parts of the machine from getting clogged.

As the machine is primarily intended for shredding waste paper, which is apt to be dry and subject to become charged with static electricity while being shredded, the strippers are made of non-magnetic material, such as copper, to attract the charged layers in opposite directions, and to discharge to the ground.

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

1. In a shredding machine, the combination of a pair of oppositely rotating shafts, an alternate series of cutters and strippers mounted in facial contact on each shaft, the cutters of one shaft intermeshing with those of the other shaft, the cutters being mounted to rotate with their respective shafts, means for holding the strippers stationary, and means for moving the cutters and strippers longitudinally of their respective shafts.

2. In a shredding machine, the combination of a pair of parallel shafts, an alternate series of cutters and strippers forming a compact cutter head and mounted on each shaft, the cutters of one shaft intermeshing with those of the other shaft, the cutters being mounted to rotate with their respective shafts, means for preventing the strippers from rotating, and means for adjusting the cutters and strippers longitudinally.

3. In a shredding machine, the combination of a pair of parallel shafts, an alternate series of rotating cutters and stationary strippers forming a compact cutter head and mounted on each shaft, the cutters of one shaft intermeshing with those of the other, the strippers of each shaft having projections opposite the cutters of the opposite shaft.

4. In a shredding machine, the combination of a pair of parallel shafts, an alternate series of cutters and strippers forming a compact cutter head and mounted on each shaft, the cutters of one shaft intermeshing with those of the other, each stripper being held stationary and having a rounded-off projection frontwardly of the cutters and a sharp-edged projection rearwardly of the cutters, the strippers of one shaft being in alinement with the cutters of the opposite shaft.

5. In a shredding machine, the combination of a pair of parallel shafts, an alternate series of rotating cutters and stationary strippers forming a compact cutter head and mounted on each shaft, the strippers being provided with projections frontwardly and rearwardly of the cutters, the distance between the frontward projections of the opposite strippers being greater than that between the rearward projections.

6. In a shredding machine, the combination of a pair of oppositely rotating shafts, a series of cutters carried by each shaft, the cutters of one shaft intermeshing with those of the other, strippers mounted on said shafts and filling the longitudinal space between cutters, the strippers of one shaft being opposite the cutters of the other shaft, means for preventing the strippers from rotating, and means for moving the cutters and strippers longitudinally of the shafts.

7. In a shredding machine, the combination of a pair of oppositely rotating shafts, a series of cutters carried by each shaft, the cutters of one shaft intermeshing with those of the other, strippers of non-magnetic material mounted on the shafts and filling the longitudinal space between the cutters, means for preventing the strippers from rotating with the cutters, and means for moving the strippers and cutters longitudinaly of the shafts.

8. In a shredding machine, oppositely rotating cutter heads solidly built up of alternate rotating disks and stationary plates in facial contact with each other, the disks projecting beyond the plates and intermeshing between the two heads to act as cutters, and the plates projecting beyond the disks to act as strippers.

9. In a shredding machine, oppositely rotating cutter heads solidly built up of alternate rotating disks and stationary plates in facial contact with each other, the disks projecting beyond the plates and intermeshing between the two heads to act as cutters, the plates projecting beyond the disks to act as strippers, and means to adjust the disks and plates longitudinally.

10. In a shredding machine, a cutter head consisting of the combination of rotating cutters and stationary strippers arranged alternately in facial contact and strung on the cutting shaft of the machine.

11. In a shredding machine, a rotating shaft, a series of rotating cutters on said shaft, a stripper orificed to be mounted on said shaft between each pair of cutters, and means for holding the strippers from rotation.

JOSEPH STACHOWSKI.